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READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, *X* Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

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Notes on Military Orthopaedics.

V. TRANSPLANTATION OF BONE, AND SOME USES OF THE BONE GRAFT.

BY

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INJURIES inflicted by modern instruments of warfare are so often associated with loss of considerable portions of bone that it is necessary to bring together various known means of replacing these defects. The present paper aims at giving a brief account of my experience of the grafting of bone.

Clinical experience in recent years justifies the expectation that a bone graft will grow and fulfil the purpose desired by the surgeon if the operative technique is appropriate and scrupulous attention is paid to asepsis. Before dealing with the practical difficulties to be encountered, brief reference must be made to various theories which have been advanced concerning the growth of transplanted bone.

Three of the theories may be mentioned:

One which has been widely held in Europe is that, when a bone graft is transplanted, the grafted bone always dies and is absorbed, and that any new bone formed in its place is laid down by the periosteum, which is the only part of the graft which really survives.

The second is the well known view of Macewen that the new bone is formed by the proliferation of osteoblasts within the bone itself, and is quite independent of the periosteum, which is only a limiting membrane.

The third theory is that the graft is not osteogenetic, but merely acts as a suitable and appropriate scaffolding along and through which new capillaries and granulation tissue can grow, taking with them osteogenetic cells from the living bone ends, between which the graft is placed.

Recent investigations definitely prove that bone transplanted even into the abdominal wall may grow, and that this may happen whether periosteum alone or bone alone is transplanted.

McWilliams, of New York, whose investigations are thorough, concludes that the survival of the graft depends on the establishment of an efficient blood supply, and that the blood supply is more quickly and efficiently established when periosteum is transplanted with the grafted bone.

I advise that, whenever possible, it is best to transplant periosteum with the bone, and further, to be sure that the graft should also contain part of the endosteum.

Every surgeon knows that in simple comminuted fractures portions of bone must often be entirely, or almost entirely, cut off from their usual blood supply, but that necrosis of these fragments is extremely rare, while in the presence of toxins of bacteria, as in septic compound fractures, more or less necrosis is very prone to occur even in portions of bone still connected with their blood supply.

It is therefore safe to conclude that whether the osteogenetic cells are derived from periosteum or from bone, scrupulous asepsis is essential to their welfare; that if they are not poisoned by septic toxins they can survive on exuded lymph or plasma for a reasonable period while a new blood supply is being established; and further, that the open cancellous medullary aspect of the bone and the periosteum both furnish convenient means of access for the new blood supply, and should be retained in the graft whenever it is possible.

It is important to remember certain further facts, which are established beyond doubt. First, that bone taken from one of the lower animals and grafted into man very rarely lives, even with the most careful technique. Secondly, that bone transplanted from one individual to another only lives in exceptional cases. These, therefore, are methods which cannot be recommended. Finally, it is established that autogenous transplantation of a portion of the patient's own bone from one portion of the body to another is fairly constantly successful if the conditions are suitable and the technique correct. The nature of the technique and the conditions found suitable will appear in the subsequent parts of this paper.

Professor Tuffier's experiences in relation to the transplantation of ovaries are interesting and instructive. He found that when ovaries were removed, it was possible to retain the internal secretory influence of the ovary by implanting a healthy portion of one ovary in the abdominal wall. If the patient's own ovary was employed it almost invariably survived and became tender at each subsequent monthly period. In cases in which no part of the patient's ovaries could be used, he tried borrowing an ovary from another woman on whom ovariotomy had to be performed. In every case this transplantation from one individual to another failed.

There are other facts which should be kept in mind when repairing bony defects. For example, if a bridge of periosteum can be preserved, osteogenesis, or new bone formation, is much more likely to occur, and the gap will be filled with greater rapidity than when no bridge is possible. Stiles's cases of subperiosteal resection for tubercle are evidence of this.

Since the survival of implanted bone is dependent on the establishment of circulation within it, it follows that necrosis is less likely to occur in small fragments than in large pieces, when the periosteum cannot be preserved. It is therefore a good practice to scatter small fragments of bone along the site of the defect, for the cells in them can live for some time on exuded plasma; the new blood supply will reach them in a few days.

GENERAL CONSIDERATIONS AS TO TRANSPLANTATION OF BONE.

In performing transplantation of bone to replace a defect in the continuity of a long bone the surgeon has to keep certain points in view, and in all must follow Nature's rules.

1. *Nutrition of the Graft.*

In order to ensure the nutrition of the graft it is essential to observe the following points:

(*a*) *Perfect haemostasis* in the bed in which the graft is to be laid. A mass of blood clot round the graft endangers its life, for this blood clot must first be "organized" before the new capillaries or granulations can reach or grow into the bone graft to supply it with blood.

(*b*) *Perfect asepsis*, for toxins, if virulent, will almost certainly cause the death of the bone cells in the graft before a protective vascularization can occur.

(*c*) *Preparation of the bed* in which the graft is to lie. It should be freshened, so that rapid adhesion and organization may take place between the graft and surrounding tissue. Moreover, the soft tissues should be brought round the implanted bone.

2. Union of the Graft.

The union of the graft with the ends of the bones between which it is placed can be helped in a number of ways. The ends of the bone should be opened up and prepared for the reception of the ends of the graft. It is desirable that some part of the graft should be in contact with the vascular medullary cavity. Sometimes it is possible to push the graft straight into the open medullary cavity (Fig. 1). As a rule I avoid the use of plates and screws, as they tend to delay union. Various methods of fixing grafts will be mentioned later.

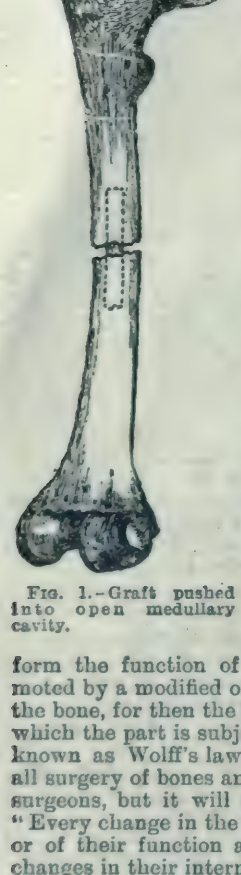


FIG. 1.—Graft pushed into open medullary cavity.

Perfect immobilization is an important factor in securing early vascularization and union. It is quite true that a certain amount of mobility at the seat of a fracture increases the output of callus, but this is of a vicious and really useless type. It is produced merely by osteogenesis occurring in the increased exudate caused by tearing and injuring the granulation tissue which is being produced to unite the fragments of bone. It is much more reasonable to keep the part immobile until union is firm and has begun to ossify; then the next stage mentioned below comes into play to strengthen the union.

3. The Growth of the Graft.

The growth and development of the graft so that it can perform the function of the bone it replaces is best promoted by a modified or guarded exercise of the function of the bone, for then the bone cells respond to the stresses to which the part is subjected, and build according. This is known as Wolff's law, which is an essential foundation of all surgery of bones and joints. This law is familiar to all surgeons, but it will not be out of place to quote it here: "Every change in the formation and function of the bones, or of their function alone, is followed by certain definite changes in their internal architecture, and equally definite secondary alterations of their external conformation in accordance with mathematical laws." It follows from this that when the graft and the bone have begun to unite firmly the union will become stronger if a certain amount of functional use is allowed, provided it is not violent enough to tear up or break the union. Thus in a graft in the leg or in the forearm the patient is encouraged to move the toes or fingers while the part is still in splints, so that the slight traction of the muscles on their origins round the site of the graft may produce a physiological stimulus to increased growth.

In the next stage the splints adapted must allow more active use, while at the same time guarding against strain which might cause a "fracture" at the seat of the graft. Thus in the case of the lower limb an ambulatory splint is allowed while the part is still firmly controlled by local splints.

THE USES OF BONE GRAFTS IN MILITARY SURGERY.

1. To Replace Bone Destroyed by Infective Processes, such as Acute Osteomyelitis.

As an instance of bone grafting after osteomyelitis and of the extraordinary vitality of the transplant, I would relate the following facts: Several years ago I was consulted in the case of a youth (A. B.) with advanced osteomyelitis of the tibia. I cut down along the whole length of the site of the tibia, and found that the shaft had completely disappeared, and the periosteum also. When I had scraped away all putrid material, there remained little except the epiphyses and exposed muscles. A long sinus probe was fixed lengthwise between the epiphyses in order to maintain the distance between them, and the wound was allowed to granulate. Several months after the wound had healed and the probe had been removed I transplanted a long strip of tibia from the sound limb. This rapidly grew in thickness. The was discharged from hospital, and gradually discar supports. Seven months later he was knocked do day, receiving a blow on the leg which broke the tra and J possess interesting radiographs of the callus

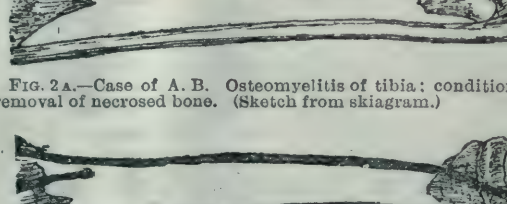


FIG. 2A.—Case of A. B. Osteomyelitis of tibia: conditio removal of necrosed bone. (Sketch from skiagram.)



FIG. 2B.—Case of A. B. Probe to hold end of tibia apart healing of wound. (Sketch from skiagram.)

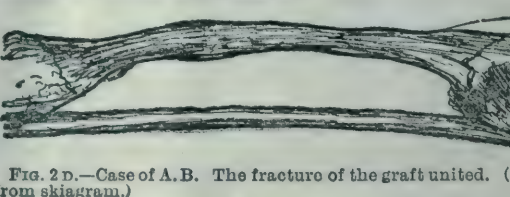


FIG. 2C.—Case of A. B. Fracture of graft; marked exudation. (Sketch from skiagram.)

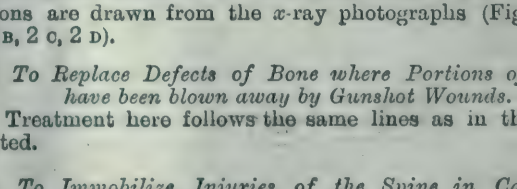


FIG. 2D.—Case of A. B. The fracture of the graft united. (from skiagram.)

tion and firm union at the site of fracture. This ca a great encouragement to me, for the transplant w in an environment of firm cicatricial tissue. The i tions are drawn from the *x*-ray photographs (Fig 2 B, 2 C, 2 D).

2. To Replace Defects of Bone where Portions o have been blown away by Gunshot Wounds.

Treatment here follows the same lines as in th cited.

3. To Immobilize Injuries of the Spine in C Tuberculous Arthritis, or Injuries which lead Development of Kyphosis.

In the present war there have been many injuries spine which have been followed by the rapid devel of a kyphos, sometimes due to traumatic osteo-ar sometimes to tuberculous changes following the c injury. In either case the treatment requires pro rest, during which the patient is fixed in recum The period of recumbency can be very materially r by a judicious operation.

4. As a Substitute for Plates and Screws.

Bone grafting can be used as a substitute for plat screws in the treatment of certain types of fractur to assist in securing union in cases of ununited fract

TECHNIQUE OF BONE GRAFTING.

Pieces of bone for grafts may be taken from almo bone in the body, but for most purposes the tibia most convenient quarry in which to delve, for f pieces of bone can easily be cut of any length or ness likely to be needed. When a curved piece of b required, as in surgery of the jaw, a portion of s shape may be found in one of the ribs. I have em the shaft of the first metatarsal to replace a defect ulna. The periosteum is left behind, the required of the shaft with the whole of the endosteum being planted. The shaft of the metatarsal bone is r regenerated. The tibia, however, is the bone of cho periosteum can be transplanted with the bone.

Operation.

The first stage of the operation is to prepare the bed for the graft, freshening the bone ends. A pliable probe is then laid in the defect and bent to the exact length of the graft required. The wound is packed with gauze to stop bleeding and covered with a sterile towel while the surgeon removes the graft from the selected area.

If the tibia is chosen, an incision of suitable length is made along the outer side of the anterior border of the tibia and the tibialis anticus is partially separated from its insertion. The bent probe is then laid on the bone, and the exact length of the graft required is marked off. The periosteum is then incised on the outer and inner surfaces of the bone, completely mapping out the portion to be removed.

The removal of the graft is greatly expedited by the use of a double circular saw (Fig. 3) electrically driven. Great care must be taken to ensure that any part of the apparatus with which the surgeon or his assistant may come in contact is scrupulously sterilized.

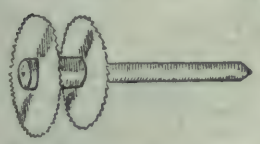


FIG. 3.—Double circular saw for cutting bone grafts.

If an electric motor is not available a good hand motor may be used. Failing both, the graft may be cut out with drill and chisel, but this is a slower process, and requires some care to avoid splintering the graft or splitting the tibia. The method of procedure is to drill a series of holes along the line of the incision in the periosteum, and then connect these with the chisel. The drill holes should be made into the medullary canal, so as to ensure having some of the medullary aspects of the bone in the graft (Fig. 4.)



FIG. 4.—Sliding graft marked out by drill holes preparatory to cutting out with chisel.

The transplantation should be made immediately; the graft should be picked up with forceps and not touched even with the gloved fingers. It is laid directly into the prepared bed, in which all bleeding has stopped by this time. I am convinced that it is a mistake to wash the graft in saline lotion or leave it in saline while something else is being done. The best results follow immediate closure of the deep tissues round it and suture of the surface wound. The limb must then be securely controlled in correct position either by splints or by a plaster-of-Paris case.

SPINAL FIXATION.

Two operations are generally described for spinal fixation—*Albee's* and *Hibb's*. The details of the operations ought to be pretty well known, as they have been before the profession for several years.



FIG. 5.—Bone transplanted into cleft made in spinous processes (Albee's method).

Albee's Operation.

This operation consists in transplanting a slip of the tibia into a series of spines of vertebrae, bridging the weak spot in the vertebral column (Fig. 5).

The surgeon should begin by preparing the site for the graft. Each spine, including two above and two below the weak or diseased vertebra or vertebrae, is split and broken outwards (Fig. 6), the junction of spine and lamella being also roughened. The bed is packed with gauze to stop bleeding.

The graft from the tibia is then cut with the circular saw, or chisel and drill. The front of the tibia is reached by securing the heel against the buttock with the knee in acute flexion. This enables the surgeon to cut the graft without turning the patient over. The whole operation can thus be performed quietly and expeditiously.

The graft is then transferred and implanted while an assistant stitches the wound in the leg.

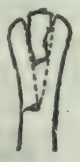


FIG. 6.—Diagram of split spinous process with graft inserted in cleft.

No difficulty has been experienced in nursing these cases on their backs in a Thomas's frame. This is applied most easily after these operations by laying the frame face downwards over the patient and turning the patient and splint together with the aid of a sheet, thus avoiding any strain upon the implant.

Hibb's Operation.

In this operation bony fixation of the spines is obtained without transplanting bone from the tibia. The spines are split, the upper and lower margins are broken away towards the adjacent spine, so that the fragments split away from one spine interlock with those split from the next. The laminae can also be ankylosed. Superfluous chips of bone are sprinkled along the site of the operation, so that a line of callus is formed locking all the spines together. I often prefer to lay the graft upon the laminae rather than between the spinous processes. A very suitable bed can be prepared there upon which the transplanted bone easily lies (Fig. 7).



FIG. 7.—Bone graft laid upon the laminae.

These operations are particularly useful in cases in which the vertebrae affected are in the lower dorsal or lumbar regions, for it is difficult to control these areas completely in a support or jacket in which the patient can go about. The alternative is prolonged recumbency fixed in a splint or Thomas's frame. The result of one or other of these operations is that a patient who in former days would have been kept fixed in recumbency for a year or more can be allowed up in a light spinal support in three months, and can go about his ordinary business as soon as he can walk comfortably, for with this osseous bond between the vertebrae there is practically no fear of kyphotic deformity occurring.

TECHNIQUE OF BONE GRAFTING FOR FRACTURES AND DEFECTS IN CONTINUITY.

The technique of bone grafting for fractures and for the replacing of defects in continuity of long bones, either from loss of bone or from non-union, follows very similar lines.

My views on the use of plates and screws in the immediate treatment of fractures have been stated before, and need not be repeated at length. In most parts of the limbs good alignment and good functional results can be obtained by simple reduction and setting in appropriate splints, and therefore the routine use of plates seems superfluous. The art of setting fractures is deserving of more study than has been given to it by many members of our profession in recent years. In the long bones correct alignment of the limbs, and therefore of the lines of action of muscles and joints, is more important than faultless apposition of the ends of the fractured bone.

Excellent as plates and screws are in certain emergencies, experienced surgeons know that they produce actual delay in true and efficient osseous union of the fracture.

In any case a metallic plate is a foreign body, and the

inevitable tendency of the tissues is to encapsule or encyst the foreign body, while transplanted bone can be built into the structure of the part, and therefore assists osteogenesis.

Bone Grafting for Recent Fracture.

In my experience, spiral fracture of both bones of the leg, especially in the lower third, is the only fracture in the limbs which regularly presents almost insuperable difficulties to satisfactory reduction and setting by non-operative means. The difficulty is not in reducing the fracture, but in persuading the fragments to stay in correct alignment. The cause lies in the great tendency of the foot and lower fragment to rotate, and then the fragments overrid-

The Sliding Inlay Method (Albee).

In this fracture the sliding inlay of bone, described in a previous article (British Medical Journal, 1916, vol. i, p. 810), is a very fascinating and simple way of locking the two fragments so that they do not easily disengage when they undergo slight rotatory movements. All that is required is the parallel circular saw shown in Fig. 3.

The fracture is reduced and held or clamped in position while the cuts are made as in the diagram (Fig. 8, A and B). The shorter piece is lifted out and then the longer piece with the medulla is slipped down to lock the two fragments of the broken bone. The smaller fragment is then laid into the gap above the longer fragment which has been slid down. Muscles, periosteum, or any other of the deep tissue belonging to the part are stitched over the graft, the wound is closed and the fracture put up in sheet-iron splints or plaster, taking care that no displacement occurs. In a few days organization has occurred sufficient to prevent any further danger of displacement unless there is carelessness or some unusual disturbance of the part.



A B

Fig. 8.—A, Inlay slide before being placed in position. B, Inlay graft placed in position.

It is seldom necessary to peg or screw the fragments, and the introduction of a foreign body is to be avoided.

This spiral fracture of the tibia in the lower third of the leg is practically the only ordinary fracture for which, in my opinion, operation should be considered at once as an immediate procedure, and then fixation by bone to prevent rotation is preferable to plating if it can be done. Failing facilities for a proper fixation by bone, plating comes next.

Neither plating nor bony fixation seems necessary in any other ordinary fracture of the limbs. In the case of unusual fractures exceptions occur. Further, each surgeon must, of course, use his own judgement in every case that comes under his notice, and employ those methods which he best understands and in which he feels most confidence. These will differ according to the surgeon's training. My contention is, however, that a surgeon skilled in the use of splints can get good results so generally that operation is rarely needed.

Ununited Fractures.

It may be admitted that in dealing with ununited fractures when firm fixation is required, plates and screws afford a most secure and rapid means of fixing the fragments. This method requires less surgical skill than when bone grafts are used, both in the operative procedure and the after-treatment. There is, however, always the point to be considered that in these cases the patient has already shown defective osteogenetic power at the seat of fracture, and the plate is, after all, a foreign body, which will be likely to impede osteogenesis, while a bone graft is a direct assistance to osteogenesis.

Method of Dealing with Ununited Fracture.

For many years I used to cut down on the ununited fracture, crush and drill the ends of the bones to open up new routes for fresh blood vessels, and turn a strip of periosteum off one fragment down to the other.

At a later period I employed in addition animal b a graft, with results which were not very encour The use of a strip of the fractured bone as a

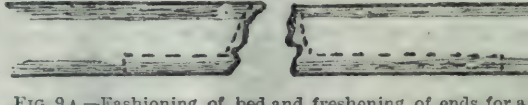


Fig. 9 A.—Fashioning of bed and freshening of ends for a graft in an ununited fracture.

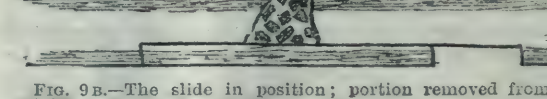


Fig. 9 B.—The slide in position; portion removed from distributed between ends of bone.

between the two fragments was followed by much results. (Figs. 9 A and 9 B.)

It is assumed in the methods now to be described autogenous grafts are always used. The three me of employing a graft have been referred to in a previous article.

1. *The Lateral Graft.*

This consists of laying a strip of bone along the side of the bone to be repaired, taking care to make a fresh bed for the graft along its whole length, so that raw bone is in contact with raw bone (Fig. 10).

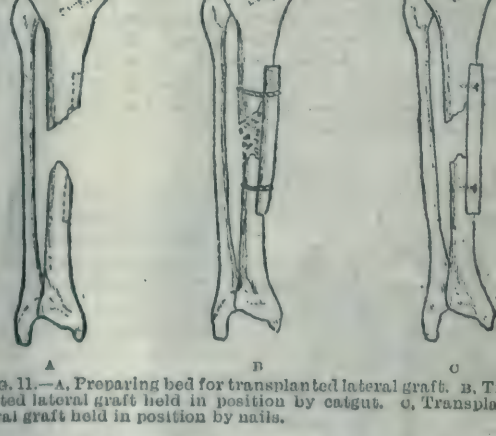
It is the simplest method, and often the only one which can be used—for example, when the ends of the broken bone are tapering and wasted (Fig. 11, A, B, C).



Fig. 10.—L graft.

2. *The Intramedullary Plug* (Fig. 1).

This can only be employed when a good open medullary canal is available and the transplanted bone can be inserted into the medulla above and below the fracture. is often difficult. It is advisable, when possib



A B C

Fig. 11.—A, Preparing bed for transplanted lateral graft. B, T planted lateral graft held in position by catgut. C, Transpla lateral graft held in position by nails.

use it in combination with the sliding or the l grafts.

3. *The Sliding Inlay.*

The inlay method described above can be emp when bridging a gap; the bits of bone cut from the

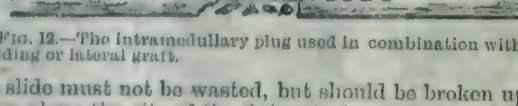


Fig. 12.—The intramedullary plug used in combination with sliding or lateral graft.

the slide must not be wasted, but should be broken u sown along the site of the defect to form additional f osteogenesis.

A combination of the sliding inlay (Figs. 9 A and 9 B medullary plug is a strong and satisfactory method available (Fig. 12).

CONCLUSION.

Recapitulating in brief, it may be said that, whatever particular theory of osteogenesis may be the true one, the following points have proved valuable in practice:

The area of the graft must be kept scrupulously aseptic, and free from unnecessary blood clot. Adequate blood supply is necessary to the growth of the graft.

The graft must be placed in close apposition to raw surfaces of the bone with which it is to unite.

The whole region must be kept fixed for a long period for undisturbed organization to take place.

The bone graft should be autogenous, and it is better that it should include both periosteum and medulla wherever this is possible, for both these aspects of the bone afford facilities for the growth of new blood vessels.

Surgeons should have patience, for union is often delayed, and hasty conclusions that union is not going to take place, and consequent relaxation of strict fixation of the part, may convert a case of delayed union into one of non-union.

After any of these procedures it is essential to fix the limb absolutely to let new vessels grow undisturbed by chance movements, for the idea of the operation is that all the transplanted bits of bone shall become vascularized.

As a general rule, the limb should be kept fixed and undisturbed for at least twice the time necessary for union of the same bone in an ordinary simple fracture.

I often see cases which have been operated on, often plated, by some other surgeon, in which splints have been removed at the end of a few weeks, and the case has been regarded as a failure because union has not taken place.

There is no definite time within which a fracture will unite. The times given in textbooks are understated as applied to the majority of cases. For example, I may quote the case of a patient, seen in 1908, with an ununited fracture of the humerus of twelve months' duration, which was treated by the "hammer and dam" method, but had to be kept still for nearly six months before the bones united. The ultimate union was absolutely satisfactory. Operative procedures had previously failed. This question of the consolidation of fractures has been discussed in a previous paper. The wounds received in this war have brought the surgery of septic bones very much into the foreground, and bone grafting will have to be very extensively practised. We must be careful to allow a sufficient time to elapse before proceeding to this operation. It is difficult to formulate an exact rule as to when the operation should be performed, for we seem never to be quite free from the danger of recrudescent sepsis. My habit is to wait for at least six months after a sinus is closed, during which time and for a variable period afterwards efforts can be made to improve the general nutrition of the limb. It frequently happens that during this delay union of the fragments takes place, and no transplantation is needed. Early operation is to be discouraged from every point of view, and failure to observe this fact has resulted in many a tragedy. It is very exceptional, unless there has been a great loss of bone, for non-union to persist in fractures which are the seat of the type of suppuration met with at this time.

SIR ALEXANDER RUSSELL SIMPSON, M.D., of Edinburgh, left £12,332.

SUTTON, of Kansas City, relates in the *Journal of the American Medical Association*, January 15th, the case of a girl of 18, a stenographer, intelligent, mentally alert, and with no stigmata of degeneration, who acquired a habit of twisting the eyelashes and the hair of the eyebrows and scalp, and breaking them off short with the edge of the thumb and forefinger a little above the surface of the skin. She did not pluck out the hairs as in "trichotillomania" or *tic de l'épilation*. The result was the appearance of bald patches on the scalp with short stumps of healthy hair, whilst the hairs around were perfectly normal. The baldness was noted by the patient's friends when she was sixteen. When worried or idle she would gaze into space for hours at a time and twist and snap her hair, throwing away one hair after another, but it was only when under treatment that she admitted that the baldness was artificial. When a child she sucked her fingers and bit her nails. Under a course of psychotherapy the patient's condition greatly improved within a few weeks.

ON THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

BY F. H. STEWART, M.A., D.SC.ST.AND., M.B.EDIN.,
CAPTAIN I.M.S.

Preliminary Note.

The development of *Ascaris lumbricoides* is at present almost universally considered to be direct. It is well known that the eggs passed in the faeces of man undergo development in the outer world up to the formation of a motile vermiform embryo. The egg containing this embryo may readily reach the alimentary canal of man, and it is supposed that it there hatches, and that the larva, having escaped, develops in this site into the adult. This theory is based on the work of Davaine,[1] Grassi,[5] Calandruccio,[6] Lutz,[7] Epstein,[8] Jammes and Martin,[10] Martin,[11] and Wharton.[12] I have not at present access to the works of these authors in the original with the exception of the articles of Jammes and Martin and of Wharton. Summaries sufficient for the present purpose are, however, available in the textbooks of Leukart[4] as regards Davaine, of Railliet,[13] Manson,[14] Clifford Allbutt,[15] and Castellani,[16] as regards the later writers.

Davaine administered ripe eggs to rats, and found that after twelve hours free live larvae were to be found in the lower part of the small intestine. He also introduced ripe and unripe eggs in glass capsules closed with linen into the alimentary canal of the dog and found that after the lapse of a certain period the ripe eggs had disappeared, whereas the unripe eggs remained. He concluded that hatching and development occurred in the alimentary canal of the definitive host.

Grassi administered ripe eggs to himself, and two months later found eggs in his stools. Calandruccio infected a child of 10 which had previously suffered from worms, but had been relieved of these parasites by anthelmintics. Lutz fed an adult on ripe eggs, and found evidence of the subsequent appearance of adult worms. Epstein's work is unfortunately not available even in summary, but from the context of the references it is clear that he successfully infected man.

Jammes and Martin worked on the line of experimental hatching of ripe eggs in artificial and natural solutions, and found that hatching took place readily and *en masse* in 0.8 per cent. salt solution (which they consider to be an alkaline solution) at 37° to 40° C. Martin found that the embryos of the ascarids from the calf, pig, horse and dog hatched best in alkaline solutions, and that when developed eggs were introduced into the alimentary canal of an animal they passed through the stomach unaffected and only hatched after they had been subjected to the action of the alkaline juices of the intestine (Ext. quoted from Wharton).

Wharton states that direct infection can take place, but that the embryos must be "completely developed." He does not give the period necessary to secure this complete development.

In spite of the general acceptance of the theory there is a considerable bulk of evidence against it.

Davaine[1] administered three to four hundred ripe eggs to an ox—an animal which is stated to harbour *Ascaris lumbricoides*—and found that after four months no worms were present in the intestine. Küchenmeister[2] experimented with a dog, which, however, escaped from his observation. Leukart[4] fed a rabbit on ripe eggs, and found no worms after ten days; a dog was also treated, and was equally unresponsive after fourteen days. This very experienced helminthologist also fed a pig for three weeks on several thousand ripe eggs, and did not find any worms on section. An experiment on man was arranged in 1857, but it is not clear that it was carried out. He also administered to a horse the eggs of *Ascaris megalocephala;* to a dog those of *Ascaris marginata;* to a cat those of *Ascaris mystax*, with invariably negative results.

Leukart, therefore, maintained that the life-history of *Ascaris lumbricoides* would be found to be completed by an alternation of hosts. He supported this opinion by the facts known with regard to (1) *Ascaris acus*, which is found as an encysted larva in *Leuciscus alburnus*, and in the

adult form in the pike, and (2) a larval *Ascaris* found encysted in the muscles of the mole, which, when administered to the buzzard, continues to develop, although it does not yet become adult. He considered that Davaine's rat experiment, if correctly described, did not point to the direct development of the worm, but to the fact that the rat was an intermediate host. He pointed out the ease with which the larvae liberated in the faeces of the rat could be conveyed to the intestine of the definitive host—man. He attempted to confirm the experiment, but employed a mouse in place of a rat, and found that the eggs were passed unaltered in the faeces of the mouse. He therefore abandoned this line of research. He attempted to find the intermediate host among invertebrate animals, experimenting with a number of insects, snails, and earth-worms, but without success. Von Linstow[12] suggested that *Julus guttulatus* might be the intermediate host.

Ascariasis, both in man and the pig, is of extraordinary frequency in the colony of Hong Kong and in South China generally. I therefore, while stationed in this colony, had an unusual opportunity of studying the subject. I commenced experiments in the spring of 1915. Two young pigs were obtained, aged two months. The faeces of both were examined and found to be free of *Ascaris* eggs.

Pig A was fed throughout the course of the experiment on tinned milk and rice flour. Large quantities of ripe eggs from the *Ascaris* of the pig were administered to it on thirteen occasions between September 20th and December 6th, 1915. The age of the eggs employed varied from 26 to 64 days, and they invariably contained well-developed and motile embryos. They had been incubated at a temperature between 25° and 30° C. in a damp atmosphere. They were administered under varying conditions, after food and after twelve hours' starvation, with and without the addition of sodium bicarbonate. The total number of eggs used must have greatly exceeded several thousand. This pig was killed on December 15th, 1915. One small *Ascaris* only was found in its intestine.

Pig B was fed between September and December, 1915, in the same manner as Pig A, on tinned milk and rice flour; from January, 1916, onward he was fed on boiled rice and vegetables. Between September 27th and December 2nd, 1915, large quantities of ripe eggs from the *Ascaris* of man were administered to him on nine occasions. The age of the eggs varied from 22 to 106 days. They also had been kept during the colder months in an incubator between 25° and 30° C. in a damp atmosphere. The faeces of the pig were repeatedly examined for *Ascaris* eggs but none were found. Between January 5th and February 27th, 1916, large quantities of eggs from the *Ascaris* of the pig were administered, the age of the eggs varying between 17 and 73 days. The faeces of this animal were again examined repeatedly, but up to April 17th no eggs of *Ascaris* were found.

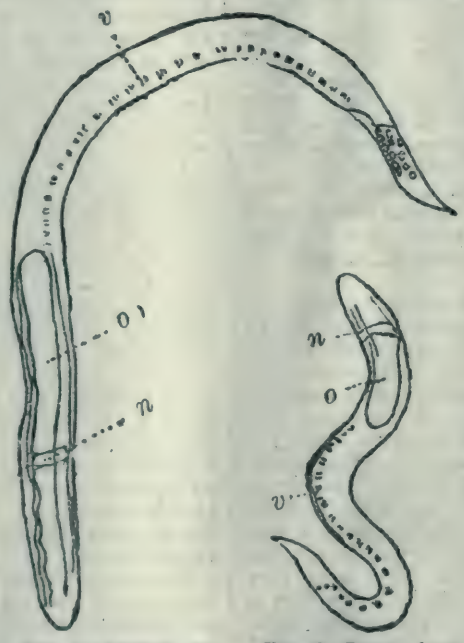


FIG. 1.—Embryo expressed from egg (× 680). *o*, Oesophagus; *n*, nerve ring; *v*, ventral longitudinal line.

FIG. 2.—Larva from lung of mouse four days after infection (× 385). *o*, Oesophagus; *n*, nerve ring; *v*, ventral longitudinal line.

These two series of experiments thus strongly confirmed the negative finding of Leukart's experiment with the pig.

On April 6th, 1916, I took up Davaine's experiment with the rat. Four specimens of *Mus decumanus* albino had been obtained. Their faeces had been repeatedly examined and no eggs of nematodes had been found.

At 2 p.m. on April 6th ripe eggs of *Ascaris lumbricoides* from man were administered to all four rats. The faeces passed between 3 p.m. on the 6th and midday on the 7th were found to contain free larvae of *Ascaris lumbricoides*. These larvae moved in a languid manner in normal salt solution. Eggs of the *Ascaris* of the pig were administered to all four rats on April 7th and 9th, and to Rats A, B, and D on April 10th. Eggs of the *Ascaris* of man were again given to Rat C on April 10th. The faeces continued to contain free *Ascaris* larvae. Specimens of the faeces were preserved in an incubator between the temperatures of 25° and 30° C. Live larvae were found in these specimens after the lapse of three days. The experiment of Davaine was therefore fully confirmed.

On April 12th a further development of the experiment took place. Rat C died, but I was prevented from examining this rat or observing the remaining three until April 15th. Rat C was preserved during the interval in an ice chest. On April 15th it was examined. A small quantity of blood had escaped from its nostrils. No nematodes, larval or adult, were found in the stomach or intestines. The lungs were found to be congested. Portions were removed and teased out in normal salt solution. Numerous nematode larvae in active movement escaped from the tissue. The liver was also examined and a small number of larvae found. No larvae were found in the spleen or kidneys.

The Rats A, B, and D were on this day obviously suffering from the pneumonia. A small quantity of blood was issuing from the nostrils of B and D, and all three were breathing in a rapid and exaggerated manner.

On April 16th Rat D was killed. The same nematode larvae were found abundant in the lungs. No larvae were found in the trachea, liver, heart, spleen, kidneys, stomach, intestine, or in the masseter and lumbar muscles.

Rat A had apparently recovered from its illness on April 17th, Rat B on April 18th.

The organs of C and D were examined by serial sections. In the lungs the greater part of the air vesicles were found to be filled with red blood corpuscles. Larvae were found in the air vesicles and in the bronchi of D. No larvae were found in the other organs examined, namely, liver, kidneys, and spleen.

As a control another specimen of *Mus decumanus* albino (E) obtained from the same source as A, B, C, and D, and five specimens of the wild *Mus decumanus* and two of *Mus rattus* obtained from the town of Victoria were examined. No larvae were found in their lungs.

The Rat B was killed on April 22nd. The lungs, trachea, nasal cavities, liver, heart, spleen, stomach, and intestines were examined. No larvae or other worms were found. The lungs appeared slightly fibrosed but otherwise normal. The rat had therefore freed itself from the parasites sixteen days after the date of the first infection and twelve days after the date of the last infection.

Further experiments were made to confirm the results obtained.

On April 22nd two white rats, F and G, were given large quantities of mature eggs. Rat F was treated with the eggs of an *Ascaris* of the pig, which were eighty days old. On April 25th the treatment was repeated. On the 27th the rat was obviously ill and breathing at the rate of 134 per minute. It has continued alive, although very seriously ill, up to the date of writing—May 3rd.

Rat G was fed with eggs of the human *Ascaris* fifty-four days old. The doses were repeated on the 24th and 25th. On the 26th it was extremely ill, and breathing at the rate of 160 per minute. On the 27th it died. *Ascaris* larvae were found in the lungs and liver.*

A piebald mouse said to be one year old was treated with the same culture as the Rat G on April 24th, 25th, and 26th. On the 28th it was seriously ill, with respirations at the rate of 120 per minute. It died on that day. Lungs and liver were richly infected with larvae.*

It is interesting to compare the last experiments with Leukart's experiment with the mouse. Leukart asserted that the eggs were passed in the faeces unaltered. I found in addition to a few unaltered eggs a small number of free but dead larvae. It is probable that Leukart did not give sufficiently large doses of eggs to cause the death of the animal, and thus failed to observe the larval stages of the parasite.

Having traced the infection to the air vesicles and bronchi of the rat and mouse, it became necessary to ascertain whether the larvae in these situations were capable of further development in the definitive host.

Portions of the lungs of Rat D were administered on April 16th to the Pig B, which had been used in the experiments on direct infection described above. This animal was killed on April 30th, and stomach and intestines, heart, lungs, and liver were examined. No ascarids were found in any of these organs.

Several factors may have been responsible for this failure: (1) The larvae may require to undergo further development either in the outer world or in a second

* Sections showed that the larvae in the lungs were situated in the air vesicles, in the liver in dilated blood capillaries.

intermediate host; (2) the larvae in the lung of Rat D may have originated only from the first dose of eggs administered to it, and may therefore have belonged to the *Ascaris* of man. It is a point in debate whether the *Ascaris* of man (*A. lumbricoides*, L.) is or is not specifically identical with that of the pig (*A. suilla*, Dujardin). Infection experiments only will be able to decide this point. (3) The Pig B may have been rendered immune to *Ascaris* infection by the large doses of eggs administered to it previously. The eosinophile index of the blood was observed to rise after several of these administrations.

I do not propose to describe the larvae found in great detail in this place, as somewhat elaborate drawings are necessary for this purpose. I hope shortly to be able to publish a full account of the zoological aspects of the case in one of the zoological journals. A short summary is, however, necessary. Fig. 1 is an outline drawing of the embryo of the *Ascaris* of man expressed from an egg 43 days old, fixed with mercury perchloride, stained with haematoxylin, and mounted in Canada balsam. It is multiplied 680 times. The embryo measures 0.19 mm. The relation of the length of the oesophagus to the length of the body is 1 : 2.5. The most prominent organs are the oesophagus (*o*), the nerve ring (*n*), and the ventral longitudinal line (*v*). Fig. 2 represents a larva (multiplied 385 times) from the lung of the mouse four days after infection. It is almost identical with the embryo and measures 0.19 mm. The relation of oesophagus to body length is, however, 1 : 3.25. Fig. 3 represents a larva from the lung of the rat (multiplied 385 times) five days after infection. It shows a great advance. The animal measures 0.45 mm. The ventral line is no longer prominent and the intestine is very obvious. The ratio of oesophagus to body length is 1 : 5.

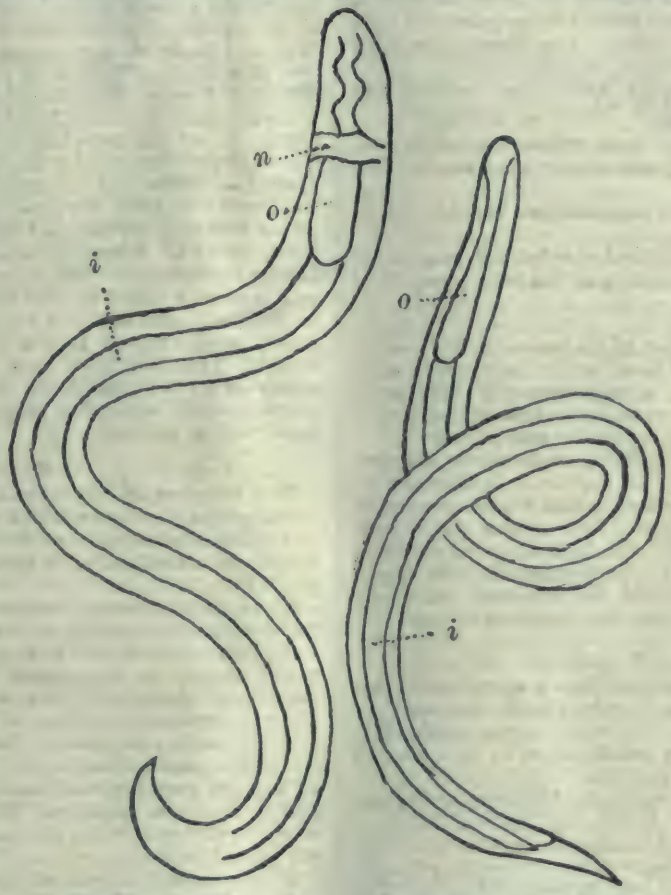


FIG. 3.—Larva from lung of rat (× 385) five days after infection. *o*, Oesophagus; *n*, nerve ring; *i*, intestine.

FIG. 4.—Larva from lung of rat ten days after infection (× 136). *o*, Oesophagus; *i*, intestine.

Fig. 4 is a drawing of the largest larva observed in the lung of the rat ten days after infection (multiplied 136 times, fixed and mounted unstained in weak corrosive sublimate solution). It measures 1.32 mm. in length. The ratio of the oesophagus to the body length is 1 : 6.

SUMMARY OF RESULTS.

The life-history of *Ascaris lumbricoides* presents an alternation of hosts. Eggs develop mature embryos in the outer world in a damp atmosphere, preferably at a temperature of from 25° to 30° C. When ripe eggs reach the alimentary canal of the rat (*Mus decumanus*) or mouse (*Mus musculus*) they hatch. The larvae liberated enter the bodies of their host, a few only escaping in the faeces. Between four and six days after infection they are found in the blood vessels of the lungs, liver, and spleen. The host is seriously ill with symptoms of pneumonia. On the sixth day they have passed from the blood vessels into the air vesicles of the lung, causing haemorrhage into them. On the tenth day they are found only in the air vesicles of the lung and in the bronchi. If the disease does not prove fatal the host recovers on the eleventh or twelfth day. On the sixteenth day the host is free from parasites.

The further course of the life-history requires further experiment for its elucidation. I have commenced experiments with this object, but among the uncertainties of military service it may not be possible to bring them to a conclusion. I therefore consider it advisable to publish the results obtained. It is obvious that the transfer of the parasite from the bronchi of the rat and mouse to the intestine of man and of the pig could be readily effected. The intermediate host might readily contaminate the food of the definitive host or the dust and earth of his surroundings.

The thanks of the writer are due to Dr. Johnson, Principal Civil Medical Officer of Hong Kong, and to Dr. Macfarlane, Government Bacteriologist, for their kindness in permitting him to use the Bacteriological Institute of Hong Kong during the prosecution of this research; to Dr. Macfarlane for much assistance, and to Mr. A. Gibson, Colonial Veterinary Surgeon, Hong Kong, for great help in the supply of material.

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IN a communication made to the Medico-Chirurgical Society of Bologna last February, and since published in the *Bollettino delle Scienze Mediche*, Professor Benedetto Schiassi described an apparatus devised by him for the better transport and treatment of patients suffering from fracture of the lower limbs. From the photographs it would appear that the splint is something between a Hodgen and a Thomas's splint; it consists of three parallel metallic rods, from which extension and counter extension can be made; these are joined at the lower end by arches and cross bars, and at the upper end have a firm moulded support to encircle half the pelvis. One of the photographs shows that the transport of a patient is much facilitated and the injured leg kept well fixed, while ample room is allowed for the application of dressings. By means of pins driven into the os calcis and hooks and elastic bands extension can be used in any desired degree, and as this is independent of bandages, the limb keeps its position when the wounds are dressed. Apart from fractures, the splint is useful for fixing a limb in arthritis. Massage can also be carried out without disturbing the splint. The price is 40 to 50 lire. Schiassi affirms that by his splint the transport of soldiers with fractured lower limbs is effected safely and securely.

DISINFECTION OF THE NASO-PHARYNX OF MENINGOCOCCUS-CARRIERS

BY MEANS OF AIR SATURATED WITH A SOLUTION OF DISINFECTANT.

BY

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Preliminary Note.

THE following experiments were made for the purpose of determining whether persons carrying the meningococcus in their naso-pharynx can be freed of that micro-organism by causing them to inhale the air of a room saturated with vapour containing a disinfectant. The disinfectant used in these preliminary observations was chloramine.

For the present, attention has been confined to obtaining answers to the three following questions:

1. Does the air of a room when saturated with water vapour containing chloramine exert bactericidal properties?
2. If so, to what extent can such air be tolerated by human beings?
3. Is the method a practical one for the purpose of destroying the meningococcus in the naso-pharynx of carriers?

I. *The Bactericidal Value of Chloramine Vapour.*

The experiments have all been carried out in the same room, which has a capacity of approximately 1,050 cubic feet. This room was bare save for a few chairs and a table, on which the spraying apparatus was placed.

In an investigation of this kind, when air is charged with disinfectant in the form of vapour, it is desirable to be able to read off the amount of water vapour present in the air at any given moment. Throughout the experiments, therefore, a dry and wet bulb thermometer was suspended from the ceiling of the room so that the degree of humidity of the air could be observed and any departure from the saturation point perceived at once.

Sprays Tested.

(1) *The Wassmuth Spray.*—At first a specimen of this spray obtained by Captain Martin Flack, who has co-operated throughout in these experiments, was tried. The spray in question, however, was found to be far too small to be of use for the present purpose.

(2) *Lingner's Spray.*—An example of this apparatus was kindly lent to us by Dr. A. E. Thomas, Medical Officer of Health of Finsbury, and used in all the experiments. The Lingner spray, originally designed for disinfecting a room with formalin vapour, consists of two essential parts. The first of these is a ring shaped copper boiler, in form not unlike a bicycle tyre, fixed immediately over a circular trough which is filled with asbestos wool moistened with spirit. From the boiler three pipes convey steam centrally to a chamber of about two litres capacity, in which the solution of disinfectant is placed. The roof of this chamber carries a safety valve and four spray nozzles which point vertically upwards. In practice the boiler of the spray is first filled with 1,500 c.cm. of water, and then the disinfectant chamber is charged with 1,500 c.cm. of solution to be tested. Owing to the powerful nature of the burner, and to the efficiency of the boiler, the sprays begin to work within about ten minutes of lighting the burner. The dry bulb temperature of the room rapidly rises, followed by that of the wet bulb. In about ten minutes after the sprays have started (that is, twenty minutes after lighting up), the temperature of the two thermometers becomes equal, indicating that the air is saturated.

Owing to the comparatively small size of the instrument the sprays in the Lingner apparatus cease work after running for about forty minutes. Thus the air of the room could not, with this apparatus, be kept saturated with the disinfectant vapour for over twenty minutes.

In the following experiments, therefore, the Lingner apparatus was first of all charged with enough spirit, water, and disinfectant respectively to produce a preliminary saturation of the air of the room. The apparatus was then rapidly recharged, and when the two thermometers suspended in the air of the room had for the second time become equal, the plates were exposed for the periods stated.

Mode of Determining the Bactericidal Action of the Air.

The procedure was as follows: *Staphylococcus epidermidis* was used as the test micro-organism. This staphylococcus is easily obtained by the simple expedient of rubbing a little broth on the skin of the hand, and then distributing a loopful of this skin washing over an agar slope.

A capillary pipette was charged with a series of equal volumes of a young broth culture of the skin staphylococcus, the units of broth being separated from each other in the pipette by air bubbles in the manner advocated by Wright. Each of these equal amounts of broth culture was then expelled in turn on to a separate agar plate, and distributed over its surface by a sterile bent iron wire. Thus an equal amount of staphylococcus was sown on each plate. In all the tests one of the plates inoculated with the staphylococcus in the manner described was kept as a control to show that a culture of living cocci had been employed. In all of the experiments also another of these plates was directly exposed for a moment to the spray itself, so as to determine whether or no this was immediately bactericidal. The remaining plates of the staphylococcus were exposed to the air of the room after it had become saturated with the vapour of the antiseptic. These plates were exposed to the air in one of two places—namely, (1) on the table near the spray but not visibly sprinkled by it; and (2) as far away from the spray as possible—that is, on the ledge of a window fixed in the outer wall of the room.

Results.

The outcome of six experiments made in the way described may be summarized as follows:

(1) The temperature at which the air of the room became saturated varied in the six experiments from 77° F. to 85° F.

(2) In all of the experiments the control plate showed a profuse confluent growth of the staphylococcus.

(3) The strength of the chloramine solutions tested varied from 1 to 5 per cent. The spray was not found capable of destroying the staphylococcus immediately when it contained less than 1.5 per cent. of chloramine.

(4) When 2 per cent. of chloramine was used in the spray, the plates both on the table and on the window-ledge were partially sterilized in five minutes, and completely so in ten minutes. Below this amount of chloramine, present results are contradictory and the experiments are being repeated.

(5) As regards toleration, air saturated with moisture from a spray containing 5 per cent. of chloramine is distinctly trying, and after two or three minutes painful. Air saturated with vapour from a spray containing 2 per cent. of chloramine, however, is easily tolerated for at least five minutes on first acquaintance with it. Some can put up with this air for twenty minutes or longer. A promising feature of these experiments with vapour containing chloramine is that one soon becomes accustomed to it, tolerance being speedily raised.

II. *Trial of Air Saturated with the Vapour of a 2 per cent. Solution of Chloramine upon Carriers of Meningococcus.*

In view of the pronounced bactericidal action which air containing chloramine vapour had thus been proved to possess for the staphylococcus, no less than by reason of its comparative innocuousness to human beings under the conditions tested, the effect of such air was now tried upon persons carrying the meningococcus in their naso-pharynx.

CASE I.

The first case was that of a clergyman who had become a carrier as the result of attending a soldier suffering from cerebro-spinal fever in a military hospital. Owing to the true nature of the disease from which the soldier was suffering not having been realized until he was dead, no special precautions had been taken. This gentleman happened to call when the investigation had reached the stage just referred to, and as he was most anxious to be

freed of the meningococcus, the opportunity was taken of determining the effect of the air of the chamber upon the meningococci in his naso-pharynx. His naso-pharynx having been swabbed, he put on a mackintosh and entered the chamber where the air was saturated with the vapour of a 2 per cent. chloramine spray and gave a dry and wet bulb reading of 78° F. He stayed in the chamber for six minutes, with a staphylococcus plate exposed near him, and during the whole of this time vigorously inhaled the air through his nostrils. After leaving the chamber his naso pharynx was very thoroughly reswabbed.

The result was as follows: Before entering the chamber his naso-pharynx gave a profuse growth of meningococcus colonies. After leaving the chamber his naso-pharyngeal secretion gave no growth whatever of meningococcus. Only a few colonies of any kind grew; and they were colonies of streptococcus.

The agar plate sown with staphylococcus and exposed to the air of the chamber during his sojourn there, showed a 99 per cent. reduction of this micro-organism as compared with a control plate.

Two days later the naso pharyngeal secretion of this case was re-examined and the meningococcus was found to be again present. After fifteen minutes' sojourn in the chamber, however, his naso-pharyngeal secretion was found to be again free of it. After a further interval of two days, examination of the naso-pharyngeal secretion failed to show the meningococcus.

CASE II.

A staff sergeant who was also carrying the meningococcus in his naso-pharynx was exposed in a similar way to the air of the chamber saturated with the vapour of a 2 per cent. solution of chloramine. He was able to stay in the chamber for twenty minutes, and could have stayed longer had it been thought advisable. While he was in the room, four agar plates sown with staphylococcus were exposed. The first two plates were closed and removed after ten minutes' exposure, the others remained open for the whole time that he was in the chamber.

The result of this test was as follows: Before entering the chamber, the naso-pharynx of the staff sergeant yielded fairly numerous colonies of the meningococcus; but this organism was not so abundant as in Case I. After leaving the chamber, no colonies of meningococcus could be grown from his naso-pharyngeal secretion which, however, showed a fair number of colonies of other organisms.

All four plates sown with staphylococcus that were exposed to the air while he was in the chamber gave no growth. As two of these plates had only been exposed for ten minutes, it is clear that the staphylococcus had been destroyed within that time.

On the following day the naso-pharynx of this case was re-examined and meningococcus found to be absent. The treatment, however, is being continued.

Conclusions.

These preliminary observations furnish the following answers to the three questions formulated at the beginning of the paper:

1. The air of an ordinary room, when brought to the point of saturation by means of a steam spray containing 2 per cent. of chloramine, acquires pronounced bactericidal properties for *Staphylococcus epidermidis*.

2. Such air can be tolerated by human beings for a period varying from six to twenty minutes without marked discomfort and without harm.

3. When inhaled through the nose, this air succeeds temporarily in destroying the meningococcus in the naso-pharynx of carriers. Its sphere of usefulness in this and other respects is being more closely investigated.

In view of the simplicity and convenience of the method and its obvious suitability for the purpose of dealing with a large number of carriers at a time, the above results are encouraging. That such a mode of treating meningococcus carriers has prospects of success may also be inferred from the statement of E. Kuster (*Deut. med. Woch.*, September 9th, 1915) that during an outbreak of cerebro-spinal fever at Cologne early in 1915, meningococcus carriers were freed of that micro-organism by exposing them in an "inhalatorium" to an atmosphere impregnated with Sano's fluid, the active principle of which, like chloramine, is a compound of hypochlorous acid.

D

PARALYSIS OF THE INTESTINE AFTER RESECTION FOR GUNSHOT INJURIES.

BY

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With Note by

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THIS serious complication seems to occur only in the small intestine. It consists in the paralysis and distension of the gut immediately above the junction which is made after removal of an injured coil. The distension ends sharply at this point, and the bowel below remains in a contracted and apparently healthy state. If unrelieved, the condition is rapidly fatal in the same way as any other form of acute obstruction. It may occur either in cases operated on after a considerable interval, or in those which have been dealt with within a few hours.

In cases in which operation has been delayed it is easier to understand. It is now recognized that injury to the small intestine is not as a rule accompanied by any considerable escape of contents, and such escape as does occur is not progressive, as it is in the duodenum or large intestine. The wounded coil has been found, even two or more days later, adherent or surrounded by omentum, inflamed, and full of liquid faeces which do not escape into the general cavity till the coil is disturbed at operation or autopsy.

In a case of this kind, where peritonitis is purely local, the bowel below the injury is found contracted and apparently normal; that above, in consequence of the obstruction caused by the injured coil, is distended, paralysed, and poisoned. In this it resembles the bowel above any acute obstruction of some standing, and, if it has been long in this state, it is only to be expected that, even after removal of the injured portion, it should fail to regain its functions for some considerable time.

A case of the kind already published[1] may be referred to briefly.

CASE I (O. R.).

The patient, who had been shot two and a half days previously, presented pain, rigidity, bilious vomiting. The small intestine was wounded in two places; the wounded coil was full of liquid faeces, of which none had escaped; 12 in. resected, end-to-end anastomosis made, and the bowel above emptied. Next morning the patient was better, but later bilious vomiting recurred, and he died in thirty-six hours.

Post-mortem Examination.—No other injury; no general peritonitis; no free blood. The bowel above the junction very much distended, that below it empty and contracted.

If in this case, in addition to the coil actually wounded, the intestine above it, which had borne the brunt of two and a half days' acute obstruction, had been freely removed till more healthy gut was reached, it is possible that recovery might have resulted.

The deliberate removal of distended bowel for some distance (2½ ft., 4½ ft.) above an injury was, in fact, followed by recovery in two subsequent cases[1] of this kind of eighteen and thirty-six hours' standing respectively.

But it is clear that when a patient is operated on, as is now frequently possible, within a few hours of receiving his wound, these considerations do not apply. There has not been time for the bowel above to become permanently damaged from this cause. Nevertheless, we have each of us recently met with instances of this complication arising in cases operated on within seven and eleven hours respectively.

CASE II (J. F.).

Pte. G. W. was admitted to hospital six and a half hours after injury, suffering from a bullet wound in the abdomen, which had entered below the umbilicus and passed out below the left buttock. Operation showed extensive damage to 9 inches of the lower end of the ileum; 12 inches were resected and an end-to-end anastomosis made. During the forty-eight hours subsequent to operation the patient made good progress. Sickness and abdominal distension then appeared. The obstruction became progressively worse, and the abdomen was opened a second time under spinal anaesthesia. A clot of blood was found in the mesentery in

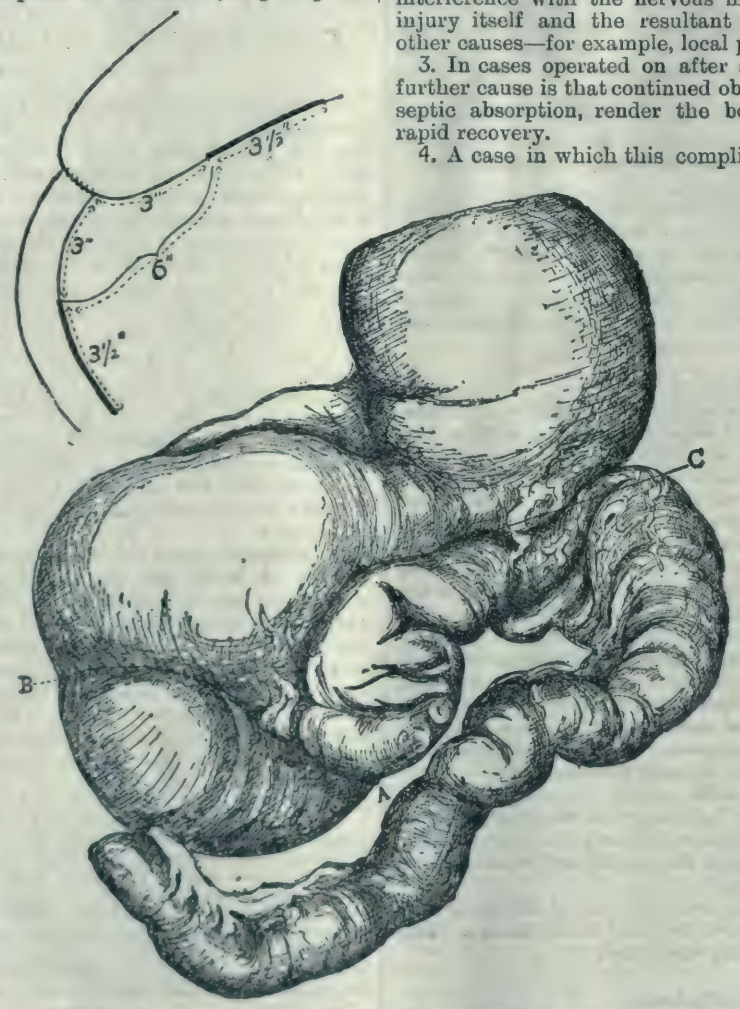
relation to the gut above the point of obstruction. The gut for about 8 inches above the anastomosis was distended to about three times its usual size. No mechanical obstruction could be found. A lateral anastomosis was performed, short-circuiting the distended loop and the anastomosis junction. After this second operation the patient did exceedingly well; there were no further complications, and quite an uneventful recovery was made.

CASE III (O. R.).

Pte. H. F., wounded September 30th, 11.45 p.m., was operated on eleven hours later. The jejunum was found to be wounded in six places. The injured coil (about 2 ft.) was resected, and an end-to-end junction made about 1½ ft. from the duodeno-jejunal flexure. The next morning the patient was comfortable, and the pulse 76. In the evening the pulse rose to 120, and he began to vomit. This was relieved by washing out the stomach, but recurred later, and the next day (October 3rd) the abdomen was reopened. The intestine above the union was found very much dilated, that immediately below it empty and contracted. A lateral anastomosis was made between portions of intestine three or four inches distant from the union in either direction, short-circuiting it.

After operation the vomiting recurred; great relief was given whenever the stomach was washed out, but the patient gradually lost strength, and died on October 5th.

Post-mortem Examination.—The duodenum and jejunum above the first junction were enormously dilated; the dilatation continued in a lesser degree as far as the lateral anastomosis, and there stopped abruptly; the intestine below was contracted and empty (see figure; specimen in War Office collection).



This figure represents intestine removed from Case III *post mortem*. The bowel is continuous in the form of an S, and there is no interruption at the point A. B marks the original end-to-end anastomosis, C the subsequent lateral one. The inset diagram shows the condition found at the second operation and the points at which a lateral junction was then made. (The specimen is in the War Office collection.)

In both these cases the facts that the obstruction followed a fairly early operation, and that the distension was strictly limited to the segments of intestine above the junction, suggest that the cause lay in some interference with the nervous mechanism of the bowel.

This may have been reflex and in the nature of shock. Acute dilatation of the stomach occasionally follows operations on the viscera and in fact complicated the recovery of one case of resection.[1] Or it may be due, as has been suggested,[2] to an interruption of the nervous chain, so that the intestine below fails to carry on the peristaltic wave.

The theory that the condition depends on an interference with the nerve mechanism of the bowel above is favoured by Case II, for in this instance the mesentery contained a blood clot which may have very materially interfered with the nerve mechanism. A rather limited experience[3] has induced us to believe that this condition is perhaps less likely to occur after lateral than after end-to-end anastomosis, and this constitutes a second argument rather in favour of the nerve mechanism being at fault, for in end-to-end anastomosis the junction is made through tissue which has been subjected to the trauma of division, while in lateral anastomosis it is made through fresh and undamaged tissue.

Probably even if the nerve mechanism is primarily at fault its action is aided by other factors; the local peritonitis which is invariably present in greater or lesser degree, and the presence of free blood in the peritoneal cavity, may be considered as subsidiary causes.

CONCLUSIONS.

1. Resection of a wounded coil of small intestine is sometimes followed by obstruction, the segments of intestine above the union becoming distended, while the segment below remains contracted.

2. In cases operated on within a short time of the receipt of the injury this is probably mainly due to some interference with the nervous mechanism, caused by the injury itself and the resultant shock, and increased by other causes—for example, local peritonitis.

3. In cases operated on after a considerable interval a further cause is that continued obstruction, and consequent septic absorption, render the bowel above incapable of rapid recovery.

4. A case in which this complication has occurred may possibly be saved by a subsequent short-circuiting of the affected coil.

Note by
Colonel CUTHBERT WALLACE, A.M.S.

In the last two cases resection and circular enterorrhaphy was performed, one in the lower ileum, the other in the upper jejunum. A short-circuit operation was performed in both to relieve a distension which was limited to the segment of small gut above the line of the circular enterorrhaphy. The cause of the obstruction was a paralysis of the bowel below the operation site, which paralysis was due not to septic peritonitis but to some acquired defect.

The reason for the inert condition of the lower bowel segment is not altogether obvious. After the receipt of the injury the small bowel on both sides of the trauma becomes paralysed or inactive. This is shown by the state of the bowel as seen at operation, by the non-expulsion of its contents and by the fact that for some considerable time, at all events, the injured bowel remains in the place where it was hit. A resection is performed, and some additional trauma inflicted on the viscus. After a variable period the bowel recovers its tone, and it is permissible, I think, to believe that the parts furthest from the lesion recover first.

The lower part has no inducement to peristaltic action, but the upper segment will be stimulated by the entrance of fluids and food. The intestinal contents will be passed on until the region of the resection is reached. As far as one knows, the bowel always recovers down to the immediate neighbourhood of the lesion.

The distal segment of the bowel at a little way below the injury recovers also, as shown by the fact that a short-circuit did in one case lead to a normal function of this part.

What is, then, the cause of the functional block?

It seems due to two causes: (1) The portions of bowel immediately on either side of the lesion remain paralysed as a result of the trauma, or (2) the interruption of

Auerbach's plexus prevents the transmission of the peristaltic wave. Perhaps the first is the most probable, as in one case this portion dilated down to the anastomotic opening. If the distal portion was in good condition it should have contracted on the contents instead of becoming dilated.

In the light of the failure of the lower segment to take on its normal function, it would be advisable in these cases to make the anastomotic opening at a considerable distance from the lesion, or, perhaps better still, to short-circuit into the transverse colon, as suggested by Sampson Handley.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, August 7th, 1915. [2] Ibid., April 8th, 1916. [3] *Lancet*, December 18th, 1915.

POST-OPERATIVE PARALYTIC ILEUS.

BY

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I AM very glad that Dr. Bonney and Mr. Handley have brought forward lately the subject of paralytic ileus following abdominal operations.

This serious complication has not received sufficient attention, nor has much research been made into its cause and pathology. The textbooks on surgery do not distinguish clearly this form of ileus from the more mechanical variety, which usually yields quickly to treatment.

My own experience starts from the time when I was obstetric registrar at Guy's Hospital. I saw this condition after clean hysterectomies for fibromyomata. It did not occur often, but was the subject of great anxiety and deep interest.

In my own practice, down to six years ago, I had three deaths due to this condition. The operations were: (1) Hysterectomy for a large degenerating fibroid; (2) hysterectomy for carcinoma of the uterine body; (3) hysterectomy for fibroid complicated by a very large dermoid cyst.

About five years ago I made up my mind that I would reopen the abdomen as soon as the signs and symptoms of paralytic ileus were established.

Out of 300 abdominal sections of all kinds done during this period paralytic ileus developed in five cases. All these were reopened and none died. I will give the essential points of each case.

CASE I.

Mrs. B. Operation August 1st, 1912, for a large adherent ovarian cyst. Paralytic ileus followed. Abdomen reopened on August 4th. General distension of intestine and small quantity of blood-stained fluid in the pelvis. The intestines were well stirred up and large quantities of hot saline poured in. A loop of the transverse colon was brought out and a small Paul's tube inserted into the lumen. The gut was lightly anchored to the peritoneum at the upper angle of the wound, and the pelvic cavity drained by a large Keith's tube at the lower angle. Within a few hours the vomiting ceased, and the bowels acted both through the tube and by the rectum. Subsequently the fistulous opening was closed by clamping the spur.

CASE II.

Mrs. D. Operation October 24th, 1912, for very adherent Fallopian tubes. Abdomen reopened October 28th. The same operation as above. Complete recovery. The fistulous opening was closed by resection of gut, and rejoined by lateral anastomosis.

CASE III.

Miss C. Operation December 9th, 1912, for large fibroid. Reopened on the third day. The same treatment as above, except that in this case jejunostomy was done. The fistulous opening closed spontaneously, but I had subsequently to excise about 2 ft. of small intestine and rejoin by lateral anastomosis. I heard from this patient last Easter Monday and she is quite well.

CASE IV.

Miss T. Operation June 26th, 1913, for adherent Fallopian tubes and appendix. Reopened June 28th. Peritoneal cavity washed out with hot saline and the intestines well stirred up with the hand, especially in the pelvic cavity. Vomiting ceased almost immediately and the bowels acted with the aid of a turpentine enema.

CASE V.

Mrs. X. Operation January 3rd, 1912, for a very adherent unilocular ovarian cyst. Reopened three days later. Peritoneal cavity washed out and intestines well stirred up, especially in the pelvis. A large drain was placed into the pelvis through the lower angle of the wound. In six hours vomiting ceased, and a few hours later a turpentine enema gave a good result.

We know so little about the pathology of post-operative ileus that any opinion formed as to its cause and right treatment must be more or less speculative. Everyone is agreed that it is due to a rapidly spreading peritonitis, and that it usually begins at the site of a recent operation in the lower abdominal region, or follows on an acute septic condition, such as an acute appendix.

On one occasion only did I take a cultivation from the peritoneal cavity at the second operation. This culture showed streptococci.

Fortunately, this dreaded complication occurs very rarely. The reopening of the abdomen is a heart-breaking job for the surgeon; he naturally acts quickly, for economy in time often means life to the patient. It is difficult to notice details under these circumstances.

There are two great problems:

(*a*) How to prevent the occurrence of paralytic ileus.
(*b*) What to do when it occurs.

It is on the second of these that I wish to touch. Lately Mr. Handley and Dr. Bonney have written on the subject and recorded cases. I am quite certain that when the signs and symptoms of paralytic ileus are established the abdomen must be opened without delay. The question is: What is to be done when the abdomen has been reopened? The whole intestinal canal is blown up and congested; there is more or less blood stained fluid among the lower coils, and these coils may be loosely stuck together. The hand is passed into the pelvis and the coils are stirred up. Attention is paid to the site of the primary operation, lest, perhaps, a portion of gut should have become adherent. During these manipulations large quantities of hot saline fluid are being poured into the peritoneal cavity and all parts well washed out. A large rubber tube is passed into the pelvis and brought out at the lower angle of the wound (this vent is sucked up every four hours), the wound is covered with hot fomentations, and the patient placed in Fowler's position.

Now we come to a very difficult question: Will this simple reopening of the abdomen, washing it out, and draining be sufficient to deal with the spreading peritonitis?

In two out of my five cases this was all that was done; in two I drained the large bowel simply because it was distended, and I hoped this might bring immediate relief. Beyond a local collapse near the tube insertion nothing happened until about eight hours later, and then the rectum acted, and almost at the same time the colotomy tube. This shows a general recovery of all the paralysed bowel, which a few hours before would have seemed a miracle.

Mr. Handley suggests a lateral anastomosis between jejunum and transverse colon, together with a caecal drain. He supposes that all that portion of the gut in the lower abdomen and pelvis are paralysed, while the jejunum and transverse colon are yet above the area. Thus there would be a triple block: (*a*) In the ileum; (*b*) in the caecum; (*c*) in the pelvic colon. Mr. Handley quotes a successful case which was already septic from a sloughing appendix. I cannot see the value of planting the jejunum into the transverse colon when there is a block at the caecum and another at the pelvic colon. A paralysed portion of gut will only drain locally, and it is extremely unlikely that the tube in the caecum would drain the whole colon.

By adopting Mr. Handley's operation, it would seem as though the contents of the upper jejunum were being emptied into an already hopelessly distended colon, let alone the dangers of a lateral anastomosis with the intestinal wall in such a condition. I note that Mr. Handley states that in his case on the day following the second operation the colotomy tube acted, and that a certain amount of material and flatus also passed by the anus. Here is the same extraordinary spontaneous recovery of all the paralytic bowel. It is almost incredible, but a fact, that this spontaneous recovery should take place so rapidly. To what is this recovery due? Is it due to the reopening, ventilating, and washing out of the peritoneal cavity? I think there is very good reason for supposing that this spontaneous recovery of many feet of intestines is due to this and not to drainage of the intestines.

It is difficult to believe that a jejunostomy high up can have any effect on the paralysed coils in the lower portion of the abdomen. In the three cases I quoted above, when I drained the gut spontaneous recovery of the whole intestines took place within a few hours. At the time of placing the tubes in the intestines nothing but a small amount of flatus and mucus came away. Within a few hours the colotomy tube acted and flatus was passed per rectum.

I still have an open mind on the subject. We only know a few clinical facts about this condition, and it would be foolish to dogmatize; I have, however, a very strong conviction that all my five cases would have recovered without jejunostomy or colotomy. It is quite possible that by opening the jejunum high up and letting out the upward-flowing intestinal contents a patient may be rescued from a fatal toxaemia, while at the same time the lower abdomen is recovering on account of the ventilation and drainage. If, therefore, it should be necessary to open the intestines, I should prefer to do an external jejunostomy, rather than trust to the method suggested by Mr. Handley. In Case III I did this by placing a tiny Paul's tube into the gut, anchoring it with a few stitches to the parietal peritoneum. No spur forms, and there is a chance of a spontaneous closure later on.

I have not had a case of paralytic ileus since 1913, but it is impossible to think that, however careful one may be, this anxious complication will not occur again. I still do not know whether I should open the jejunum or not. I think that others who have had great experience in abdominal surgery should give short accounts of their views and methods. Some years ago an impromptu discussion on this subject was started one evening at the Society of Medicine. A noted American was present, and was asked to give his views on the subject. He candidly said he had no decided views.

I have only dealt with the treatment of paralytic ileus in a practical way. I am quite aware that there are minor clinical forms of post-operative distension which respond to pituitary extract, eserine, enemata, and a whole host of remedies. The condition I am dealing with is what I term "complete paralytic distension," following a clean abdominal operation. I should like to add that I have never seen this grave condition follow an operation such as bilateral pyosalpinx, where a large pelvic drain had been inserted.

THE TREATMENT OF BACKWARD DISPLACEMENTS OF THE UTERUS.

BY

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(Concluded from vol. i, 1916, p. 885.)

The Treatment of Fixed Backward Displacements in Nulliparae.

THE fixation of the uterus is produced in the great majority of instances by adhesion of the appendages, although the uterus itself may also be bound down. It follows, therefore, that the position of the uterus is secondary to some infective inflammatory process spreading from the uterus and appendages to the pelvic peritoneum, or spreading from the bowel.

The primary purpose of treatment must therefore be to deal with the effects produced by the pelvic inflammation.

Where there is a history of previous attacks of pelvic peritonitis, with pain and fever, and on examination a fixed mass or fixed masses are found behind the uterus, the presence of pus is suggested, and operation is imperative.

In the more chronic or subacute infections pus may not be present, or, if it be, the amount is small, and for these cases palliative treatment by tampons, douches, counter-irritation, etc., is usually recommended. Here, again, I believe the interest of the patients is best served by an early resort to surgical treatment conducted on conservative lines. Delay means destruction of the value of the Fallopian tube as a channel for the passage of ova or spermatozoa and insidious and destructive changes in the ovaries. To speak of cure by medical treatment is only to fog the vision, for the so-called cure means too often the destruction of the fertility of the individual, the destruction of the function of the tubes and ovaries. Moreover, if surgical treatment be too long delayed, a secondary infection from the bowel is not uncommon, which may be so severe as to necessitate for its eradication the removal of the greater part of the genital organs. The policy of "Wait and see" should be abandoned, and that of "Look and see" adopted.

Treatment of Backward Displacements in Parous Women.

Backward displacements frequently develop after a confinement or abortion, when, in consequence of the supports being slackened, the enlarged uterus falls backwards. Here, however, the pessary has its most useful application, and, if worn for six months, a cure will result. This being so, it is obvious that preventive treatment is of paramount importance in order to help in reducing the enormous number of women so afflicted.

The best method is to make it a rule that every woman should be examined from four to six weeks after labour in order to determine the state of the uterus and adnexae, the vaginal walls and perineum. If this were done, it would diminish the number of women who are suffering from prolapse and displacements. Treatment could at once be applied to the uterus, the vaginal walls and perineum before marked changes had been produced. Unfortunately, women are anxious to get rid of the doctor as soon after the confinement as possible, and a visit for further investigation might be resented. But, after all, the doctors should be the guide of their patients in this regard and must educate them to appreciate the value of such an investigation. Unless this is done, we shall continue to blunder along in the same old way, doing nothing to prevent what is easily preventable.

It has been recently asserted, but with limited proof, that early rising after childbirth tends to prevent backward displacements. If this be so, it will be a great gain, but at present I am still in favour of rest in bed after labour, but during this period exercises and, later, massage may be usefully employed. Massage is of great benefit when the abdominal muscles are poorly developed, or when the abdominal walls have been over-stretched. A woman who has suffered from a displacement previous to her pregnancy should have a longer period of rest after her confinement.

When a chronic displacement is encountered in a parous woman it is essential to make sure that there is no defect in the perineum or vaginal walls, no chronic metritis, or inflammation of the adnexae. All these must be taken into account before deciding upon the appropriate treatment. No "cases" require greater experience in deciding on what to do and how to do it, and the ability in selecting the correct treatment stamps the master.

It will be found that, apart from those examples following labour or abortion, nearly all the chronic types require some form of surgical treatment. The part or parts of the suspensory mechanism which are at fault have to be determined and suitable remedies applied. There is no one operation or one treatment for this condition; indeed, the surgical judgement of any operator who within a limited period of time can furnish a long list of patients treated by one operation must be viewed with considerable mistrust. One operator, after an experience of nearly 700 cases, came to the conclusion that his method was radically wrong. An honest confession, no doubt, but ——

When I tell you that over 100 operations have been devised for the treatment of backward displacements, each of which, according to the originator, is the best, I may be pardoned for dwelling upon this theme. A peculiar type of egotism seems to seize those who originate such operations, for they at once convince themselves that their operation yields the best results and is universally applicable.

My own experience leads me to the conclusion that as all the cases are different, so the treatment must vary according to the extent and character of the pathological changes encountered. At the same time there are certain broad principles which should govern the treatment. Foremost amongst these is the age of the patient. Is she of child-bearing age or has menstruation ceased? If of child-bearing age, the possibility of further pregnancy should be

remembered, and any treatment tending to cause interference therewith should be avoided. If past the climacteric the pregnancy factor is eliminated. Again, surgical treatment should aim at restoring as far as possible the normal anatomical relations and not substituting one deformity for another. Further, the cure should be such that it can withstand the strain of future pregnancies.

To find in a parous woman a backward displacement without any other complication is rare; generally parturition has left its mark on the body or cervix of the uterus, the vaginal walls, and the perineum, or in addition on the appendages, pelvic peritoneum, and cellular tissue. The abdominal walls, too, may have suffered, remaining overstretched, thin, and atrophic, whilst a general ptosis of the abdominal viscera may be an additional complication.

Let us see, then, what treatment should be adopted during the childbearing period: (1) When the uterus is replaceable, and (2) when it is fixed.

(1) *When the uterus is replaceable.*

(*a*) The uterus displaced backwards without relaxation of the vaginal walls and the perineum sound. Here a trial may be given to pessary treatment for six to twelve months, and, if it fails, surgical treatment should be advised. Such cases, however, are not common.

(*b*) The uterus displaced backwards with slight descent, relaxed vaginal walls, and deficient perineum. Here a repair of the vaginal walls and perineum should be done, and as a result the backward displacement will right itself.

(*c*) Uterus displaced backwards, slight descent. Cervix fissured and thickened, relaxed vaginal walls, and perineal deficiency. In addition to repairing the vaginal walls and perineum the condition of the cervix requires attention, for if it remains enlarged it tends to act as a dilating wedge. Fissures should be repaired, and if necessary a triangular piece excised from the anterior and posterior cervical walls, followed by accurate suture. This operation preserves the continuity of the canal, and is preferable to amputation of the cervix in the parous woman.

(*d*) Uterus displaced backwards, relaxed vaginal walls, perineal deficiency, abdominal walls thin and atrophic, with visceral ptosis. The vaginal walls and perineum should be repaired, and massage exercises, etc., should be recommended. For the poorer classes an abdominal belt will be found to be of great assistance, whilst for those who can afford them properly fitting corsets should be obtained.

(*e*) Uterus displaced backwards and enlarged, causing profuse and irregular menstruation, vaginal walls relaxed, perineum deficient. In addition to vaginal and perineal repair the operation of curetting is indicated.

(*f*) Uterus displaced backwards accompanied by thickening in the cellular tissue laterally and posteriorly. Treatment should here be directed to the improvement of the chronic inflammatory deposits. Rest, counter-irritation, glycerine tampons, etc., should be tried. In the absence of tubal complication such cases are not suitable for an abdominal operation.

(*g*) Uterus displaced backwards with a greater degree of descent. Vaginal walls not relaxed and perineum sound. An abdominal operation to remedy the uterine displacement and prolapse is indicated. Such cases are also not common.

(*h*) Uterus displaced backwards with a greater degree of prolapse, relaxation of the vaginal walls, and perineal deficiency. An abdominal operation will be required in addition to the vaginal and perineal repair.

In estimating the amount of descent of the uterus or vaginal walls, examination in the supine position is unsatisfactory unless the woman is instructed to bear down, which will give a better idea of what the conditions are when she is standing erect.

(2) *When the uterus is fixed.*

When the uterus is displaced backwards and fixed, the displacement is most frequently the result of a localized peritonitis infective in character. In nulliparae gonococcal infection is the most common cause, whilst in parous women there may be, in addition, infection from other organisms following abortion or full-time labour. Gonococcal infection leads to an adhesive peritonitis, which tends to persist. The effects produced are seen to be most marked in and around the appendages, and thus it comes to pass that partial mobility of the uterus is not infrequent, although it cannot be replaced in its normal position.

The best treatment for partially mobile and for fixed uteri is to open the abdomen and deal with the complications which are found. It is advised that forcible replacement should be practised with or without the aid of anaesthesia. This brutal method should be definitely abandoned, for who can tell how much internal damage has been done? Through an abdominal incision the diseased parts can be inspected, and by the employment of conservative surgery the function of the appendages may be completely restored. The time element is of supreme importance, for the more chronic the disease the more likely is it to be attended with destructive effects.

Abdominal and Vaginal Operations for Backward Displacement.

Abdominal Operations.—For maintaining the uterus in a forward position a variety of procedures may be adopted. The uterus may be stitched to the abdominal wall or the round ligaments folded within the abdomen, or sutured to the abdominal wall, or drawn into the wall, or drawn backwards through a hole in the broad ligaments, or folded back over the uterine cornua. The broad ligaments also may be folded in front of the uterus or behind the uterus. Different methods may be usefully employed according to the necessities of the situation; much use, however, can be made of the round ligaments to cover pedicles and to keep the uterus forwards where it has been necessary to remove some portion of the appendages. It is necessary to maintain the uterus in an anterior position after separating adhesions, etc., for, unless this is done, it will fall back again and the old symptoms will return.

It has often been asserted that these operations should be concluded by fixing the uterus to the abdominal wall. Such statements can only be made by those who have had little experience, for in the presence of inflammatory exudation it is often impossible to fix the uterus to the abdominal wall, and if it is done the fixation will either soon stretch and give way or cause great suffering from the tension. It is here that the different methods of folding the round ligaments find a useful application.

For uncomplicated displacements with little or no descent, what is known as the "sling operation," that is, pulling the round ligaments backwards through a hole in the broad ligament under the utero-ovarian ligament, and fixing them to one another and to the back of the uterus, was employed. This operation should not be done in the presence of varicose veins in the broad ligament, for a number of instances of iliac thrombosis have been recorded following this operation. Moreover, it does not produce sufficient elevation of the uterus should there be descent. In appropriate cases, however, I have found it a satisfactory procedure.

Another method I have employed for several years is fixation of the round ligaments to the lower part of the abdominal wall just above the bladder by means of buried silkworm gut sutures.

Technique.—This operation is done either by a transverse or a vertical incision.

In order that the transverse incision may be completely hidden by the vulvar hairs, I have employed the following modification. The skin is stretched in an upward direction by means of three pairs of Kocher forceps—one median and two lateral—applied to the transverse line on the skin of the abdominal wall, which is usually found about one inch above the symphysis pubis. The transverse incision is then made midway between the points of the forceps and the symphysis pubis, so that when the incision is sutured it lies across the mons veneris and becomes completely hidden by the growth of hair. The transverse incision need only extend as far as the position of the superficial epigastric vessels, which need not be divided. After division of the skin and fat they are further separated from the aponeurosis in an upward direction until sufficient space is obtained to divide the aponeurosis in the middle line. The muscles are next separated (not cut), and the peritoneum exposed and opened. The uterus and appendages are examined, and if the latter are normal the round ligament of one side is seized close to its uterine attachment with a pair of long Kocher forceps. A curved needle armed with silkworm gut is then passed through the aponeurosis muscle and peritoneum, then under the round ligament close to the uterus and back again through peritoneum, muscle, and aponeurosis. The needle is passed about 1 in. from the incision at its lower part close to the top of the bladder, which can be both seen and felt,

and is a much better guide than any definite measurement by inches from the symphysis pubis, which seems customary in describing similar operations. The round ligament of the opposite side is treated in like manner, and when the silkworm gut is held taut on either side the uterus is suspended and anteverted. The peritoneum, muscles, and aponeurosis are united in the middle line, and then the silkworm gut is tied on each side. The tying must not be too tight and the threads must be so cut that they do not cause subsequent pricking. If thought desirable, two or three catgut sutures uniting the round ligaments to the peritoneum may be inserted on either side to reinforce the silkworm gut.

This operation is simple, safe, and satisfactory. It leaves the uterus in good position, so that on examining some time after the operation it is difficult to tell what had been done. It does not interfere with subsequent pregnancy or labour, and it is an operation I frequently employ in the treatment of sterility. One of my patients operated on after four years of sterile married life has had two children born at the full time without difficulty, and her doctor informs me that her uterus is still in good position.

The possibility of intestinal obstruction from intestine being constricted under the attached ligaments might be urged against this operation. I am not aware that it has ever happened to any of my patients, and I should imagine that it is highly improbable that it ever will if the operation be done in the manner suggested. I believe the dangers from obstruction are exaggerated, and when it does occur it is in all probability due to faulty technique.

Still striving after perfection, I tried another method.

A transverse incision is also used, and at its outer extremity I made a small incision into the aponeurosis then separating the muscle fibres; a pair of Kocher forceps is used to push inwards the peritoneum. The latter is then snipped with scissors and the forceps pushed on through the hole and made to seize the round ligament towards its outer extremity. A loop of the ligament is then pulled through the track of the forceps and fixed by sutures on to the anterior surface of the aponeurosis. The loop may be pushed under the aponeurosis, a pair of forceps being used to separate the latter from the muscle, a catgut stitch closing the aperture. The slit in the aponeurosis should not be too small lest the ligament be constricted, and for the same reason the sutures require to be carefully applied. The ligament is best fixed by three sutures—one at each side fixes it at the opening and also unites the aponeurosis, and one at the extremity of the loop.

The same procedure is then done on the other side, and the median and transverse incisions closed. Before closing the incision accurate haemostasis should be obtained. Three silkworm gut sutures are passed, one mesial and two lateral; these should take a grip of the aponeurosis as well as the fat and skin. A buried suture of catgut is inserted to approximate the fat and aponeurosis and destroy dead spaces. The silkworm gut sutures are then tied over small pieces of indiarubber tubing after the skin edges have been approximated by Michel clips.

This operation leaves the uterus movable with no band or bands inside the abdomen around which the wandering intestine may inadvertently slip, and it does not interfere with subsequent pregnancy or labour.

I have employed this method for some years but have not put it on record until I was able to apply the best test of all—namely, the time test. I do not intend to fight the question of priority, but the method was original as far as I was concerned. I always thought that burrowing between the layers of the abdominal wall—a principle employed by so many operators—was not an ideal method.

An objection which may be lodged against this operation is that the cervix may be tilted slightly forwards, but this could be remedied by shortening the utero-sacral ligaments, although I have not yet adopted this additional modification. Both these methods of round ligament fixation will be found suitable, and should be selected according to the indications present.

The Alexander-Adams operation of shortening the round ligament by opening the inguinal canal need only be mentioned, as it was a step towards the production of improved methods. It has the great disadvantage that the condition of the appendages cannot be inspected. It is impossible to tell by examination if the appendages are normal, however great the ability of the examiner may be. The great frequency of adnexal complications is one of the important lessons I have learnt from my operative work, and not the least in importance is the fact that although the uterus may be movable and replaceable in a position of anteversion, the tubal extremities may be sealed from the result of old inflammation, thus rendering the woman sterile. The old "fear of the peritoneal cavity" having departed, there is no further need for extraperitoneal operations.

Vaginal Operations.

Vaginal Fixation.—In 1902[1] I described a method of vaginal fixation which I had carried out successfully in a series of cases, the details of the technique being somewhat different from those originally suggested. Briefly, the fixation did not extend above the lower part of the uterine body, thus permitting the uterus to enlarge during pregnancy. This operation does not interfere with the subsequent course of pregnancy or labour, and is quite different from the complete vaginal fixation of the uterus, which from its very inception must have been condemned by any one possessing surgical nous.

I still believe vaginal fixation performed in the manner suggested to be a good operation, and as an adjunct to other vaginal operations it may be usefully employed. The indications for its use are, however, definitely limited, and it is not applicable where there is much descent complicating a backward displacement, or when the uterus is fixed. Vaginal fixation of the round ligaments is another operation which is being employed, but of this I have no experience. It is obviously unsuitable where there is uterine descent.

The disadvantage of these operations is that they do not afford an opportunity of inspecting the pelvic contents and of dealing with any complications which are present.

Backward Displacements after the Menopause.

If the uterus be small and atrophic no treatment is necessary, for it will be found that under these circumstances the displacement does not cause any trouble. If the uterus be still large, and the other indications point to the necessity for an abdominal operation, a thorough fixation of the uterus can be done, for here the question of future pregnancy does not arise. Otherwise the same rules should guide the treatment as are applicable to women in the childbearing period.

Backward Displacements in Association with Uterine and Ovarian Tumours.

A backward displacement of the uterus may result from the presence of a pelvic tumour pushing the uterus backwards.

When the tumour is removed the uterus may still fall backwards, and here one of the methods of plicating the round ligament will be found of service, or the round ligament of the corresponding side may be used to cover the pedicle (if an ovarian tumour has been removed), and at the same time help to keep the uterus forwards.

A small fibroid embedded in the posterior or anterior uterine wall may easily be mistaken for an enlarged retroverted uterus. Such fibroids should be enucleated and the resulting cavity closed by suture. If desirable this operation should be followed by another on the round ligaments. Twelve months after myomectomy and uterine suspension by the round ligaments one of my patients gave birth to a healthy full-time child without difficulty.

Backward Displacement of the Gravid Uterus.

When the gravid uterus is displaced backwards it may right itself, and even if accompanied by retention of urine, rest in bed and the regular use of the catheter, to make sure the bladder is emptied, will frequently effect a cure. As all methods of replacement are apt to be followed by abortion, the greatest gentleness must be exercised should it become necessary to replace the uterus.

The uterus may, however, be fixed backwards by adhesions, and here it may be necessary to open the abdomen and free the adhesions. I have done this operation on two occasions. One patient went to term and was successfully delivered, the other aborted four weeks after the operation.

If, however, fixed backward displacements are treated on the lines already indicated the occasion for this operation will not arise.

In conclusion, although I feel that the subject has not yet been settled, I trust I have said enough to urge the importance of a broader outlook in the treatment of backward displacement of the uterus.

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, 1902, vol. i, p. 1204.

Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

GARLIC IN WHOOPING-COUGH.

AT the repeated request of many friends I am writing to mention a simple remedy for whooping-cough which appears to be not known generally to the profession. It consists of peeling the cloves of garlic, as the segments of the bulb are called, cutting them into thin slices, and wearing them under the soles of the feet between two pairs of socks, for if placed next the skin the pressure produced by walking is apt to cause irritation.

The garlic can usually be smelt in the breath within half an hour after the slices of garlic have begun to be worn, and the whoop and spasm usually disappear within forty-eight hours. The garlic should be worn for a week or ten days or longer, according to the severity of the case.

Garlic may also be administered by eating it as a form of bread sauce, made by chopping up the cloves when peeled, boiling them in milk, and mixing them with breadcrumbs.

London, W. T. MARK HOVELL.

LOCALIZATION OF FOREIGN BODIES.

So far as I am aware, the following method of localizing foreign bodies has not been published, and is so simple and practical that it deserves wider recognition.

Perhaps no subject has received more thought by radiologists during the present war than the matter of simplifying localization. Any method, to be acceptable, must be accurate, rapid, and capable of wide application. The method here described is most useful in the extremities, but has been used successfully many times also in such parts as the shoulder and hip-joints regions, and occasionally in the trunk. For very accurate measurements recourse is always had to some of the well-known methods such as Mackenzie Davidson's, etc.

Apparatus.

The usual table, with tube underneath, permitting movements laterally and in the long axis of the table.

A fluorescent screen.

A piece of flat wood, 12 in. long by ½ in. wide and ¼ in. thick, in one end of which is embedded a flat piece of metal the diameter of a shrapnel bullet—that is, ½ in. roughly.

The Method.

The patient is placed upon the table in the recumbent position. Let it be supposed that the preliminary screen examination has shown a foreign body to be lodged in the thigh somewhere in front of the femur.

Place the flat stick with its metal piece under the thigh and the screen above, and move the stick about until the shadows of the metal and the foreign body are superimposed. Mark the skin on the posterior surface of the thigh at the point where the metal rests. Proceed as before, but with the stick on the anterior surface of the thigh until the two shadows are again superimposed. Mark the skin at this point also, and join these two positions by a line running around the limb. A probe passed directly through the limb from the anterior to the posterior marks would pass through the foreign body. We therefore have one plane.

Now lay the stick upon the table so that both shadows appear on the screen and shift the tube backwards and forwards under the table. The two shadows are now seen to move—but unequally. Gradually bring the stick with its metal piece towards the anterior surface of the thigh, keeping the tube under the table constantly shifting. As the metal approaches the horizontal plane in which the foreign body lies it will be found that the two shadows move less and less unequally, until a point is reached where they move equally and together. The foreign body must therefore lie in this plane, for if this point be exceeded by moving the metal nearer to the anterior surface of the limb, the two shadows again move unequally.

For the most accurate use of this method the procedure just described should be repeated on both the inner and outer aspects of the limb, making marks on each side upon the line joining the first two positions, at the level at which the two shadows are found to move in unison. The foreign body will be found at the point of intersection of the two planes.

One of the chief virtues of this method is speed, which is important when a large amount of work is in hand. Patients are brought to the *x*-ray room, the foreign bodies localized, and they are then passed immediately to the operating-room adjoining.

G. E. RICHARDS, Lieut. R.A.M.C.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

AT the meeting of the Bombay Branch in March, Dr. C. FERNANDES, dermatologist, J.J. Hospital, and lecturer in skin diseases, Grant Medical College, showed the following cases:

Psoriasis.—A male Hindu had papules and plaques, scaly before treatment, and of various sizes and shapes, over the whole body, but most marked on the hands, feet, sides of the chest, pubes, and perineum. The head was covered with branny scales simulating seborrhoea sicca; the upper lip and angles of the mouth were also affected. The rash resembled a papulo-squamous syphiloderm, but it was present more on the extensor than the flexor aspect of the limbs and was very itchy, nor was there any evidence of syphilis. A second patient was exhibited where characteristic non-specific psoriasis all over the body had appeared seventeen years previously, recurring every two years.

Lichen Planus.—A woman, aged 43, had been subject for about seven months to a papular rash on the lower extremities, mostly on the front on the right and on the back of the left leg. When new the papules were darkish red, flat-topped, shiny, and angular in outline; some were depressed in the centre, looking like rings, while in others the pigment had diminished and the margins were raised and pearly in appearance. The rash caused much itching when recent. The patient had recently suffered from great anxiety.

Raynaud's Disease.—A married woman, aged 40, mother of five children, suffered five years previously from tingling and numbness of the hands in the cold season which afterwards diminished for a while but never disappeared in the warm season. For three years necrotic areas developed in the cold season near the tips of the fingers.

Xanthoma (Xanthelasma).—In this patient there was a clear history of hepatic and digestive disorders associated with the yellow patches round the eyes.

Ichthyosis and Xeroderma.—A boy, aged 14, ever since he could remember, had been subject to xeroderma of the hands and characteristic ichthyosis of the extremities, more marked on the extensor aspects, and of the trunk.

Rebiews.

ORTHOPAEDIC SURGERY.

IN connexion with the contractures, paralyses, and deformities resulting from the injuries of war, orthopaedic treatment attracts more interest at this time than it did formerly. Consequently, although the new edition of the well-known handbook of BRADFORD and LOVETT differs very little from its predecessor, which was noticed in our issue of April 20th, 1912, it might be worth while to devote to it a little more attention than a mere reissue would under ordinary circumstances command were it not for the fact that very little of the treatment described in this book is applicable to war orthopaedics, or to the conditions which result from gunshot injuries, especially when such are followed by suppuration. Unfortunately a large number of cases of obstinate contracture due to inflammatory fibrous tissue are already in existence, and will tax the skill and patience of orthopaedic surgeons for a considerable time to come. Orthopaedic surgery in the United States and some other countries includes diseases of the joints, and of the 416 pages of this book not quite one half are devoted to this branch of the subject, and particularly to tuberculous joint disease, in the treatment of which the Boston School has been so successful.

The first three editions of Bradford and Lovett's *Treatise* were of larger scope than the fourth and fifth, and space was found for some discussion of principles and of disputed points in treatment. In this condensed edition,

entitled *Orthopaedic Surgery*,[1] the authors expressly state that "brevity has been studied at the expense of omitting references and the extended discussion of the views of other writers, especially upon controversial subjects." The book should nevertheless be a useful practical guide to the practitioner, since in it will be found the statement of definite views, and descriptions of the means of treatment which the authors personally favour, and have selected as the result of the very large experience of two very well known authorities in this speciality.

There are some new illustrations, but the reading matter is little changed, save for some pages on syphilis of the bones and joints.

BURDETT'S "HOSPITALS AND CHARITIES."

The twenty-seventh issue of Sir Henry Burdett's invaluable yearbook of philanthropy and hospitals[2] is notable for several innovations. The index has been moved on past the first 150 pages of literary matter, an arrangement whereby it is hoped that these pages will have—as they deserve—more readers; a special list of post-graduate colleges where medical men can seek instruction has been included; a list of territorial hospitals has been made, and next year a list of the convalescent camps or institutions for wounded sailors and soldiers will probably be added. The editor gives notice that his post is still vacant, or perhaps we should say vacatable, for some competent and authoritative person with knowledge and keen interest enough to act as his successor. Special chapters are given to the income at the disposal of the 6,000 charities included in Sir Henry Burdett's survey, to the influence of the war, to the King's Fund and the League of Mercy, to the cost of the nursing departments in hospitals, and to other matters and organizations of outstanding interest in the world of charity. The bulk of the book is occupied by a directory of institutions arranged in classes according to their special functions. The volume is, as has been said, invaluable to lawyers, editors, public men, and all those who are interested in the relief of poverty and suffering; its merits cannot be too widely known.

SQUIRE'S COMPANION.

Squire's Companion to the British Pharmacopoeia is a work of great practical value to medical practitioners as well as to pharmaceutical chemists, dispensers, and pharmacologists. The eighteenth edition came out in 1908, and has just been replaced by the nineteenth edition[3] now before us. It contains a vast amount of well-ordered information, and is fully up to date. It begins with a number of useful tables, then follow 1450 pages of materia medica arranged in alphabetical order. Here the drugs are briefly but fully described from many points of view; the pharmacopoeial preparations are noted and compared with those of the chief Continental pharmacopoeias and that of the United States of America; then follow the not official preparations, such as are frequently prescribed but are not to be found in the *British Pharmacopoeia*. The rest of the book is occupied by chapters on such subjects as therapeutic agents of bacterial origin, chemical reagents used for qualitative tests, volumetric analysis, indicators, lists of spas, and other subjects of therapeutical and pharmaceutical interest. A great deal of attention is given to the tests that drugs should pass; a vast amount of practical experience is embodied in the paragraphs on medicinal properties and prescribing notes that appear under the headings of many of the drugs described. The doses are given in both the imperial and the metric systems throughout, and a great deal of trouble has been devoted to collating the information and tests set down in the numerous foreign pharmacopoeias that are compared and contrasted with our own. No labour has been spared to make the *Companion* a complete, scientific, and practical adjunct to the *British Pharmacopoeia*, and the author and his collaborators are to be congratulated upon the success they have attained. We cannot find either in the table of contents or in the index any reference to an article on the law as to poisons and precautions required to be observed. In another edition it would be well to insert the essential facts, which would not probably take up more than a couple of pages at most. The book is most useful to the medical man, and to the dispenser invaluable.

[1] *Orthopaedic Surgery.* By E. H. Bradford, M.D., and R. W. Lovett, M.D. Illustrations. London: Baillière, Tindall, and Cox. 1916. (Demy 8vo, pp. 425, 363 figures. 15s. net.)

[2] *Burdett's Hospitals and Charities, 1916.* By Sir H. Burdett, K.C.B., K.C.V.O. Twenty-seventh year. London: The Scientific Press, Limited. 1916. (Cr. 8vo, pp. 1628. 10s. 6d. net.)

[3] *Squire's Companion to the British Pharmacopoeia.* By P. W. Squire. Nineteenth edition. London: J. and A. Churchill. 1916. (Demy 8vo, pp. 1712. 12s. net.)

NOTES ON BOOKS.

The wastage of good human material, the outraging of all kindly human feeling, and the heartbreaking horrors of the modern battlefield, with its almost theatrical contrasts between good and evil, are set out by the skilful pen of "A Doctor in France" in a little book of war stories, entitled, *Red Cross and Iron Cross*.[4] Very properly the author sets down the inhuman atrocities of the German armies to the German officers in command rather than to the individual German soldiers, who are the active criminals. As he says, the day of reckoning will come. The author gives a clear and convincing picture of the painful and hateful side of war, and writes with full sympathy for the nameless sufferings inflicted upon both combatants and non-combatants alike in the little French village where his scene is set. We read that the author's profits on the sale of this book will be handed over to the French Red Cross. May they be large, for so they deserve to be.

To those who are still unfamiliar with the state of mind that induced the Central Powers to go to war with the bulk of civilized Europe M. Hovelaque's book on *The Deeper Causes of the War*[5] may be strongly recommended. It was published in French as long ago as November, 1914, and now appears translated into English by the author, with an introduction by Sir Walter Raleigh. The book is divided into two parts. The first of these is an attempt to give the German point of view, and represents the Germans as the salt of the earth, hemmed in on all sides by the idle and incompetent British, the vicious and degenerate French, and the barbarian Russians, and unable to effect their legitimate expansion by peaceful means. In the second part of the volume M. Hovelaque explains the why and wherefore of Germany's hatred and contempt of the British race, and analyses very acutely the many errors of observation and judgement upon which this hatred and contempt depend—*aegri somnia*, to put the matter into two words. The book is short, very well translated, and excellently written. It deserves the careful attention of a vast mass of readers.

Mr. J. Ellis Barker has long been known as a well-informed writer on the subject of Germany. He has recently brought together and amplified a number of magazine articles dealing with the fundamental principles of Germany's strength and weaknesses, and has published them in a book.[6] Here the author reveals to us the statesmanship and diplomacy that have guided Germany in her rise to greatness, from the time of Frederick the Great and his father, Frederick William I, down to the present day. Some forty pages at the end of the volume are given to five important Prussian State papers from the pen of Frederick the Great, including his famous political testament of 1776. Throughout the volume the author gives numerous quotations from the writings of the leading German statesmen of the time; by going thus to the fountain head for his facts and statements he succeeds in drawing a highly animated and convincing picture of the material and moral servitude in which the German must live and move and have his being. Withal, Mr. Barker is a firm believer in the virtues of organization such as may be seen in the German polity. During the last eighteen months most of us have read books on Germany and the war to the point of satiation. Yet in the matter of new books about Germany, as in other affairs, there is always room at the top; and we can recommend Mr. Barker's volume to the attention of all who are in search of a clear-cut historical account of the material rise and moral decay of the German empire.

[4] *Red Cross and Iron Cross.* By a Doctor in France. London: J. Murray. 1916. (Fcap. 8vo, pp. 157. 2s. 6d. net.)

[5] *The Deeper Causes of the War.* By Emile Hovelaque. Translated by the Author, with an introduction by Sir Walter Raleigh. London: G. Allen and Unwin, Ltd. 1916. (Cr. 8vo, pp. 158. 2s. 6d. net.)

[6] *The Foundations of Germany: Being a Documentary Account Revealing the Causes of her Strength, Wealth, and Efficiency.* By J. Ellis Barker. London: Smith, Elder, and Co. 1916. (Demy 8vo, pp. 288. 7s. 6d. net.)

MOTOR NOTES FOR MEDICAL MEN.

THE NEW TAXATION SCHEMES.

By H. MASSAC BUIST.

INASMUCH as in all Government schemes for taxation in connexion with motoring the medical profession is rightly let off with the payment of half-rates, and because the majority of medical men do not use cars of high power, it is questionable if in the average case the dropping of the taxation proposed in Finance Bill (No. 2) in the way of extra licence fees and the substitution of a petrol supertax of an extra 3d. per gallon for all the fuel used by medical men will be a gain to the majority of the profession.

In the first place, the average medical man motors at least from 8,000 to 10,000 miles a year; as was estimated in these columns when the question of additional motor taxation in 1916–17 was first mooted, the really serious thing for the country doctor was, and is, the price of petrol. In regard to the Petrol Census, at least he has the satisfaction of knowing now that he will be able to get the fuel to enable him to go about his work; but the price of it is another guess matter.

The net effect of putting the tax on fuel in place of imposing it by way of enhanced licence fees is that for first-grade petrol the medical man will be at a total charge of as much as 2s. 10d. per gallon, and the general public at a cost of 3s. 4d. per gallon. Doubtless the majority of practitioners use either No. 2 spirit or fuel mixtures of one sort or another. Be that as it may, it is doubtful if the average doctor will get off with a fuel bill at a much lower rate than 2s. 7d. per gallon, all told.

COST WILL BE GREATER FOR SMALL MACHINES.

The talk that consumption on the part of light machines averages forty miles a gallon is, of course, all nonsense as far as concerns the general work that falls to be undertaken by the doctor's vehicle. Yet, assuming that the motor machine employed comes within the 6½ h.p. class according to the Treasury rating, and does 8,000 miles a year at an average fuel consumption of forty miles to the gallon, the net increase to be paid by the medical man, whose rates are only half those paid by the public in the way of petrol tax, will be £2 10s. a year, whereas the abandoned extra horse-power tax would work out in the case of this particular class of vehicle at only £1 1s. a year.

When considering machines recognizable as light motor cars, however, on the same mileage vehicles on which doctors would have had to pay one and a half guineas a year extra tax by the now abandoned scheme and which may average a matter of thirty miles to the gallon of fuel, will involve a cost of £3 6s. 6d. by way of petrol supertax on an 8,000 miles basis.

Next consider the case of cars whereon a medical man would have had to pay £2 2s. extra licence for a full working year according to the now abandoned scheme, vehicles not exceeding 16 h.p. Treasury rating. Very few of these would average twenty-five miles to the gallon of fuel. Yet if they were as economical as that, on an 8,000 miles basis this gives us £4 a year extra cost to the medical man—otherwise a difference of £1 18s.—by placing the tax on petrol instead of on horse power. If the machine only averaged twenty miles to one gallon, as is likely, of course the case would be even less favourable to the doctor.

AND LESS FOR SOME LARGER ONES.

When, however, we come to such a proposition as the Ford, whereon the medical man would have had to pay enhanced licence fees of £6 6s. a year, according to the scheme now abandoned, we find that he has not much to gain or lose one way or another, because under the new petrol supertax scheme on 8,000 miles a year, at an assumed average of twenty miles to the gallon, including such hilly country as might fall to be traversed, the medical man's contribution would average a matter of £5 a year petrol supertax. On that assumption he is better off under the new arrangement than he would have been under the abandoned one. But we must not overlook the fact that many Ford vehicles are used by medical men in districts where it is impossible to obtain anything like such economical consumption, particularly in the more exposed and hilly parts in winter time, when a deal of the heat value of burning motor fuel is lost.

Furthermore, it will be observed that the foregoing costs are all arrived at on an annual use of only 8,000 miles; whereas the average medical man probably does nearer 10,000 miles, and many do over 12,000 miles. These greater distances, therefore, mean that the new arrangement is still less favourable to the users of cars not exceeding 16 h.p. Treasury rating; also, that in the case of those over that size, and on which the abandoned taxes would have worked out at treble rates, the doctor's share of petrol supertax will be heavier. Perhaps the matter can be best summarized and illustrated in tabular fashion, thus:

Car Not Exceeding Treasury Rating.	Miles per Gallon.	Miles per Annum.	Abandoned (extra) H.P. Tax.	Substituted Petrol Supertax 3d per Gallon.	Gallons of Fuel Used.
H.P.			£ s. d.	£ s. d.	
11.9	30	8,000	1 11 6	3 6 8	266
		10,000		4 3 3	335
		12,000		5 0 0	400
16	25	8,000	2 2 0	4 0 0	320
		10,000		5 0 0	400
		12,000		6 0 0	480
26	20	8,000	6 6 0	5 0 0	400
		10,000		6 5 0	500
		12,000		7 10 0	600

Fractions of gallons have been omitted, and a very economical petrol consumption taken as the basis of calculations; the great proportion of winter driving that falls to be done considered, as well as the hilly nature of many districts, and the long intervals during which doctors' cars stand idle in winter weather, the engine inevitably cooling down all the time. Further, the average make of car exceeding 16 h.p., Treasury rating, will not travel twenty miles on a gallon of fuel; eighteen miles to the gallon would be nearer the mark.

THE PETROL SITUATION.

The Petrol Committee of the Board of Trade has made it abundantly plain that at this period, when the medical profession is inevitably greatly overworked, none of its members shall suffer from inability to get all the motor fuel necessary. Very few medical men have machines of greater Treasury horse-power rating than is embraced in the above table, drawn up in illustration of the new situation. Therefore, the long and the short of it is that the average medical man will pay more in the way of petrol supertax than he would have done had the enhanced duty been placed instead on engine volume. Inasmuch as any alternative fuel that might be employed would in the main have to be imported into this country, we are not to look for any particular Government encouragement for the use of it for passenger cars at this juncture—first, because that would not appreciably relieve the shipping situation; secondly, because instead it would tend to obviate the contribution to the Exchequer payable in respect of the use of petrol; and, thirdly, because the needs of utility motor vehicle users are so greatly on the increase that this may be regarded as the first natural field of exploitation of what are broadly termed heavier fuels. Some authorities hold that there are very large stocks of petroleum in this country which could be used to this end; but others, no less eminent, do not agree that this is the case. The Government may or may not know the exact situation in this regard. This, in any case, is plain, that if the use of heavier grade fuels became at all general, whatever stocks there may be in the country would be quickly depleted, so that in a few months we should become again dependent on imports of heavier grade fuel. If the shipping situation were to improve, even though the Government were to place as high a duty on the burning of heavier grade spirit as it is now imposing on petrol, it would be alike to the interests of the individual and of the nation that the heavier grade material should be used, provided it can be used properly. The reason is obvious. All over the world there is at present a great shortage of petrol, but there is not a shortage of heavier grade petroleum distillates. Therefore to buy these latter abroad would result in the exportation of less money from these islands than would be necessary to acquire an equivalent amount of petrol of the first grade.

The Use of Paraffin.

But I made a proviso above to the effect that the use of heavier fuels would be justified only if they could be burned properly in internal combustion engines. There are being placed on the market a vast number of carburetter devices produced with a view to running engines either wholly on paraffin or on paraffin after the motors have been warmed up on petrol. None of the newer devices of this sort has been subjected to a lengthy test by an officially recognized body such as the Royal Automobile Club. This is to be regretted, because what is wanted is absolutely independent testimony of an authoritative character. It is not sufficient, for example, to get a few users to testify that their cars can be made to run with any given paraffin carburetter. The medical profession requires to know, first, in what weather such a device will run on such fuel without giving trouble or being difficult to start at a period when it is practically impossible for the average doctor to have the services of a motorman, it being no work for a woman driver to crank an obstinate engine, whether in winter or summer. Secondly, users of paraffin carburetters require to know on indisputable evidence whether or not such carburetters enable paraffin to be burnt perfectly. Bad smells, as well as visible exhaust, are, of course, both evidences of imperfect combustion. The day will probably come when most motor cars will be able to run quite well on paraffin. When it does come we shall know of the achievement of success by absence of smell and of visible exhaust, both testifying to perfect combustion and therefore to the utmost economy of fuel consumption. To use fuel and not to burn it perfectly, so that a smoky exhaust or a malodorous one results, is to waste fuel and therefore to burn paraffin or any other alternative fuel more or less extravagantly.

Spade Work not for the Medical Profession.

Benzol and alcohol are other alternative fuels of which much is anticipated. Assuredly after the war these, as well as petroleum, will come into wide use as alternative fuels. Unquestionably, if the war should continue for another year, considerable progress will be made in their use, particularly of paraffin. But the medical man is about the last motorist who can afford to experiment with his car at this crisis. Before all else he must be sure that it can serve him in an absolutely dependable fashion, for he cannot do his work properly if he has to expend energy in wrestling with an engine that is difficult to start. Therefore the profession would be well advised to leave it to other sections of motorists to do the spade work in connexion with using alternative fuels.

Exceptions may be made in the case of those medical men whose cars are equipped with mechanical engine starters of which they have had sufficient experience to enable them to be sure that they can depend on them absolutely. Such may use "half-and-half" fuel, that is, half petrol and half paraffin, if they find their carburetters will take it, as most will, at least in summer weather.

Another very interesting development, not yet sufficiently proven for medical men to embark on it in general, however, is a type of paraffin carburetter designed for use on vehicles standardized with electric engine-starting apparatus. By an ingenious and simple accessory the current stored in the batteries is employed before starting the car to warm the carburetter and intake pipe to a sufficient extent to enable the paraffin to vaporize. This has been done in a minute, but it should be pointed out that apparently the older fashioned types of engines with narrow intake pipes are the machines on which this has been tried. With such, of course, the suction at starting is such that the passage of the gas is proportionately more swift, thus assisting the process of the mixture. What we need is a lengthy trial, under Royal Automobile Club auspices, of such a device as this.

Relief not likely till the Autumn.

In the meantime, all that has occurred in connexion with the motor fuel problem since the matter was last touched on in these columns goes to confirm what was then indicated, namely, that the world shortage of petrol is likely to be felt more and more acutely until the late autumn, from which period onwards we may expect improvement, in that America is going ahead fast with the general employment of various improved "cracking" processes. As to whether this country will reap the benefit of that of course depends very largely on the extent to which the completion of new tank steamers shall relieve the transport problem. Apart from our own activities in this direction, a great number of these vessels have been laid down in the New World, and of these many are practically finished building. Therefore from now onwards we may expect a considerable augmentation of the fleets of these vessels available, though we must offset this factor by possible submarine activities on the part of the enemy. For every fresh steamer put on the high seas, moreover, we could reap the benefit of at least two if the Government were to manifest enterprise in the direction—obvious long before the war and emphasized to an increasing extent since the outbreak of the campaign—of so increasing the bulk storage available for motor fuel in these islands that a period might be put to the present wasteful practice of delaying tank vessels in port where many of them are used for appreciable periods in a capacity quite foreign to them, namely, that of bulk stores. The purpose of building a steamer to give profitable results is that it shall ply between one port and another as frequently as possible and remain in dock for the minimum time. As soon as it brings a cargo to port that cargo should be discharged and the vessel freed to proceed at once in quest of a fresh cargo. If an end were once made of the delaying of these vessels in our ports by the provision of ample bulk storage capacity ashore, the fuel situation would be very different from what it is, for in the course of each year every vessel available would be enabled to bring us much greater quantities of motor spirit of all grades. It is idle for any party, or section, to gird against imports of this character, for the war has demonstrated conclusively once for all that this is the motor age, and that it is for the benefit no less of the community at large than for the immediate purposes of the two services that motoring should be pursued at the minimum cost and with the maximum facilities, particularly in a crisis when the horse supplies of the world are being drawn on in an abnormal fashion for the pursuit of the campaign.

Where the Profession can Employ its Influence.

Therefore the medical profession would be well advised to lend its weight to the endeavours now being made to educate the Government to the need of reconsidering the whole proposition of motor fuel storage and distribution in these islands. This vital problem cannot be too variously and influentially advocated. It should, moreover, be ventilated in every possible organ of the press. Nor let it be thought that any facilities of this nature that might be provided in war time would fall into desuetude on the coming of peace. They would not, for the all-sufficient reason that the growth in the use of utility and agricultural motor vehicles is only beginning in these islands, and it will continue in increasing ratio for at least a decade after the coming of peace. In fine, the motor fuel problem will not be limited to the war period. Therefore medical men have a permanent interest in bringing their weight to bear on securing it immediate and intelligent attention and action on the part of the Government.

The successful advance of our Russian allies in Galicia is not calculated at present to exercise any appreciable effect in rendering available to us additional supplies of motor fuel from the resources in her possession. Russia herself has scarcely begun to tap her oil resources. The Allies' policy laid down at the Paris Conference should, of course, bear rich fruit for us on the coming of peace in the matter of supplying our market with motor fuel deriving from the Czar's empire. Against this, we may not overlook the far-range view—namely, that the experts of the United States Bureau of Mines have arrived at the conclusion that, at the present rate of consumption and with the present methods of distillation, the oil resources of the States will be exhausted in a period variously estimated at from fifteen to twenty-two years. Of course, with the increasing uses for liquid fuel it is certain that within any such space of time improved processes, at present undreamed of, will be brought into successful practice, apart altogether from which a variety of alternative fuels will undoubtedly be placed on the world's markets in commercial quantities.

British Medical Journal.

SATURDAY, JULY 1ST, 1916.

MILITARY MEDICAL SERVICE AT HOME (45 TO 55).

IT seems that in some quarters misapprehension has arisen with regard to the appeal recently made in these columns for whole-time medical officers over 45 years of age. Apparently it is thought by some that these officers are to be used for the purpose of relieving practitioners under 41 of their civil work, thereby setting them free to take service abroad with the military forces.

We desire, therefore, to state clearly the measures which experience shows may most wisely be adopted in this country for the purpose of carrying on the war with as little disturbance as possible of the resources for dealing with the medical needs of the civilian population.

War is for young men, and there is no doubt that every available young man should be serving with the armies in the field. In the medical profession, as in every other walk in life, there are certain men who cannot be spared from their civilian employment; but wherever possible the young man should be replaced by the man who is over military age. Of medical men under 45 years of age only those should remain at home who are either physically unfit or unacceptable to the military authorities or absolutely indispensable in their civilian work. The indispensable men under 45 are comparatively very few. The majority of medical men of military age should be in khaki, and should only remain in this country long enough to be trained in their army duties.

But this country must be prepared against the possibility of invasion, and for this reason troops other than those in training ultimately to go abroad must be kept available for home defence, whether as armies which can be moved to any place where they are wanted, or as garrisons in ports and other centres. It is plain that the troops which will presently go abroad must be supplied with doctors of military age, since when they go abroad they take their medical officers with them. But with regard to the troops which may never leave these islands, it is not necessary to retain medical men of military age with them. The medical requirements of these troops can be met in almost all cases by doctors who are over 45.

There are two methods of supplying the needs of the case: the one is by engaging part-time officers or civil medical practitioners, the other by employing men over 45 with whole-time commissions. It is for the latter method that the recent appeal was made in this JOURNAL; by the use of such men with home defence troops a certain number of younger R.A.M.C. officers hitherto kept in this country will be set free for service abroad; and we hope to prove that in the process a very considerable economy will be effected in the employment of medical men for military service.

The military purposes for which medical provision is required in this country may be enumerated under three heads: (1) The care of troops belonging to the field armies, (2) the care of troops permanently stationed as garrisons for ports and similar places, and (3) the staffing of hospitals. In the first case the troops are mobile, and must be served by mobile doctors. On the other hand, the medical attendance required for garrison ports, and by hospitals can be furnished by civil medical practitioners without a commission or by part-time commissioned medical officers (as in the case of Territorial general hospitals), with a leavening of whole-time commissioned officers, chiefly for administrative purposes. The whole of the medical establishment under the three heads mentioned should as far as possible consist of men over 45.

The immediate demand is for a supply of men between the ages of 45 and 55 who can be spared from the civilian community in which they practise to take whole-time commissions in the R.A.M.C. for service with the field armies in this country. They must be prepared to be sent to serve with military units anywhere in the British Isles; they must be acceptable to the military authorities; and they must be physically fit. It is certain that there are many areas from which such men can be spared without dislocation of the treatment of the ordinary population; this is true probably of many areas which are chiefly residential, where the medical men are mostly over military age, and in time of peace are more numerous than the neighbourhood really requires. By a rearrangement of practices a proportion of these men could be set free for a year's service and thereby provide the medical officers needed by the home service troops.

It is considered that the employment of these whole-time commissioned R.A.M.C. officers over 45 for service with the army at home will result in a considerable saving in many directions. They will be drawn from areas where their services in a civilian capacity can be replaced without any serious difficulty. They will set free young R.A.M.C. officers for their proper duties at the various fronts. They will help to limit the uneconomical use of part-time practitioners. They will prevent the danger of the military authorities finding that the part-time men upon whom they have been relying to move with the battalions on an emergency arising, fail to put in an appearance; and they will have obtained some knowledge of the duties of medical officers with armies in the field. While resort to part-time service is necessary and inevitable in certain directions, there can be no doubt that it is expensive and apt to be unreliable in an emergency and less efficient than the exigencies of military work require. The place for part-time service is in the garrison ports and in hospitals; but with these we are not concerned for the moment. The military authorities have decided—we think rightly—that mobile field armies must have a mobile medical service; and we are assured that this medical service will be constituted with every attention to economy. For these reasons we appeal again to every fit man between 45 and 55 to consider whether he can offer himself for a commission in the R.A.M.C.; and we are convinced that if he is accepted for service he will be assisting his country in the one way in which he can be most useful at the present time.

VENEREAL DISEASE AND SICKNESS BENEFIT.

THE question whether insured persons incapacitated for work by disease due to their own misconduct shall be deprived of sickness benefit appears now to have been reduced largely to the consideration of financial matters, which appeal especially to approved societies.

Under Section 14 of the Insurance Act, 1911, when societies became approved under the Act they could, with the consent of the Commissioners and with certain limitations, continue their old rules or make new rules, and from time to time alter or repeal such rules, always with the like consent. As a large majority of societies had a rule depriving their members of sick pay during incapacity from disease due to misconduct, the Commissioners, wishing to interfere as little as possible with societies, sanctioned the continuation of such rules, and themselves issued a model rule to the same effect. The chief limitations imposed were that in no case could such suspension from sickness benefit involve suspension of medical benefit, and no rule could provide for the suspension of any benefit for a period exceeding one year. Similar power was given to Insurance Committees to withhold sickness benefit from deposit contributors during incapacity from disease due to misconduct. From this it appears that these rules can only be abrogated either by voluntary application of societies to the Commissioners to be allowed to repeal them or by amendment of the Act or regulations compelling their repeal, and making the position in respect of sickness benefit the same as in respect of medical benefit.

Apart from financial considerations there are hardly two opinions as to the urgent necessity that the rules in question should be abrogated. The report of the Royal Commission on Venereal Diseases[1] is quite definite when it says, "The application of any such rule in the case of venereal disease is likely to deter patients from seeking prompt and efficient treatment; it is therefore contrary to the interests both of public health and economy." Similar views were expressed by the Conference of Local Medical and Panel Committees held in June, 1915.

The letter from the Chairman of the Insurance Acts Committee published at page 29 shows very clearly the attitude which the Association will undoubtedly take. As Dr. Macdonald says, the Insurance Acts Committee can appreciate more fully than any other body the ill effects of the rules of the approved societies as to "own misconduct," and are prepared to advise the Insurance Commissioners that no insured person should, because he is suffering from venereal disease, be refused sickness benefit, if in the opinion of his medical attendant he cannot be efficiently treated without enforced rest. Dr. Macdonald touches upon the financial considerations and has no difficulty in showing that even when the question is regarded solely from that point of view a strong case can be made out for the consideration of approved societies and insurance authorities generally. In the first place it is practically certain that societies save far less through the operation of the rule than perhaps they imagine. No statistics as to the frequency of syphilis and gonorrhœa are of any value, and the Royal Commission had constantly to lament this fact. Neither the figures of hospitals and Poor Law authorities, nor those obtained from death certificates by the Registrar-General, show the amount of venereal disease that really exists. Death certificates do not afford any reliable indication of the number of deaths caused directly or indirectly by syphilis, partly because medical practitioners naturally desire to save the feelings of surviving relatives, and do not mention syphilis if any other more direct cause of death can be stated, and partly because so many diseases with distinct names and characteristics are generally recognized as causes of death, though syphilis, contracted possibly many years before, is often really at their root. Much more generally is this true of various illnesses arising from venereal disease which, though they do not cause death, lead to temporary incapacity for work at intervals for many years after the primary disease. Many common diseases which in the public mind are never associated with syphilis, are recognized in all the medical textbooks as often being directly caused by it. Partly no doubt on this account the Insurance Commissioners have considered it necessary to fix a limit of time after which insured persons should not be deprived of sickness benefit on account of venereal disease known to have been contracted through personal misconduct, and in the *Handbook* for approved societies recently issued by the Commissioners (p. 95, English edition) it is stated that the Commissioners are satisfied that societies do not desire to inflict the penalty of suspension from benefit in respect of misconduct which has happened a long time before it comes under their notice, and as a definite period must for practical purposes be adopted, the Commissioners have fixed two years as an experiment. All this goes to show that even now, in spite of the rule, societies are paying sickness benefit in a much larger proportion of cases than they realize, in which venereal disease is the real originating cause of incapacity; as Dr. Macdonald says, if they had to pay sickness benefit in every case at the time of the primary infection, the effect on their financial position would be far less injurious than they fear and, in fact, than it actually is. It would in the long run mean a substantial saving. This has been fully recognized under the national insurance in Germany, where there is far more experience of venereal disease in this regard than in this country, and where suspension from sickness benefit for venereal disease due to misconduct is no longer the rule.

But we may carry the argument still further. While it would be very rash to assume that the withholding of sickness benefit will ever deter a single individual from exposing himself to the danger of contracting venereal disease, it is quite safe to accept the proposition that when disease has been contracted, in addition to the sense of shame which often deters the patient from going to a panel doctor, the absence of sickness benefit will often prevent a proper course of treatment, involving cessation from work, from being accepted.

Two facts universally recognized by the medical profession should be clearly understood by the public in general and the approved societies in particular. The first is that few diseases are more amenable to curative treatment than venereal diseases in their primary stages; the second is that, if not then properly treated, no other known diseases cause more numerous and more disastrous effects sooner or later. An enormous number of cases of locomotor ataxia, general paralysis of the insane, apoplexy and various paralyses, diseases of the liver and kidneys, stricture and forms of so-called rheumatism, are known to be remote effects of syphilis and gonorrhœa. Vast sums of sickness and disablement benefit are now paid for these and other effects of venereal disease which would have been entirely saved had there been no obstruction to the early treatment of the primary venereal disease. Nothing can be more certain than this, though as yet the approved societies have failed to realize its significance to their funds.

The reply of society officials, however, cannot be lightly set aside. They state that their actuarial calculations have been based on experience derived

[1] An analysis of the report appeared in the BRITISH MEDICAL JOURNAL of March 4th and 11th.

from the operation of their present rules, and though they might admit all the statements of the Royal Commission, backed up as they are by the medical profession, as to the certain saving of sick benefit after a few years have elapsed, they fear that the immediate effect of repealing their rule would be such an increase in the calls for benefit as the present condition of their finances could not bear. They plead the extra demands on their funds which will almost certainly arise from the effects of the war on their members now in the army, and especially the fact that after a war a large increase of venereal disease often becomes revealed in the disbanded armies. On all this the societies are inclined to base a demand that if they consent to repeal the rule at present, they must have a Government guarantee that their funds shall not be allowed to suffer unduly during the next few years. In short, the question is considered solely from the financial point of view. This is not to imply that the societies care nothing about the future health of the population; they are no doubt bound to have regard to finance in spite of any promptings of a higher character.

On the other hand, there still remains the grave moral responsibility which approved societies and the insurance authorities incur by continuing any rule which in any degree interferes with measures proposed in the interests of the public health. As the Insurance Acts Committee points out, "the deprivation of sickness benefit compels many sufferers to keep at work when they should be in bed." The evil effects of this, not only to the sufferers themselves, but to future generations, are disastrous, and if societies can show that by abrogating their rule at present they incur any financial difficulty they will undoubtedly have a good case to lay before the Government and the Commissioners for financial assistance. The Local Government Board is evidently determined to institute adequate means for the proper diagnosis and treatment of venereal disease, and in this it will be supported by the British Medical Association. It is impossible to believe that approved societies and insurance authorities generally can ever be allowed—or, indeed, that they would ever wish—to offer the least resistance to such measures. The continuation of the present rule depriving of sickness benefit persons suffering from venereal disease brought on by misconduct would, however, in practice have the effect of seriously impeding the beneficial effect of such measures.

PROPOSED MEDICAL PATRIOTIC FUND.

THE profession will learn with real satisfaction that progress has been made during the past week in the discussion of the steps which it should take to help widows and orphans of medical men who lose their lives in the war, to help medical men who are permanently disabled in the war, and to help also those who are embarrassed financially owing to their acceptance of commissions in the medical services of the navy or army. It will be remembered that the Representative Body of the British Medical Association, at its annual meeting last year, requested the Council to consider the advisability of raising a fund for the purpose of helping those practitioners who have been serving their country as medical officers of the army and navy, and also of helping the dependants of such practitioners, if necessary. As will be seen by the annual report of the Council of the Association (paragraph 61, SUPPLEMENT, May 6th, 1916) the Central Medical War Committee, which has had the matter under consideration, has not felt itself in a position definitely to advise in favour of the establishment of such a fund, but presented a memorandum on the subject to the Council on April 26th. This memorandum has since been under consideration, but certain legal questions have arisen which have not yet been cleared up. Meanwhile, however, at the meeting of the Council on June 28th, a resolution was unanimously adopted expressing the opinion that "it is to be anticipated that, owing to the exceptional conditions of many medical practitioners now taking temporary service with the Royal Naval Medical Service and the Royal Army Medical Corps, cases of serious temporary financial embarrassment will arise, and will need to be dealt with if the sacrifices made by these men are not to cause permanent loss of status and livelihood, and that such embarrassments may best be met by the formation of a loan fund from which loans can be made in suitable circumstances on terms that cannot be obtained under ordinary financial arrangements." A deputation, consisting of the Chairmen of Representative Meetings, of the Council, of the Central Medical War Committee, and of the Executive Subcommittee of the last named, was appointed to seek an interview with the Director-General, A.M.S., in order to ascertain his views as to the best means of establishing such a loan fund. The whole matter, including the result of this interview, will no doubt come before the Representative Body at its annual meeting which begins in London on July 28th. A meeting of officers of the auxiliary branches of the R.A.M.C.—namely, the Special Reserve, Territorials, and those holding temporary commissions—adjourned from June 1st, assembled again on June 26th at the Royal Army Medical College to consider what steps, if any, should be taken to establish a benevolent fund for the auxiliary branches of the R.A.M.C. The meeting received the report of the Provisional Committee setting out the draft scheme which we criticized last week, and referred it for consideration to meetings to be called "in the various areas in the country." It may, however, safely be assumed that the majority of the officers interested are serving abroad. For their convenience the draft scheme is published in full at p. 30. The meeting on June 26th also decided that the scope of the fund or funds should be such as to permit of the establishment of a loan fund, or any other fund deemed desirable, in order to relieve cases of temporary financial embarrassment due to the exceptional conditions of service in the three auxiliary branches of the R.A.M.C. The opinion is, we believe, unanimous that a benevolent or compassionate scheme is needed for the widows and orphans of medical men who lose their lives in the war, and also for the assistance of medical officers permanently disabled in the course of the service they have given to the navy and army, many of whom will have little to depend on beyond the meagre pensions granted by the State. Upon the question whether it is advisable and feasible to establish a loan fund there is more room for difference of opinion, but we trust that the interest now aroused in the subject may result in the formulation of a sound, practical, comprehensive scheme for a benevolent fund, and have some hope that it may be possible to establish also a loan fund on the lines indicated in the resolution of the Council quoted above.

DR. RAYNER.

DR. EDWIN RAYNER of Stockport, who has been Treasurer of the British Medical Association for a period of nine years, having signified that he desired not to be re-elected, the Council, at its meeting on June 28th, adopted a cordial vote of thanks to him for his skilful and effective management of the finances of the Association during a critical period, and for his unswerving devotion to its interests during his tenure of office as its treasurer, for a period longer, we believe, than that for which the office has been held by any of his predecessors—at any rate, in recent

years. The Chairman of Council, in moving the resolution, said that it was a simple recognition of the hard work Dr. Rayner had done. The deep debt of gratitude due to him was made all the greater because he had gone on with the work at times when the state of his health might well have justified him in resigning. The satisfactory financial position of the Association at the present time was largely due to his skilful and devoted labours. The motion was seconded by Mr. Turner, Chairman of Representative Meetings, who paid a similar tribute to Dr. Rayner's unselfish devotion to his duties as treasurer. It was supported by Dr. Verrall, who spoke as the member of the Council who had belonged to it for the longest time. The motion was carried by acclamation, and Dr. Rayner replied in a few words, in the course of which he referred to the fact that he had been a member of the Association for forty years, during the whole of which he had taken a keen interest in its affairs. The Council resolved to submit the names of the following to the Annual Representative Meeting of the Association as suitable to be elected to the office of treasurer: Dr. G. E. Haslip and Dr. R. Langdon-Down.

THE SALE OF HABIT-FORMING DRUGS.

The recent Order of the Army Council dealing with the supply of cocaine and about a dozen other drugs to members of His Majesty's Forces imposes severe—though not too severe—restrictions on a trade which contains the possibilities of serious evil. Of the drugs dealt with by the Order, coca, cocaine, codeine, diamorphine, opium, and morphine were already in Part I of the Poisons Schedule, and could only be supplied retail by qualified pharmacists to purchasers known to them personally and after compliance with the statutory requirements as to registration of sale and labelling of the article; barbitone (veronal), sulphonal, and chloral hydrate were in Part II of the schedule, and the only restrictions were in regard to labelling and the qualification of the seller; benzamine (eucaine) salts, however, being synthetic compounds, and therefore not included in the clause "all poisonous vegetable alkaloids," and Indian hemp, were freely saleable by any one. The restrictions of the Pharmacy Act, however, refer to retail sales; the only clause dealing with scheduled poisons when dispensed to a prescription merely requires that the prescription shall be entered in a book kept for the purpose and that the name and address of the pharmacist dispensing it shall appear on the label; no evidence even is required that the prescription is that of a medical practitioner. In contrast to all this, the Army Council Order lays down that none of the drugs named, or any of their "preparations, derivatives, or admixtures" shall be supplied under any conditions to a member of the forces "unless ordered for him by a registered medical practitioner on a written prescription, dated and signed by the practitioner with his full name and qualifications, and marked with the words 'not to be repeated,' and unless the person so selling or supplying shall mark the prescription with his name and address and the date on which it is dispensed." The need for restricting the repetition of prescriptions for habit-forming drugs has long been felt, and the practice of putting on the prescription "Not to be repeated" or similar words is by no means unknown, while the requirement that a practitioner's signature, and not merely initials, must be attached when poisonous ingredients are ordered in a medicine, is obviously reasonable. Probably these additional precautions, being now necessary in some cases, will become general. No exception need be taken to the list of drugs selected for restriction; the inclusion of all preparations and admixtures is rather sweeping. The suggestion made in a recent question in the House of Commons that "coca liquidum" (by which presumably liquid extract of coca was meant) is not included, was, of course, quite erroneous.

HANDY WOMEN AT CONFINEMENT CASES.

The warning notice which the General Medical Council proposes to issue against "covering" by medical practitioners of midwifery practice by uncertified women will not be issued until it has been considered by the Council, presumably at its next session in November, but it is becoming evident that local authorities are finding that the provisions of the Midwives Act are being evaded to a very large extent by handy women who pose as benevolent neighbours of the patients, and in some cases authorities have anticipated the General Medical Council by issuing what may be called local warning notices. In one such case—that of Newcastle-on-Tyne—the medical officer of health has sent to every practitioner of the area a circular letter stating that the number of confinements attended by uncertified women is increasing to an alarming extent in Newcastle, especially since the outbreak of the war, with the effect of nullifying largely the object of the Midwives Act, which was that women, even of the poorest classes, should have only skilled assistance during childbirth. It is pointed out that owing to the depletion of doctors through the demands of the army and navy, midwifery is at present a burden well-nigh intolerable to the doctors that remain at home, and it is here that the handy woman finds her opportunity. Posing, if challenged, as a kind-hearted neighbour, she is quite prepared to finish a labour before sending for a doctor, who may thus not see his patient during labour at all. Only too often the "good Samaritan" happens to be a person who habitually gains at least part of her livelihood by the surreptitious practice of midwifery, and is prone to expatiate on her experience with doctors. Such persons, though liable to a fine of £5, are very difficult to convict, but "to countenance their practice is on an exactly similar footing with employing an unqualified assistant." Medical men are therefore urged in the letter to exercise most scrupulous precautions in their relations with uncertified women to avoid any possible suspicion of "covering," and in order to prevent any misapprehension as to who are genuine midwives the medical officer of health encloses to practitioners a list of the certified midwives of Newcastle. Except that the list of certified midwives will prove of value to the Newcastle practitioners, it cannot be said that the letter will be of much assistance in the extremely difficult circumstances that often arise. It may be of some use to remind practitioners of the risk they run in "covering" unqualified practice by handy women, but there is always the danger of deterring doctors from answering calls through fear of being charged with "covering," in which case it would be the mothers rather than the handy women who would suffer. The prevention of unqualified practice of midwifery rests far more with the local authorities than with the doctors. It is unfortunately only too certain that throughout the country a considerable proportion of the local authorities have been extremely lax in the work of supervising midwifery practice, not merely at present during the war, when they may offer some excuse, but before the war began. With a fair number of praiseworthy exceptions the Midwives Act in many parts of the country is almost a dead letter beyond the mere routine of furnishing a few statistics. In many areas there is little or no attempt to provide a proper supply of certified midwives. If the intentions of the Midwives Act are to be properly realized, the least important thing is to threaten the doctors and the most important thing is to arouse local authorities to exercise their powers and carry out their duties under the Act.

THE NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

The first annual meeting of the National Council for Combating Venereal Diseases (which was formed in November, 1914) was held at the house of the Royal Society of Medicine on June 23rd. Sir Thomas Barlow.

who occupied the chair during the earlier part of the proceedings, reviewed the work of the Provisional Executive Committee as set out in its report. He referred to the vital importance of the decision of the Local Government Board to accept the recommendation of the Royal Commission, that centres for the treatment of venereal disease should be established, in the form of an emergency instruction to the municipal bodies. The Council, which wished to educate and strengthen public opinion, to give an enlightened support to the action of the State and municipalities, had been fortunate in receiving the benediction of all kinds of people and encountering the opposition practically of none. Dr. Frederick Taylor, as Chairman of the Medical Committee, said that, although the subject had been rather obscured in the hospitals during recent years by the closing of special wards for such cases, directly the promised facilities were afforded by the provision of treatment centres, the whole medical profession, he was confident, would rise to the great occasion. Lord Sydenham was elected president, and in a short address said that when he was asked to undertake the chairmanship of the Royal Commission he urged that the post should be offered to a leading medical man, but those in authority thought it desirable that the chairman should be a layman with what was known as the "open mind." The Commission was deeply indebted to its medical members, in particular to Dr. Mott, to whose labours and researches most of what was original in the report was due. The report was issued at an opportune moment, for never was there a time when it was so important to remove every preventable cause of racial enfeeblement. Moreover, all experience went to show that there was special danger of an outbreak of venereal disease at the close of war. The one bright spot in the dark picture unfolded before the Commission was that the disease admitted of being brought effectively under control. Some of the recommendations of the Commission would have to await legislative enactment, but he trusted that these proposals would not be lost sight of, particularly the suppression of quack advertisements and the modification in certain respects of the law of marriage. For the present the Council would address itself to the tasks more immediately possible. In the first place it would act as remembrancer to the Government, and encourage the establishment of centres at which facilities for diagnosis and treatment could be provided. He instanced gratefully the presentation by the Grocers' Company of a syphilis ward to the London Hospital, a benefaction all the more commendable because it could make little sentimental appeal. The second great task of the Council would be to arouse and maintain the intelligent interest of the people, and to act as a general centre of enlightenment. This would require a great amount of local organization and the bringing of influence to bear upon municipal bodies and hospital committees. Sir Rickman Godlee, Chairman of the Military Committee, gave some account of the propaganda among the troops; 1,000 lectures had, he said, already been delivered to 800,000 men in the various commands. Finally, Sir Malcolm Morris paid a tribute to Lord Sydenham's chairmanship, and said that the report was likely to have more practical result than the report of almost any other Royal Commission.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

IT has generally been supposed that infection by *Ascaris lumbricoides* was direct—namely, that ripe eggs are taken into the alimentary canal, and there give rise to young embryos which grow and develop into adults. Davaine's experiments certainly seemed to support this view, but Leukart was always doubtful, and suggested that the life-history might have to be completed by an alternation of hosts. Captain Stewart, I.M.S., in a note on the subject published in this week's issue, narrates some interesting experiments. He administered ripe eggs of *A. lumbricoides* and of the *Ascaris* of the pig to rats. An examination of the faeces later showed free larvae to be present there, and on the death of one of the animals numerous nematode larvae, apparently similar to *Ascaris* larvae, were detected in the lungs. Another rat was killed and a similar condition was found; in yet another nothing was found, and Captain Stewart believes that the animal had freed itself from the parasites sixteen days after the date of the first infection Three additional experiments, including one on a mouse, confirmed these results. It is not quite clear what these experiments indicate, but the observation may be of considerable importance. It is possible that the larval *Ascaris*, after having been taken into the human system, may have to find its way to the lung, and finally pass up the bronchi and trachea, and thence down the oesophagus to the stomach and intestine, as happens in the case of the *Ankylostoma duodenale*. As far as is known, there is no lung trouble associated with *Ascaris* infections in man, and certainly no fatal pneumonia. It must, however, be noted that the infection of Captain Stewart's experimental rat was massive, such as is never likely to be ingested by man or child. Captain Stewart recognizes that extended experiments are required for the complete elucidation of the further stages of the life-history of *Ascaris lumbricoides*, but he has done well to report the results he has so far obtained, seeing that his investigations may at any moment be interrupted by the requirements of military service. In carrying on the work it would seem to be advisable to make use of the species of worm that naturally infests the experimental animal. It is quite possible that the human *Ascaris* may not find a suitable host in the rat or cat. If, for example, the cat were used, the eggs of *Ascaris mystax* might be employed. Having regard to the complicated life-history of the ankylostome, it is quite believable that the life-history of *Ascaris* is not so simple as has generally been supposed, but that it also has a stage of development not hitherto ascertained. The results of further experiments will, therefore, be awaited with interest.

THE SCHOOL OF TROPICAL MEDICINE, CALCUTTA.

THE success of the School of Tropical Medicine, Calcutta, is now assured. The scheme, as already reported, includes a laboratory building and a hospital, the latter, it is hoped, to be ready before this time next year. The chemical laboratory and the medical college adjoin, and the new eye hospital to be erected by the Government of Bengal will occupy a site facing the tropical hospital, so that the whole group of buildings will form an imposing and important set of institutions. As an adequate body of professors and lecturers have been appointed, it is believed that medical men will be attracted not only from India, but from beyond its borders to the Calcutta School of Tropical Medicine. It is not too much to say that the success of the scheme is almost wholly due to the well-directed and persistent efforts of Sir Leonard Rogers, I.M.S., who, as is fitting, is the first director of the school. It is desired that the school shall contain some permanent memorial of the work he has done for it, and a committee has been formed in Calcutta to raise a fund to provide a portrait or bust of Sir Leonard Rogers, to be placed in the school to perpetuate the memory of his connexion with it. The committee consists of Surgeon-General W. R. Edwards, C.B., C.M.G., Lieutenant-Colonel W. J. Buchanan, C.I.E., Lieutenant-Colonel C. R. M. Green, and Dr. W. Willoughby Kennedy, with Lieutenant-Colonel W. D. Sutherland, I.M.S., who is acting as secretary. Subscriptions, limited to 15 to 30 rupees (£1 to £2), may be sent to Messrs. Thacker, Spink, and Co., 5, Government Place, Calcutta, and made payable to the Sir Leonard Rogers Portrait Fund. We believe that many in this country who know Sir Leonard

Rogers's indefatigable work, not only in connexion with the foundation of the Calcutta School of Tropical Medicine but in the investigation of tropical pathology and therapeutics, will be glad to take this opportunity of testifying their appreciation.

HEART DISEASE AMONG SOLDIERS.

From the course of the discussion of the "soldier's heart" at the German Medical Congress in Warsaw, a note of which is published elsewhere in this issue (p. 27), it is clear that the same difficulties are presented to the German physicians as are met with in this country. As was to be expected, the speakers noted that soldiers with hearts damaged or impaired before the war broke down under the strain. One statement may have more significance than is apparent on the surface, namely, that arterio-sclerosis was observed frequently amongst the elderly soldiers on their return from the battle-field. This is not the experience in this country, where remarkably few such cases are met with; the reason is probably that the Germans are employing men of more mature years. We gather from the discussion that many of the cases puzzle the physicians, and that consequently they are looked upon in a variety of ways—some are attributed to defective development, others to neurosis, and others again to excessive indulgence in tobacco. One speaker noted that soldiers with goitre seldom suffered from circulatory disturbances. The curious observation made by Professor Schultzen in winding up the discussion, to the effect that special hospitals and wards for cases of heart disease are detrimental to the health of the patient, and are, therefore, not to be permitted, shows that this physician does not clearly comprehend the problem with which he is dealing.

WOMEN MEDICAL STUDENTS IN WAR TIME.

A letter from the Dean of the Medical Science Faculty at King's College, printed on page 30, draws attention to the fact that this college has recently thrown open the whole of its medical department to women students, and that they will be allowed to cross its threshold next October to the number of twenty. Up to the present time the department has been open to these students only for the anatomy classes; and so King's College is now in a position to offer a complete medical education to a number of women so far as the preliminary and intermediate curricula are concerned. The next step, as Professor Halliburton says, is to secure for them the means of completing the final or clinical part of their education; in other words, to obtain for them further facilities for completing their hospital work. At the present time, in addition to the Royal Free Hospital, both St. Mary's Hospital and St. George's Hospital have engaged in the clinical instruction of women medical students in a somewhat tentative manner. A small number were accepted at St. George's Hospital fourteen months ago. The results of the experiment have been so successful that arrangements have been made for the admission of a few more for the duration of the war. At St. Mary's Hospital we understand that a number of women students have been taken on by arrangement with the London School of Medicine for Women. It is hoped, as Professor Halliburton points out, that other London hospitals will follow the examples thus set. But for the war there is no reason to suppose that the admission of women students to the London hospitals would yet have passed the stage of discussion and argument. It was, in fact, the effect of the war in cutting off the normal supply of medical students that brought the matter into the range of practical politics. Experience has now shown that a mixed medical school with both men and women students can be run without difficulty, or more than a brief period of awkwardness and adjustment. What will happen when the war ends seems uncertain, but in all probability a return to the normal conditions is to be anticipated, although it is, of course, possible that the mixed school will by that time have justified its continued existence.

Medical Notes in Parliament.

War Taxation and Finance.

The Finance Bill for the year has recently been in its Committee stage, and some important alterations in the fiscal proposals have been effected. It is possible that the bill has not even yet reached its final form, but the Committee stage is usually the most important for such bills, and no further substantial changes are likely to be made.

Cocoa, Coffee, and Tea.

The reduction in the cocoa duty was somewhat unexpected in most quarters, but the Chancellor explained that the original proposals for the increase in the duty to render it equivalent to the tea and other "non-alcoholic" duties had been found to be excessive for the purpose in view. He suggested that the true relations between the duties were 4½d. per lb. on cocoa and raw coffee, and 1s. per lb. on tea, and expressed the hope that these ratios would be accepted as a final settlement of the question, now and for the future.

Sugar.

An attempt was made by some members to obtain a reduction in the sugar duty, but with no result. The Government seem, not unnaturally, to regard a rise in the price of an exclusively foreign commodity with equanimity, as tending to diminish demand and therefore to reduce the effect on the foreign rates of exchange, but it is, perhaps, to be regretted that so marked a rise should be permitted—if not encouraged—in the price of what one member described as "a great producer of physical energy." In replying, the Chancellor made the effective point that although the price in bond of sugar now is not very much above the price in the short-crop period of 1911, the consumption has not fallen to a corresponding level, showing, as he very pertinently said, that the power to purchase sugared articles to-day is greater than it was in 1911; and we may perhaps add that that is especially the case with the majority of munition workers, for whose physical energy the Committee was very properly concerned.

Tinder Lighters.

The definition of "tinder lighters," to which we referred on a previous occasion, appears to have been insufficiently precise, even in its original form, and now appears as a "mechanical and portable contrivance for producing a flame or spark," but the dignity of the definition did not on this occasion obscure the trifling cost and importance of the article, and it has been agreed that the 5s. duty shall be subject to some reduction and to a discrimination based on the utility of the particular form of the lighter.

Petrol and Motor Cars.

The duties payable in respect of the maintenance and running of motor cars are of particular importance to the medical profession, and the drastic alteration in the proposals with regard to what Mr. Montagu described as "a supertax on motor cars for the war only" will have been noted with special interest. It will be remembered that the original proposal to increase the licence duties was put forward in the hope that a reduction would be effected in the number of licences taken out, and therefore in the quantity of petrol consumed.

Since the Budget was introduced the question has been approached in a more direct fashion through the appointment by the Board of Trade of a Petrol Control Committee, which is to institute control over the distribution of petrol by means of "permits" issued from a central authority, and the new proposal is to require payment of a licence duty of 6d. per gallon on the permits issued, the proposal to increase the rates of motor car licences being withdrawn. Provision will be made for a rebate on unexhausted permits. The inference to be drawn from some of Mr. Montagu's explanations would lead one to suppose that the rate of duty—6d. per gallon—was fixed at a figure which would bring in something slightly less than the original increase in car licences would have yielded. Permits will be issued for cars kept by medical practitioners and veterinary surgeons at half-rates, but even on that basis we fear that the medical profession as a whole stands to lose rather than to gain by the substitution of the new proposals for the old ones. The latter

were open—as the former are not—to the charge of too arbitrary and haphazard a graduation; but assuming, as we are entitled to do, that the consumption of petrol by the profession has reached a maximum of economy, it must still remain true that a professional user of a car will ordinarily consume more petrol than a car owner running his car for pleasure or convenience, and on the hypothesis that the new duties will not yield *substantially* less than the increase in licences originally proposed it would seem to follow that the medical practitioner will pay a larger tax, not only relatively but actually. In other words, although a medical practitioner does not use a car whose horse-power is above the average, his constant use of a car in all weathers and on all kinds of roads does necessitate a consumption of petrol above the average, and he therefore stands to suffer more when taxed on the basis of consumption than of power. Perhaps it is not too late to express the hope that the rebate may in the case of the "permit" duty be extended beyond the 50 per cent. which applies to the old licence duty levied on a scale of graduation based on power.

This point needs additional emphasis in view of the fact that at a later stage in the progress of the bill through committee Mr. Montagu announced that representations had been received in respect of the proposed tax (at half rates) on petrol used for trade cars, and that although the Government would persist in rationing petrol for such cars, no portion of the proposed new duty would be charged thereon. We referred last year to the preference given to the commercial car in the matter of the import duties then imposed, and substantially the remarks then made apply with equal force to the new petrol duties. If the purpose to be served is the restriction of the use of the motor car as a convenient means of locomotion and the putting down entirely of mere "joy riding," the medical profession can fairly claim the same exemption as that afforded to an owner of a trade car; and if the purpose is to raise revenue (and certainly such is not the main purpose, at all events), we fail to see why the medical profession should bear any special portion of the national burden.

There is one other point raised in this discussion which was promptly put on the shelf for consideration after the war, but should nevertheless not be allowed to escape comment. More than one member expressed the opinion that the existing discrimination in licence duties in favour of the medical profession should be extended to others—to clergymen in large parishes, for instances, and to farmers whose horses have been commandeered. The profession has no desire to play the part of the dog in the manger in this matter, but we are entitled to point out that the practitioner is in a position which is almost, if not quite, unique. Special cases may, and no doubt do, exist where the rebate is due as equitably to a clergyman or a farmer as to a county practitioner, but they must undoubtedly be the exceptions rather than the rule. The Revenue is naturally jealous of its right to insist that a reasonably exclusive professional use must be made of the car, and in the case of a medical man hourly liable to a summons for professional assistance and daily travelling an extensive round it has a guarantee which it can find in no other profession. The case of the veterinary surgeon provides the closest analogy, but even there the liability to the call for professional skill lacks that latent imperiousness which is the seal of the guarantee in the case of the profession which deals with human life and well-being.

Before leaving this subject we may perhaps mention that Mr. Montagu refrained from any statement as to when the new duties on the permits issued under the Defence of the Realm Act will come into force.

Income Tax.

The income tax sections of the bill provoked considerable discussion, especially as to the hardship of deducting a tax at the rate of 5s. in the £ from persons of limited means, and the Chancellor outlined a scheme which will be adopted with the intention of reducing to a minimum the consequences of the system of "taxation at the source," a system described by Mr. Fell (Great Yarmouth) as being "one of the most skilful, most profitable, and at the same time most unfair engines of taxation ever created by man." The intention is apparently to calculate the rebate beforehand in the case of persons liable to "direct" assessment (presumably from the returns now being made to the local officials), and to deduct the amount from the tax which would otherwise be payable on the local assessment. This arrangement seems to meet the case of taxpayers in receipt of untaxed—for example, professional—income fairly satisfactorily, but there remains a very large portion of the community, including retired professional or business men and unmarried women, whose entire incomes are taxed by way of deduction, and for these the only method of adjustment will be to file with the authorities a statement of income and obtain repayment of the excess deducted. Obviously to withhold 25 per cent. of the income for twelve months would entail the gravest inconvenience in a very large number of cases, and it is proposed to make the repayments half yearly instead of yearly as hitherto. It may perhaps be added that (as Mr. McKenna pointed out) many people will start the financial year with a repayment of tax for 1915–16, which will to some extent mitigate the inconvenience arising from the deductions made during 1916–17. The mitigation does not strike us as being very substantial.

In an interesting defence of a high income tax during the war, the Chancellor expressed the opinion that a maintenance of high taxation would in normal circumstances impair seriously the energy and industry of the nation, and thereby cause the business organizations of the country to suffer through lack of adequate accretions of fresh capital, but expressed the opinion that "at the present moment the great majority of our countrymen are willing to work as hard for the State as they would for their own interests, and could not only afford to pay this 5s., but would continue to carry on their businesses with the same energy and determination as before." This is a refreshingly candid reliance on the patriotism of the taxpayer, and is welcome as an indication that the Government anticipate a reduction in income-tax rates after the war is over.

In some previous notes[1] on the present Finance Bill we quoted the proposed rates of tax and commented on the absence of a reasonable parallel between the graduation of the earned rates and the unearned rates. At a later date Mr. Montagu intimated that amendments dealing with the question would be submitted at the Committee stage, and it may be convenient to give here a statement of the rates as now proposed, repeating the unchanged "earned" rates for purposes of comparison.

Total Income not Exceeding	Earned Rates.	Unearned Rates.
£	s. d.	s. d.
500	2 3	3 0
1,000	2 5	3 6
1,500	3 0	4 0
2,000	3 3	4 6
2,500	4 4	5 0
Exceeding £2,500 ...	5 0	5 0

It may be remembered that the original bill proposed a special unearned rate for incomes not exceeding £300, without any corresponding reduction in the earned rate at that limit. The revised scale extends the minimum unearned rate of 3s. not only to those below the £300 line but to all those below the £500 line, and foregoes a further 6d. in the £ in each class up to the £1,500 limit.

In another important class of case, that of persons on military or naval service, the scale of duties was also subjected to amendment, the sudden rise from 9d. to 2s. 1d. which took place at £300 being now obviated by a subdivision of the incomes between £300 and £1,000. The scale now stands as under, the original proposals being also given:

Total Income not Exceeding	Rates now Proposed.	Rates First Proposed.
£	s. d.	s. d.
300	0 9	0 9
500	1 3	2 1
1,000	1 9	2 1
1,500	2 3	2 5
2,000	2 9	2 9
2,500	3 3	3 3
Exceeding £2,500 ...	3 6	3 6

As many of our readers are, in one way or another, assessed in respect of civil professional earnings, it may perhaps be advisable to add that the above rates apply only to the "pay" received for the naval or military service, and not to any other earned income, the assessment of which would be governed by the ordinary scale of "earned" rates.

At a subsequent stage in the debate the Chancellor moved new resolutions enabling the question of the income tax allowance made for payments to life assurance companies to be considered. He stated that certain companies had taken advantage of the allowance to advertise new schemes of deferred annuities, and that a maintenance of the existing provisions would discriminate unfairly between different methods of saving. The intention appears to be not to interfere with the allowance in respect of the old-fashioned "whole life" or "endowment at sixty" policy, but to restrict the allowance where the policy is less of a life insurance and more of a savings

[1] BRITISH MEDICAL JOURNAL, May 20th, p. 731.

scheme than in such representative policies as are referred to above. In any case the restriction will not apply to policies taken out before June 22nd, 1916. The average medical practitioner is probably affected by allowances for life assurance more than the average business man, or, indeed, than most other professional men, but at the same time his policy is usually one for a long term of years, its subsidiary intention being directed rather to the supplementing of his income on retirement than to the saving of capital over a short period for early reinvestment.

Excess Profits Duty.

The clauses dealing with the Excess Profits Duty provoked, as must always be the case with so heavy an impost, considerable discussion, but no useful purpose could be served by commenting on intricate and involved provisions for the levying of a tax by which few medical men can be affected.

War.

British Civilian Prisoners in Germany.

Lord Robert Cecil, Under Secretary of State for Foreign Affairs, stated, in reply to a question on June 26th, that on May 31st the Foreign Office received a further report by Dr. Taylor, whose first report to the United States Ambassador in Berlin on the food question at Ruhleben was noticed in the JOURNAL of June 17th, p. 857. Dr. Taylor's later report stated that a fresh scale of diet had been put in force, and that civilians at Ruhleben were receiving only a little more than one-third of the protein-containing foods allowed to combatant prisoners of war, while the potato rations had been reduced to less than one-half of those issued to combatant prisoners. On June 3rd the British Government, through the United States Ambassador, informed the German Government that if it was not in a position to feed prisoners of war properly, it was clearly its duty to release them. It was pointed out that, so far from doing this, the German Government was detaining prisoners entitled to repatriation on the ground of ill health, and had made no reply to the British proposals that civilians over 50 should be repatriated, and those over 45 also if unfit for service in the field. The British Government also pointed out that German prisoners in British hands were not dependent on parcels for nourishment, and that it was ready to consider any proposals for an exchange of civilians on an extended scale. On June 8th the British Government asked the United States Ambassador in Berlin to obtain permission for sufficient food in bulk for 500 men being sent at fixed intervals, and the Prisoners of War Help Committee had decided to send parcels for 250 men in addition to those previously sent. On June 21st a still more unfavourable report by Dr. Taylor was received. It appeared from it that the German authorities had deliberately reduced the official food rations at Ruhleben, and that they had accumulated money, estimated at between 60,000 and 200,000 marks, which should have been spent in rations. Dr. Taylor stated that the food supplied during the week ending June 14th, if supplied to all the men interned at Ruhleben, represented less than half of the requisite food units, and that matters were made worse by the fact that much of the bread coming from outside Germany during the last month was of inferior quality or had arrived in bad condition. As the result of Dr. Taylor's third report the Foreign Office had addressed a note to the United States Ambassador in this country for communication to the German Government by telegraph, recapitulating the observations in the note of June 3rd as to the duty of the German Government to feed the prisoners properly, or to release them, and as to their failure to reply to the proposals to release civilians over 50 and over 45 in certain conditions; it concluded by proposing that all the British civilians at Ruhleben should be released in exchange for a similar number of German civilians. It was stated further that should the German Government not accept this proposal within a week from the receipt by them of the telegraphic summary, the British Government would be compelled to consider what course to adopt with regard to the rations of German civilians interned here.

On the same day Sir Edward Grey stated, in written answers, that a transfer of British civilian prisoners in Germany was under consideration, but presented considerable difficulties. He believed that the lot of the civilian prisoners at Ruhleben could only be effectually alleviated by adequate measures of exchange. Further reports had been received from Mr. Justice Younger's Committee other than those referring to Wittenberg, and the question of publishing them was under consideration. Thirty-three reports on prisoners' camps in Germany had been received since March 31st last, and it was proposed in future to lay such reports before Parliament every three months. The next White Paper would be laid as soon as possible after the end of the first quarter. The Prisoners of War Help Committee was formed by the War Office to co-ordinate the efforts of the numerous prisoners' aid societies. The Ruhleben Subcommittee was formed to ascertain the needs of the civilians at Ruhleben and to afford them assistance. In the absence of an official explanation from the German Government regarding their failure to repatriate the proper number of British civilians passed as unfit for military service, explanations of its action could only be a matter of conjecture. On June 7th the United States Ambassador had been asked to draw the attention of the German Government to the fact that in the four months February to May this country had repatriated 375 unfit German civilians and had received only 22 unfit British civilians. From a comparison of the numbers it appeared that about 1½ per cent. of the Germans interned in the United Kingdom were repatriated, as against about ½ per cent. of the British interned in Germany during the period in question; in other words, the proportion of Germans repatriated was three times greater than the proportion of British subjects repatriated.

Surgical Appliances in Military Hospitals.—In a written reply to Major Astor, dated June 22nd, 1916, the Under Secretary of State for War stated that all splints and other surgical appliances considered necessary by the officer in charge of a hospital for officers or men undergoing treatment in recognized hospitals, other than purely private hospitals and those receiving a capitation grant, are provided by the War Office.

Mesopotamia.—A reply made on behalf of the Secretary of State for India to Colonel Yates, on June 27th, was to the effect that Surgeon-General W. Babtie left India for a short time early in 1915 to carry out certain work entrusted to him by the War Office. He was not replaced during his temporary absence. He vacated the appointment of Director of Medical Services in India in June, 1915, when he was succeeded by Surgeon-General MacNeece. The suggestion that General Babtie had been responsible for the medical arrangements in Mesopotamia was to be deprecated.

Vaccination and Small-pox.—On June 26th Mr. Chancellor asked another question with reference to an army order issued in May prohibiting soldiers from visiting their homes in parts of Northumberland, Durham, Lancashire, Glamorgan, and Monmouth owing to the occurrence of a few cases of small-pox in those counties, and whether that order was due to loss of faith in the protective virtues of vaccination; and, if not, whether the order would be withdrawn. Mr. Tennant said that orders in the sense mentioned were issued, but were withdrawn as no longer necessary except in the case of three towns where cases of small-pox recently occurred. The restriction was not enforced for men recently vaccinated. The orders were a measure of precaution, and not indicative of any loss of faith in the protective virtues of vaccination. The War Office did not abjure its faith so easily as Mr. Chancellor seemed to suppose, but it would omit nothing calculated to preserve the health of His Majesty's forces. In a written reply to Major Astor, Mr. Long stated on June 26th that during the nine weeks ending May 27th, 1916, seventy-nine civil cases of small-pox were notified in England and Wales. Information as to vaccinal conditions was available as to seventy-seven of these cases; sixty-two had been vaccinated, and fifteen were unvaccinated. No person contracted small-pox subsequent to recent revaccination, but twelve of the cases had been revaccinated after exposure to small-pox infection and during the incubation period of the disease. Seven cases were known to have ended fatally, and of these three were unvaccinated; four were stated to have been vaccinated in infancy, their ages at death being 27, 37, 43, and 63 respectively.

Poisonous Dope.—On June 22nd Mr. Rowlands called attention to the deaths during May of two women workers, owing to poisoning by tetrachlorethane used in the manufacture of dope for aeroplanes. The Under Secretary of State for the Home Department (Mr. Brace) said that he hoped the arrangements for securing an adequate supply of an approved non-poisonous dope would very shortly be completed. Meanwhile, much was being done to minimize the danger by the use of such other non-poisonous dopes as are found suitable by the Admiralty and the War Office, and by an increasing observance of the detailed precautions in regard to ventilation, periodic medical examination, and other matters laid down in the instructions issued by the Factory Department.

THE WAR.

THE GERMAN MEDICAL CONGRESS IN WARSAW.

THE much-advertised German Medical Congress[1] was held on May 1st to 3rd in Warsaw, where over one thousand medical delegates from the Central Powers and their allies met to discuss the medical experiences and achievements of the past year. Great precautions were taken to exclude even neutral medical representatives, and the reports appearing in the German medical press have evidently been carefully censored. The proceedings were opened by the Governor of Warsaw, v. Beseler, who touched in general terms on the incomparable blessings conferred on Warsaw by the cleansing and cultivating effect of the German occupation.

An informing commentary on this boasting is afforded by statements in a memorandum presented to the German authorities by the City-President of Warsaw, Prince Z. Lubomirski; it was published in the Cracow newspaper *Czas* of April 25th and quoted in the *Times* on June 17th. After enumerating the exactions of the German authorities the memorandum states that in August, 1915—namely, in the first month of the German occupation—the death-rate was 15.88 per 1,000, calculated to the year. It had risen steadily since October, 1915, and had reached the figure of 34 per 1,000 in April, 1916. The succeeding paragraph of the memorandum was deleted by the Austrian censor. The depth of the misery caused by German methods may be gauged in part by the fact that at the time when Warsaw passed into the hands of the Germans about £4,814 a month was being spent by the city on the free feeding of the population; by March, 1916, this item of expenditure had risen to £51,680.

Generalstabsarzt Professor v. Schjerning, who followed the Governor, gave an account of the organization of the German medical services. Subsequently Professor Hoffmann dealt with cholera, Professor Wenckebach with heart disease, Professor Brauer with typhus, and Professor Hase with the louse. Numerous demonstrations were also given, and the time table of the Congress was so full and the sense of duty of the delegates was so strong that we are told time was permitted for only one "Bier abend."

Organization of the German Army Medical Service.

Professor v. Schjerning said that more than 24,000 medical men were serving, two-thirds being engaged in the field and one-third at home. There were 3,000 medical men attached to the Red Cross, 400 dentists, 1,800 chemists, and 92,000 men in the medical services. At home there were 72,000, and on the lines of communication 22,000 volunteer nurses, and special praise was due to the 6,800 sisters employed on the lines of communication. There were 238 hospital trains and trains for slight cases taking wounded and sick back to Germany from the field hospitals. There were also 26 large travelling steam laundries on the lines of communication attached to the field hospitals. On the frontiers there were 18 large disinfecting establishments capable of dealing with 100,000 men and all their belongings every day. Discussing the most important advances in medicine, he pointed out that quite new diseases had been discovered, including five-day fever and other febrile conditions. Under the influence of inoculation the clinical manifestations of typhoid fever and dysentery had been profoundly modified. The cause of Weil's disease, and possibly also that of typhus, had been discovered.

Cholera Inoculation.

Professor Hoffmann stated that in August, 1914, cholera broke out in Warsaw, and by September it had already infected 12,000 soldiers in the Serbian army. Isolated cases had also been detected in Germany, but thanks to prophylactic measures only 78 German civilians had contracted cholera up to January, 1916. He attributed this relative immunity of the civilian population to inoculation, which had been almost completed when, in November, 1914, the first cases of cholera appeared in the army and among Russian prisoners. He did not give the figures for the German army, but he admitted that when the Germans were advancing in the region of the Bug and the Rokitno marshes, the morbidity among the German troops was 0.52 per cent. The mortality among those attacked by the disease, which was 50 to 35 per cent., was reduced by inoculation to from 20 to 10 per cent. By killing cultures at a temperature 3 to 5° C. lower than before, the resulting vaccine, even when administered twice, had been found in most cases not to provoke a troublesome reaction. Inoculation had to be repeated after half a year, as the immunity conferred did not last more than seven to nine months. In addition to inoculation, the campaign against cholera was carried out by strict hygiene, which included the prohibition of drinking unboiled water and a ceaseless war on flies. From the beginning of the war to January 1st, 1916, the morbidity from cholera represented only 0.065 per cent. of the average strength of the army in the field and only 0.005 per cent. of the army of occupation. He touched on the part played by carriers, and stated that in one prisoners' camp 5 out of 600 healthy men proved to be carriers. Another speaker, Dr. Schemensky, drew attention to the difference in mortality when patients were nursed in bed or on the ground; it was 30 per cent. among the former, 45 per cent. among the latter.

Professor Kaup, representing the Austro-Hungarian army, said that after the soldiers had been inoculated the morbidity was only 1 to 5 per cent.; even when exposure to infection was great the course of the disease was strikingly mild, and the mortality was only 0 to 20 per cent., whereas the mortality among the uninoculated was 40 to 60 per cent. As the immunity conferred by inoculation lasted only three to four months, it was repeated after three months if the soldiers were exposed to infection. On these occasions a single injection of 2 c.cm. of vaccine was sufficient.

Heart Disease among Soldiers.

According to Professor Wenckebach, severe exertion in the field was frequently the cause of hypertrophy of the left ventricle alone, the heart in such cases being found much enlarged. Endocarditis did not often arise in the field; but arterio-sclerosis, notably of the aorta, was frequently observed among elderly soldiers on their return from the front. The abuse of coffee and tobacco, as well as severe exertion, damaged the large arteries, and considerable dilatation of the heart was an accompaniment and sequel to the infectious diseases, particularly typhoid fever. Men with compensated valvular disease frequently stood the strain of active service well, but some cases undoubtedly grew worse in the field.

The doubtful cases of heart disease constituted an enormous loss to the army and a heavy burden to the finances of the State. The diagnosis of heart disease was far too often made on the basis of subjective disturbances alone. Soldiers in this category were frequently men who had led a sedentary life and who, on account of defective development or general nervousness, were scarcely fitted for the strain of active service. Only the most serious of these cases should be sent home; the easily curable should be kept on the lines of communication.

Wenckebach's opinion that the majority of soldiers complaining of heart symptoms did not suffer from heart disease, was confirmed by v. Romberg, who asserted that the cause of the frequent mistakes of diagnosis was the unreliability of physical signs; this was particularly the case with *x*-ray examinations. Permanent injury to the heart due to excessive exertion occurred only when an organic or functional disease of the heart already existed. Another speaker maintained that failure to diagnose neuroses of the heart was frequently the reason why recovery was delayed. In this class of case the prognosis was good in at least four-fifths of the total. Dr. Steyrer said that the goitres so frequently observed in the Tyrol very seldom led to appreciable disturbances of the circulation. Many a case of cardiac weakness was traceable to excessive indulgence in tobacco at the front.

Dr. Zondeck described a form of heart disease he had observed among soldiers recovering from wounds of the lungs. The symptoms included palpitation of the heart, dyspnœa, and stabbing pain in the region of the heart due to the formation of adhesions between pericardium and diaphragm.

[1] *Med. Klin.*, May 14th; *Muench. med. Woch.*, May 23rd.

The discussion was wound up by Professor Schultzen, who reviewed the work done by consulting physicians in connexion with doubtful cases of heart disease. They had frequently sent back as many as 25 per cent. of the so-called heart cases as fit for service. After the war this process of weeding out would be most important in order to prevent unjustified demands on the finances of the State. In his opinion the establishment of special hospitals and wards for cases of heart diseases was detrimental to the health of the patient, and was, therefore, not permitted.

(To be continued.)

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Captain N. Macleod, Canadian A.M.C.

Prisoner of War.

The name of Captain R. K. Mallam, R.A.M.C., was given in the official list of prisoners of war taken at Kut, published on June 7th. On June 21st it was officially announced that his name should not have been included in the list.

DEATHS AMONG SONS OF MEDICAL MEN.

Hearder, Kirk, Sergeant 1st Battalion Monmouthshire Regiment, youngest son of the late Dr. Hearder, medical superintendent of the joint Counties Asylum, Carmarthen, who was reported as missing some time ago, has now been officially reported as killed. Before the war he was a clerk in the National Provincial Bank at Newport.

Llewellyn, Harold A., Lieutenant South Wales Borderers, son of the late Dr. J. D. Llewellyn, formerly of Bargoed, South Wales, was accidentally killed on June 14th, aged 25. He received a commission as second lieutenant on December 7th, 1914.

Millson, Edgar G. B., Second Lieutenant Bedfordshire Regiment, only son of Dr. Millson, M.O.H. Southwark, was killed on June 17th, aged 29. He was educated at Epsom College, and had been a railway engineer in Columbia and in other parts of South America.

Taylor, Guy Hastings, Major 2nd Battalion 39th Garhwal Rifles, second son of the late Surgeon-Major Adam Taylor, I.M.S., previously reported as missing, November 13th-14th, 1914, now presumed to have been killed in action on that date at Richebourg L'Avouée, aged 41. He joined the army as a second lieutenant in the Northampton Regiment on May 20th, 1893, entered the Indian army on April 1st, 1897, and became major on May 20th, 1911.

NOTES.

HONOURS.

CAPTAIN JOHN ALEXANDER SINTON, upon whom, as was announced last week, the King had been pleased to bestow the Victoria Cross, was educated at Queen's College, Belfast, and graduated M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1903, gaining the first place in honours and an exhibition. After acting as Riddell demonstrator in pathology at Queen's College, Belfast, and as house-surgeon and house-physician of the Royal Victoria Hospital, Belfast, he entered the I.M.S. as lieutenant on July 29th, 1911, becoming captain on July 29th, 1914. Before the war he was medical officer of the 31st Duke of Connaught's Lancers, formerly the 1st Bombay Cavalry. He was reported as wounded in Mesopotamia last January.

This is only the third occasion on which the V.C. has been won by an officer of the I.M.S.; the first by an officer of the now combined service, which dates from 1896. The first I.M.S. officer to gain the V.C. was Surgeon, now Colonel, J. Crimmin, of the Bombay Service, who won it in Burma in 1889. The second was the late Captain H. F. Whitchurch, of the Bengal Service, who got it for services in the defence of Chitral Fort in 1895. The V.C. had also been gained by a young member of the Indian Subordinate Medical Department, Hospital Apprentice A. FitzGibbon, at the attack on the Taku forts in the second China war of 1858-60.

The following are among the awards announced in the supplements to the *London Gazette* issued on June 26th for gallantry in the field and for services rendered in connexion with the war:

C.B.

Colonel F. W. G. Gordon-Hall, M.B., A.M.S.
Lieutenant-Colonel R. J. W. Mawhinny, R.A.M.C.

C.M.G.

Temporary Honorary Major A. C. Valadier, A.M.S.

Military Cross.

Temporary Captain F. C. Atkinson-Fleming, M.B., R.A.M.C. (attached 8th Battalion, Royal Inniskillen Fusiliers). For conspicuous gallantry and devotion to duty when tending casualties during and subsequent to a hostile attack. He worked without ceasing under difficult and dangerous conditions.

Temporary Lieutenant F. K. Marriott, R.A.M.C. (attached Head Quarters, 182nd Field Artillery Brigade). For conspicuous gallantry and devotion to duty when he went out to tend the wounded of two batteries which were under heavy shell fire.

Captain J. A. Cullum, Canadian A.M.C., attached 28th Infantry Battalion.

Captain A. E. Ironside, R.A.M.C.(T.F.)., 4th London Field Ambulance

Captain J. M. Mackenzie, M.B., R.A.M.C., attached 6th Battalion, Northumberland Fusiliers (T.F.).

Captain W. H. Riddell, M.B., I.M.S.

Captain R. S. Townsend, I.M.S.

Captain J. S. Townley, R.A.M.C.(T.F.).

Temporary Captain C. M. Brophy, R.A.M.C., attached 18th Battalion, London Rifles (T.F.).

Temporary Captain M. Peto, M.B., R.A.M.C.

Temporary Lieutenant C. C. Okell, R.A.M.C., No. 6 Field Ambulance.

D.S.O.

Lieutenant-Colonel (temporary Colonel) A. E. C. Keble, R.A.M.C.

Major R. T. Brown, M.D., R.A.M.C.

Temporary Captain W. Dawson, M.B., R.A.M.C.

Captain P. F. Gow, M.B., I.M.S.

Captain W. A. Miller, M.B., R.A.M.C.(S.R.), attached 22nd Battalion, Royal Fusiliers.

Second Class of the Indian Order of Merit.

Second Class Senior Assistant Surgeon Bhagwan Singh, I.S.M.D. (attached 14th Ferozepore Sikhs) and 1st Class Subassistant Surgeon Ishar Singh, I.S.M.D., 108th Indian Field Ambulance.

Indian D.S.M.

First Class Subassistant Surgeon Tika Ram, I.S.M.D. (attached 128th Indian Field Ambulance).

MENTIONED IN DISPATCHES.

Egypt.

The *London Gazette* of June 21st published a series of dispatches from General Sir John Maxwell, who was Commander-in-Chief in Egypt up to March 19th last, on the military operations in Egypt from November, 1914, to March, 1916. General Maxwell forwards a dispatch from Major-General Sir A. Wilson about the operations in the Suez Canal zone, carried out chiefly by the Indian army, and himself reports on the operations on the Western frontier against the Senussi. Many of the officers mentioned have since been transferred to the Dardanelles, France, Mesopotamia, etc., and many have been killed and wounded since they left Egypt. The following are the names of the medical officers mentioned in these dispatches. A number of members of the nursing services, and of the rank and file of the R.A.M.C., Regular, Territorial, and Colonial, are also mentioned.

SIR A. WILSON'S RECOMMENDATIONS.

First List.

137th Field Ambulance.—Major R. M Knox, I.M.S., and his officers were energetic and expeditious in the disposal of the large number of wounded in their hands.

Second List.

Head Quarters Staff.—Colonel W. H. B. Robinson, C.B.; Lieutenant-Colonel H. Burden, C.I.E.; Major J. D. Graham, and Captain S. W. Jones (all I.M.S.).

Medical Services (all I.M.S.).—Lieutenant-Colonels W. G. Pridmore, C.M.G., J. B. Smith, P. J. Lumsden; Majors T. B. Kelly, R. W. Knox, D.S.O., W. R. Battye, D.S.O., W. D Ritchie, J. Norman; Captains R. H. Bharucha, C. H. Fielding; Assistant Surgeon H. F. Hogan, I.S.M.D.

Miscellaneous Services. — Lieutenant-Colonel Sir David Semple (R.A.M.C. retired), Director-General of Department of Public Health; Dr W. C. Hayward, Government Hospital, Port Said; Major G. W. Heron, R.A.M.C., Health Officer, Suez Canal Area; Dr. Louis, Medical Officer of Suez Canal Company at Ismailia.

GENERAL MAXWELL'S RECOMMENDATIONS.

First List, Part I; Operations on Western Front.

Lieutenant Colonels E. P. Sewell and T. H. Forrest, both R.A.M.C.

First List, Part II: Administration in Egypt.

Staff.—Surgeon-Major B. Pares, D.S.O., Royal Horse Guards; Major H. V. Bagshawe, R.A.M.C.

R.A.M.C.—Colonels C. W. R. Healey, F. W. G. Gordon Hall, F. D. Bird; Lieutenant-Colonels H. R. James, C.B. (retired), O. L. Robinson; Majors J. M. Darling, A. N. Fraser, C. P. Thomson, C. C. Choyce (temporary), W. T. Prout, C.M.G. (temporary); Captains R. E. Todd, H. W Carson, E. C. Lambkin, W. W. Treves, C. Robb, S. W. M. Jones (S.R.), F. J. Bradley (S.R.), G. Blacker (temporary), S. A. Boyd (temporary); temporary Lieutenant J. E. Willmore; Quartermasters and honorary Lieutenants E. Bennett, C. F. Houston.

R.A.M.C.(T.F.).—Temporary Colonels C. Stonham, C.M.G. (deceased), A. H. Tubby, A. W. Mayo Robson, C.V.O., V. W Low, Sir V. A. Horsley; Lieutenant-Colonel A. H. Lister; Captains E. W. H. Groves, D. G. Kennard, C. Kerr, W. R. Douglas, G. R. Rickett.

Australian A.M.C.—Surgeon-General W. D. C. Williams, C.B.; Colonel H. C. Maudsley; Lieutenant-Colonels B. J. Newmarch, J. B. Maclean; Majors T. F. Brown, D. S. Mackenzie.

New Zealand A.M.C.—Lieutenant-Colonel P. C. Fenwick; Majors C. E. Maguire, F. T. Bowerbank.

Canadian A.M.C.—Lieutenant-Colonels F. Hotherington, C.M.G., H. R. Duff (deceased); Captain G. E. Kidd.

General List.—Lieutenant-Colonel Sir J. G. Rogers, K.C.M.G., D.S.O. (R.A.M.C. retired); Major C. S. Spong, D.S.O. (R.A.M.C. retired), Local Majors Dr. W. Hastings, E. V. Oulton, A. F. MacCallum, W. Hayward, C. Ekins, L. P. Phillips; Drs. H. V. Keatinge, C.M.G., J. E. Cresswell, Armand Ruffer, C.M.G.

Officials, Egyptian Government.—Lieutenant-Colonel Sir David Semple (R.A.M.C. retired), Dr. A. Granville.

Second List.

Staff.—Lieutenant-Colonel E. P. Sewell, R.A.M.C.

R.A.M.C.—Lieutenant-Colonels A. R. Tweedie (T.F.), T. H. Forrest (F.T.); Major C. P. Thomson; Captains W. A. Brechin (T.F.), G. E. J. A. Robinson (T.F.); Temporary Lieutenant J. W. O'Brien.

East Africa.

The *London Gazette* of June 20th publishes a dispatch from Lieutenant-General Smuts, Commander-in-Chief in East Africa, dated April 30th, 1916, describing the conquest of the Kilimanjaro region of German East Africa. This is the first dispatch from that field of war issued. A list of officers and men whose services are specially brought to notice will follow. In this dispatch the following mention is made of the services of the medical department:

Exceptionally heavy work, too, has been thrown upon medical officers and personnel. All wounded have been treated and evacuated expeditiously, and the number of sick who passed daily through the hands of the medical authorities, more especially since the cessation of active operations, has been very great. Great credit is due to Surgeon-General G. D. Hunter, C.M.G., D.S.O., and his assistants.

USE OF THE RED CROSS EMBLEM.

The British Red Cross Society, after consultation with the War Office, has issued a memorandum on the use of the Red Cross emblem.

The emblem may be properly displayed on the uniform of the personnel of the Society and of recognized voluntary aid detachments; on the ambulances and other material, including cases of stores, and vehicles used solely for the conveyance of such stores; on the official notepaper of and other official documents issued by the Society or its affiliated subordinate branches, and on the badges granted by the Society for proficiency in nursing, first aid, etc. It may be used on private houses handed over to the military authorities for the reception of sick and wounded soldiers, provided written authority has been received from the War Office; when the Red Cross emblem is flown over such establishments the Union Jack must be flown alongside it. The use of the emblem on placards is regarded by the War Office as undesirable, and if used it must be of prescribed size, is limited to placards or notices issued by the Society or its affiliated subordinate branches for the purpose of raising funds for the Society, and the whole of the profits of any entertainment in connexion with which it is used must be devoted in their entirety to the Society.

Copies of the memorandum can be obtained on application to Mr. Frank Hastings, Secretary of the British Red Cross Society, 83, Pall Mall, London, S.W.

Ireland.

THE PROPOSED COLLEGE OF NURSING.

AT the thirty-second annual meeting of the City of Dublin Nursing Institution, held in Dublin, Mr. W. I. de C. Wheeler, F.R.C.S., who was in the chair, said that nurses of the institution were holding responsible positions in the various theatres of war. During the rebellion in Dublin the nurses carried on their work under circumstances of unprecedented danger and difficulty. They went backwards and forwards to the institution on duty day and night, and attended their cases in all available parts of the city and county regardless of their personal safety. In this respect they were in line with the trained nurses and probationers of the city hospitals, who by their ceaseless and untiring work in the localities where the fighting was most furious earned the admiration of everybody. The scheme for the establishment of a college of nursing in London, if it becomes operative, might, the Chairman proceeded, affect this and other kindred institutions in Ireland. The college hoped to obtain statutory powers in connexion with the higher education of nurses, and in the meantime to determine courses of training, the recognition of schools, and to follow generally along the lines of colleges and universities (without granting diplomas) engaged in the teaching of the various professions. The attitude of the Irish nurses with regard to the scheme was, rightly, one of caution. Before co-operating in this enterprise it was obviously essential that the Irish nurses should be assured of adequate representation on the supreme council. The training of Irish nursing schools differed in fundamental respects from the training given in England, and any attempt to provide for the education of nurses in Ireland along the lines of English hospitals would result in chaos. Full Irish representation on the supreme council was therefore essential to Irish co-operation. Nor would Irish support be withheld if the establishment of the new college was thought to lead rapidly to State registration, for which Irish nurses have been clamouring for many years. It was to be hoped when the governing body of the new college was finally decided upon it would be found to include a large direct representation from the nurses who had passed through various training schools and had become "private practitioners." The nurses felt strongly on this point, and unpopularity and failure were likely to follow the college from its infancy if the governing body was too largely composed of a ring of hospital matrons. After the passing of the Act establishing the Central Midwives Board in England, Irish nurses were handicapped. With that lesson before them it did not seem possible for the new college to obtain statutory powers without Irish co-operation.

Correspondence.

EARLY TREATMENT OF VENEREAL DISEASES IN INSURED PERSONS.

SIR,—The appointment of a Royal Commission to examine into the subject of venereal diseases, the report of that Commission, and the recommendations appended thereto tend to show that the Government has at last awakened to the importance of that question, or, rather, that it has summoned up courage to come into the open on the matter, and to take some steps to combat this scourge of humanity.

It is common knowledge to every medical man and to the majority of thinking laymen, that venereal diseases constitute the greatest source of disease and misery in this country, not only from the incidence of illness due to them, but also from the degeneration of the race in which they are the most potent factor. It is in the effect of these diseases, above all things, that the truth of "visiting the sins of the father on the children unto the third and fourth generations" is evident and incontrovertible.

To the carrying out of the recommendations of the Commission to its full fruition there are two obstacles to which I wish to direct attention:

First, the pronounced reluctance of patients suffering from venereal diseases to acknowledging the fact, and to submit themselves to proper treatment. It will require the greatest care and tact on the part of medical men and those who have charge of the campaign against these diseases to combat this feeling, and to induce patients to undergo treatment.

Second—and this is the point to which I want more particularly to direct attention—the effect of the present rules of approved societies under the National Insurance Act. These rules preclude any person suffering from an illness due to his own fault from receiving sickness benefit. The result of this is that a patient who is dependant on his weekly wages is unable to take the rest which in many cases is necessary to effective treatment in the early stages, particularly in the use of modern methods.

These patients, not having received proper treatment in the primary stages, are subject to the risk of contracting any of the multitude of illnesses which are the later developments of these diseases. These later illnesses in many cases entail permanent loss of health, and in others require prolonged periods of rest for their treatment, during which the societies pay sickness benefits.

Insured persons under the Insurance Acts constitute about one-fourth of the population of the country, and as they range from the age of 16 years upwards among them will be found the great majority of those who are exposed, or who expose themselves, to the risk of contracting venereal diseases. If, therefore, insured persons have not the opportunity of receiving effective treatment in the initial stages of the disease, the disastrous effect on the health of the race is easy to imagine.

The Insurance Acts Committee of the British Medical Association (which is representative of the profession in every part of the country who have charge of the treatment of insured persons) see, and can appreciate more fully than any other persons, the ill effects of these particular rules of the approved societies.

Having this knowledge the Committee has come to the unanimous conclusion, leaving out of consideration the injury to the health of their members, that the approved societies in this matter are pursuing a short-sighted policy.

It would surely be wiser (looking at the matter from the financial side alone) to incur the slight expense entailed by paying sickness benefit to enable the members

to undergo effective treatment in the early stages than to have to pay the much larger sum of sickness benefit which will be required owing to permanent disablement, or during longer enforced rest for treatment of later illnesses which are due to the neglect of proper early treatment.

As a result of deliberations on this subject, the Insurance Acts Committee at its last meeting unanimously agreed to the following resolution:

> That it be a recommendation to the Council that the National Health Insurance Commission be informed that in the opinion of the Association no insured person should, because he is suffering from venereal disease, be refused sickness benefit if in the opinion of his medical attendant he cannot be efficiently treated without enforced rest.

—I am, etc.,

J. A. Macdonald,
Chairman of Insurance Acts Committee.

Taunton, June 25th.

THE MANUFACTURE OF CATGUT.

Sir,—The note concerning the manufacture of catgut, which appeared in the Journal of June 3rd, p. 800, has prompted me to put forward a suggestion which I intended making some time ago. It is, that the manufacture of catgut in this country should be placed under efficient control, so that purchasers may have some guarantee that the catgut they buy is of good quality and sterile.

Efficient control would, I trust, do something towards keeping the trade in this country, for I cannot understand why the market should be flooded with German and American produce, when a little more enterprise on the part of our manufacturers at home or in the colonies would help to keep the trade within the empire.

What is required is:

1. That the intestine from which the catgut is made (the best quality being made from lamb's intestine) should be inspected and pronounced healthy before being allowed to be used.
2. That before being sold as "sterile" the catgut should be submitted to appropriate bacteriological tests.
3. That the methods of preparation be under inspection and control.

Under a system of efficient control I believe the alleged dangers attending the use of catgut would disappear, and surgeons would be able to take full advantage of what is one of the great advances in surgery.

I would therefore suggest that this question be taken up by the council of the Royal Society of Medicine, and that a small committee be appointed to consider the whole question, and to recommend a system of efficient control.

It is much too serious a matter to be permitted to blunder along in the old haphazard manner, and I hope this suggestion may be acted upon without delay.—I am, etc.,

London, W., June 4th. F. J. McCann, M.D., F.R.C.S.

WOMEN MEDICAL STUDENTS AT KING'S COLLEGE, LONDON.

Sir,—The question of admitting women students in the Medical Faculty at King's College, London, has recently become urgent. We are constantly receiving applications from women who desire to study medicine here, but up to the present we have only admitted a few who are studying for the first examination (biology, chemistry, and physics), and a few who are taking physiology only for the second examination. Since the amalgamation of King's College for Women with this College, we have been in the anomalous position of having opened all our classes to women, with the single exception of those held in the anatomy department. As we are incorporated in the University of London, this is not in harmony with the principles of that University. We have been for some time perfectly willing to open the anatomy department to women, but have hesitated to take this step because the hospitals associated with our medical school had refused to take on our women students for clinical instruction. St. George's Hospital has, however, made a step forward in admitting a limited number of women students to their wards; that experiment has proved such a complete success that we are hopeful that other hospitals will follow their example. The University has also brought pressure to bear upon us, and the delegacy of the College has assented to throwing open the whole of our medical department to women students next October. In the first instance, however, the number to be admitted will be limited to twenty.

We are therefore now in the position to offer medical education to that number of women for the preliminary and intermediate portions of the curriculum, and we have but little doubt, seeing how quickly events are marching at present, that we shall be able to secure later for them the means of completing the final or clinical step of their education.—I am, etc.,

W. D. Halliburton,
Dean of Medical Science Faculty,
King's College, London.

June 23rd.

The Services.

AUXILIARY R.A.M.C. FUNDS.

A general meeting in connexion with the Auxiliary R.A.M.C. Benevolent Funds was held at the Royal Army Medical College on June 26th. Sir Alfred Keogh, Director-General A.M.S., who presided, called attention to the article which had appeared in the British Medical Journal on June 24th, and said that it was essential that the element of discord should not be present. He suggested that the meeting might think it wise to postpone any decision on the report issued by the Provisional Committee until further consideration had been given to its details. Colonel Culver James moved the adoption of the report, which was seconded by Major Ewen Maclean. After some discussion, from which it appeared that the report had not been in the hands of many of the medical officers present, the following amendment, moved by Major Todd, seconded by Lieutenant-Colonel McCallum, was adopted:

> That the report be received and circulated so that meetings may be called in the various areas in the country for its consideration, and that a further meeting be held in a month.

On the motion of Colonel Atkins it was also resolved:

> That it is the opinion of this meeting that the scope of the Auxiliary R.A.M.C. Benevolent Funds be such as to permit of the establishment of a loan or any other fund which may seem desirable for relieving cases of temporary financial embarrassment due to the exceptional conditions of service of the three auxiliary branches of the R.A.M.C.

Votes of thanks to the Chairman and to Lieutenant-Colonel F. W. H. Davie Harris, secretary, brought the proceedings to a close.

The following is the draft of the scheme formulated by the Provisional Committee, forwarded to us by the Secretary, 124, Victoria Street, S.W., on June 16th, and now to be circulated, in accordance with the resolution above reported, for the consideration of meetings to be held in various areas in this country.

Report of a Scheme Formulated by the Provisional Committee.

That two independent Funds be formed, one a Benevolent Fund for officers' orphans, the other a Relief Fund for the widows and orphans of the rank and file of the auxiliary R.A.M.C. forces.

The designation of the Funds shall be—

Auxiliary R.A.M.C. Funds
(*a*) Officers Benevolent Branch.
(*b*) Relief Branch.

These Funds shall embrace the three auxiliary branches of the corps—namely, the Special Reserve, the Territorials, and those holding temporary appointments in the R.A.M.C.

One committee shall administer the two branches; such committee shall be representative of the three auxiliary branches of the corps, and shall consist of a president, three vice-presidents, a committee of twelve members, and a secretary.

The meetings of the Committee shall be held in London, and the working expenses shall be divided, *pro rata*, between the Benevolent and Relief Branches.

Officers' Benevolent Branch.

This Fund shall adopt the rules of the R.A.M.C. Officers' Benevolent Society, as far as they are applicable, and a sub-committee shall be appointed to draw up a set of rules on those lines. The object of the Officers' Benevolent Branch shall be to afford pecuniary assistance to the orphans of officers who have held commissions in the auxiliary branches of the R.A.M.C. during this war, and who are in necessitous circumstances, the more especially to assist in the education and the starting in life of the orphans.

The orphans of those officers who have been killed in action or have died of wounds received in action or of disease caused by active service, shall have the first claim on the Fund and shall have precedence over all others.

The orphans of officers who die after the war or after relinquishing their commissions and whose deaths are directly

attributable to war service, shall have the second call on the Fund.

The orphans of officers who have held commissions during the war period, but whose deaths are not directly attributable to war service, shall follow the foregoing in precedence.

Orphans of officers who are non-subscribers to the Fund shall have no claim on its benefits.

Grants may be continued up to the age of 21 for boys and 18 for girls; should, however, a girl orphan marry, the Committee may, at their discretion, make a grant towards the expenses of her marriage outfit, although she is over the prescribed age.

Should a female unmarried orphan be over the age of 50 or should she be medically unfit to contribute towards her own maintenance, if below that age, the Committee may make her a grant, as a special case, provided, of course, that she is in needful circumstances.

All grants shall be made in the form of donations, not as pensions, and the fact of a grant being made one year shall not in any way give an applicant any claim for a future year; all claims shall be decided annually on their individual merits.

As the Officers' Benevolent Branch will have to be maintained entirely by subscriptions and donations, it is hoped that every officer of the Auxiliary R.A.M.C. will at once become a subscriber, and that those able to do so will give a donation to assist in starting the Fund.

The minimum subscription shall be one guinea per annum. This shall entitle the subscriber to a vote at the annual meetings. The Committee hope that this minimum will be exceeded by many. In order to facilitate the collection of subscriptions, it is requested that officers will kindly sign the bankers' order form which will be sent to them, as this will ensure the prompt payment on January 1st yearly.

Relief Fund.

The object is to assist the widows and orphans of the rank and file of the auxiliary branches of the R.A.M.C.—namely, the Special Reserve, the Territorials, and the men who have enlisted for the period of the war and do not transfer to the Regular Forces on the termination of their engagements.

Relief will only be given after full inquiry and verification of the facts of each case, then only to relieve urgent cases of distress, arising from ill health, unemployment, or death. Relief will only be given in small money grants; no one will be allowed to become a pensioner on the Fund.

The relief branch will be worked as far as possible on the lines of the General Relief Fund of the R.A.M.C.

As the maintenance of this Fund will have to depend chiefly, if not entirely, on donations and grants, and as on demobilization all grants from regimental institutes will naturally cease, the Committee consider that in order to secure a fixed income for this branch, an endeavour should at once be made to raise a sum of at least £20,000 with a view of the Fund receiving a revenue from investments for future use, for without some such source of income the Committee fail to see how the Fund could last; it would meet an early death from exhaustion.

The Committee will be very grateful if the Director-General, A.M.S., will kindly assist them in making these Funds a success by causing the existence of them to be made known to all auxiliary officers, and by facilitating correspondence with them, also by giving official authority to officers commanding units, both at home and abroad, to make grants from their regimental institutes to the Relief Branch.

EXCHANGES.

M.O., R.F.A. (Territorial Division), Egypt, desires exchange with M.O., France or England.—Address, No. 2495, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical Officer, Field Ambulance B.E.F., desires exchange to medical unit or Yeomanry regiment at home.—Address No. 2499, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

FIRST M.B.—*Part I, Chemistry:* E. G. Holmes, H. A. A. Pargeter, C. L. Pasricha, R. Y. Paton, A. E. Roche. *Part II, Physics:* E. G. Holmes, J. Lund, H. A. A. Pargeter, C. L. Pasricha, A. E. Roche, A. E. Slater. *Part III, Elementary Biology:* E. G. Holmes, A. Jephcott, J. Lund, H. A. A. Pargeter, C. L. Pasricha.

SECOND M.B.—*Part I, Human Anatomy and Physiology:* C. B. Clarke, F. R. G. Hief, C. A. Horder, T. A. Jones, T. Mensa-Annan, W. S. Neave, W. H. Palmer, J. L. Potts, C. E. Taylor, D. Wallice, C. H. Whittle.

THIRD M.B.—*Part I, Surgery and Midwifery:* E. H. R. Altounyan, K. B. Bellwood, W. H. Blackburn, C. V. Braimbridge, W. H. W. Cheyne, E. H. Dendy, H. W. Featherstone, L. S. Gathergood, E. A. Green, W. F. T. Haultain, F. E. Higgins, A. Orr-Ewing, J. Rickman, L. W. Shelley, B. H. Swift, W. T. Warwick, H. A. Whyte-Venables, H. G. E. Williams, R. S. Woods.

M.C.—Dr. H. B. Roderick.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

M.D.—J. A. Fairer (with commendation), Francisco da Cunha, D. I. Dakeyne, L. Moss, W. Stirling, Jun.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., C.M.—G. Holliday.

FINAL M.B., CH.B.—C. B. C. Anderson, J. Bennet, R. D. Cameron, J. E. Chow, A. Huan Chu, D. Colombos, D. G. Duff, J. J. B. Edmond, A. M'L. Ferrie, A. K. Gibson, W. N. Greer, F. J. Hauptfleisch, C. S. van Heerden, N. K. Henderson, Wilhelmina W. Hendry, Sidda Nath Kaul, Marjorie I. S. M'Gregor, I. MacKenzie, J. A. Mackenzie, Isobel M MacLullich, J. O. Marais, J. D. V. Meiring, R. W. H. Miller, E. A. Mills, C. Milne, J. Milne, H. S. Moore, J. L. Owen, A. M'M. Paterson, C. P. Penberthy, A. Prentice, J. C. Preston, W. Richards, B. J. Ryrie, Eng Siang Seah, E. O. A. Singer, J. M. Smellie, E. D Soderström, M. Stewart, Robert B. Stewart, D. G. Stoute, Mukundrai Dolotrai Thakore, Daya Ram Thapar, W. G. Thomson, J. I. de Villiers, W. Waddell, R. R. S. Weatherson, R. M. Wishart, C. W. Ng Yow.

UNIVERSITY OF GLASGOW.

GRADUATION CEREMONY.

THE graduation ceremony took place in the Bute Hall on June 27th, when the Vice-Chancellor (Sir Donald MacAlister) presided.

The only honorary degree conferred was that of LL.D., bestowed upon Professor John Ferguson in recognition of his work as occupant of the Regius Chair of Chemistry.

The degree of D.Sc. Public Health was conferred upon Dr. William Barr for a thesis on I. K. therapy in pulmonary tuberculosis.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*†H. N. Eccles, *†H. Lamb, *†A. L. Malabre, *†M. B. M. Tweed.

MEDICINE.—*†H. Archer, *†R. H. Chadwick, *†A. L. Malabre, *†L. A. B. Moore, †E. G. D. Murray, *†A. L. Watts.

FORENSIC MEDICINE.—H. Archer, C. P. Barber, A. L. Malabre, M. M. Shaffi, A. G. E. Wilcock.

MIDWIFERY.—L. A. B. Moore, E. G. D. Murray, M. M. Shaffi, L. J. Vincent.

* Section I. † Section II

The Diploma of the Society was granted to Messrs. H. Archer, H. N. Eccles, E. G. D. Murray, and M. B. M. Tweed.

Obituary.

DR. WILLIAM WOOLMINGTON WEBBER, member of the West Somerset Branch of the Association, died at his residence in Crewkerne on June 4th, aged 59. He lived for almost his entire life in that town except when he studied medicine at St. Thomas's Hospital, and took the diplomas of M.R.C.S.Eng. in 1880 and L.R.C.P.Edin. in 1882. Dr. Webber was M.O.H. Crewkerne and held other local appointments.

DR. WILLIAM ALEXANDER of Bournemouth died very suddenly of angina pectoris on May 26th, about an hour after finishing a hard day's work. He was born fifty-three years ago at Fyvie in Aberdeenshire, took the degrees of M.B. and C.M. (Aberdeen) in 1887, and practised for some years in Tarland in his native county. Owing to ill health he afterwards went to South Afrfca and practised at Johannesburg for two years. He returned to England at the beginning of the Boer war and settled in Bournemouth, where he remained in practice for sixteen years. He had held the office of chairman of the Bournemouth Division of the British Medical Association, and was a representative of the Division on the Dorset and West Hants Branch Council. The funeral took place in All Saints Churchyard, Branksome Park, on May 30th.

DR. WILLIAM ANDERTON, a well-known practitioner in South-West Lancashire, and a recognized authority on bee-keeping, died at his residence in Ormskirk on June 12th in his 69th year. Apprenticed to Dr. Lax of that town, he studied afterwards in the hospitals of Liverpool and Edinburgh, and received the diplomas of L.R.C.S., L.R.C.P. and L.M.Edin. in 1872, and took the higher diplomas of F.R.C.S.Edin. and M.R.C.P.Edin. in 1881. He was M.O.H. for Ormskirk for over forty years, and was medical officer and public vaccinator for the Ormskirk Union for the same space of time. He retired from the latter appointment in 1913, but resumed duty last year when his successor joined the colours. Dr. Anderton held many other local appointments, and was a member of the British Medical Association. He was chairman of the Lancashire Beekeepers' Association, and had been appointed to act as judge this month at a show at Manchester. The funeral took place at Ormskirk Parish Church on June 14th.

DR. HENRI FAVRE, physician and friend of George Sand and Alexandre Dumas the younger, died recently at the age of 88.

DR. G. A. V. ROMMELAERE, professor in the Medical Faculty of Brussels, who attended the present Queen of the Belgians in a dangerous illness some years ago, died recently at the age of 79.

Medical News.

DR. CHARLES A. WIGAN of Portishead has been appointed a justice of the peace for Somerset.

SURGEON-MAJOR H. B. HINTON, formerly of the Bengal Army, who has resided in Adelaide, South Australia, for many years, died on May 14th, in his 104th year.

IT is announced that Sir Pardey Lukis, K.C.S.I., Director-General I.M.S., has been appointed Commissioner for the St. John Ambulance Brigade Overseas within the empire of India.

MAJOR R. TAIT MACKENZIE, R.A.M.C., professor of physical education, University of Pennsylvania, will open a discussion on the necessity for a national scheme of physical education, at a meeting of the Royal Sanitary Institute, at the Municipal School of Technology, Manchester, at 7 p.m., on Friday, July 7th.

IT was stated in the BRITISH MEDICAL JOURNAL of June 24th that the late Field-Marshal von Moltke was a supporter of Christian Science. Mr. D. Sinclair, Christian Science Committee on Publication, writes to the *Glasgow Herald* to contradict this. He suggests that the mistake probably arose from the fact that the Field-Marshal's nephew, Count Helmuth von Moltke, is a Christian Scientist.

THE Council of the Cremation Society of England, in its report for 1915, states that the number of cremations at Woking was 153, as compared with 124 in the previous year. The figures for Golder's Green were 730 and 671 respectively, the two crematoriums showing an increase of slightly over 11 per cent. The total number of cremations for Great Britain was 1,410 and 1,279 respectively, an increased percentage of 12.4. The total number carried out in Great Britain since the opening of the Woking Crematorium in 1885 is 14,995. A new crematorium was opened in the South Metropolitan Cemetery Company's cemetery at Norwood.

JOHN GALSWORTHY, in a letter which has been widely printed in the press, has made an eloquent appeal for Belgian children. He pointed out that the children in the large part of Belgium occupied by the Germans do not get sufficient food, or at any rate, live on the edge of starvation. The National Relief Committee believes that unless aid comes in much faster than at present the children will actually be starved. The position must appeal with special force to this country, which so far has been saved from the horrors of invasion largely owing to the courage and self-sacrifice of Belgium. The Committee suggests that on July 10th all British boys and girls shall hold sports, give concerts or entertainments of some sort, the proceeds of which shall go to the children of Belgium. The medical profession has already responded generously to the special needs of the Belgian doctors and pharmacists, and the appeal for the children will not fall on deaf ears.

AMONG recent additions to the museum of relics of Robert Burns in his house at Mauchline is a large portrait in oils of Dr. John Mackenzie, by James Douglas (1885), from the original by Tannock of Kilmarnock. Dr. Mackenzie professionally attended Burns's father during his last illness at Lochlea in 1783, and Jean Armour at her confinement in 1788. He was also the poet's "very warm and worthy friend," and figures under the name of "Common Sense," in *The Holy Fair*. There are three other relics connected with Dr. Mackenzie in the museum. One is a facsimile of a bond of annuity (1801) from the Earl of Eglinton, undertaking to pay the doctor during his lifetime a free life-rent annuity of £130 sterling, on condition that he removed from Mauchline to Irvine and gave his professional advice and assistance to the Earl and his family. The others are an affidavit signed by Mackenzie in 1834, and the ticket conferring on him (1801) the privileges of a burgess of Irvine. These relics have been given to the museum by Mr. Thomas Yule, W.S., Edinburgh. Mackenzie introduced Burns to Dugald Stewart the philosopher, and brought the poet's works under the notice of Dr. Blair, whose sermons were once so popular. In 1827 Mackenzie retired to Edinburgh, where he died in 1837.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

R. K. has a patient, aged 60, said to have had gout, asthmatic, and having 2 to 3 per cent. of sugar in the urine, in whom the distal half of a big toenail is normal, but the basal half saffron yellow. He asks whether this can be a form of xanthoma diabeticum.

FROM TRENCH TO TROPICS.

WE have received from a lieutenant R.A.M.C. a double-barrelled communication, the two parts of which are only indirectly connected. In one part he says that he has found the work of a battalion medical officer in France quite a rest cure after panel practice, and that, in spite of shells and work in the trenches, a man might do well to exchange the worries of general practice for the occasional moments of anxiety, necessarily limited to a few seconds, before a shell bursts at a reasonable distance. In the other part, after stating that he is 37 years old and accustomed to town life in Canada, he asks to be told of some town in a tropical or subtropical region, preferably British, where a practice could be speedily built up by one who has been impoverished by the war. He seems to have a hankering for the South Sea Islands, but in most of them the European society he requires would, we believe, be very limited.

LETTERS, NOTES, ETC.

A TERRITORIAL MEDICAL OFFICER writes to ask whether it would not be possible to destroy both lice and their eggs by means of a "negative pressure." Treatment in a Thresh disinfector takes a long time, and is not suitable for leather-faced breeches.

THE SOLDIER'S HEART.

DR. H. LYON SMITH does not desire the epithet "belated critic" applied to him by Sir James Barr to be accepted. It is a fact that Sir James Barr's address was published in the JOURNAL of April 15th, and that we received a communication from Dr. Lyon Smith on May 2nd, the length of which we were compelled to ask him to reduce.

ALUMINIUM SPLINTING.

MR. E. J. WORMULL, patentee Wormull's system of aluminium splinting (London, S.E.), writes: I have read with interest Captain C. Max Page's article in the BRITISH MEDICAL JOURNAL of June 17th, and in justice to myself I trust you will find room for this short note. In 1905 I brought to the notice of the authorities the original skeleton system of splinting, which consists of a rigid backbone and a number of aluminium plates of various sizes, perforated and impressed with slots to slide over rigid bar or backbone, so that a splint precisely similar to those shown in Lieutenant-Colonel Robert Jones's article in the BRITISH MEDICAL JOURNAL, 1915, vol. i, p. 101, could be constructed without the inconvenience of having perforated rods, split rivets, and specially drilled plates; the split rivets require a considerable amount of mechanical dexterity to use properly. After a protracted practical trial the splinting was refused, and a further series of experiments were made, before the system devised by Sir Frederick Treves was adopted. I would also point out that the perforated rods were extensively experimented with and abandoned by the authorities (although they are described fully in my patent specification in 9685 of 1905), as it was found that difficulty was experienced, in the hands of unskilled men, in obtaining proper and reliable angles. Other metals were experimented with, but preference was given to aluminium, owing to its lightness, ductibility, and the fact that it is unaffected by moisture.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE CARE OF THE PREGNANT WOMAN.

BY ARCHIBALD DONALD, M.D.,
PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, UNIVERSITY OF MANCHESTER.

SINCE the war began there has been an increased interest manifested in the welfare of the future generation. Many articles and letters have been written in the medical journals and in the public press calling attention to the importance of increased care of the infant before birth, during birth, and in the early months of its life. I am in thorough agreement with the aims of these writers. But I think there is a risk that the public may be led to expect too much from "antenatal" treatment, and also that a good deal of energy may be directed on the wrong lines.

"ANTENATAL" TREATMENT.

The term "antenatal" is comparatively new, or has only been used freely within the last few years. It is an objectionable word, compounded of an adverb and an adjective, and is often used by those who are fond of it in an ambiguous way. "Antenatal treatment" means, I suppose, treatment of the unborn child, but "antenatal treatment of the expectant mother" means literally the care of the expectant mother before she is born. What is really meant is the care of the pregnant woman, but that is perhaps too vulgar an expression for use by officers of health.

The unborn child can only be influenced through the mother. Anything which improves the mother's health will probably give the child a better chance, although it does not always happen that conditions which cause deterioration in the mother's health affect the child to any great extent. The fetus is generally the last to suffer.

The care of the pregnant women in large towns has always been a feature in the work of maternity hospitals. Certainly in Manchester, the city of which I can speak from personal knowledge, this point has never been lost sight of. Even before the opening of a hospital with provision for the indoor treatment of a large number of maternity cases, St. Mary's Hospital always did work in this direction. Thirty years ago, when a woman applied to the hospital for a ticket which entitled her to attendance during her confinement, it was my duty, as obstetric assistant surgeon, to take notes of her obstetric history, and to inquire into her present health, and, if advisable, to examine her. If the conditions were found to be not satisfactory, the patient was admitted to hospital for care during her pregnancy; or if the case were less severe, she was put on a list to be visited at her own home by one of the medical officers. Further, there was a large out-patient department at which many of these patients reported from time to time. This system still continues, but with the increased number of beds many more cases are admitted as in-patients, and the systematic examination of primigravidae is carried out. It is not differentiated as a special department labelled "antenatal" or "pre-maternity," but is included as part of the work of a maternity hospital. A similar system holds in most of the cities and some of the larger towns.

We may inquire as to what are the points to which attention should be directed in the care of the pregnant woman. The fundamental needs, of course, are sufficient food, good sanitary conditions, and freedom from occupations which are unhealthy or too arduous. It is not necessary to dwell on the importance of these.

Special care may be needful in cases of abnormal pregnancy. These cases we may consider more particularly with the object of ascertaining what calls there are for supervision during pregnancy, and how far the regular supervision of all pregnant women would be useful in the saving of infant life. We must here distinguish between those cases in which the patient is almost certain to apply for help of her own accord and those in which she is not likely to do so.

The diseases of pregnancy may be classified thus:

1. *Diseases Coexisting with Pregnancy.*
   (*a*) Diseases liable to affect the course of pregnancy. These include acute infectious illness and some other infectious and general diseases, such as syphilis and kidney disease.
   (*b*) Diseases aggravated by the coexistence of pregnancy, which include heart disease and kidney disease (nephritis, pyelitis), tubercle and diabetes.
2. *Diseases due to Pregnancy.*
   (*a*) Toxaemias (excessive vomiting, albuminuria, chorea gravidarum and eclampsia).
   (*b*) Abnormalities of uterus (retroversion and prolapse).
   (*c*) Abnormalities of ovum (moles and diseases and anomalies of placenta).

In almost all of these diseases the symptoms will cause the patient to seek advice. She will almost certainly apply to a doctor or midwife for help in the following diseases—acute infectious illness, syphilis and gonorrhoea in their acute stages, tubercle, acute nephritis and pyelitis, and diabetes; also in excessive vomiting, chorea and eclampsia, in cases of retroversion with incarceration, and bad cases of prolapse, and in all cases of haemorrhage during pregnancy.

This list, of course, includes the majority of the diseases of pregnancy, but there are some cases in which the patient may not realize that there is trouble which may prove to be serious. Experience shows that this happens in some cases of heart and kidney disease, and some of the toxaemias (albuminuria and pre-eclamptic toxaemia). These are the cases in which promptness of treatment during pregnancy is most likely to be followed by a good result. If we read the records of the diseases of pregnancy treated in maternity hospitals, we find that a large proportion of the cases are supplied by these diseases.

Cases of syphilis acquired before pregnancy come under a different category. As syphilis is probably the most common cause of abortion and premature labour it is most important that these patients should receive treatment, but the treatment has to be begun as soon as the diagnosis is made, whether the patient is pregnant or not. In view of the report of the Royal Commission on Venereal Diseases, these patients are not likely to be overlooked in the future.

It may be urged that, in addition to the diseases of pregnancy which require treatment, there are many conditions which, if left alone, will cause abnormal labour, and that these may be altered for the better before labour begins. It is very rarely we find that anything can be done before the onset of labour, except in cases of moderately contracted pelvis, in which it may seem advisable to induce labour. But it requires a great deal of experience to be able to recognize the slighter degrees of contraction, and still more experience to be able to predict the probable character of the labour. The history of previous pregnancies may help, but is not in itself sufficient.

As regards abnormal positions and presentations, these are practically only to be rectified after labour has begun. The diagnosis of placenta praevia is rarely made during pregnancy, and even in that case the treatment is only attempted during labour.

If we review all these conditions that have been passed under consideration, we will find that there is a comparatively small number of cases in which we can hope to influence the life of the child by "antenatal" treatment only, even under the best possible circumstances.

The diseases of pregnancy suitable for treatment in a maternity hospital resolve themselves into some of the toxaemias—namely, excessive vomiting, chorea, albuminuria and eclampsia—and perhaps some cases of haemorrhage in pregnancy, and certain forms of bad heart disease, but these are admitted more with the view of placing the mother under suitable surroundings, should dangerous haemorrhage or cardiac failure come on, than in the hope of saving the life of the child.

These diseases, after all, account for a very small proportion of stillbirths. If we inquire as to the causes of death *in utero* we shall find that abortion or miscarriage is by far the most important. It is estimated that there is one abortion to every six confinements. In most of these cases the cause of the abortion is something which existed before the pregnancy, and for which treatment during the pregnancy is useless. No doubt a large number are due to syphilis. There are many which are the result

of troubles which have been brought on by previous confinements. Others, again, are incapable of explanation in the present state of our knowledge. There are numbers of women who have habitual abortion, in whom no syphilitic mischief can be found.

The next important cause of stillbirth is undoubtedly abnormal or complicated labour. Many infants are sacrificed from want of sufficient knowledge or skill on the part of the attendant. But the mischief of unskilful attendance does not end there. Not only is the particular child sacrificed, but very often the mother is rendered incapable of having more children. This "one child sterility," or acquired or relative sterility, has an important bearing on the birth-rate. One must not forget that it is really a more important thing that a young mother should make a good recovery, with the conditions normal afterwards, than that the particular child should be born alive.

Conclusions as to Antenatal Treatment.

To sum up, we arrive at the following conclusions:

I. That the supervision of all pregnant women would mean a great deal of unnecessary trouble, as in the majority of cases in which danger threatens during pregnancy the patient will voluntarily apply for help.

II. That, even if supervision were greatly increased, the results in the saving of infant life would be comparatively small.

III. That there are several much more important causes of fetal death than the diseases of pregnancy, and these would not be dealt with in a scheme of supervision during pregnancy. Under these we would mention particularly abortion and stillbirths caused during delivery. It must always be borne in mind that sterility, either absolute or relative, has a most important effect on the birth-rate.

THE COMPULSORY NOTIFICATION OF PREGNANCY.

The notification of pregnancy has been discussed in two recent articles. There is a note on the subject by Dr. J. W. Ballantyne,[1] who endeavours to sum up the "pros" and "cons." After carefully studying the "pros," I find that they practically amount to this:

(1) "Under compulsory notification we should have figures showing the number of infants on the way, which, when compared with the number of births of living children, would give us the antenatal losses."

This, however, is not quite correct. We should have to find out and deduct the "natal" or "intra-natal" losses—or, in other words, all those cases in which the infant was alive when labour began but perished during delivery. Even then the statistics which we would obtain would be of no use unless the system were universal and compulsory. Further, if we did get statistics, they would not be of any great value. I must confess that I think this desire for statistics can be overdone.

(2) "It would impress upon the general public the emphasis which is now being laid upon pregnancy."

That, I think, can be done without compulsory notification, and with much less trouble.

(3) "It would be a stimulus to the study of all matters relating to the hygiene and pathology of pregnancy and antenatal life."

As far as the medical profession is concerned, I do not believe it would be anything of the kind. Those who specialize in these matters are sufficiently alive to the importance of this subject, and I do not believe that the mere fact of having to notify cases of pregnancy would stimulate the general practitioner to study these cases more carefully.

(4) "It might serve to check the frequency of abortions and the use of abortifacient means."

If this means that careful treatment at an early stage might prevent some miscarriages, I admit the possibility. If it means that compulsory notification would prevent a woman trying to induce abortion, I disagree. This sort of woman would not notify her condition.

Dr. Ballantyne recognizes the following difficulties of compulsory notification:

(1) The interference with the privacy in intimate home affairs.

(2) The difficulties in details and methods of the notification.

(3) The introduction of many new difficulties into health matters.

He thinks that for the notification to be of any value it would have to be made early, so as to check third and fourth month abortions. He is evidently in favour of some sort of notification, but not of compulsory notification, unless it "comes spontaneously from the women's organizations."

Dr. Moore, Medical Officer of Health for Huddersfield, in his Milroy Lecture,[2] advocates universal notification of pregnancy. He has been much impressed by the work which has been done by M. Morel de Villiers at Villiers-le-Duc, reported by Dr. Pinard in the *Bulletin de l'Académie de Médecine*. Dr. Moore quotes the Order of the Council, which consists of ten articles. The first declares that every pregnant woman in the village who is not in possession of sufficient means to allow her to meet the necessary expense should have the right to require the assistance of the village authority. The second states that if she wishes to have this help she must declare her condition before the seventh month, at the office of the mayor. A midwife (chosen by the patient) is then requested to visit the patient "to ascertain that there is present neither albuminuria nor dystocia either of the child or of the mother, nor dangerous presentation." The third article provides that if the midwife considers it necessary to call in a medical man she must at once notify the authority, who shall then request a medical man, at the choice of the patient, "to take the measures necessary to bring about the confinement successfully." The other articles are concerned with the payment of fees and grants, with provision of milk sterilizing apparatus, instructions for weighing children, etc.

Dr. Moore anticipates criticism by pointing out that Villiers-le-Duc is a small place, and that we must not expect the same results from larger communities. As a matter of fact the population of the village was 447 in 1804 and 230 in 1903. There were 43 stillbirths from 1804 to 1878 and only 2 from 1878 till 1903. Of course these figures, alone and without explanation, mean nothing at all. The 43 stillbirths might well be the result of half a dozen unhealthy people in the community, or even of one or two unskilled midwives or medical men.

Dr. Moore has now established a system for the voluntary notification of pregnancy, and gives an outline of the procedure adopted by the Huddersfield sanitary authority. The first step is the notification of pregnancy. This is followed by a visit of the assistant medical officer of health (female), and a long list of the matters which she must inquire into is given. Some of these are general, such as the conditions of the patient's home, her economic condition, and the medical history of the patient and her husband. After this the assistant M.O.H. has to draw up an elaborate report on the obstetric history and on the present condition of the patient. In the case of any abnormality she must communicate by letter with the general practitioner indicated by the woman, stating the facts, and leaving the case to him. It is not definitely stated, but apparently the assistant M.O.H. has to make the diagnosis and forward it to the doctor.

It would appear that under Dr. Moore's scheme notification is not required before the seventh month, as he takes the experience of Villiers-le-Duc as a model, and as his assistant does not visit the patient until she is able to make out the fetal head through the abdominal wall. In this he differs from Dr. Ballantyne, who says that if notification is to be of any value it must be early—that is, before the third or fourth month. It is true that notification in the later months would mean that many of the cases of the diseases due to pregnancy in which good can be done would be overlooked until it was too late. But the diagnosis of early pregnancy is by no means a simple affair, and if notification were required there would be many cases notified as pregnancy which would turn out to be something else; while, on the other hand, cases of pregnancy which existed would not be notified. If a patient or a doctor were in doubt probably no notification would be made.

It is hardly necessary to criticise in detail the procedure which, on the advice of Dr. Moore, the Huddersfield sanitary authority has adopted. In order to fill up the schedule

with any degree of accuracy, the assistant M.O.H. must have had exceptional training in midwifery. Even then I think it would be difficult for her to fill up answers to some of the questions. As an example, she must inquire into the causes of previous miscarriages, and must enter them under the following heads: "Cardiac, diabetic, nephritic; traumatic, displacements, abortifacients; lead, alcohol, specific disease."

Then there is the examination of the "expectant mother," which is of a most thorough description, beginning with the heart and lungs and going on to the abdominal examination, by which the expert assistant M.O.H. diagnoses the presentation of the child and the relationship of the head to the abdominal parietes. Finally (if necessary) she takes the pelvic measurements, examines the urine, and investigates abnormal reactions (urine and vaginal).

If this scheme should be made universal, there are not enough experts to go round.

These two writers I have quoted no doubt view the subject from different aspects. Dr. Ballantyne is well known for his researches into the pathology of the unborn child, and has been an enthusiastic advocate of *ante-partum* clinics, and no doubt he regards notification as a means of increasing the numbers in these clinics.

Dr. Moore is a medical officer of health, and apparently would like to extend the power of officials in a new direction. Every one must admit that the work done by medical officers of health and by public health departments has been most valuable. In general matters, such as are connected with the homes and the occupations of the people, they have done wonders. In the notification of various infectious diseases they have limited and stamped out many epidemics which would otherwise have been disastrous. But there is a different principle underlying the notification of pregnancy to all previous notifications. The object up till now has been to prevent the spread of disease and to safeguard, not the patient, but those with whom the patient comes in contact. In the notification of pregnancy the object is to look after the patient herself. If this principle is accepted, there seems to be no reason why notification should not be extended much further. Any one who has had an attack of appendicitis is liable to have another, and it may be argued that the first attack should be notified and the patient kept under supervision in his or her own interest. If it is said that in the case of the pregnant woman the object is to save the life of the child, it is open to reply that every adult man or woman is a potential father or mother, and therefore ought to be supervised. It might be argued that it is more important that every woman who was sterile (absolutely or relatively) should be compelled to notify the fact. This is perhaps a *reductio ad absurdum*, but I think that the introduction of this new principle into notification would threaten the community with an undue interference and supervision by the State or municipality. It is contrary to the spirit of this country, and I feel certain could never be carried out uniformly. The State might make it compulsory that pregnancy should be notified, but it could not compel a woman to receive a visit from a female assistant M.O.H. with her preposterous schedule.

PRACTICAL SUGGESTIONS.

I have already pointed out that the care of the pregnant woman is a matter which has not been altogether overlooked in this country, and I think if any improvement is to take place as regards the diminution of stillbirths, it ought to be on the lines of the further development of those institutions which already exist. In all large cities we have maternity hospitals, and these do more than merely treat patients. They act as centres of education for nurses, for midwives, for students, and even for qualified medical men. In Manchester and district the amount of work done is very large, but it could be greatly increased and developed if larger funds were available.

I thoroughly agree with Dr. Moore that the co-operation of the medical officers of health and the health authorities generally with the medical profession is most important, but I believe that much more good would be done at much less cost if the cities were to subsidize maternity hospitals instead of creating a new system. If found advisable, smaller centres might be established under the hospital control in various parts of the town. This was done by St. Mary's Hospital, but its system of hostels had to be given up for want of funds. But, after all, it is perhaps better to have one large central institution in which expert help can always be obtained, rather than a number of small places at which the attendance of experts is only occasional. In the country districts I think it would be well that various villages should be grouped together and some sort of maternity hospital established.

Most important of all, however, is that the treatment should be in the hands of those who are really skilful. This means that the greatest stress should be laid upon education.

1. The pregnant woman should be taught how to take care of herself and warned of certain dangers that may arise. In this direction I regard those agencies which have been established with this object, such as are known as schools for mothers, as institutions which ought to be encouraged.

2. The education, both theoretical and practical, of midwives has been much improved lately, but there is still much room for improvement in some districts. The routine examination of the urine is most important and would reveal many of the cases of toxaemia which require treatment.

3. The medical students throughout the country should receive a more thorough training in practical midwifery than is at present the case. In Manchester the medical student is compelled to live in the maternity hospital for a period of four weeks while "taking out" his practical midwifery.

4. More facilities should be given for medical practitioners to have post-graduate instruction. A week or two spent in a modern maternity hospital would bring many of them up to date in methods of diagnosis, of aseptic precautions, and of treatment generally.

5. The study of the pathological problems connected with abortion and stillbirth should be stimulated by the provision of well equipped clinical laboratories in connexion with maternity hospitals.

The large cities are now provided with maternity hospitals, and this system should be extended to the smaller towns, and even to the country districts. Hospitals should be established in different areas, and should be visited from time to time by an obstetric surgeon of experience, whose services should be available, if required, for consultation with the local medical men, or for the more serious emergencies. In this way the medical men in the district who would be attached to the hospital would have their interest increased not only in the care of the pregnant woman, but also in her confinement and in the care of the newborn child.

The solution of the matter, I feel sure, is not in statistics and notification, but in education and research.

The medical officers of health can do a great deal for the future generations if they will use their influence to try and persuade the health committees throughout the country to pursue this work through the institutions that are already in existence, and to extend the same system to the less densely populated parts of the country.

I have said nothing as to the case of the newborn child. This opens up another large subject, which is outside the scope of this paper.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, April 22nd, 1916, p. 594. [2] *Lancet*, May 6th, 1916; abstract with quotations in BRITISH MEDICAL JOURNAL, May 13th, 1916, pp. 693-4.

SYMMERS (*Journal Amer. Med. Assoc.*, May 6th, 1916) has studied 314 cases of anatomical lesions in late acquired syphilis at Bellevue Hospital, New York, as detected at 4,880 necropsies. Syphilitic aortitis occurred 175 times, or in 55.7 per cent. of the total number of syphilitic cases; the arch alone was involved in 63 per cent., dilatation of the aorta was detected in 22.3 per cent., aneurysm of the aorta in 45 cases (25.6 per cent.), the arch being the part involved in 34 cases, or just over three-quarters of this subseries. The aortic valves were sclerotic in 64 cases, and definitely retracted in 27, or 42.2 per cent. In 71 per cent. of the 175 cases of syphilitic aortitis, associated syphilitic changes beyond the vascular system were noted, many of them being in the skin and visible mucous membranes. The coronary arteries were sclerotic in 26 per cent.

TUBERCULINS AND VACCINES

*FROM THE GENERAL PRACTITIONER'S POINT OF VIEW.**

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I DO not propose to go into the theory of vaccines or to produce statistics, but to note a few points which have occurred to me through my experience as a general practitioner, and may be of service to those who have not so far made use of vaccines and tuberculins. I bracket these, for I believe that the tuberculin which is increasing in favour, and will eventually supersede the others, is the bacillary emulsion (B.E.) and this is practically a vaccine. The organisms are ground up in an agate mortar before being mixed with the diluent.

For diagnosis, old tuberculin T.A.—a solution chiefly of the exotoxins, prepared by filtering a sterilized tubercle culture through porcelain—is usually employed.

The question of expense is often important, and here the employment of stock or autogenous vaccine comes very much to the fore, more so in some places than others. Here we are fortunate, for the new pathological laboratory attached to the Wolverhampton General Hospital prepares autogenous vaccines at a very moderate fee. Some time ago a patient of mine consulted a London physician, and was provided with an autogenous vaccine for chronic nasal catarrh. The fee was 30 guineas, and the patient was not at all benefited by the course of injections. Last year another patient had a similar vaccine for a similar purpose prepared at our laboratory—fee, 2 guineas. He was markedly benefited by the treatment, and showed his appreciation by urging several of his friends to apply for the same treatment.

In deciding whether or no to use a vaccine many considerations arise, and the cases may be roughly divided into four groups:

1. Those in which a vaccine is usually successful and more likely to succeed than other remedies which used to be employed aforetime.
2. Those in which ordinary remedies have so far failed, and we know that a vaccine may cure, though not so frequently as in Group 1.
3. Cases of serious disease, in which the use of a vaccine can do no harm, and may decidedly increase the patient's chance of recovery.
4. Cases in which, though vaccines often fail, yet other remedies do so almost invariably.

There are also a number of cases which, though not cured by vaccines, yet may be very much relieved by their use.

Group 1.

Amongst these cases are those of recurring boils and carbuncles; here a vaccine rarely fails. A stock vaccine usually succeeds, but when the patient can afford it I certainly prefer an autogenous vaccine. These are cases in which there is no special urgency, so that there is time to prepare the vaccine from the organisms found in the patient's own boils. I do not remember a single failure with an autogenous vaccine used for this trouble, but I have known a stock vaccine fail occasionally.

I have had very good results from a vaccine in a very widespread, pustulous rash accompanying scabies.

Other cases which are very much benefited by a vaccine are those of chronic nasal and post-nasal catarrh when this is due to the pneumococcus. I have now a case of this which has benefited most remarkably; even some accompanying deafness of over ten years' standing is distinctly better.

The chronic tracheitis of old people—commonly called bronchitis—is also often due to an infection by the pneumococcus, and here a vaccine will often work wonders, but usually it must be repeated. Here also I much prefer an autogenous vaccine.

The cystitis due to infection of the bladder by *B. coli* usually clears up quickly with a vaccine. An autogenous vaccine is almost imperative owing to the large variety of coliform organisms which exist. Amongst these cases the most successful are those in elderly women.

There are, however, one or two points of caution in dealing with cystitis due to *B. coli*. If the patient be an old man with a large prostate and some residual urine, then the vaccine will fail. I tried to get over this difficulty by combining vaccine treatment with regular irrigation of the bladder by antiseptic solutions. The result, though not a cure, was better than with either method of treatment alone. Another point in dealing with a bacilluria is to be sure that the urine is kept alkaline.

Vaccine is also very successful in cases of chronic gleet and in some of the secondary infections of gonorrhoea, and I have found it useful in a case of only a few weeks' standing. It is, however, a difficult vaccine to prepare, and a stock vaccine rarely does much good.

Group 2.

Amongst these there may be placed acne, for though vaccines are often very successful, yet they often fail. I have known a stock vaccine give good results, but an autogenous is generally preferred.

I would also place here nasal catarrh not due to pneumococci. I have had some success, but not nearly as much as I had hoped, from my reading of published results.

I have seen a case of obstinate catarrhal asthma, which had for weeks resisted everything, yield almost at once to a vaccine prepared from the patient's nasal organisms. I have used a vaccine in hay fever, with no benefit, but have not tried the pollen vaccine.

I have used Bordet-Gengou's whooping-cough vaccine, and certainly those cases in which I used it got well in good time.

In nasal and tracheal infections two or more organisms are often present, and a mixed vaccine must be prepared, and the proportion of its constituents varied during treatment as one or the other organism yields more readily.

Group 3.

Perhaps the most important disease in this group is pneumonia. I am well aware that I am on debatable ground, but I have never heard of any harm following the use of vaccine in pneumonia, and I have had some very good results from its use. I begin directly I believe the case to be one of pneumonia, and repeat the dose if the temperature rises again after the fall, which usually follows within twelve hours of the injection. This is essentially an instance in which a stock vaccine must be used, as the patient may be dead or better before there is time to prepare an autogenous vaccine. Some start with a stock and go on with an autogenous vaccine when ready.

General septic infections also come under this head—septicaemia and malignant endocarditis.

Group 4.

As we get more skilful in the preparation and use of vaccines this group will grow smaller. At present I fear the general practitioner will place in it a number of diseases.

A prominent member of this group is rheumatoid arthritis. Here, at times, a vaccine may do good or arrest the progress of the disease. The most promising cases are those due to septic absorption from the pus about the teeth in pyorrhoea; the vaccine should be prepared from this pus. So far my experience has not been hopeful. I am inclined to believe that the difficulty is due to the dense tissues and poor vascular supply of the parts which are affected in this disease. I would compare with it chronic suppuration of the middle ear; here, also, I have found vaccines fail. Colitis, some skin cases, and septic anaemias may also be mentioned here.

Dosage.

The reaction of the patient to the first dose must be the guide; if it be severe then the second dose should be only slightly, or not at all, increased.

The first dose will be regulated by the urgency of the case and the condition of the patient. In a bad case of pneumonia a full dose should be given; in a case of a frail invalid with bronchopneumonia a small dose at first, lest

* Read before the meeting of the Staffordshire Branch of the British Medical Association.

the reaction should injure the patient. I usually give 50 million in an acute case and 20 in a chronic.

In a case of pleurisy in a boy (about 5 years old) I once gave 75 million for the second dose. His temperature rose the same day to 104° from only just above normal. It soon came down, and the patient made a complete and rapid recovery, though a surgeon who had seen him before the injection thought an empyema was present and needed operation.

The interval between the first and second injection should usually be about four days, gradually extended by a day to eight days, and then a day more every second or third injection. In a few cases where the patient's condition is critical an injection may be given daily. In some to maintain the improvement the injections must be continued over a long time at intervals of, say, once a month; in these cases the vaccine does not eradicate but keeps down the disease. If an injection is followed by a rise of temperature this must have quite subsided before the next dose is given.

Site of Injection.

It is of no importance at all where the injection is given so long as it is in a region where the vaccine can be readily absorbed into the general circulation. If the dose is bulky, or when using concentrated vaccines and tuberculins, it is wise to choose a place where there is plenty of loose connective tissue. For this reason the arm above the elbow is preferable for large doses, and the injection must be made well below the skin. At times I have found that when injections given below the elbow caused unpleasant swellings, the difficulty was overcome by giving them above the elbow.

Between the shoulders was a site often chosen; a disadvantage is that if there is any local reaction it may make it awkward and painful for the patient to lie down. It has the advantage that it impresses the patient more, and would be useful for this reason in those cases in which there is a neurotic element. In dealing with our modern rulers—the great unwashed—it is well to paint on the skin a spot of iodine solution and inject through this; with others it is enough to clean the skin with spirit. When withdrawing the needle I always press on its track with a pad of wool to close it, and wipe off any spots of vaccine which may have escaped. The needle and syringe must be scrupulously sterilized, and should be washed out with spirit directly after use; if left to do at a more convenient time the piston may have stuck to the barrel.

The needles I prefer are those made like a dentist's injection needles. The needles (supplied in sterilized tubes) are separate from the mount, to which they can be readily attached; by using these one always has a sharp point and can use a new needle every time if advisable. I always keep a platinum-iridium needle in reserve, but they get blunt far too readily.

Any readily sterilized syringe will do, but the long narrow ones have the advantage that it is very easy to regulate the dose with great accuracy. As metal expands more readily than glass, if a glass syringe be boiled with a metal piston in position the glass will probably break. I prefer the syringe to be graduated in cubic centimetres, but this is immaterial, though it is necessary to make sure whether the strength of the vaccine is stated per cubic centimetre, or per 20 minims, or per phial. I have known the label to be most annoyingly ambiguous on this point.

If a small file is not at hand, a key with a hole up the stem does excellently for breaking off the point of the vaccine phial, which should always be well shaken before being opened, as the organisms are apt to settle at the bottom and so spoil the dosage. An important point is always to make a note of the date of injection and the dose at once. When using a series of phials put up in a box, the inside of the lid or bottom of the box makes a convenient place for a prompt note that will always be at hand when giving the next injection.

Tuberculins.

Those who have used tuberculin most are those most strongly convinced of its value, and their conviction increases as time goes on. Often objectors have not used it in suitable cases or in the right way. So many when asking for a remedy for tuberculosis mean something which will cure advanced cases. So far this is still to seek, and I fear will be for many a long day.

Tuberculin is an important aid to diagnosis, whereby we can be positive in cases where without it we should still be in doubt. It is in discovering tubercle in its early curable stages that our chief hope lies in dealing with a disease whose annual death rate is equal to 75 per cent. of our total killed for the first year of war. I am aware that some hold the use of tuberculin for diagnosis to be risky, but their reasons when examined do not convince; the ability to diagnose tubercle in its early stages is of such paramount importance that even if there were some slight risk it would be justified.

We are told that the injection may stir up latent trouble, but we should not test a perfectly healthy individual, and, if tubercle be found, is it not reasonable to suppose that it is at the root of the trouble which caused the patient to consult us, and not really latent at all? It is just this "stirring up" of an existing tuberculous focus that is such a valuable aid in diagnosis, often enabling us to localize the trouble. This "focal reaction" clinches our diagnosis. It soon subsides, and in a few days the patient is better than before.

It is also frequently stated that nearly every one would react to tuberculin. I have personally found this is not the case. When we consider the large number of people who have tuberculous trouble at some time, and overcome it, it is not at all surprising that a positive reaction is so often obtained. No doubt many of these early cases would get quite well without special treatment, but if treated, we may be fairly safe in saying that nearly all will recover.

In employing tuberculin for treatment, it is most important to have the patient's temperature taken regularly, as this settles the dosage. A marked rise would lead one to repeat the last dose or only slightly increase it; further, no dose should be administered until the reaction set up by the previous one has quite subsided.

Provided no mixed infection is present, tuberculin can be administered to a patient with fever so long as the temperature has been noted for a few days previously, in order that we can recognize a reaction on the chart.

The dose is usually increased by 50 per cent. each time in cases showing no, or only slight, reaction. I begin usually with $\frac{1}{10000}$ c.cm., and have safely worked my way up to a dose which, if given at first, would have produced a startling reaction. I begin with two clear days' interval, and slowly extend, as the dose increases, to some weeks when using undiluted tuberculin.

A question of great importance is the matter of mixed infection, and I believe that most failures are due to this not being recognized. I have had some of my best results by combining Dr. Curle's nascent iodine treatment with B.E. I believe the iodine acts on the adventitious infection, and the B.E. then has a fair chance with its own bacillus. I have also known good from the use of a vaccine made from the adventitious organism along with tuberculin.

Though many of our cases are past being cured, yet by the use of tuberculin we can very much delay the progress of the disease.

Another very important point we find in treating a patient with tuberculin is that the sputum becomes less infective, the tubercle bacillus often completely vanishing, even though, from symptoms and physical signs, we know the disease has still a strong hold. This is of great value in preventing the spread of infection.

Some fear giving tuberculin in cases with haemoptysis; I have never known harm follow. In dealing with a number of advanced tuberculous patients a certain proportion will have haemoptysis, and if we treat them with tuberculin we shall still have some instances, though fewer, and these occur in spite of the treatment, not in consequence of it. If the dose given to a patient were largely increased and a severe reaction produced, haemoptysis might be caused, but the fault would be, not with the remedy, but with the method of employing it.

THE Committee of the French Surgical Association has decided that the French Congress of Surgery shall not meet till after the war. It has also resolved to expel all German, Austrian, Bulgarian, and Turkish members.

THE Duma has passed a law authorizing the sale of wine in the wine-growing regions of Russia during the war; afterwards the sale of wines containing more than 12 per cent. alcohol will be prohibited. The law does not affect the prohibition of the sale of vodka.

THE TRANSFUSION OF WHOLE BLOOD:

A SUGGESTION FOR ITS MORE FREQUENT EMPLOYMENT IN WAR SURGERY.

BY

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THE investigations of Crile and Carrel and the more recent clinical and experimental work of Satterlee and Hooker,[1] and of Lindeman,[2] have shown the enormous value of the introduction of whole blood into the circulation, and have emphasized its limitations.

The broad indications for blood transfusion are based on the fact that transfused blood is the best substitute for blood lost in acute haemorrhages. In certain pathological haemorrhages it has definite haemostatic properties, and in some secondary anaemias it acts as a powerful stimulant to tide over the crisis in the disease. In haemorrhagic disease of the newly born brilliant results have been obtained, and recently the procedure has been applied in cases of haemophilia, pernicious anaemia, marasmus, and certain secondary anaemias due to purulent foci, with some very promising results.

In cases of primary haemorrhage in the present war we see the condition of the shock due, not only to the loss of blood, but to the injury causing the same. In secondary haemorrhage the patient's resistance is lowered owing to the absorption of toxins from an infective focus, and there is often, in addition, a lowering in the coagulability of the blood from the same cause.

To combat the alarming symptoms due to the abrupt loss of blood the introduction of normal saline solution is probably the treatment most frequently adopted, and in many cases, usually the less severe, this stimulates the patient, allows his natural resources to assert themselves, and recovery takes place. But the addition of salt solution to the circulation is at best only a temporary measure, and merely makes up for the loss of fluid, which is only one factor in the condition.

The Effect of Transfused Blood.

The introduction of whole fresh blood into the circulation at once not only helps to restore the depleted bulk of circulating fluid, but provides the patient with that particular body tissue to the depletion of which his immediate symptoms are due. Moreover, the newly introduced blood (1) acts as a more permanent addition to the body tissues, and (2) carries with it coagulation elements, fresh complement, and, to a varying extent, any antibodies with which the healthy donor's blood is provided. It is a stimulant to the starved haematopoietic organs, as may often be seen by the secondary increase in the blood count within a few days of the operation. The results are more apparent in cases of primary haemorrhage, in respect of which my observations have been limited to cases in civil practice. In secondary haemorrhage, where the factor of sepsis has to be combated, the additional blood often carries the patient over a critical period, and assists his forces to rally to withstand further surgical procedures necessitated by the infective process, or increases his resistance so that by his natural resources he overcomes the infection.

Where infection only is the factor to be combated, blood transfusion is simply an adjuvant to other means of treatment, unless a specific antibody can be introduced, as has been done recently by Zingher of New York, who injected blood from cured scarlet fever patients to others in the acute stages of the disease, with most promising results.

Possible Dangers of Blood Transfusion.

The occurrence of haemolysis during or after blood transfusion has occupied a good deal of attention. The milder degrees of incompatibility between the donor's blood and that of the recipient result usually in a slight chill and a rise of temperature (sometimes up to 102° F.). These symptoms are not uncommon even between familial bloods, and should occasion no alarm. The reaction is due, apparently, to the introduction of a foreign protein material or the liberation of some serotoxin. If any actual haemolysis occurs in these mild reactions, it must be very limited, as the great majority of patients show no haemoglobinuria. A greater degree of incompatibility is indicated by a chill and rise of temperature with slight icterus and haemoglobinuria, and the most serious degree by these symptoms very much intensified, followed by collapse and death.

Selection of a Donor.

A robust and healthy donor can withstand the loss of from 600 to 1,000 c.cm. of blood without more than moderate temporary disturbance, and I have seen no ill effects in any donor following the transfusion, provided he is kept at rest for twenty-four hours afterwards. It is a simple matter at the end of a transfusion to give the donor a quantity of saline equal to the amount of blood withdrawn from his circulation. Donors can be sought for amongst the patients suffering from sprains, minor fractures, etc., who are in good physical condition but unfit for duty. The use of these men as donors in no way prolongs their period of convalescence. Inquiries, of course, should be made of the donor as regards previous illness, such as syphilis or tuberculosis, and, if feasible, a Wassermann reaction should be done.

Preliminary Haemolysis Tests.

Tests for haemolysis have been devised which meet the ordinary requirements for cases of haemorrhage. These should, if circumstances permit, be performed before transfusion is carried out. But this may be impossible or the condition of the patient may make it imperative that no time should be lost. The occurrence of a serious degree of haemolysis is uncommon, and the fatal outcome in Case III may perhaps be attributed to the use of a second donor, for the possibility of a haemolytic reaction between three bloods is much greater than between two. A rapid and simple method of testing donors for transfusion is that devised by Rous and Turner.[3] In some of the anaemias and in cases of sepsis there are very probably products of absorption in the tissue cells of the recipient which by the introduction of fresh blood may be disturbed or set free in such a way as to produce a reaction manifested by chills and fever and possibly haemolysis.

Method of Transfusion.

Of the various methods of blood transfusion those involving the transference of the blood by an intermediate vehicle are to be preferred. The end-to-end anastomosis of artery and vein first advocated by Carrel, or the interposition between them of a paraffin-coated glass tube is a surgical procedure which necessitates considerable skill on the part of the operator and his assistants and consumes a valuable amount of time. They are not applicable when transfusion must be done at the bedside, and the amount of blood introduced cannot be estimated except in the most approximate fashion. Of the several indirect methods there are three in general use: (1) syringes and cannulae, (2) the Kimpton or similar cylinder with which sodium citrate[4] or hard paraffin may be used as an anti-coagulant, (3) the Unger two-ways stopcock.[5]

It has been argued that the saving of time is a great factor in commending any particular method of blood transfusion. But this holds good only up to a certain point, and a too rapid introduction of blood into a patient's circulation has more than once led to cardiac dilatation and a fatal issue.

The Syringe-Cannula Method.

The method of blood transfusion which up to the beginning of the war I found most applicable in civil practice[6] is the syringe-cannula method. It is with slight modifications the method popularized by Lindeman of New York, who has placed it on its present basis of efficiency.

The instruments used are a set of six 20 c.cm. Record syringes, two hollow needles which fit the syringes and are as far as possible of the same bore as the tip of the syringe, two 2-in. rubber tubes armed with metal tips which fit the needles, and a small set of dissecting instruments, the last named to be used when a superficial vein cannot be entered by direct puncture through the skin. If Record syringes are unprocurable, ground glass syringes of the same capacity will be found to answer almost as well, although they require more care in handling. The cannula used is of the pattern recommended by Lindeman, and contains a closely fitting inner hollow needle, which

projects beyond the end of the cannula and is bevelled in the usual way. Its introduction into the lumen of the vein is shown by the appearance of blood at the hub of the inner needle, and the latter can then be withdrawn, leaving the smooth tip of the cannula in the vein; in this way injury to the delicate intima and consequent clotting is avoided. Transfusion may often be carried out successfully with the ordinary sharp-pointed needle, but the increased possibility of clotting must be taken into consideration. Apart from the cosmetic effect and a slight saving in time and trouble, the method of introducing the needle or cannula into the vein is a matter of minor importance. It is a simple matter to cut down upon the vein under local anaesthesia and introduce a blunted needle or small olive-tipped glass cannula.

All instruments are sterilized by boiling. It should be noted, however, that with the Record syringes recently issued sterilization in methylated spirits is preferable, as the syringes are liable to crack when being boiled. Two 1-pint bowls of normal saline, one warm and one cold, and a small bowl containing about 1 oz. of sterilized liquid paraffin, are also required. The cold salt solution is used for washing out the syringes, the warm solution for injection through the cannulae to clear them of blood. The syringes, rubber tubing, and cannulae are lubricated by drawing through them the sterilized liquid paraffin.

Technique of Blood Transfusion.

The skin over the antecubital region of the recipient's left arm having been sterilized by painting with tincture of iodine, sufficient constriction is applied just below the shoulder to prevent venous return. The most accessible vein is selected, and the needle or cannula introduced and allowed to fill with blood. The constriction is now removed, and a 20 c.cm. syringe full of saline, with rubber tube and coupling attached, is connected with the cannula. Sufficient salt solution is now forced very slowly but continuously through the cannula to clear it of blood and prevent clotting. Constriction is now applied to the donor's arm until the veins are well distended and the skin pink but not cyanosed. An elbow vein is entered, and an empty syringe and rubber tube attached. If the cannula be introduced in a direction opposite to that of the blood stream it will be found that the syringe will fill more easily when the piston is withdrawn. The assistant now quickly withdraws 20 c.cm. of blood from the donor's vein, disengages the syringe from the rubber tubing, and passes it to the operator, who substitutes it for the saline syringe previously attached to the rubber tubing on the recipient's needle. The blood is injected into the recipient's vein quickly, and when the syringe is emptied it is immediately replaced by the saline syringe, and sufficient salt solution forced through slowly but continuously to clear the tubing and needle of blood.

In the case of the donor, a saline syringe is attached between the successive withdrawals of blood, and a small quantity of salt solution forced through slowly and continuously to keep tubing and needle clear of blood. After each blood filled syringe has been emptied the nurse flushes it out with cold sterile saline, and at intervals relubricates it with liquid paraffin. In this way syringes can be used an indefinite number of times, and the amount of blood which it is possible to transfuse is limited only by the giving capacity of the donor and the receiving capacity of the patient.

The recipient should be watched carefully for any signs of vasomotor disturbance. Not infrequently he will complain of some substernal or abdominal pain after the first few syringefuls of blood have been injected. These symptoms are probably caused by the introduction of a foreign protein. It is at this juncture that the operator should proceed slowly, and if necessary suspend operations for several minutes until the patient has quieted down. If the transfusion is to be suspended the cannulae should be kept patent by the slow but continuous injection of salt solution.

Every endeavour should be made to cause as little movement as possible of the end of the cannula in the vein, and it is on this account that the short piece of rubber tubing is used. If the cannula system is found to be blocked to the passage of saline the rubber tube and coupling should be removed and their patency ascertained. If clot is present here it can be forced out with saline, and the operation resumed. If clot occurs in the needle it is usually to be found in the hub, and can be picked out with fine forceps. If necessary the cannula may be removed, cleared, and reintroduced. Strict attention to the saline introduction will prevent clotting. No doubt microscopic clots in the form of minute aggregations of red cells are introduced, but apparently these cause no trouble. On several occasions I have seen small bubbles of air introduced without any symptoms of cardiac disturbance.

The advantages of this method are: (1) Nothing beyond ordinary surgical technique is required. (2) The amount of blood transfused is known definitely. (3) The procedure is under control at all times. (4) Should symptoms occur in the patient which render it necessary, operations can be suspended for several minutes without risk of clotting. (5) Blood may be transfused slowly or rapidly. (6) The total quantity of blood is outside the body for a period not exceeding twenty seconds, and there is a minimum amount of foreign material with which it must come in contact.

Amount of Blood to be Transfused.

In primary haemorrhage, where the loss of blood is considerable and the shock severe, transfusion up to 800 to 1,000 c.cm. of blood will give the best results, though the amount given must depend on the requirements of the patient and, as noted above, the giving capacity of the donor. Some appreciable improvement may be obtained with smaller amounts, and in any case the procedure should be supplemented by the subcutaneous injection of normal salt solution.

Where small but repeated or persistent secondary haemorrhages occur a smaller amount (200 to 400 c.cm.) produces a haemostatic effect, but where severe secondary haemorrhage has taken place a larger amount should be given to get the best results.

Cases of Secondary Haemorrhage.

CASE I.—Sgt. G., wounded September 23rd, 1915, was admitted to a base hospital on October 6th, 1915, under the care of Major J. N. Gunn, C.A.M.C. There were multiple shrapnel wounds of chest and left arm, and the temperature was 102° to 104° F. Four days later thoracotomy was performed for empyema. By October 22nd there had been two severe secondary haemorrhages from the chest after which there was continuous oozing. By October 30th the condition had become much worse and the administration of salt solution subcutaneously caused no lasting improvement; the red blood cells reached 1,600,000. Blood transfusion (500 c.cm. by syringe-cannula method) was performed; after the first 80 c.cm. the patient complained of some abdominal discomfort and pain in the affected lung, the pupils became dilated and the face flushed. At this juncture the operation was suspended for ten minutes, and then, as the symptoms had subsided, further injections of blood were carried out at moderate speed. That evening the patient had his first good night's sleep without the aid of morphine. The following day the red blood cells numbered 2,500,000, the general condition was much improved, and there was no bleeding from the wounds. His condition continued to improve, and a month later he was evacuated to England. Further accounts from the patient showed an uneventful recovery.

CASE II.—Pte. G. was admitted to base hospital, October 13th, 1915, under the care of Major H. L. Jackes, C.A.M.C. He presented multiple septic shrapnel wounds of both legs, left arm, and head, and his general condition was very poor. The right leg had been amputated below the knee. The temperature was 100° F. and the pulse 132. A few days later various septic wounds were opened and shrapnel removed; the temperature was 100.4° to 103.8° F. On November 5th severe secondary haemorrhage occurred from the stump; the bleeding vessel was secured, and salt solution with pituitary extract administered interstitially. Six hours later the pulse was 140 and very soft. At 4 p.m. the same day 900 c.cm. of whole blood was transfused and immediate improvement was evident. During the transfusion the donor complained of no discomfort, and at his own request was allowed to smoke a pipe throughout the operation. Following this the patient showed great improvement, and on November 15th the temperature was 99° F. and the pulse 90. Three weeks after transfusion the wounds still showed a good deal of infection, and he began to have a septic temperature. At this time a blood culture showed streptococci; a week later he succumbed to the blood infection.

CASE III.—Pte. B., about December 7th, 1915, sustained a shrapnel wound of the left leg, necessitating amputation just below the knee at a clearing station. Several days later he arrived at the base in a toxic condition with severe infection of the stump. Secondary haemorrhage occurred four days later; the femoral artery was ligatured and amputation through the knee-joint performed. For the next week the temperature remained elevated, and infection of stump and thigh was present. On December 19th the red blood cells were 1,988,000 and haemoglobin 45 per cent.; the patient showed poor resistance to the infection and withstood the dressings badly. With the two-way stopcock apparatus of Unger 600 c.cm. of whole fresh

blood was transfused. Following this he showed improvement, and for the next week his progress was fair, but he seemed to have lost heart, and it was thought that a second transfusion would give him the desired stimulus. On December 28th (red blood cells 2,320,000, haemoglobin 60 per cent.) 450 c.cm. of whole blood was transfused with the two-way stopcock from a second donor. More than this quantity was not used, as towards the end of the procedure the patient complained of general discomfort, and within ten minutes after the operation the pulse became weak and rapid, respirations shallow and hurried, and he was only partly conscious. Stimulants were administered, and four hours later he was sitting up in bed smoking a cigarette. The following day intense jaundice was present, and he had passed a small quantity of very dark red urine. The pulse was weaker and there had been considerable bloody oozing from the stump. Twenty-four hours after this (the second) transfusion he became unconscious and died. At autopsy only a few petechiae were found beneath the serous coat of the small intestine, the liver was fatty, the kidneys and spleen dark red. No sign of pulmonary embolus or infarct could be found. Death was due, apparently, to acute haemolysis.

CASE IV.—Rfm. M., under the care of Major T. R. Elliott, R.A.M.C., who was kind enough to furnish me with progress notes, sustained multiple shrapnel wounds on December 14th, 1915. Three days later he was admitted to base hospital in very bad condition, with septic wounds of the left knee, right ankle, and left lung. On the twelfth day after the injury trismus appeared simultaneously with the expectoration of gangrenous pus from the lungs. Tetanus developed rapidly on the next day, causing rigid trismus and board-like abdomen, but no spasms nor difficulty of respiration. The condition of the patient was very pitiable, since he could not void from his mouth the fetid material that continued to come up from the lung abscess on the left side. Antitetanus serum was given until January 6th (a total of about 60,000 units). On the twenty-seventh day after the injury secondary haemorrhage occurred twice from the septic wound of the left knee. The vessel was ligatured. The blood lost was estimated as being rather less than a quart; the patient was much blanched. For the next week the general condition became worse, and there were signs of consolidation at the base of the left chest. No pus was found on exploration. On January 17th, before transfusion, the red blood cells were 2,832,000, and haemoglobin 45 per cent. By syringe-cannula method 860 c.cm. of blood was transfused; a rigor followed at once, and lasted fifteen minutes. On January 18th the red blood cells were 4,600,000, and haemoglobin 60 per cent. Following this the condition improved, and on February 1st a small localized empyema was opened, and the right ankle thoroughly cleaned and drained. By February 16th the patient was rapidly convalescing; the sputum ceased to be fetid soon after the abscess was drained. He was evacuated to England on this date.

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A SIMPLE TECHNIQUE FOR INTRAVENOUS INJECTIONS IN INFANTS.

BY ANN MARTIN, M.D. CORNELL UNIVERSITY.
(From the Sick Children's Hospital, Edinburgh.)

On account of the small size and inaccessibility of the superficial veins in young infants, it is usually difficult, and often impossible, to give intravenous injections or even to obtain sufficient blood for the Wassermann reaction by the methods ordinarily employed. The difficulty is satisfactorily overcome by puncturing the superior longitudinal sinus through the anterior fontanelle, according to the procedure recently introduced by Helmholtz of Chicago.[1]

I have made extensive use of Helmholtz's method in Dr. Fowler's ward in the Edinburgh Sick Children's Hospital during the past winter, and have found it simple and free from risk. The results of saline injections given in this way have been altogether better than those of the subcutaneous method hitherto employed. The following description of the technique of the Helmholtz method, based on a series of 50 cases, is offered as a guide.

The scalp over the anterior fontanelle is shaved and disinfected with iodine. No anaesthetic is required. The child lies in bed with its head raised to a convenient angle on two pillows. A nurse holds the head securely with a hand on either side; the operator stands in front and on the right side of the child. The needle (held at an angle of about 50 to 60 degrees with the plane of the fontanelle) is inserted in the middle line, half way between the anterior angle and centre of the fontanelle. Some little force is required to push the needle through the firm pericranium, and, when the resistance is overcome, one can feel that the point of the needle is in a cavity. The point should not penetrate more than one-eighth of an inch below the surface of the skin since the sinus lies immediately under the pericranium. If the needle is in the sinus blood flows at once into the syringe; should this not happen the needle has gone too deep, and has passed completely through the sinus. This is the mistake usually made by a beginner; it does not, however, cause any damage. It is rectified by gently withdrawing the needle until the point re-enters the sinus, as is shown by a flow of blood into the syringe.

A specially ground needle is essential. The sinus is in many cases so shallow that an ordinary long-pointed needle pierces the inner wall before the entire opening in the end of the needle is through the pericranium. A needle of size No. 20 or thereabouts, with a bevel measuring 2 mm., should be chosen in place of one with an ordinary bevel, which measures about 4.5 mm.

When introducing fluid, such as eusol or saline solution, we have found a two-way stopcock and 10 or 20 c.cm. syringe, as described by Graham,[2] the most satisfactory instrument. The needle is inserted with the syringe only a quarter full of fluid, as it is easier to manipulate thus. Very little pressure is needed to inject the fluid, which, indeed, flows in almost of itself on account of the slightly negative pressure in the sinus. If pressure is needed one may be sure that the needle has escaped from the sinus; usually it has accidentally been pushed in too far. Each time the syringe is refilled it is well, immediately before injecting the fluid, to make sure that the needle is still in position by slightly withdrawing the plunger so as to ascertain whether there is a reflux of blood.

Autopsies on patients in whom, for diagnostic or therapeutic purposes, the sinus had been punctured at intervals of from a few hours to several weeks before death showed that in no case had any injury been done, nor in any case in which this method has been used have any untoward symptoms followed. The advantage of using the superior longitudinal sinus is evident. I have never found it necessary to give an anaesthetic. The puncture causes little disturbance, and infants even fall asleep while the fluid is running in. There is also the very material advantage that repeated injections, if such are necessary, are as easily performed as the first.

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ACUTE GENERAL HAEMORRHAGIC PERITONITIS.*

BY ARTHUR J. NYULASY, M.R.C.S.ENG.,
GYNAECOLOGIST TO THE PERTH HOSPITAL, AUSTRALIA.

ACUTE general haemorrhagic peritonitis is an uncommon condition, but three cases have come within my experience in the Perth Hospital. Two of them resulted from criminal abortion and came to the *post-mortem* table; one of them presented a striking lividity of the skin, which persisted after death; it involved the whole body, and was so pronounced in the face as to be almost startling. The third case will be described in detail.

A multipara, aged 30 years, transferred from a medical ward, had been admitted with severe diarrhoea and some pain and tenderness in the lower abdomen, the pulse being 120, respirations 32, and temperature 101.9° F. The diagnosis suggested by the physician who sent her to hospital was "ruptured ectopic gestation." In a few days the diarrhoea ceased, and the temperature, after a fluctuating course, dropped to normal, the pulse to 108, and respirations to 28. On then examining the patient I found the tongue clean and moist, the colour of the face normal, and nothing in her appearance to suggest serious illness. The abdomen conveyed the idea of general "fullness," although there was no marked intestinal distension, while the pelvic area, especially in the left iliac fossa, was very tender on pressure. Bimanually a pelvic mass was made out, and later found to be the somewhat enlarged uterus and an enlarged left Fallopian tube and adherent intestines. The mass was extremely tender on pressure, so that a satisfactory examination

* Paper read before the Western Australian Branch of the British Medical Association.

was impossible without an anaesthetic. There was dullness on percussion over the flanks, and I detected free fluid in these regions by what I call the "staccato touch." To carry out this test the flank is struck lightly and sharply in a staccato fashion with the tip of the finger; if free fluid be present, the sound given out by percussed fluid is distinctly heard. There was no localized pallor of the external genitals, a physical sign which, when present, I have found of great value in the diagnosis of atypical cases of ruptured ectopic gestation.

Operation (September 9th, 1915).—There was a yellow discharge from the cervical canal, and on curettage I could detect no evidence of a decidua, only the "slimy" sensation of chronic endometritis being conveyed through the curette. I therefore ruled out ruptured ectopic gestation, but on opening the abdomen the cavity was found to be full of bright red fluid blood, and the case appeared to be clearly one of recently ruptured ectopic gestation. On freeing and drawing up the adherent left Fallopian tube (enlarged to the size of a finger), pus was seen to be issuing from its outer end. The involved tissues were so friable that the distal portion of the tube came away quite easily in my hand up to about an inch from the uterine cornu. The right tube was also much inflamed, so that double salpingectomy was carried out. Neither in the tubes nor in the ovaries was there the slightest evidence suggestive of ectopic gestation, nor could I discover any ruptured large vessel which might account for the flooding of the peritoneal cavity with blood.

When the blood had been mopped out from the abdomen very acute peritonitis was revealed, the intestines being intensely red, roughened, and marked with patches of yellowish lymph. The abdominal walls were unusually lax, so that by lifting them up we were enabled to bring the intestines into view right up to the costal margin. As far as we could see them, the intestines were involved in exactly the same manner as under the abdominal incision. The state of the patient now demanded prompt conclusion of the operation, so that the kidney pouches had to be left without special cleansing, but there was no more obvious free blood. No drainage was used.

After-Treatment.

The patient was placed in the Fowler position and saline freely administered. A few days later the wound suppurated and opened, and a quantity of blood poured out from the abdominal cavity through the lower end of the incision. It is to be noted that the parietal peritoneum had at the operation been found thickened, stiff, and friable, so that any blood which had not been mopped out from the abdomen, or which had poured out into it afterwards, would probably have a better chance of making its way out than if the parietal peritoneum had been normal. The patient made an excellent recovery.

The absence of serious symptoms in this case was very remarkable. It may be accounted for partly by the preliminary diarrhoea and partly by the large quantity of blood which escaped from the engorged peritoneal vessels in a case fittingly described as "acute general haemorrhagic peritonitis." The conditions found at the operation suggest that acute infective inflammation of the peritoneum is not *per se* nearly so serious as appears to be commonly supposed, and that, providing the focal factor and any free toxic fluid be removed from the abdomen, and that there is no paralytic ileus, the patient may recover with comparative ease from a most extensive acute infection of the peritoneum. In other words, in such a case, if the patient die after operation, she dies of the bowel rather than of the peritoneum. This being so, if the foregoing case had deteriorated subsequent to operation, I would have carried out caecostomy, taking care at the same time to swab out the bulk of the free blood which might have poured out into the abdomen.

To illustrate recovery from extensive acute infective inflammation of the peritoneum, another case of general peritonitis in my care in the Perth Hospital some years ago may be cited. The condition resulted from criminal abortion, and was part of a general septic poisoning. After about six weeks, during which marked diarrhoea was present, the patient, apparently on the way to recovery, grew drowsy and delirious, and died in a couple of days, after vomiting, ultimately faecal, had developed. At the autopsy universal peritoneal adhesions of rather recent date were found, while one of the peritonitic bands had strangulated and cut through into a loop of bowel, with resulting extravasation of faeces. But for this unfortunate complication the patient would undoubtedly have recovered from what had obviously been a universal infective inflammation of the peritoneum.

THE late Professor J. W. White, of Philadelphia, left estate of the value of £200,000. Among the bequests in his will is one of £30,000 to the University of Pennsylvania for the foundation of a professorship of surgical research, and another of £2,000 for prizes for resident physicians and nurses and for Christmas gifts to child patients.

A CASE OF PNEUMOCOCCIC CONJUNCTIVITIS.

BY

J. CROPPER, M.D., LIEUTENANT R.A.M.C.,

EYE SPECIALIST.

THE following case is of interest from the fact that the infection was pure—that is to say, no other organism appeared on culture—and for the short and satisfactory ending on treatment.

A. B., aged 45, a medical man who had previously suffered from a troublesome nasal and pharyngeal catarrh of the left side, was seized on March 18th with a well-marked conjunctivitis in the left eye. The eye was quite well the night before, but on the following morning there was not only pain and irritation, but a well-marked bead of pus collected at the inner canthus, and re-formed every fifteen or twenty minutes.

At 2 the same afternoon I was asked to see the patient; a swab was taken, and slides of the pus showed that almost every leucocyte contained one or more diplococcus. No other organism was seen, nor did any other grow in the culture.

As fresh eusol was not at hand, the eye was thoroughly irrigated with silver nitrate solution, grs. v to ℥j (1 per cent.); the upper lid was well raised and the lower brushed with a swab of wool, the silver solution was *not* neutralized with salt.

The lids swelled up considerably, but next morning the pus had entirely ceased. Fresh eusol solution one-third the ordinary strength (that is, 0.16 per cent.) was dropped into the eye, and caused comparatively little pain. This was repeated the same afternoon, but caused considerably more inflammation and pain, the conjunctiva becoming somewhat injected and purple in colour.

At the patient's request and that of his friends I agreed—though with considerable misgiving—to discontinue the eusol and to use warm boracic douches four or five times daily. This produced excellent results, and a slide of the slightly purulent discharge next day—that is, on the fourth day—showed no organism whatever under the microscope.

I append a short report by the pathologist, Captain Rentoul, R.A.M.C., who very kindly examined the slides and made the necessary cultures.

Report by CAPTAIN RENTOUL.

On March 18th, 1916, I was asked to examine pus taken from a case of conjunctivitis. The smear on the slide showed pneumococcus in pure culture. Some were in the pus cells, but most were lying free. They all had marked capsules. The swab was used for planting out. Here, again, I obtained a pure growth of pneumococcus.

The interesting points to notice were:

1. So pure a growth of pneumococci in a direct smear.
2. So pure a growth on culture.
3. On the fourth day I again examined a smear and found no organisms.
4. The fact that severe cases of pneumococcic fever had occurred in the neighbourhood. In these cases the only symptoms were malaise, and a temperature of 102° to 104°, ending in a few days by crisis; in all these cases I grew a typical pure pneumococcus from the blood (5 c.cm.) and urine.

Having suffered for months from a similar attack of conjunctivitis I warned the patient not to be too sanguine about an early cure of his case.

I attribute our success to the early date at which suitable treatment was adopted. Had it been treated for a week with a weak boracic lotion it is extremely unlikely that either silver nitrate or eusol would have proved effectual, for as a friend remarked, the pneumococcus would have had time to burrow into the tissues, in fact, to "dig himself in."

The very thorough irrigation of the conjunctival sac was also of importance. It is too often thought that to evert the upper lid and paint it with a caustic is enough the fornix is more important than the smooth upper lid.

To my mind the essential point is to be guided not only by the "clinical picture," but also by the pathological evidence at hand. Probably the eye was infected from the nasal duct.

My grateful thanks are due to Captain Rentoul for his ready help and advice.

SIR JAMES GOODHART left unsettled estate valued at £62,217.

THE Rockefeller Foundation has decided to establish a school of hygiene in Baltimore as an integral part of Johns Hopkins University. It is intended for the training of students in preventive medicine and public health work. Professor William H. Welch has been appointed director of the school, which, it is hoped, will be opened in October next.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A PREPARED BARIUM MEAL.

NEARLY eighteen months ago a committee appointed by the Electro-Therapeutic Section of the Royal Society of Medicine considered the question of a standard opaque meal for *x*-ray examinations of the stomach and intestines. It was considered that a meal of 2 oz. of bismuth oxychloride, or 2 oz. of barium sulphate, made up to about half a pint with bread and milk, or porridge, was about the proper amount to administer. Dr. Morton added a note to the report that the opacity of bismuth oxychloride was about double that of an equal weight of the barium sulphate. For this reason it has appeared to me better in most cases to use a meal containing 4 oz. of barium sulphate in these examinations.

In the discussion on this subject I advised that a meal should be recommended of pleasanter composition than the one mentioned. The grittiness of the barium salt, the unpleasantness of the mixture, and the difficulty in hospitals of getting it well made, militated against its usefulness. I have formulated a meal which, I think, overcomes many of the difficulties in connexion with this form of examination. It is made of 75 per cent. of pure barium sulphate with 25 per cent. of a pabulum of cocoa, arrowroot, desiccated milk, etc. The whole is ground together into an impalpable powder in such a way that there is no grittiness and great evenness in distribution.

All that is required in the preparation of this meal is to rub it up with a little cold water into a paste, in a small pan over a spirit lamp, add some more water and bring it to the boil, when, on allowing it to cool for a few minutes, it can be administered. It is pleasant to take, can be always prepared in the *x*-ray room without each time troubling nurses to have the material weighed out in a dispensary, find milk, etc., and on account of the thorough admixture of the material the definition of any irregularities in the contour of the hollow viscera are more readily discovered.

It can also be used for rectal examinations through a long tube.

The meals have been prepared for me by Messrs. Allen and Hanburys, and are in boxes containing 2 oz., 4 oz., and 6 oz. of barium respectively.

JAMES METCALFE, M.D.,
Honorary Physician in Charge of the Electrical and *X*-ray Departments, Prince of Wales's Hospital, N.

A CASE OF ECLAMPSIA.

Mrs. G. was attended by me at her first confinement on September 4th, 1913. Having ascertained the presence of albuminuria in the seventh month, precautions were taken, but, in spite of them, eclampsia came on. Delivery was accomplished with chloroform and forceps. On this occasion the baby died after living about two hours; the eclamptic seizure stopped about ten hours after the birth of the child.

Recently I attended her at the birth of her second child. Precautionary measures as to diet, condition of bowels, and general health were adopted on this occasion from an early date in the pregnancy. At no time was I able on this occasion to discover the presence of albumin in the urine.

On May 16th labour commenced some three or four weeks prematurely, and was again ushered in with eclampsia. I saw her about 10 a.m.; the membranes were intact, and the os uteri was dilating. Morphine was injected hypodermically. At 3 p.m. the os was more fully dilated; the posterior lip was torn, probably a relic of the first confinement; the anterior lip was somewhat rigid. To save the posterior lip and facilitate delivery I cut through the anterior lip with scissors, and then, having administered chloroform, rapidly delivered. After separation I removed the placenta with the hand in the uterus; the placenta was adherent and the placental site had an unusual hard feeling.

The child breathed feebly for a short time. The breath sounds began to grow feebler and the baby more livid in colour. I then once more cut the umbilical cord on the proximal side of the ligature and allowed it to bleed as freely as it could, at the same time continuing artificial respiration; the colour of the baby began to improve, and finally normal breathing was restored; the cord was then retied.

At 6 p.m. the mother was still having severe attacks of eclampsia. I then removed about 20 oz. of blood from the median basilic vein. She had no more convulsions after this, and recovered consciousness next morning. The mother and baby are now both doing well.

The main interest of the case lies, I think, in the fact that the infant's life was saved by relieving it of some of the poisoned blood due to the eclamptic state. Had the same procedure been carried out at the first confinement I think the first baby might have lived.

Bradford. EDGAR WM. SHARP, M.B., Ch.B.

DISINFECTION OF DEEP SINUSES.



WHEN I first had under my care in the Mumbles Red Cross Hospital cases with septic sinuses I experienced difficulty in getting any disinfectant into them so as to reach to the deeper parts. I then asked Messrs. Ferris and Co., Ltd., of Bristol, to make me a German silver cannula to fit a hypodermic syringe. This has been a most successful method of washing the sinuses with hydrogen peroxide or any other solution in small quantity, and appears to hasten healing very materially; liquor alantoininae has also been used in this way with success. The cannula can be bent in any way required, and the blunt end prevents it doing harm to the tissues. I find 3 in. a convenient length for the cannula.

F. DE COVERLY VEALE, M.D.
Mumbles.

Reviews.

REPORT OF THE NATIONAL BIRTH-RATE COMMISSION.

THE National Birth-rate Commission has published its report in a volume entitled *The Declining Birth-rate: Its Causes and Effects.*[1] At the time when the Commission began its investigation, in the autumn of 1913, an account was given in this JOURNAL[2] of its composition and objects, and now, after the lapse of almost three years, the public is placed in the position of judging whether the time and energy expended upon the work have been justified by the results. The war has immensely enhanced the value of infant life in the combatant nations, and even in the perusal of the evidence laid before the Commission a stronger note of urgency and intensity seems to make itself heard after the autumn of 1914. The volume consists of two parts—the report proper, and an "addition" signed by twenty-three out of the twenty-seven who append their names to the former, whilst one member of the Commission signed the addition but not the report, and Monsignor W. F. Brown adds a note of reservation.[3]

The first part of the report dealing with the statistical evidence contains no facts of startling novelty. In the United Kingdom the birth-rate has declined to the extent

[1] *The Declining Birth-rate: Its Causes and Effects.* (Being the report of, and the chief evidence taken by, the National Birth-rate Commission, instituted, with official recognition, by the National Council of Public Morals "for the Promotion of Race Regeneration—Spiritual, Moral, and Physical.") Pp. 450. London: Chapman and Hall, Ltd. 1916. (Price 10s. 6d. net.)

[2] November 1st, 1913, p. 1167.

[3] I have signed the report and the addition thereto, subject to the following reservation, which, as representing the Roman Catholic Church, I consider essential: The Church forbids the destruction of the product of conception even when the life of the mother is at stake; and also all antiphysiological methods of preventing conception.

of approximately one-third within the last thirty-five years. This is the fundamental fact about which no shadow of doubt can exist; but as to the causes, and still more the effects, of this decline, opinions diverge in all directions. To the question whether the higher education of women has an important effect in diminishing their physiological aptitude to bear children the Commission returns a negative answer, partly as the result of statistical researches carried out by Dr. Agnes Savill and Dr. Major Greenwood, junr., and by Lady Willoughby de Broke. The fertility of the non-college woman was not found to differ significantly from that of the college woman; but it is pointed out that the postponement of marriage generally attendant upon the university education of women must to some extent reduce the average number of offspring. Mrs. Scharlieb was asked whether she thought that the desire of the intellectual woman to continue intellectual studies helped to account for the smallness of the family; her reply was: "I am not sure. They generally give them (the studies) up after marriage." In a large number of the cases inquired into (college and non-college alike) some form of limitation of the size of the family was acknowledged.

The Commission looked critically at all the alleged causes of the decline in the birth-rate, including the so-called cyclical variation in the natural power to conceive or to procreate children suggested by Dr. John Brownlee and Dr. Chalmers of Glasgow. It does not, however, seem to have been impressed by the evidence for this suggestion. The conclusions reached were that conscious limitation of fertility was widely practised among the middle and upper classes, and that in addition to other means of limitation the illegal induction of abortion was frequent among the industrial population.

The report contains nothing new as to the medical aspects of the declining birth-rate. The Commission states that the witnesses advocated the establishment of ante-natal and post-natal clinics where opportunity of examination of the products of conception should be provided, and arrangements for the diagnosis of the expectant mother's condition, with suitable treatment and instruction when necessary; it approved also notification of stillbirths and abortions. The report itself does not advocate these measures, but the largely signed "Addition," which has much more substance and force in it than the report itself, goes so far as to say:

> We feel that the care of the mother before childbirth is as important as the care of the child after its birth, because it must be borne in mind that even more children perish in the nine months before birth than in the first twelve months after birth.

The "Addition" attempts to answer two questions: (1) Is the decline of our national birth-rate regrettable? and (2) if it is regrettable, is it preventable; and if so, how? An affirmative answer to the first question is to be inferred from rather than recognized in what is printed; it is implicit rather than explicit. The "Addition" agrees that—

> The decline in the birth-rate at present is not eugenic but dysgenic. Restriction prevails most in the classes in which the conditions of family life are most favourable, and the largest families are found under those conditions—hereditary, environmental, or both—which are most adverse to the improvement, or even maintenance, of the quality of the population. . . . We hold, on the one hand, that a stagnation or decline of our population would be injurious to the manifold interests of the nation, and that an increase, consistent with a continually rising standard of health, wealth, education, leisure, and happiness for the whole population, would in these same interests be desirable; and, on the other, that by certain social and economic reforms, combined with moral and religious influences, it might be possible not only to increase but also to improve the population.

The answer to the second question is couched in the form of a number of pieces of good advice regarding the living wage, State-aided insurance, adjustment of the present methods of income tax computation—so as to avoid penalizing marriage—education, housing, and the value and sacredness of family life. There are, however, a few references to medical, or rather to obstetrical, matters with which the medical profession will readily agree.

The report, although giving a somewhat uncertain note on some questions and although wanting in force, will serve to instruct the public in many matters, such as the meaning of miscarriage and the risks of injury from preventives, which it is as well it should know.

Although the Commission was a private one, yet it had the assistance of two Government experts and received the evidence of others. Further, it had official recognition; consequently, although lacking in novelty, its findings enjoy a certain degree of authority.

THE AMINO ACIDS IN GROWTH AND NUTRITION.

The Physiology of the Amino Acids[4] is a book that will be read with pleasure by all who are interested in the chemistry of nutrition. These acids are among the simpler of the chemical compounds into which the proteins break up in the processes of digestion. During the last few years biochemical research has busied itself very largely with the study of these acids and their individual importance in nutrition.

Professor UNDERHILL of Yale has collected the results hitherto obtained in this field of investigation. His book presupposes in the reader a familiarity with the fundamental principles of metabolism and organic chemistry, but no more than that, and it should be well within the comprehension of medical students and practitioners. It begins with a general account of the proteins and amino acids and their relation to digestion, absorption, and bacterial activity. Further chapters deal with theories of protein metabolism, the fate of amino acids in the body, the use of these acids as foodstuffs, and their specific action in the processes of nutrition and growth. It may be said that the study of the physiological chemistry of nutrition has now advanced so far that one can give the chemical reason why a diet containing certain proteins alone is incapable of supporting life for long, or of permitting the normal growth of young experimental animals. Thus, young rats remain stunted if kept on a full diet containing protein in the form of casein only; the addition of protein-free milk to the diet adds some accessory foodstuff of unknown nature which enables normal growth to be resumed. Again, zein—a maize protein that is deficient in the two amino acids tryptophane and lysine—is inadequate when given to young mice as their only protein food; the addition of tryptophane to the diet enabled the mice to survive nearly twice as long. Hence it is argued that tryptophane is essential for the maintenance of life in these animals. Professor Underhill goes very thoroughly into the interesting questions raised by these and similar observations; his book is well arranged and clearly written, and should prove attractive to the large circle of those who are interested in either physiological chemistry, medicine, or dietetics.

PATHOLOGICAL LYING.

IT is only a few weeks since we reviewed a book by Dr. HEALEY which consisted of a large number of studies of young criminals, recounting in what their criminality consisted, and investigating with considerable success the course of events that had led them into the path of crime. The same author now offers us studies on closely similar lines of cases of lying,[5] most of them of a criminal character. The cases are investigated with the same patient care and the same freedom from bias towards the establishment of foregone conclusions that characterized the previous work, but the results are scarcely commensurate with the industry displayed. The work was worth doing once, but we doubt whether it is worth repetition. The importance of the cases recorded lies in the second member of the title—that is to say, in the false accusations brought without any apparent motive of self seeking or self interest, usually by young people, and often by children, against their parents, brothers and sisters, whom they accuse of the vilest crimes, backing their accusations with details of the most circumstantial character, and weaving around them a net from which nothing but the most searching inquiry and testing will enable them to escape. There is no specific mark by

[4] *The Physiology of the Amino Acids.* By F. P. Underhill, Ph.D., Professor of Pathological Chemistry, Yale University. New Haven: Yale University Press; London: H. Milford. 1915. (Cr. 8vo, pp. 169; 13 figures, 1 plate. 6s. net.)

[5] *Pathological Lying, Accusation and Swindling: A Study in Forensic Psychology.* By William Healey, A.B., M.D., and Mary Tenney Healey, B.L. London: W. Heinemann. 1916. (Demy 8vo, pp. 295. 10s. 6d. net.)

which such cases can be recognized, nor is there any general principle by which they can be accounted for. All that can be done is to investigate the cases with the care that was bestowed by the authors of this book on the cases that came before them. In most cases the accused were ignorant people in poor circumstances, who could not have defended themselves efficiently; and the investigations were undertaken by the authors, as officers of the court, at the request of the judge before whom the accusations were made. It is apparent, by the book under review no less than by the previous book, that the appointment of such officers is thoroughly justified, and it is doubtful whether, in some of the cases recorded, justice would have been done without their labours.

CYSTOSCOPY AND PYELOGRAPHY.

IN the second edition of his book on *Practical Cystoscopy*,[6] the first edition of which was favourably reviewed in the JOURNAL of January 13th, 1912 (p. 74), Dr. PILCHER has rewritten some chapters and added others. The chief additions concern pyelography and the employment of the high-frequency spark in the treatment of diseases of the bladder. Pyelography is the term applied to radiography of the pelvis of the kidney and ureter after previous injection of an opaque substance. The best substance for injection was found to be a 10 per cent. solution of collargol administered by gravity. Ureteral catheters impregnated with bismuth or lead were found to give a better shadow on the *x*-ray plate than metal ones. The various morbid conditions of the kidney and ureter in which pyelography gives useful evidence are well described and illustrated by numerous radiographs, but the author concludes that the method is dangerous in the hands of any one but an expert, and should never be attempted till all other means of diagnosis have failed. He also points out that the collargol solution must always be withdrawn by the use of a syringe and the pelvis washed out with sterile water after the examination has been made. The action of high-frequency currents is described as one of desiccation or "devitalization by dehydration." Dr. Pilcher considers that the method is especially indicated in cases of papillomatous growth of the bladder, in which it should be tried before resorting to operation. Other conditions in which it is said to give good results are small recurrent cancers of the bladder, haemorrhage within the bladder, chronic ulcer, and the removal of obstructions to the passage of urine, including stricture, impacted calculus in the ureter, and obstructive prostatic disease. We can recommend Dr. Pilcher's book to those engaged in this class of practice, for the technical descriptions are clear and concise and the illustrations excellent.

NOTES ON BOOKS.

THE well-known French musical critic and novelist, ROMAIN ROLLAND,[7] is one of the comparatively few authors who have succeeded in writing about the present war with calm and some degree of philosophical detachment. He is as true to France as any of his compatriots; but he sees beyond the battle-fields, and, striking a note of optimism in many of his pages, looks to see good come out of the present evil days. The volume contains sixteen letters or essays, for the most part contributed to neutral Continental journals, dealing with various aspects of the war, the values of the ideals for which the combatants are fighting, the spiritual aspects of the battle, the cry of youth and fatherland. Perhaps he goes a little further than most of us can when he urges the importance of not overdoing the humbling of Germany: "There must come a day," he writes, "when you will stretch out the hand of friendship, you and your neighbours across the Rhine . . . You will have to re-establish supportable and humane relations; so set to work in such a manner as not to make them impossible! Do not break down all the bridges, since it will ever be necessary to cross the river. Do not destroy the future." The translator may be congratulated upon the skill with which he has done these essays into English.

Dr. SYDNEY WELHAM'S *Manual for Nurses*,[8] now in its second edition, begins with a brief account of anatomy and physiology. This is followed by sections on medicine, surgery, and the principles of nursing. It ends with a glossary of medical and surgical terms in common use. It is well arranged, clearly written, and printed in such a way as to make its contents readily assimilable. The book may be warmly recommended to the attention of all who have to nurse either medical or surgical cases.

The third edition of Dr. CHANDRA RAY'S compendium of *Medical Jurisprudence*,[9] a little larger than the second edition that appeared four years ago, presents the same characteristic excellencies and defects as its predecessor. It is well arranged, full of facts, discriminating in the advice it gives on the many important matters with which it deals. But its author has carried the art of condensation so far that it seems possible that the inexpert medical student will be confused rather than enlightened by what he reads. It is clear that previous editions of the book have been found of great service by medical students in India, and the third edition is clearly an improvement on the second.

Among the books that either Samuel Smiles or Lord Avebury might have been expected to write, but did not, the omnivorous reader would probably place a general work on the aims and achievements of pure science. This lacuna has now been filled by Professor R. A. GREGORY'S book, *Discovery*,[10] in which the general public is informed as to the methods and objects of all scientific research, and encouraged to understand and approve the mental attitude of scientific men. Science, as the author says, is not to be measured by practical service alone, however much it may contribute to material prosperity or the bestiality of German warfare. It is an intellectual outlook, a standard of truth, a stimulus to high endeavour. These and other points are proved by the discoveries and examples of countless scientific investigators of all countries and all ages, aptly quoted by Professor Gregory to illustrate his theses and arguments. The book is full of human interest and may be read with enjoyment and profit by laymen and scientists alike; it contains a great deal of sound history, and the author shows no little literary skill in his avoidance of the tedious moralizing to which writers on the British apathy to science are so lamentably prone.

New York University has recently published a volume[11] of work done in its Laboratory of Surgical Research during the last two years. It contains twenty-seven papers, many of them by well-known surgeons and teachers. They deal with various subjects, the chief being intestinal surgery, Abderhalden's protective ferments, the surgery of the ureters, shock, and methods of anaesthetization. All the papers have appeared in print before and give evidence of great ingenuity and industry in their authors. New York University is to be congratulated upon the surgical activity manifested by this volume.

[6] *Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder.* By P. M. Pilcher, A.M., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 511; 276 figures, 11 plates. 25s. net.)

[7] *Above the Battle.* By R. Rolland. Translated by C. K. Ogden, M.A. (editor of *The Cambridge Magazine*). London: G. Allen and Unwin, Ltd. 1916. (Cr. 8vo, pp. 191. 2s. 6d. net.)

[8] *A Manual for Nurses.* By S. Welham, Resident Medical Officer, Charing Cross Hospital. Second Edition. London: Mills and Boon, Ltd. 1916. (Post 8vo, pp. 239; 3 charts. 1s. 6d. net.)

[9] *Outlines of Medical Jurisprudence, with Special Treatment of Toxicology and Insanity.* By R. C. Ray, L.M.S. Third edition. Calcutta: Published by the Proprietor of the Hare Pharmacy. 1916. (Cr. 8vo, pp. 505. Rs.4.)

[10] *Discovery, or the Spirit and Service of Science.* By R. A. Gregory. London: Macmillan and Co. 1916. (Cr. 8vo, pp. 348; 8 illustrations. 5s. net.)

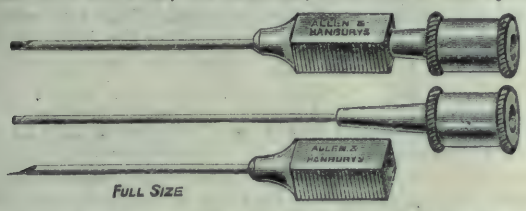
[11] *Studies in Surgical Pathological Physiology from the Laboratory of Surgical Research, New York University.* 1915. Vol. I. Edited by J. W. Draper. New York: The University. 1915. (Med. 8vo; illustrated.)

MEDICAL AND SURGICAL APPLIANCES.

Intravenous Injections of Organic Arsenic Compounds.

MR. W. F. CHOLMELEY, F.R.C.S. (Wolverhampton), writes that for some months he has been meeting with patients who, immediately after an intravenous injection of a concentrated solution of galyl or kindred drug, have had bad arms. Some have had a general inflammation extending from the needle puncture, some small abscesses, and two sloughs, one 2½ in. in diameter. The history in each case had been the same—namely, that pain started during the injection. One case, a small slough, occurred after an injection by himself, and was due to a slight leakage of the drug outside the vein during the injection, caused by a movement of the needle. He is certain that all the other cases were caused in a somewhat similar manner,

the leakage being due to a double puncture of the vein by the needle, made either when introducing it or as the result of movement by the patient or of the syringe. To prevent this double puncture, Messrs. Allen and Hanburys (London) have made, at his suggestion, a very neat needle and cannula, after the pattern of the needle and cannula of Mr. Barker's spinal analgesia syringe, but finer and much shorter. The cannula should be used to draw up the solution into the syringe, and then, after plunging the needle into the vein, the cannula, attached to the syringe,



FULL SIZE

is pushed along the needle as far as it will go, and the injection given. As the cannula projects beyond the point of the needle, the whole can be moved about in the vein without any fear of perforating it; in fact, it is, he says, a good plan, before injecting, to push the needle and cannula further along the vein, to make sure that it is free and to get beyond any second puncture that may have been made when introducing the needle.

An Instrument for Intravenous Injections.

Dr. HAROLD SPENCE (Chief Assistant Skin Department, St. Bartholomew's Hospital) writes: I have devised for intravenous injections a combined needleholder with two-way tap, which is illustrated in the accompanying drawing.* The instrument can be manipulated with one hand, and the operator has control over the flow of the fluid in both containers. The saline solution or the antisyphilitic fluid can be instantly turned on or off at will. The tap is closed when the wings are at right angles, as in the



illustration; a turn to the left opens the left tube and a turn to the right the right tube; the wings also serve to give the operator a firm grip on the instrument when inserting the needle. It will be seen that this simple contrivance does away with the taps or clips which are usually fixed to the tubing and which require the services of an assistant. The nozzle of the needleholder has a slight crank bend, which brings the needle into the plane of the under surface and in line with the vein.

MEDICINAL AND DIETETIC PREPARATIONS.

Bynogen.

WE have received from Messrs. Allen and Hanburys, Ltd., a sample of "Bynogen," which this firm is bringing forward. It is stated by the manufacturers to be a combination of pure milk protein with maltose and the glycerophosphates of sodium, calcium, and magnesium. The sample supplied was found, on analysis, to contain 9.15 per cent. of nitrogen, which is equivalent to 57.6 per cent. of protein. Qualitative tests also showed the presence of appreciable amounts of glycerophosphate. The flavour and odour of the sample were good, and it readily mixed with hot or cold liquids when treated according to the directions; the preparation therefore appears to be an excellent one, and certainly possesses a high nutritive value.

Lysol "L" Brand.

We have recently received for comment a sample of the Lysol "L" Brand disinfectant, manufactured by Messrs. Lysol, Ltd., Stratford, E. (selling agents, Messrs. Chas. Zimmermann and Co., Ltd., 9 and 10, St. Mary-at-Hill, E.C.). It is stated to be manufactured in Great Britain. The sample was a clear liquid, resembling in general physical characters the German-made Lysol obtainable before the war. It contained, according to our analysis:

Combined potassium, calculated as potassium hydroxide	4.78 per cent.
Cresols	51.0 ,,

No free alkali was present.

* The Holborn Surgical Instrument Co., Ltd., are the makers of the instrument.

The preparation, when mixed with moderate quantities of distilled water, formed a bright solution, which frothed well on shaking. It was also perfectly miscible with all proportions of alcohol, chloroform, or glycerol, giving solutions which were quite free from turbidity.

Mixed Vaccines.

Messrs. Burroughs, Wellcome and Co. prepare and sell mixed vaccines containing typhoid, paratyphoid A, and paratyphoid B bacilli. That designed for the first inoculation contains in 1 c.cm., which is the dose, 500 million typhoid, 375 million paratyphoid A, and 375 million paratyphoid B bacilli. The other, intended for the second inoculation a week later, is twice this strength.

PROTECTION OF INFANT LIFE IN FRANCE BEFORE AND AFTER BIRTH.

CONFRONTED by the peril to which the French nation is exposed by reason, on the one hand, of a steadily decreasing birth-rate and, on the other, of an unnecessarily high rate of mortality during the first few years of life, a movement was set on foot some years ago by a number of patriotic scientific men, foremost among them being Professor A. Pinard, the famous obstetrician, the "father of puericulture," for the protection of the unborn infant by securing rest, suitable nourishment and medical advice for pregnant women belonging to the wage-earning classes. Their efforts found expression in an inadequate but still useful law that came into force in June, 1913, the *Loi sur le repos des femmes en couche.*

It is enacted thereby that women obviously pregnant (en état de grossesse apparente) are entitled to abandon work without being obliged to give the usual notice and without thereby incurring the risk of dismissal and formally forbidding the employment of women during the first four weeks following their confinement. The provision was stultified by the addition of words providing that the penalties accruing under this clause shall only be applicable when the employer has had knowledge of the fact of delivery having taken place.

Article 3 provides that every woman of French nationality, without means, who under ordinary circumstances earns her living as workwoman, employee or domestic servant, is entitled for four weeks preceding and another four weeks immediately following delivery, to a daily "allowance," to enable her to "rest from her labours," which, however, must not be in addition to any other official maternity assistance. The postulant must produce a medical certificate to the effect that she is "unable to continue working without danger to herself or to her offspring" in order to obtain the allocation before labour. Under no circumstances does the allocation before and after labour continue for a period exceeding eight weeks in all. The anteparturition allowance is stopped as soon as the four weeks come to an end, whether or not the woman has become a mother. It is presumed that the expectant mother's needs during the interval (if any) will be met by private charity or by the Bureau de Bienfaisance. The fact of the child being still-born does not invalidate the claim to an allowance, but a miscarriage does. Lastly, the allocation, which is rendered inalienable and unseizable, may be given in kind either in whole or in part.

A woman is advised to make her application for an allowance in writing as soon as she is certain of the existence of pregnancy. She will be required to furnish evidence that her circumstances are such as to justify her admission (amount of rates paid by her husband—if husband there be—a certificate from her employer showing that she has been paid wages, etc.). The demand is entered on a list kept at the mairie, and inquiries are set on foot as to the applicant's circumstances. This of course takes time, consequently, if a woman puts off her application to the last minute it may be difficult to accede to her request in time to be of assistance.

When the applicant has her "domicile of assistance" in the commune in which she resides, the demand is adjudicated upon by the municipal authority. When she

belongs to some other commune the demand is submitted to the prefect, who decides for or against the application.

When the woman, as is usually the case, delays making application until delivery has actually taken place, and when she applies for an anteparturition allowance on the strength of a medical certificate, the case is dealt with "d'urgence." It is the duty of the mayor to inquire into the case as promptly as possible, and he may then decide on his own responsibility as to the admissibility of the claim, provided the woman is domiciled in his commune, otherwise the case is referred to the prefect.

Any "maternal society" or public charitable association "authorized for this purpose by the decree of the Ministers of Interior and Finances, after receipt of approbation of the special section of the Superior Council of public assistance," *may* be permitted by the Municipal Council to assist in applying the law in communes where these organizations have branches, but it is expressly stipulated that the society or association shall be absolutely free from "toute préoccupation d'ordre confessionnelle ou politique" (denominational or political bias)—indeed, it must be "notoriously free" from any such taint. Arrangements are to be made for ladies to visit the women assisted to see that they really do rest and that they observe the laws of hygiene for the offspring. As a rule, it is that hard-worked person, the village schoolmistress, who does this. She hands the woman a leaflet of instructions drawn up by the Academy of Medicine, if necessary explaining its purport.

The *idée mère*, of which this law is but a feeble, inadequate reflection, is, in the language of Professor Pinard, "throughout the duration of the war . . . to provide every necessitous woman who is either pregnant or has a child under three years of age, with the social, medical, and legal protection to which, in a civilized society, she is entitled." Hitherto child protection has not been extended to the infant as yet unborn, but Professor Pinard urges that every pregnant woman has a right to protection from the moment that pregnancy is certain. This is what he calls "intrauterine puericulture."

The magnitude of the task will be seen when we state that during this first year of war no fewer than 2,197 pregnant women were received and provided for at the Asile Michelet; 352 pregnant women with children at the Refuge Pauline Roland, and 508 pregnant women at the Asile George Sand; 882 were received in the refuges of the Oeuvre d'Allaitement Maternel; so that, in all, 2,527 pregnant women were harboured in the refuges of the Oeuvre Nouvelle des Crèches Parisiennes.

During the first year of war some 37,085 births were registered in Paris, 27,431 of them in the various lying-in hospitals of the Public Assistance. In addition, 7,253 parturient women received public medical assistance at their homes, so that altogether some 34,000 women and upwards of 34,000 children received aid either in the hospitals or refuges, or were attended and helped at their homes.

It is to be remarked that the law only applies to the wage-earning classes of pregnant women, though the local authorities *may* assist women of the peasant agricultural class if thought proper. That the local authorities are not favourably disposed to any extension of the scope of the scheme is shown in a letter addressed to a person of the latter category in reply to a demand for assistance (her husband being at the front, and she herself being unable, on account of advanced pregnancy, to do the hard work of the small farm); it stated that "in consequence of the limited amount of funds affected to this service, which is optional, the departmental commission has decided to accord aid under this head only to large families comprising not less than five children under 13 years of age."

The amount of the allowance is settled by the municipal council in each commune, subject to the approval of the general council (county council) and the prefect. It cannot in any case be less than 5d. nor above 1s. 3d. a day, the rate recommended being 1s. 3d. for urban districts and 10d. elsewhere. The municipal council may, however, accord a higher allowance, but should it do so the excess is wholly chargeable to the particular commune. The allowance is increased by 5d. a day when the mother brings up the child at the breast for a period of four weeks following the confinement, payable at the expiration of that period.

The funds for the assistance of pregnant women are derived (1) from donations and foundations having for object the assistance of expectant mothers; (2) from the participation of the Bureau de Bienfaisance (local charity administration); and (3), in the event of lack of sufficient funds, by a subvention from the Department (county), provided always that the proportion payable by the commune shall in no case be inferior to 10 per cent. of the balance of expenditure not covered by (1) and (2).

The total amount that can be received by a parturient woman, supposing that she avails herself of the four weeks' rest before and another four weeks after the birth of the child *plus* four weeks' extra allowance for breast feeding, is 98 francs, roughly £4.

According to the report of the inspector for the department of Savoie, only 69 out of 330 communes have so far seen fit to make allowances to pregnant women, though, we are informed, there is a marked tendency to an increase under this head. It is to be remembered that Savoie is an almost purely agricultural region, where the peasants work their own land. It follows that the proportion of wage-earning population is comparatively low. The wives of peasant farmers are excluded, a limitation which would no doubt have been removed had it not been for the outbreak of war. Some idea of the extent to which the law has found application in the provinces can be formed from the following figures for the department of Savoie.

Number of Wage-earning Parturients receiving Allocations.

	Rest Allowances.	Breast-feeding Allowance.
Chambéry (23,000 inhabitants) ...	79 ...	72
Alberville (6,300 inhabitants)... ...	24 ...	15
Moutiers (2,700 inhabitants)	8 ...	6
St. Jean de Maurienne (3,100 inhabitants)	32 ...	25

The expenses for the year 1914 were as follows:

	Fr.
1. Allowances for rest and breast-feeding accorded to women domiciled in the commune	9,923
2. Administration expenses and departmental control	3,243
	13,166

Of this sum the proportions contributed by the various authorities are as follows:

	Fr.
Paid by the communes	2,905
Paid by the State	8,169
Paid by the department (county)	2,092
	13,166

HELP FOR MEDICAL OFFICERS OF THE NAVY AND ARMY, TERRITORIAL, SPECIAL RESERVE, AND TEMPORARY.

At the present moment, when the medical profession is considering what, if anything, it should do to help those of its members who have suffered in the war, it may be well to state briefly the provision made directly or indirectly by the State. The official documents have been noted from time to time in our columns, but a brief consecutive account will probably prove convenient.

The resolution of the Annual Representative Meeting last year was in very general terms:

> That the Representative Meeting requests the Council to consider the advisability of raising a medical fund for the purpose of helping those practitioners who have been serving their country as medical officers of the army and navy, and also of helping the dependants of such practitioners, if necessary, and gives the Council power to act.

This may be interpreted as a recognition of the fact that help may be needed in two different sets of circumstances:

I. For men whose earning capacity has been wholly destroyed or seriously diminished by wounds or disease, and for the widows and orphans of those who lose their lives.

II. For men who, through leaving their practices to serve as medical officers in the navy and army, have become embarrassed financially.

The first is a permanent, the second a temporary, condition. The provision made by the State is designed to meet the first; it does nothing, in the case of officers, to meet the second.

I. OFFICERS DISABLED OR KILLED IN THE WAR.

GRATUITIES, PENSIONS, AND COMPASSIONATE ALLOWANCES.

At an early stage of the war it was announced in the House of Commons that medical officers of the Territorial Force and Special Reserve and those holding temporary commissions, their widows and orphans, would be entitled to gratuities and pensions on the scale and conditions then applicable to regular officers.

A Select Committee was subsequently appointed to report on pensions and grants. Its third report, issued on September 2nd, 1915, dealt with officers. It recommended important modifications in the method of classification of disabilities, and estimation of pensions and gratuities, but it stated that its proposals related "primarily to officers holding combatant commissions," and that "the cases of other officers should be reviewed departmentally where necessary on similar lines."

Such revision in the case of officers R.A.M.C. does not yet appear to have been made, but the Council in its report stated that the Director-General A.M.S. had promised to give the matter his personal attention, and that it was understood that the claims of the medical officers to be treated in exactly the same way as combatant officers would most probably be conceded.

Widows, Orphans, and Dependants.

The Committee recommended a new classification in cases arising out of the present war in lieu of that contained in the Royal Pay Warrant (Army). The rates in the Royal Pay Warrant are as follows:

PENSIONS AND GRATUITIES TO FAMILIES OF OFFICERS.

In Action.—Widows' pensions, children's compassionate allowances, and gratuities to widows and children in the case of officers killed in action or dying of wounds received in action:

Rank.	Widow: Pension.	Children—Yearly Compassionate Allowance for each: Boys to 18 years, Girls to 21 years.	Gratuity in Addition to Pension.	
			Widow.	Each Child.
	£	£	£	£ s. d.
Lieut.-Colonel...	180	24	450	150 0 0
Major	140	21	300	100 0 0
Captain	100	18	250	83 6 8
Lieutenant ...	80	15	140	46 13 4

Not in Action.—Widows' pensions and children's compassionate allowances in the case of officers dying from disease or injuries sustained on duty not in action within seven years after removal from duty from the disease or injury (no gratuity):

	Widow: Pension.	Children: Compassionate Allowance—Boys to 18 years; Girls to 21 years.
	£	£ s. d.
Lieutenant-Colonel ...	135	20 0 0
Major	105	17 10 0
Captain	75	15 0 0
Lieutenant	60	12 10 0

Under these (old) regulations the compassionate allowance might be doubled in the case of motherless children, and pensions might in certain specified circumstances be granted to mothers and sisters. The conditions were set out in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of February 13th, 1915, p. 319, and are to be read in full in the Royal Pay Warrant (price 6d.), Section XI.

The Select Committee recommended the following classification:

Class I. Killed in action or died from wounds received in action or from other violent death due directly and wholly to war service.

Class II. Died from disease due to active operations in the field or otherwise directly attributable to military service, or from injuries received in and by service so far as not covered by Class I.

Class III. Died from disease, injury, or accident, not coming under Class I or II.

The Committee recommended that the rates for the widows of lieutenants in the army should be raised to the existing rates for captains in the army—namely, Class I, £100 a year; Class II, £75 a year; Class III, £50 a year; and that the additional gratuity in Class I should continue to be paid at the existing rates. The Committee pointed out that in Class III—that is, where the officer has died from accident or disease due to natural causes in no way consequent on naval or military services—an officer's widow would not be entitled to pension under existing regulations unless the officer had given a certain period of service (in the army ten years). It recommended that this restriction should, for the period of the war, so far be waived that where the deceased officer has not given the necessary qualifying service for a pension his widow, if otherwise qualified under existing regulations, should be given a *gratuity*, paid either in a lump sum or in instalments at the discretion of the Admiralty or Army Council. The amount of the gratuity should be not less than one and not more than three years' pay, at the discretion of the Admiralty or Army Council.

It recommended also that the rates for children for all commissioned ranks up to and including colonels in the army, should be fixed at the rates now given to a colonel in the army—namely, Class I £24, Class II £20, Class III £16—and continued:

5. We further recommend that in cases of pecuniary need the Admiralty and the Army Council should have discretion to give an education allowance of £35 per annum for a boy and £25 per annum for a girl between the ages of 13 and 18.

These allowances may be extended until the age of 21 on the recommendation of a competent education authority where the education of the children is being continued at secondary schools, technical schools, or universities.

6. We consider that the existing regulations for the grant of pensions to officers' relatives are too rigid, and should be revised with reference to the principles on which pensions, etc., are granted to the dependants of men serving in the ranks.

Temporary Officers and Officers of the Special Reserve and Territorial Force.

The Select Committee pointed out that officers who do not belong to the Regular Forces will not in most cases have sufficient length of service to qualify for service additions to pensions. It recommended, therefore, that "if invalided for medical unfitness caused by military service they should be graded under four heads according to the impairment of their earning capacity, and awarded pensions at the minimum rates recommended for regular officers as follows":

	Earning Capacity			
	Totally Destroyed.	Seriously Affected.	Impaired.	Slightly Impaired.
	£	£	£	
Lieutenant-Colonel	225	201*	150	In all cases a gratuity not exceeding £500
Major	200	173*	125	
Captain	150	128*	100	
Subaltern	150	100	75	

* The rates quoted are half-pay rates for infantry officers. For officers of other branches of the army and of the navy the appropriate half-pay rates should be substituted.

The Committee also made the following recommendations:

8. We further recommend that, having regard to the circumstances of the present war, the minimum wounds gratuity and pension for wounds and pension for severe injuries received otherwise than in action should be at the rate given under present regulations to army captains—for example, for each limb or eye lost by wounds, gratuity of £250 for the first year, with a pension of £100 in following years.

Wounds, gratuity and pension, and injuries pension will, as at present, be additional to any other pension to which an officer may be entitled under existing regulations, but they should not be given in addition to the new disability rates recommended in this report. If an officer is eligible for either the new disability rate or a wounds pension, etc., with other pension on the old scales, the higher of the two pensions should be given. No officer, however, who, as the results of injuries

in action, loses the sight of both eyes should receive less than £300 a year in all.

9. The children of disabled officers should be eligible for education allowances, as recommended in paragraph 5.

11. The new scales and conditions which we recommend should throughout be applicable to cases arising out of the present war only. Cases which have so arisen prior to this report should be reassessed as from March 1st last. Officers already in the service should retain their rights under existing regulations if more advantageous to them than the rates which we propose.

NAVAL AND MILITARY WAR PENSIONS ACT, 1915.

The purpose of this Act, which received the Royal assent on November 10th, 1915, is "to make better provision as to pensions, grants, and allowances made in respect of the present war to officers and men in the naval and military service of His Majesty and their dependants, and the cases of officers and men disabled in consequence of the present war."

The Statutory Committee.

The Act constitutes (Section 1) a Statutory Committee of the Royal Patriotic Fund Corporation. The Corporation is administered under the Patriotic Fund Reorganization Act, 1903; it has considerable funds, and is authorized by the new Act to solicit and receive contributions from the public and donations of property.

The Statutory Committee, under the Naval and Military War Pensions Act, consists of twenty-seven persons, nominated partly by the Crown (12), partly by the Royal Patriotic Fund Corporation (6), partly by the Soldiers' and Sailors' Families Association (2), and partly by Government departments, including the Admiralty and Army Council. The Chairman is the Prince of Wales and the Vice-Chairman (salaried) Mr. Cyril Jackson.

The functions of the Statutory Committee are enumerated in Section 3. For the present purpose the most important are:

Out of funds at its disposal, to supplement, in accordance with regulations to be made by it, pensions and grants and separation allowances payable out of public funds, and to make grants in cases in which no pensions are payable out of public funds.

To determine questions in relation to pensions or grants referred to it by the Admiralty or Army Council.

To administer any funds placed at its disposal by the Royal Patriotic Fund Corporation, or by local committees, or by any society or other organization having funds applicable to the making of grants of the nature of those which it is authorized to make, or otherwise.

To make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment; for this purpose the Statutory Committee must appoint a special subcommittee.

To make grants in special cases to enable widows, children, and other dependants of deceased officers (and men) to obtain training and employment.

Local Committees.

Local Committees must be set up (Section 2) to assist the Statutory Committee in accordance with schemes prepared by the local authorities (county and county borough councils and councils of towns of 50,000 inhabitants, or in special cases). The chief functions of Local Committees are (Section 4):

To inquire into any case and to collect and supply information as required by the Statutory Committee.

To distribute supplementary grants if required by the Statutory Committee so to do.

To contribute out of funds at their disposal to the funds administered by the Statutory Committee, to increase pensions and grants, and to make grants where no pensions or grants are otherwise payable.

To make provision, subject to the approval of the Statutory Committee, for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment.

To solicit public contributions.

It will be seen that the powers of the Statutory Committee are very wide, and in particular that the Admiralty and Army Council may refer to it any question in relation to pensions or grants.

It seems clear that the Act contemplates the reference to the Statutory Committee of questions arising in relation to pensions and grants paid out of public funds—that is, by the Admiralty or War Office.

II. CIVIL FINANCIAL OBLIGATIONS.

There is no State provision for the benefit of officers financially embarrassed owing to the cessation of income from their civil calling, and the necessity of meeting the running expenses of their home establishments and other permanent financial obligations.

State provision to assist a non-commissioned officer or man has recently been instituted, the amount to be determined according to the nature and extent of his financial obligations. A special committee consisting of Mr. Hayes Fisher, the Solicitor-General, the Lord Advocate, Sir Paul Hervey, and Mr. A. V. Symonds, has been appointed, and Mr. Long stated on April 25th that it had obtained the concurrence of the Treasury to the following general principles:

1. That the scheme of assistance will apply to all men who have joined the Forces since August 4th, 1914, or who may join hereafter, and to single as well as to married men.

2. The items in respect of which assistance will be granted include:

- Rent (including ground rent and rent of business premises).
- Mortgage interest.
- Payments in instalments in virtue of contracts, such as purchase of premises, business, or furniture.
- Taxes.
- Rates.
- Insurance premiums and school fees.

Relief will not be given for the purpose of enabling any person to discharge such liabilities as ordinary debts to tradesmen.

3. It is not contemplated that the assistance to be granted in any individual case should exceed £104 per annum.

The scheme did not apply to officers, but an answer given in the House of Commons by the Parliamentary Secretary to the Local Government Board (Mr. Hayes Fisher) on July 4th showed that the Government was prepared to extend the scheme. Mr. Ashley (member for Blackpool) had asked whether in view of the fact that the pay in cash to second lieutenants of the line serving at home varied from 7s. 6d. to 10s. a day, and the pay of first lieutenants was 1s. a day more, the same privileges could be extended to subalterns of the line serving at home as to grants for meeting rent, rates, taxes, and other liabilities as had been granted to those serving in the ranks. Mr. Hayes Fisher said that the Chancellor of the Exchequer was prepared to agree to the extension of the scheme to lieutenants and second lieutenants who joined the forces on or after August 4th, 1914, whether they joined as officers or in the ranks, and added that he believed the concession would apply to the navy also. Before attempting to estimate the effect, if any, which this concession will have on the position of medical officers publication of a more detailed and considered statement must be awaited. Mr. Ashley's question referred to officers of the line only and to those serving at home; Mr. Hayes Fisher's answer did not contain these qualifications. In any case, the condition that the officer must have joined on or after August 4th, 1914, would appear to exclude medical officers of the Special Reserve and all medical officers of the Territorial Force except the small minority who have joined since the beginning of the war. It would exclude also captains R.A.M.C., and as lieutenants R.A.M.C. are promoted captains after one year's service the exclusion would have a very wide effect.

Finally it is to be noted that an officer is not entitled to any separation allowance for his wife or children.

ON June 2nd the degree of doctor of medicine was conferred on twelve students of the New York Medical College and Hospital for Women. At the annual dinner of the alumnae it was announced that £14,400 had been collected towards the cost of new buildings for the institution. It is hoped that £40,000 will be obtained.

SIR GEORGE AUGUSTUS PILKINGTON, M.R.C.S., who for some time represented the Southport Division in Parliament, left estate valued at £269,840, the net personalty being £230,148. Among the charitable legacies are bequests of £1,000 each to the Southport Infirmary, the Southport and Birkdale District Nursing Association, and the Southport Provident Society.

British Medical Journal.

SATURDAY, JULY 8TH, 1916.

THE CARE OF THE PREGNANT WOMAN.

"THE solution of the matter, I feel sure, is not in statistics and notification, but in education and research." This crisp sentence, in which Dr. Donald sums up the final conclusion of his paper on the care of the pregnant woman, deserves to become a medical apophthegm. It has, indeed, an application far beyond the particular subject he is discussing, for medicine has not infrequently imperilled its influence with the public by forgetting the principle it embodies, and in consequence has sometimes promised more than in the result has proved possible of performance.

Dr. Donald attacks his problem with the cool, almost disconcerting, precision of the expert, and arrives at the conclusion we have quoted. A study of his essay rather gives the impression that when he set to work to order the facts in his own mind he did not quite know where they would lead him, and the conclusion gathers force thereby. The reader is made to feel that no other was possible.

Let us invert the order and put research, that is knowledge, first—knowledge already won, which no one is more competent than Dr. Donald to expound, and knowledge that is yet to be won by research—that is, by observation and experiment, but chiefly here by observation. Research is difficult and long. It cannot be carried on without workers and money. The main duty of the State and of the public is to find the money and appliances, and not to ask for the fruits of research until they are ripe—not to embark on costly administrative experiments until knowledge has advanced so far that the result of the experiment can be foreseen with a reasonable degree of confidence.

Art, too, is difficult and long. It can only be perfected by education—education, and yet again education. Who is to be educated? Dr. Donald answers the mother, and we would add the father, the midwife, the medical student, and the medical practitioner.

With regard to medical education, Dr. Donald speaks with candour and with the authority of one of long experience as surgeon to one of the chief maternity hospitals in the kingdom, as gynaecological surgeon to a great hospital, and as professor of obstetrics in an important medical school. Medical students, he says, should have a more thorough training in practical midwifery, and he evidently considers that the Manchester regulation requiring them to live in a maternity hospital for a period of four weeks should be imitated elsewhere. This opinion as to the education of students will, we believe, meet with general approval, and probably few will be found openly to quarrel with the recommendation that more facilities should be given for medical practitioners to receive post-graduate instruction. True, we are here on rather more delicate ground, for there will be many ready to reply that nothing is so valuable to a man as his own experience. The wise man, however, is he who knows how to profit also by the experience of others, and, as in all arts, so in obstetrics, more may be learnt by watching the expert for a few weeks and studying the whole organization of which he forms a part than by the perusal of a shelf-full of books. Many of us, when we have passed the last examination and received our diploma, have been disposed rather to resent the idea of going to school again, believing that our education can be continued by a system of learning by experience, but it is not possible with the man who embarks in general practice. It is not possible even with the specialist, however narrow his field; and, in fact, no one makes more elaborate arrangements than the specialist to know what other workers in the same field are doing. Sir James Paget, in an address delivered some thirty years ago at the Army Medical School at Netley, gave himself as an instance "of the general fact that many of us have to spend our lives in competitive examinations, and that for most of us it is well that it should be so." He had passed, he said, all his examinations and gained his full promotion, and yet his examinations were not all over. "My examiners are changed; the far greater part of them are my juniors, some of them my very distant juniors, in whom I have to envy not their experience, but their familiarity with forms of knowledge which I cannot now attain. It is as if half the subjects of examination had been changed, and I am more than ever conscious of the danger of being plucked."

Man, one of the least prolific and physically one of the most defenceless of animals, has only moved upwards by the use of his brain, for the acquisition of knowledge by which to master the forces of Nature warring against him. It was a great step upwards when he learnt to chip flints, and another when he made fire and learnt how it might be used to forge metal implements for the chase and for agriculture. The history of man is this—the study of nature by observation and experiment, and the spread of the knowledge so gained, which is education; so viewed, ethics is seen to be the daughter of knowledge.

One of the assertions which we have heard used as an argument to induce the medical profession to advocate, or at least to acquiesce in the notification of pregnancy is that "it is bound to come, and it will be a mistake for the profession to oppose a popular demand." This is parallel to the German assertion, "German *Kultur* is the best thing for everybody, therefore it is a mistake to oppose its imposition on all nations." We can all see the fallacies in the German claim, but the other is not less fallacious.

If a public demand for the notification of pregnancy gathers sufficient force to induce the Legislature to make it compulsory it will be because the public has been induced to believe that great benefits will result from it. The responsibility of the medical profession is therefore very great, and it must see to it that promises are not made in its name which in the nature of things cannot be performed.

Dr. Donald's paper is in essence, if not in form, an application of the Socratic method to the problem. By it he shows what part of the total loss of life and health to mother and child can on the most sanguine assumption be prevented by any methods notification would make it possible to apply.

Professor Pinard, to whom we are indebted for much of the information in the article on protection of infant life in France before and after birth (p. 45), writes in a private letter: "You must not suppose that the suppression of abortion will increase the

number of births. There is only one thing to be done. Take steps to ensure that the birth of another child shall not impoverish the family. Only through the family can the nation be built up again from the point of view of population, therefore let there be a bonus for every child." The second clause is a truism; the first is in a large measure true if we extend rather widely the meaning we attach to impoverish. But the conclusion does not follow from the premisses. How has it worked out in practice so far in France? The bonus at its maximum is £4. It is not too much to say that the whole structure of human society is conditioned by the fact that man is dependent on his parents for at least the first fourteen or fifteen years and can barely earn his keep for several more. A bonus of £4 is better than nothing because it will help the mother to take care of herself for a short time before and after the birth, but it does not meet the case Professor Pinard presents. We cannot pretend to say what the real remedy is. It is the greatest problem of the immediate future. Some, whose opinion deserves respect, would find the solution in a great increase in wages. To this there seem to be two main objections. The first is that no one country can raise wages without defeating its object; it would drive away trade and so inevitably and quickly lead to lack of employment and consequent diminution of population. The other, which would be immediately operative in this country, is that no increase of wages could improve the conditions of life for the manual and clerical workers unless the housing question were tackled in a more thorough and statesmanlike way than hitherto. Whenever any of the matters on which medicine touches sociology and politics is closely and impartially considered we come down on to the housing problem. If, as is the case now in so many big towns, any wages that can conceivably be paid in the world competition for markets, which is going to be keener than ever, will not buy decent healthy homes, then more money by way of wages or bonus will not be a remedy. Medical officers of health would be very much more useful to the community if they would put their back into lifting this weight, and would have the courage to tell the public bodies to which they are advisers the disagreeable truth in place of suggesting small measures which can at best be no more than palliatives and may even do harm, as doses of opium may take away the only chance from a man with acute abdominal obstruction.

CHROMATIC ENCEPHALOPSY.

The late Sir Francis Galton, in that cornucopia of recondite information, his *Enquiries into Human Faculty*, gives a detailed account of several remarkable cases in which numerals, letters or words were invariably thought of as possessing distinctive colours. In some cases the association was exclusively with the optical, in others with the auditory impression. Where letter sounds were concerned, colours were evoked by the vowels with special frequency, but it was rare to find two people, even members of the same family, agreeing as to the colour associated with a particular sound. According to Galton, coloured hearing and allied phenomena were often hereditary. Mr. Havelock Ellis states that they are much commoner among women than men. Of 203 women students at Wellesley College, U.S.A., no fewer than 32, or 15·7 per cent., were colour-hearers.[1]

[1] *Man and Woman.* By Havelock Ellis. Revised edition, p. 159.

In a paper contributed to the Académie de Médecine on May 23rd,[2] Professor R. Blanchard gave particulars of two cases of colour association observed by himself, and discussed the group of allied psychic phenomena, for which he proposed the designation of "chromatic encephalopsy." In one of his cases the subject, Mme. X., associated a scale of colours with the numbers 0 to 10, and in the other, Mlle. G., with the days of the week. In both it is a question of something more than coloured hearing, since the photism was evoked not merely by hearing the figure or day of the week spoken of, but also by reading or even by thinking of it.

It may be mentioned that cases have been recorded in which even tastes have been accompanied by distinctive colour images ("photisms," or "psychochromes"). Sometimes, though rarely, the colour image is exteriorized and endowed with a definite form, but usually it is indefinite and confined to the internal field of vision. For these exteriorizations Galton proposed the name of "psychograms." Chromatic encephalopsy seems to be unknown among deaf-mutes and the congenitally blind; on the other hand, it was found by Philippe in the high proportion of 20 per cent. among cases of acquired blindness. The philosopher Locke tells of a blind man who announced his conviction that the colour scarlet must be "like the sound of a trumpet." With the brothers Nussbauer the sound of the voice or of music evoked colour impressions, and conversely certain colours evoked internal impressions of musical notes. Such reversibility is, according to M. Blanchard, very exceptional, but in the case of Mlle. G., who is an artist, the sight of certain colours when spread on her palette, but in no other circumstances, evoked the name of the associated day of the week. The phenomenon, of whatever form or degree, generally appears at a very early age, and persists almost unchanged, but in one or two cases a possible cause for the establishment of the association has been vaguely remembered, lending support to M. Blanchard's belief in the part which suggestion or auto-suggestion may play. There seems no reason to adopt the hypothesis of an abnormal anastomosis uniting the auditory and visual centres; the reflection of a sensory impulse from one part of the brain to another is amply provided for by the association fibres.

M. Blanchard also calls attention to the prevalence of such expressions as "seeing red," "a blue story," "black thoughts," which suggest—as, indeed, the statistics of Calkins and Lemaître denote—that some degree of chromatic encephalopsy is much commoner than might be supposed. The phenomena have not escaped the attention of imaginative writers; Gautier, for instance, speaks of hearing the sound of colours. The symbolist Arthur Rimbaud has described in a sonnet the colour associations he assigns to the five vowels. René Ghil, criticizing this poem, affects indignation that "u" is called a green vowel, whereas it is obviously yellow! Barbey d'Aurevilly used to indite polychromatic manuscripts, using inks of every obtainable colour. In one of the poems ("Correspondances") of his *Fleurs du Mal*, Baudelaire in 1857 stated with admirable precision a fact of which few then had the least inkling:

> Comme de longs échos qui de loin se confondent
> Dans une ténébreuse et profonde unité,
> Vaste comme la nuit et comme la clarté,
> Les parfums, les couleurs et les sons se répondent.[3]

[2] *Bulletin de l'Académie de Médecine*, No. 21. *Séance* du 23 Mai, 1916.

[3] Like long echoes which mingle from afar in a shadowy and profound unity, vast as the night and the day, odours, colours, and sounds correspond.

THE INDIAN MEDICAL SERVICE.

WE understand that the Secretary of State for India in Council has approved and promulgated an Order, dated June 20th, 1916, providing that the President of the Medical Board shall also be the Medical Adviser to the Secretary of State for India. All reports and communications regarding medical and sanitary matters and regarding the organization, personnel, recruitment and appointment of officers in the Indian Medical Service, and the organization of and appointments to the nursing and sanitary services, will be referred to him in his capacity of Medical Adviser to the Secretary of State. It will be his duty also to advise on the terms of proposed new orders. Further, he is authorized to submit on his own initiative recommendations on any of the above-mentioned subjects to the Secretary of State. One of his special duties will be to supervise the recruitment of the Indian Medical Service, and he is authorized to communicate freely on the subject with the heads of medical schools and other representatives of the medical profession, and to visit, if necessary, provincial centres of medical teaching, with a view to bringing to the notice of the Secretary of State questions in connexion with recruitment that may seem to him to require consideration. This Order in Council is, we have no hesitation in saying, a move in the right direction, and will eventually, we feel confident, have a very beneficial effect on the Indian Medical Service and on the inhabitants and servants of the great dependency for the benefit of which it exists. Every specialized service, whether in India or at home, has to run the gauntlet of the lay advisers, especially the financial advisers, of the Minister; but the Indian Medical Service, like other special Indian services, has to run two gauntlets—the first with the Government of India, the second in the India Office at home. Hitherto the position of the President of the Medical Board has been anomalous. He has had much responsibility and little authority. This is always an unhealthy system, and we hope that under this new Order in Council it will in future be found that responsibility and authority are commensurate. We believe that under the present Secretary of State the needs of India, of the great Indian Civil Services, and of the Indian Medical Service, which ministers to them all, are certain of receiving sympathetic consideration. The late Mr. Joseph Chamberlain, when Secretary for the Colonies, was the first British Minister to grasp the importance of the utilization of every resource of medical science for the prevention and cure of disease if the home policy towards distant dependencies were to be conducted on the lines of true progressive statesmanship. The part he took in the foundation of the London School of Tropical Medicine, and the encouragement he gave to the sister institution established in Liverpool are evidence that he understood the great obligation which fell upon Britain, as the guardian of so many nations in tropical and subtropical countries, to take its share in the extension of knowledge by giving facilities for its acquisition, by establishing schools for its dissemination, and by suitably rewarding those who contributed to its advance. His son, inspired by the same openness and breadth of mind, is pressing along the same road, and setting an example which future occupants of the great office he now holds will not be disposed to ignore. Sir Joseph Fayrer was President of the Medical Board of the India Office for many years; the present occupant is Sir R. Havelock Charles, who succeeded Sir Arthur Branfoot a few years ago.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

IN the annual report for 1916 of the museum of the Royal College of Surgeons of England the Conservator, Professor Keith, announces that the collection remains closed except to those who require access for purposes of research. The lectures have been delivered as usual, illustrated whenever necessary by such specimens as were especially required. First-aid students have been allowed many opportunities of studying anatomical and pathological preparations. Donations to the museum have been almost as numerous as in peace time, when a great series of spirit specimens were not, as now, stored for security in the basement. The large working staff of the museum is reduced to three men. Last year the Conservator announced that the Council of the College had undertaken, at the request of the Director-General A.M.S., the collection and preservation of such specimens as may illustrate all phases of military surgery of the present war. Thanks to the energy of medical officers in France, the assemblage and dispatch of specimens to the museum since the beginning of this year has been carried out most satisfactorily under the superintendence of Major T. R. Elliott, F.R.S., so that over 500 specimens, all judiciously selected, have been added to the War Office collection. They have been classified by Dr. W. Colin Mackenzie according to the nature of the lesions exhibited by them. On June 6th Colonel A. E. Bradley, Major Lyster, and Major Ford, of the United States Army Medical Service, and Surgeon Pleadwell, of the United States Naval Medical Service, visited the museum and examined the collection of war specimens and the methods used for their preservation. At the same time the collection was visited by Dr. Hugh Cabot, of Harvard University, accompanied by twenty-five doctors who are to serve under him in France. Sir Rickman Godlee and Captain D'Arcy Power, Mr. James Berry, and Mr. Newbold have contributed independently to the war series of field dressings, etc. Mr. Shattock, in reporting on the pathological department, announced that all old preparations showing the effects of gunshot, mostly dried bones obtained after the Peninsular and Crimean wars, have been redescribed, remounted and brought together so as to make up the concluding series of the Section of General Pathology, and to this collection is added a set of copies of Professor Boys's photographs of "flying bullets." The physiological curator, Mr. R. H. Burne, who returned in the spring from a military hospital in France, announces that Dr. Cuthbert Christy has presented to the museum the viscera of the Okapi, brought last year from the Belgian Congo; Mr. Burne is now engaged in comparing these viscera, the first that have reached Europe, with those of a fetal giraffe born in the Zoological Gardens, and presented during the past year by Professor J. P. Hill. The collection of microscopic preparations and the vertebrate skulls once the property of Professor Allen Thomson, F.R.S., have been presented to the museum by his son, Professor J. M. Thomson, F.R.S. Professor F. G. Parsons has presented a series of clavicles illustrating the variations of that bone in association with age, sex, and proportions of the entire skeleton; and Professor J. Symington has contributed preparations demonstrating how far the arrangement of the convolutionary pattern of a brain can be deduced from a study of endocranial casts. Thirty-three demonstrations based on the contents of the museum were given during the past year, and of these, twenty-five, conducted by the Conservator, were designed to meet the needs of first aid ambulance students. All the demonstrations were well attended.

DOCTORS AND THE WAR.

THE Gateshead Division has drawn up a statement embodying the views of the Division on questions affecting the present position of doctors owing to the war, for a copy of which we are indebted to the Chairman, Dr. D. M. Millar, and the Honorary Secretary, Dr. James Patton. The statement expresses views with which the profession generally will be in agreement. It begins with a strong protest against the reduction of the notification fees for infectious diseases, specially noting the meanness of the Act at the present time when doctors are so hard hit by war conditions and are doing so much free work, and other work for which they will probably never be paid. The

removal of several millions of the best lives from the panel list and their replacement by women workers who require much greater attendance for the same payment, has particularly affected panel doctors. The calling up of so many men, especially married men, has left enormous numbers of wives, children, old fathers and mothers, and other dependants to the generosity of the doctors, and the burden of panel doctors has still further been increased as they have to receive on their panels men who have been discharged from the services owing to ill health or injury. There can only be one answer to the question, Should the doctors or the community bear that burden? Evidently the public and the House of Commons cares little who does the work so long as it is done. The letter goes on to summarize what the profession has done under the auspices of the British Medical Association in the way of providing for the carrying on of the practices of doctors who join the army, and shows how, through the Medical War Committees, a large number of doctors have been enabled to give their services to the nation who otherwise could not have left their practices. In addition, the doctors remaining at home are now attending a large number of dependants of soldiers and sailors free of charge, and in many cases are giving free services to ambulance units and small hospitals, while to their private patients they have not increased their fees beyond a moiety of the increased cost of drugs, appliances, food, and other things. The House of Commons has sanctioned a slight rebate on petrol, which only affects those having motor cars, but at the same time it has reduced the notification fees for the whole profession. It is not so much the actual loss inflicted on it that calls for protest, as the lack of understanding and appreciation of the big burden the profession has shouldered. "The time has now arrived," the statement continues, "when a serious warning must be given to the House of Commons and to the public. Medical men will not continue to bear burdens that the nation should and must be responsible for. . . . The profession of a doctor is also his livelihood, which cannot be run on philanthropic lines any more than that of an ordinary business." "We may be compelled to refuse to continue our present free attendance upon the wives, children, and dependants of soldiers and sailors, and demand payment at the time of each attendance." The letter concludes with a warning "that trouble will surely come, and that the House of Commons, by its action and want of action, is responsible for it."

THE INTERESTS OF ABSENT COLLEAGUES.

The steps which the profession should take to safeguard the interests of its members serving with the navy and the army have called for much anxious consideration from the very beginning of the war, when medical officers of the Territorial Force and Special Reserve were at once called out. Solutions of the difficulty, more or less complete, have been worked out in some districts, but there has not been any general scheme. A good deal of experience has, however, accumulated as to the difficulties which arise, and the means by which they can be met are better understood. The Central Medical War Committee has under consideration a scheme, submitted by Dr. Thomas Campbell of Wigan, embodying an agreement in legal form to be made between an absentee and his deputy or deputies. The Committee was able at once to approve of certain parts of the scheme. It approved, for example, the suggestion that an agreement in proper legal form should be executed between the medical man taking a commission R.A.M.C. and the practitioner or practitioners undertaking his work in his absence. It approved also the suggestion that a committee should be formed by the practitioners of the district to which the agreement should relegate such powers as would enable it to deal with all disputes arising between the absentee and the deputy in regard to any questions affecting the absentee's practice, or its conduct by the deputy. The suggestion was made that possibly the local War Committee might assume these duties, and that the decision of any committee established should be binding on both parties. Another point approved was that the deputy should give an undertaking that for one year after the absentee's return, or after his death, or after the sale of his practice, or after the deputy has ceased to act, as the case might be, the deputy would not attend any patient on the list of private patients supplied by the absentee. Another provision was that the deputy should give six calendar months' notice of his intention to resign to the absentee's representative, or to the committee, and that if the absentee's representative did not appoint a fresh deputy the committee should do so. Certain general principles having thus been dealt with the draft scheme and agreement were referred to the Executive Subcommittee with instructions to consult the solicitor, and to bring up a revised scheme and model agreement to the next meeting of the Central Medical War Committee. When the terms have been finally approved it is proposed to forward copies of the scheme and agreement to all local medical war committees in England and Wales, and to suggest that the drafts may serve as bases for agreements between men going on service and those doing their work, for it was recognized that modifications might need to be made to suit the needs of particular localities. In Scotland a great deal has already been done in the desired direction, and we believe that particulars and advice can be obtained on application to the secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh.

THE RATIO OF DOCTORS TO INSURED PERSONS.

At the meeting of the London Insurance Committee on June 29th the question of the sufficiency of doctors to give adequate treatment to insured persons in London was raised, and in illustration of the doctrine that there are great inequalities between different areas, Mr. James Skinner is reported to have asserted that, whereas in Hampstead there was one practitioner to 724 insured persons, in Shoreditch there was one to 5,000. Mr. Skinner may have been incorrectly reported, but as very similar statements, even agreeing in the ratio of one panel doctor to 5,000 insured persons, have been put forward before in relation to certain London areas, we may shortly examine this. In the official list of panel doctors issued in January, 1915, the number shown in Shoreditch was 125. Unless there has been some extraordinary exodus of panel doctors from Shoreditch, and if the average is still one panel doctor to 5,000 insured persons, then there must be some 625,000 insured persons in Shoreditch. Having arrived at this conclusion, the inquirer will be surprised to find that the total estimated population of Shoreditch in the middle of 1914, as given by the Registrar-General, was 109,569 inhabitants of all ages and both sexes, insured and uninsured. If Mr. Skinner's statistics are right, then we must assume either that nearly all the doctors have fled from Shoreditch or its population must have increased by such leaps and bounds as would excite the envy of a kangaroo. However this may be, we know from official publications of the London Insurance Committee and the Registrar-General that instead of there being one panel doctor to 5,000 insured persons there was at the beginning of last year one panel doctor to every 877 inhabitants of all ages and both sexes. The case of Hampstead, with one panel doctor to 771 inhabitants, is not so very far removed. If we take Bermondsey, with regard to which very sensational statements have been made, we find that in January, 1915, there were 90 panel doctors to an estimated population in the middle of 1914 of 124,683; this is a proportion of one panel doctor to 1,385 inhabitants of all ages and both sexes. As a matter of fact, the

proportion appears to be highest in Islington, where there are 220 panel doctors to an estimated population of 325,496, or a proportion of one panel doctor to 1,480 inhabitants of all ages and both sexes. If it be true, as some assert, that there are panel doctors in Shoreditch and Bermondsey who have 5,000 insured persons on their list, it is clear that this must be due either to a defect in distribution of insured persons among the panel doctors, or to some quite extraordinary exodus of panel doctors from these districts since January, 1915. We have not heard of such an exodus, and it is difficult to believe that four-fifths of the panel doctors in either borough have gone away. If they have in fact gone away, and if they have gone into the army, we have nothing to say; but if anything approaching four-fifths have not gone into the army nor gone away anywhere else—and this seems the more probable alternative—then it would appear that the needs of insured patients in these boroughs, as in probably all other metropolitan boroughs, could be met by a proper adjustment, to meet the present emergency, by which those panel doctors having very few insured patients should be invited to take over temporarily the excess from the lists of those who have many thousands.

A HEALTH RESORT AND ITS HEALTH OFFICER.

ON March 17th, 1916, Dr. W. H. Symons, who for the last twenty years has been medical officer of health for Bath, received formal notice from the Town Council terminating his engagement at the expiration of the year for which he had been appointed on July 15th, 1915. The Bath City Council invited applicants for the appointment; its advertisements were not inserted in the medical journals, but the *Bath and Wilts Chronicle* of June 29th stated that nine candidates had applied and that a selection would be made at a meeting of the City Council on July 4th. It was announced that in addition to the ordinary duties of medical officer of health the officer appointed would be required to act as medical superintendent of the Infectious Diseases Hospital (another medical practitioner having charge of the patients), as superintending officer under the Mental Deficiency Act, as inspector under the Midwives Act, and to perform any other duties required by the City Council. The salary offered was £500 a year, with reasonable travelling expenses, the same amount as had been paid to Dr. Symons. Dr. Symons had objected to the terms, and the Bath Council appear to have preferred to terminate his appointment rather than pay a reasonable salary. Upon this point it is to be noted that the Bath Division of the British Medical Association adopted a resolution affirming that it was unfair to expect Dr. Symons to undertake the duties of superintending officer under the Mental Deficiency Act in addition to his other work without extra remuneration. On June 16th the President of the Local Government Board caused a letter to be sent to the city council, stating that he had further considered the proposal of the council to make a fresh appointment to the office of M.O.H. for the city. The letter continued as follows: "At the present time a large number of doctors are serving with the forces, and in the near future a further number will be required. For this reason Mr. Long has suggested in other similar cases that the present is an inopportune time for making new appointments; and I am, therefore, to suggest for the consideration of the town council that it would be better to continue the existing arrangements until after the war." Nevertheless, the council resolved to proceed, and invited the nine candidates to attend a meeting of the Sanitary Committee on July 3rd. Five did so attend, but all withdrew their applications on learning the true position; the other four had withdrawn previously. At the meeting of the City Council on July 5th it was resolved to accept the advice of the Local Government Board and to withdraw the notice terminating Dr. Symons's engagement. We hope that this means that nothing more will be heard of the proposal, but it is somewhat astonishing that a place like Bath, which depends for its prosperity entirely upon the health-giving waters and the healthy conditions of life it holds out as an inducement to visitors, should boggle about so paltry a matter. The incident has, however, a wider significance. Session after session before the war, and even since the war commenced, the Legislature has imposed on local authorities new duties, with the laudable aim of improving the conditions of life in town and country. It knows that all these new duties must increase the work carried out for the local authorities by their officials, but it does not, as a rule, institute any new machinery. This is left to the Local Government Board, and we venture to think that that Board might go a good deal further than it has hitherto, or than is suggested in Mr. Long's letter, for it has great influence with local authorities, including the power of the purse, and might make its influence felt far more effectively than it does.

EPSOM COLLEGE.

THE annual general meeting of governors of Epsom College was held on June 30th, Sir Henry Morris, treasurer, in the chair. Among the members present were Sir R. Douglas Powell, Sir James Reid, Dr. de Havilland Hall, Mr. John H. Morgan, and Dr. Guthrie Rankin. The report of the council gave an account of the award of scholarships and pensions, and of the work of the school during the past year. It further stated that there were at present over 520 old Epsomians serving with the forces, of whom 420 had joined since the outbreak of the war. In the roll of honour of the school were the names of 21 killed in action, 4 who had died in hospital, 40 wounded—two twice—4 missing, and 1 a prisoner. Twenty-seven old Epsomians had been mentioned in dispatches—4 twice, 3 (since killed) had been awarded the D.S.O., and 7 the Military Cross. In moving the adoption of the report the chairman drew attention to the loss of subscriptions resulting from the war. He mentioned that a member of the council had recently procured a sum of over forty guineas in annual subscriptions, and he hoped that other governors would bring the work of the Royal Medical Foundation attached to the College under the notice of their friends. He made appreciative reference to the services rendered to the College by the Editors of the BRITISH MEDICAL JOURNAL and the *Lancet*. The British Medical Association had been specially helpful in collecting subscriptions, and the Medical Insurance Agency had recently sent a donation of £100, bringing the total of its donations to over £500. A vote of thanks to Sir Henry Morris for his services as Treasurer was moved by Sir James Reid, seconded by Mr. John H. Morgan, and carried by acclamation.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE first day of the Oxford Ophthalmological Congress this year (Thursday, July 13th) will be devoted to a discussion on the relation of ophthalmology to general medicine, to be opened by Sir William Osler at 10 a.m. Captain P. H. Adams, Deputy Master of the Congress, will speak on the prognostic importance of retinal haemorrhages, Mr. W. H. H. Jessop on the co-operation of physician and ophthalmic surgeon, and Dr. F. E. Batten on the association of familial diseases of the nervous system and of the eye. After adjournment to luncheon in Keble Hall the discussion will be continued at 2.45 p.m. by Sir Anderson Critchett. On Friday a number of independent papers will be read; in the afternoon Captain Adams will show a long series of cases; Mr. B. H. St. Clair Roberts will show cases of glass-blower's cataract in chain makers, and will give an account of the conditions under which they work; and Mr. T. Harrison Butler will show a case of spring catarrh treated with radium. The Congress will be welcomed at the opening meeting by the

Master, Mr. Sydney Stephenson, and the Warden of Keble College, the Rev. W. Lock, D.D., will take the chair at the dinner held in the College on Thursday evening. There will be an informal dinner at Keble College at 8 p.m. on Wednesday, July 12th, and an excursion by river to Reading or Henley on Saturday, July 15th. During the Congress an exhibition of ophthalmological instruments and apparatus will be open in the anatomical department, University Museum. The Secretary of the Congress is Mr. Bernard Cridland, Salisbury House, Wolverhampton, to whom members should send the subscription (10s. 6d.), and from whom a detailed programme can be obtained.

Medical Notes in Parliament.

War.

British Prisoners in Switzerland.—Mr. Tennant stated on June 28th that arrangements had been made for the dispatch of all articles needed by British prisoners of war in Switzerland on the requisition of an officer specially attached to the British Legation at Berne to look after their interests. He continued as follows: "I should like to take this opportunity of expressing publicly on behalf of His Majesty's Government their thanks to the Swiss Government and people for the cordial welcome which was given to the prisoners on their arrival. The accounts of the reception have been received in all quarters with the warmest satisfaction."

British Prisoners in Bulgaria.—Sir Edward Grey stated on July 4th that the Foreign Office was informed that all the British prisoners in Bulgaria had been assembled at Philippopolis, with the exception of a small number who were at present employed in construction work in the interior, who would be sent to Philippopolis when it was finished. The prisoners were treated on an equal footing with Bulgarian soldiers. Parcels were being distributed to them and their health was good.

Doctors' Chauffeurs.—Mr. Rowlands on July 3rd asked whether attention had been called to the inconvenience caused to medical men with large rural practices by their chauffeurs being taken for military service, and whether the advisability of enrolling these men in the R.A.M.C. and leaving them in their employment until absolutely required had been considered. Mr. Tennant said that there was urgency in the demand by the army for motor car drivers. Subject to this paramount consideration, arrangements had been made for the consideration of individual cases on their merits.

Dentists.—Mr. Tennant stated on June 29th that claims for the exemption of dental surgeons whose services the principal medical officer considered indispensable had been assented to conditionally on their services with the troops being continued. In other cases dentists had had recourse to tribunals in the ordinary way. A decision by the central tribunal in a recent case had been circulated to tribunals. In this case the dentist was granted exemption conditionally on his remaining in his present occupation. The following was added:

> The central tribunal, from evidence submitted to them, are impressed with the danger of further reducing the number of registered dentists now in this country. Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required he should be granted exemption. Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work.

Mental and Nervous Cases (Royal Navy).—In a written reply to a question by Commander Bellairs, the Financial Secretary to the Admiralty said that the treatment of all cases of mental and nervous breakdown was undertaken in the three large base naval hospitals at Chatham, Haslar, and Plymouth. A medical officer who had made a specialty of such cases was detailed to each hospital, and he had as many beds allotted to him as was necessary. The treatment adopted was not to collect these cases into one ward or one building, but to separate them from each other as far as possible, treating them with other general cases of illness. So far this method of treatment had been followed by favourable results, but the number of cases of this type from the fleet was not sufficiently large to enable more than a probable estimate of its value to be formed as yet. Later on, it was hoped, a detailed report of the results obtained would be of value.

Industrial Training.—In reply to a question by Mr. Jonathan Samuel, on July 4th, as to the number of disabled soldiers at present receiving industrial training under schemes initiated by the Statutory Pensions Committee, Mr. Hayes Fisher (Parliamentary Secretary to the Local Government Board) said that the Statutory Committee thought it desirable to utilize existing schemes for training disabled soldiers pending a full consideration of this difficult and complicated subject. A number of schemes were in operation.

Steel Helmets.—In reply to Colonel Yate, Mr. Tennant said on June 28th that down to the previous week the full number of steel helmets asked for had been supplied. A further demand had just been received, and would, it was hoped, be met before long.

Reports of Factory Surgeons.

In moving the second reading of the Police, Etc. (Miscellaneous Provisions) Bill, on July 4th, the Home Secretary began by defending the action of the Government in accepting the recommendation of the Retrenchment Committee that the reports of certifying surgeons on accidents, which cost £12,500 a year, should be dispensed with, on the ground that they were of little value and entailed in all serious cases duplication of the reports made by the inspectors. The proposal, he said, would leave untouched many of the duties of factory surgeons, including certifying the physical fitness of children and young persons seeking work, the examination of cases of industrial poisoning and the periodical examination of workers in dangerous trades, with respect to which the Home Office was continually enlarging the functions of certifying surgeons. It will be remembered that a joint deputation from the Association of Factory Surgeons and the British Medical Association waited upon the Home Secretary on May 5th with reference to this matter, and Mr. Samuel was rather querulous with regard to the opposition offered to the abolition of the reports by the doctors themselves. Sir Henry Craik (Glasgow and Aberdeen Universities) criticized the Home Secretary's attitude, and pointed out that it was the duty of a certifying surgeon to see the injured workman himself; he was far more likely to receive a full and free account of the accident than a mere mechanical inspector. Mr. Tootill (Bolton) considered that the safety of the workman ought to be the primary consideration of the Government; workmen often depended on the doctors' evidence. Sir Philip Magnus (London University) followed on the same side, and said that he hoped to be able to show at the Committee stage overwhelming reasons in favour of retaining the services of certifying surgeons. Mr. Stephen Walsh recalled the condition of labour before 1833, and said that the trade unions and the workers of the country had never raised any objection to certifying surgeons. Certifying surgeons lived well within the immediate localities, and were quickly on the scene, so that they were able to speak as to the conditions under which the accident occurred with an authority and definiteness that an inspector could never possess. Sir J. Yoxall, speaking as the father to the Children Bill, appealed to the Home Secretary to withdraw the clause. Mr. Brace defended the clause, but Mr. A. Williams supported the arguments of Mr. Walsh, and eventually the Home Secretary, admitting that it was of immense importance to safeguard the life and limb of the worker, promised to reconsider the matter and to put down an amendment. He recognized the importance of having special medical reports in cases which were not instances of an accident caused by negligence, but due to septic poisoning or gassing, or to the effect of deleterious chemical substances. He said, however, that he did not believe the reports which it was proposed to abolish had the value some speakers had attached to them, and could not promise to ask the House to vote money which he considered was wasted.

Petrol.—Mr. McKenna stated on June 28th that the total import of petrol spirit into the United Kingdom in the twelve months ended May 31st, 1916, was 144,000,000 gallons, and that duty was paid on 113,600,000 (at commercial rates 48,500,000, at private rates 65,100,000). The estimate of £962,000 as the amount likely to be received from the new petrol licence duty was based upon an estimated annual consumption of 32,500,000 gallons for private cars and cycles, 8,000,000 gallons for commercial cars (exclusive of hackney carriages), and 4,000,000 gallons for doctors and veterinary surgeons.

THE WAR.

TREATMENT AND EDUCATION OF CRIPPLED SOLDIERS.

THE CENTRAL MILITARY ORTHOPAEDIC HOSPITAL AND SCHOOL IN VIENNA.

THE war has already reaped a large harvest of disabled and mutilated men, and no one can tell to what great total their number may at last come. Already steps have been taken by all the belligerent nations to relieve disabilities, to supply substitutes for lost parts, and to help the men to learn or relearn some trade which may render them at least in part independent of pensions or charity.

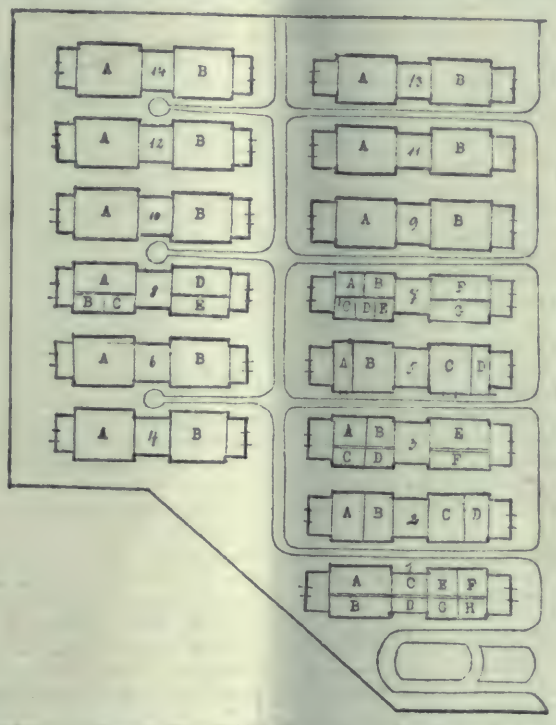
In England, as readers are aware, a good beginning has been made on a large scale. An Inspector of Military Orthopaedics has been appointed for the army, hospitals for the fitting of artificial limbs have been established in England at Roehampton and in Scotland near Glasgow, and similar work is being done in Ireland, we believe at Tipperary. In addition, a hospital has been established at Brighton for the reception of soldiers who require rest and surgical treatment before they are ready to have artificial limbs fitted, and steps are being taken, or have already been taken, in all home commands to establish special orthopaedic hospitals or special orthopaedic sections of general military hospitals for dealing with these cases.

We have been able to give from time to time accounts of the admirable arrangements made in France for providing maimed soldiers with artificial appliances and for their education in various suitable occupations. The work is centralized in Paris, but there are branches in many of the chief provincial cities. In Italy the work has been taken up by a national federation, which has the assistance of the Government, of the Red Cross Society, and of the local authorities. We have also given some account of the work done in Germany, where the arrangements made in advance in anticipation of a short and easy war fell far short of actual requirements. It would appear that strenuous efforts are being made to get the organization going again.

In Austria-Hungary, where Red Cross work had been much better organized before the war than in Germany, a great deal of good work has been done, to which reference was made last April in connexion with the congress held in Berlin early this year to discuss the care and education of crippled soldiers. At that congress Professor Spitzy, the well-known orthopaedic surgeon of Vienna, described the organization and arrangement of the orthopaedic hospital and school for wounded soldiers established under his direction. We are now able, through the publication of his report,[1] to give an account of the arrangements.

The hospital was started in the beginning of 1915 with 600 beds, and has since been expanded, until it includes within its walls 3,000 patients, and a regular town of forty large huts, besides the central hospital buildings. As a hospital it affords opportunity for the application of orthopaedic treatment by operative mechanical methods. It is its development as a training school for crippled soldiers which will have most interest for us.

Professor Spitzy classifies the callings of the men who had attended the schools for disabled soldiers up to the date of his lecture into twelve categories. Nearly half of them were agricultural labourers or otherwise employed on the land. (It is to be remembered that Austria and not the German Empire is in question.) In the remaining eleven categories the proportions are fairly evenly graduated from the 10 per cent. of the day labourers and servants in families and institutions down to the 2½ per cent. of the workers in leather and textile industries.



Plan of the school for crippled men at Reserve Hospital XI, Vienna, showing the trades taught in the various buildings.

Centralization, Professor Spitzy says, was rendered necessary by the circumstances of the country, in which there are few large towns, and by the scarcity of skilled surgeons and teachers. Owing to the economy of attendance and instruction possible in a large establishment, it has been found that one medical officer is enough for 200 patients. At the same time, the training of more orthopaedic surgeons and teachers is not lost sight of, so that later on it will be possible to decentralize and carry on the work at the same time in various places. In this institution disabled men are treated for curable deformities and paralyses, are fitted with artificial legs and arms, and are educated or re-educated so as to fit them for the successful pursuit of their former callings or some other. The artificial limbs supplied are made and repaired on the premises and so far as possible standardized, so that new interchangeable parts and new limbs can be sent to men at a distance, and supplied to other institutions in the country. Patients are fitted soon after their arrival with temporary limbs, which they wear and use during their periods of instruction; the permanent limbs are supplied later, and not long before discharge.

Professor Spitzy does not give any information as to

[1] *Medizinische Klinik*, Berlin, April 16th, 1916, No. 16.

the kind of limbs supplied, but judging from some of the illustrations of the article, which include men working as carpenters and using a scythe, the arms are made for use and not for show. Probably they are of one of the types which seem lately to have been widely adopted in the German Empire, and which consist essentially of a bucket as short as possible, to which is attached a jointed metal arm and various devices. In this arm the levers are kept short, and there is no attempt at supplying an artificial elbow-joint.

For ornamental purposes a "Sunday arm" either fits over the working one or is a separate apparatus. It is claimed that an arm of the latter kind can be made for 20 marks (£1). No descriptions or illustrations of legs are included in this article, and we gather that Professor Spitzy has dealt with this part of the subject in his *Technik der Kriegsinvalide*, of which we have not yet seen a copy.

It is obvious that the surgeon, while he must decide on the kind of work for which the patients are fit and give a prognosis of each case, cannot carry on the educative part of the work, which is of great importance. Therefore a number of technical instructors are also required as well as social agents, whose duty it is to look ahead and prepare places and employment to which the men shall go directly they are discharged.

A glance at the diagram will show the complexity of the instruction and the number of trades taught.

On admission each patient, after the usual cleansing procedures, goes before a board consisting of the following seven persons: The operating surgeon, the surgeons for amputation cases, for contractions, and for nerve injuries respectively, the medical director of invalid schools, the director of theoretical teaching, and the social director. The patient is allotted to the appropriate surgeon, the invalid school surgeon states what the man is fit for, and the social director looks out for a situation in due time for the man, if possible with his former employer.

A most elaborate system of recording and preserving the history and progress of each case is in use. Supposing, for example, that a man who has undergone amputation is supplied with a temporary limb in the middle of February, in May he will receive his permanent artificial limb. He attends an invalid school almost at once, and at the end of May goes to a situation. An elaborate statement as to the course of treatment and instruction he should undergo is prepared by the surgeon on admission, and any departure from it must be reported to the commandant.

Discipline throughout is necessarily strict, but this in itself is a good thing, as it keeps the patient prepared for the hardness and difficulties of his after-life, for which injudicious petting would spoil him.

Professor Spitzy remarks that, of the cases, 30 per cent. are contractures and stiffness of joints, 30 per cent. nerve cases, of which, owing to his reputation as a specialist, probably more than an average proportion are sent to his hospital, and 30 per cent. amputations; the remaining 10 per cent. are not classifiable. Of the amputations, one-fourth were of the upper and three fourths of the lower extremity. (At the Roehampton hospital we believe that the proportion of arm cases treated is somewhat higher.) Up to January 1st, 1916, out of 6,674 patients, 1,000 had returned to the army and 1,000 to civil life. It would seem, therefore, that Professor Spitzy's optimistic remark that only a small proportion of the injured are unfit to resume their old occupations is premature, for, apparently, 4,674 cases are still unaccounted for.

It is to be gathered from the above short summary that in Austria the problem of the treatment and provision for the wreckage of war has made more progress than has yet been achieved in this country. The opportunity is taken of improving the theoretical and technical education of the men, and also to give them all a knowledge of the German language, which, as is well known, is by no means general throughout the polyglot Austro-Hungarian empire.

FARM WORK FOR DISCHARGED SOLDIERS.

Of the many thousands of patriotic young men who have been wounded in the service of the country, there must be a large proportion who will need a prolonged period of convalescence before they are able to resume remunerative work. During this period many of them will be in receipt of disablement allowance, although only partially disabled, and may be living under unsatisfactory conditions, whereby their return to full earning capacity is greatly delayed, if not actually prevented. To meet such cases it has been suggested that farm sanatoriums should be established, in which men would be enabled to live in healthy surroundings, and to do such work on the land as they can. They would be required to pay a portion of the cost of their maintenance out of their allowance, but would receive full wages for such work as they might be competent to undertake. They might thus gain health, knowledge, and experience simultaneously, and when fully convalescent would be far better able to make a fresh start than they would have been if assisted by the disablement allowance alone.

A pamphlet by Mr. Harold E. Moore[1] sets forth the proposals which he laid before Lord Selborne's committee on the subject of the settlement and employment of discharged soldiers on the land. Settlement is held to imply holdings rented or purchased, employment signifying engagement at wages, with or without share of profits. The committee's report with regard to settlement has been published, and Mr. Moore's recommendations differ from those in the report only in respect of the substitution of market gardening for the more ambitious schemes involving a good deal of mechanical power.

It would seem obvious that the classification of the various degrees of disablement or other incapacity for doing remunerative work must be undertaken by some central authority. Mr. Moore explains his views as to the way in which the various classes may find suitable work and corresponding benefit in farm sanatoriums, and mentions the efforts already made to find suitable sites for such farms. The scheme, which must needs be framed in conjunction with other charitable or mutual aid societies, cannot be a simple one and must involve considerable initial outlay. A still more elaborate plan is that for the establishment of co-operative hand-labour farms, for those who may be discharged with full working capacity, but no capital wherewith to make a start on the land.

Estimates are worked out to show how the advancement of capital on a liberal scale might be made to yield a good return to the colony of workers on the farm and a steady increase in the value of the farm itself.

In a third section the question of settlements of small holdings where the produce would for the most part be utilized by the cultivator and his family, is fully discussed. A plan of this kind has been started in Scotland with its headquarters in Edinburgh. A good deal has been done also by county councils in various parts of England, and the experience that they have acquired can be taken as a guide to more extensive schemes by other bodies or by private landowners. Mr. Moore believes that if all the money required were advanced by the State the result might prove a safe and profitable investment.

"EDUCATIVE CONVALESCENCE."

An interesting experiment is being carried out at the Heritage Craft Schools, Chailey, Sussex. It is on a small scale, and the friendly, homely conditions could not, perhaps, be reproduced on a larger scale, but the principle is sound. The Heritage Craft Schools were established some years ago for the benefit of crippled children, who, in addition to ordinary education were taught various trades. Dr. Basden, the senior medical officer of the school, in a short article printed in a pamphlet recently issued by the committee, states that "long experience with crippled children had proved that a large variety of motor disorders and much later treatment can be dispensed with if, while wounds are healing and the daily hospital work going on, the limbs can be made to move as naturally as possible, and simple, curative, and remedial exercises employed. . . . The cardinal need in any scheme of educative convalescence," he adds, "is to educate the kindly-hearted public to realize that the cripple, whether soldier or civilian, is not to be regarded as a confirmed idler, but that, however maimed or crippled, he can and should be taught to earn an honest livelihood." The idea as applied at the schools was to give to every newly

[1] *Farm Work for Discharged Soldiers.* By H. E. Moore, F.S.I., F.R.H.S. London: P. S. King and Son, Ltd. 1916. (Demy 8vo, pp. 30, 6d. net.)

maimed man one of the crippled children as an orderly, and it would appear that the wounded soon became absorbed in the general interests of the place, the arts and crafts, the exercises, and the various other occupations. After passing through the school the crippled children have more often than not been employed as foremen or forewomen, in spite of their physical disabilities. It is to be hoped that the same happy result may be obtained in the case of the wounded soldiers. The staple industry of the home is woodcraft, but other trades are taught, including farming and gardening.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN KENNETH HARRISON ALLOA KELLIE, R.A.M.C., was killed in action on June 25th, aged 41. He was born in 1874, and educated at Westminster School, Caius College, Cambridge, and St. George's Hospital, also studying in Paris, New York, and Boston. In 1903 he took the diplomas of M.R.C.S. and L.R.C.P.Lond., subsequently graduating at Cambridge as B.A. and B.C. in 1904, and as M.B. in 1905, and taking the M.R.C.P.Lond. in 1908. After filling the posts of clinical assistant for out-patients at Paddington Green Children's Hospital, assistant house-surgeon at St. George's Hospital, and house-physician of the Victoria Hospital for Children, Chelsea, he went into practice in London. He held the appointments of physician to the Belgrave Hospital for Children, assistant physician to the Royal Hospital for Diseases of the Chest, City Road, and medical registrar of the Prince of Wales's Hospital, Tottenham. At the beginning of the war he served for a time as a special constable; on April 1st, 1915, he took a temporary commission as lieutenant in the R.A.M.C.; on the completion of a year's service he was promoted to captain. He was a well-known oarsman, and had rowed for the London Rowing Club at Henley and at other regattas.

Lieutenant J. B. Haverson, R.A.M.C. (temporary).

Died on Service.

Lieutenant George Stanley Graham, R.A.M.C., was reported in the casualty list published on June 27th as having died on service. He was educated at Liverpool University, where he graduated as M.B. and Ch.B. in 1915, and took a temporary commission as lieutenant in the R.A.M.C. last November.

Lieutenant J. St. J. Dundon, R.A.M.C. (temporary).

Wounded.

Captain N. Black, R.A.M.C. (temporary).
Captain T. C. Clarke, R.A.M.C.(T.F.).
Lieutenant R. C. B. Briscoe, R.A.M.C. (temporary).
Lieutenant D. StC. Creighton, R.A.M.C. (temporary).
Lieutenant E. C. Lambert, R.A.M.C. (temporary).
Lieutenant V. F. Stock, R.A.M.C. (temporary).
Lieutenant J. Unsworth, R.A.M.C. (temporary).

Prisoners of War.

In the casualty list published on July 3rd it was stated that Major E. F. E. Baines, I.M.S., whose name had not previously been given, was believed to be among the prisoners taken at Kut.

DEATHS AMONG SONS OF MEDICAL MEN.

Ball, John J., Lieutenant Royal Field Artillery, only son of Dr. J. Barry Ball, of 12, Upper Wimpole Street, London, W., and of Layfield, Sudbury, killed in action on June 27th. He took a commission as second lieutenant in the 5th County of London Battery, 2nd London Brigade, Royal Artillery (T.F.), on October 20th, 1914.

Bird, Eric Hinckes, Lieutenant Royal Fusiliers, second son of the late Dr. Arthur Hinckes Bird, died of wounds on June 27th. He joined the Royal Fusiliers (City of London Regiment) as second lieutenant on August 30th, 1914, and became lieutenant on February 11th, 1915. He was serving in the Royal Flying Corps when killed.

Mathie, William Sidney, Lance-Corporal 5th South Staffords, second son of Dr. Mathie, of Kelvin House, Bilston, died at King George Military Hospital, London, from wounds, aged 28. He received his early education at Wolverhampton Grammar School, obtained first-class honours in the Cambridge senior examination and was awarded a county major scholarship. He subsequently studied engineering at the University of Glasgow, and had since been engaged in engineering work at Wolverhampton.

Pearson, Norman C., Canadian Highlanders, youngest son of the late Dr. Archibald Pearson of Ibrox, Glasgow, killed in action on June 3rd.

Watson, John O'Donnell, Armourer Corporal 10th Canadian Infantry, only son of the late Lieutenant-Colonel J. Watson, R.A.M.C., reported missing, now officially presumed killed in action at Ypres, April 23–24th, 1915, aged 28.

NOTES.

ALTHOUGH no details are yet available, we understand that the casualties in the great advance on the south part of the British line at the end of last week were less numerous than was feared. A certain number of the wounded have been sent to this country direct, but this was not because the accommodation provided at the British hospitals in France was strained; it was a matter of precaution in view of the possibilities of the immediate future.

MENTIONED IN DISPATCHES.

East Africa.

The *London Gazette* of June 30th publishes a dispatch, dated May 8th, from Lieutenant-General Smuts, Commander-in-Chief in East Africa, giving the names of officers and men specially mentioned, in continuation of his dispatch of April 30th. Among them are the following medical officers:

R.A.M.C.—Colonel (temporary Surgeon-General) G. D. Hunter, C.B., C.M.G., D.S.O.; Lieutenant-Colonel C. J. O'Gorman; Major R. T. Brown; Captain C. V. Thornton.

I.M.S.—Lieutenant-Colonels C. A. Johnston, R. G. Turner; Majors E. T. Harris, C. G. Seymour; Captains G. T. Burke, R. S. Townsend.

South African Army Medical Corps.—Captain S. T. Grinsell; Serjeant-Major H. P. Sheridan.

East African Medical Corps.—Lieutenant-Colonel A. D. Milne; Captains J. M. Mackinnon, C. J. Wilson.

Indian Subordinate Medical Department.—Assistant Surgeon A. R. Emmett (killed).

South African Military Nursing Service.—Matron Janet McLeash; Nursing Sisters C. R. Norris, B. Shepley.

East African Nursing Service.—Senior Nursing Sister I. L. Majendie; Nursing Sisters R. Paul, E. B. H. Wormald.

A CORRECTION.—In the list of I.M.S. officers mentioned in Sir A. Wilson's dispatches from Egypt, published last week (p. 28), the name of Lieutenant-Colonel J. Norman Walker was incorrectly printed as J. Norman.

HONOUR.

Among the recent recipients of the Distinguished Service Cross is Flight Sublieutenant Herbert G. Hall, R.N.A.S., son of Dr. C. Herbert Hall, of Watford, who received the award in recognition of his services on the morning of April 25th, 1916, when he carried out an air patrol with an observer during the attack by a raiding squadron of enemy ships on Yarmouth. Although severely wounded in the shoulder by shrapnel and weak from loss of blood, Flight Sublieutenant Hall succeeded in piloting the machine back to his station and landed safely.

THE BRITISH RED CROSS.

The British Red Cross has arranged to send to France a fleet of motor dental ambulances. The staff will consist of a dental surgeon and dental mechanic, and the ambulances will go far forward so as to be within reach of men in the trenches. They will do all ordinary dental work, but they are specially intended to deal with cases of men who are suffering from acute lesions of the teeth and gums, or what used to be known under the generic term of toothache, and with men whose artificial dentures have got out of order.

Good progress is being made with the hospital ship for the Tigris. She is to have a length of 150 ft. with 30 ft. beam, but the difficulty of construction so as to accommodate fifty or sixty cots, with provision for isolation which may be necessary in view of the occurrence of infectious diseases with the forces in Mesopotamia, is aggravated by the fact that her draught is not to exceed 2 ft. 6 in.

The main building of the Star and Garter Hotel at Richmond, which is to be converted into a home for incurably helpless soldiers and sailors, has been pulled down; foundations are now being got out for the new building, the plans for which are in a forward state. At the present time the patients are accommodated in the large rooms of the annexe of the old hotel, which have been converted into wards. The beds in use are of special design, and by a simple device can easily be wheeled out of the ward into the lift. From the lift they are taken to the garden level, and can then be wheeled on to the terrace, which commands the famous view from Richmond Hill. The society has purchased Ancaster House, facing the Star and Garter, and it will probably be converted into a home for officers deemed to be incurably injured. Happily in the case of the men the verdict "incurable" has not always proved to be correct, and it has been possible to discharge a certain number to their homes.

HOSPITAL FOR MAIMED SOLDIERS AND SAILORS.

A garden party was given at Queen Mary's Convalescent Auxiliary Hospital, Roehampton House, on June 28th. The patients are admitted to this hospital for their artificial limbs to be made and fitted. They were amused with sports, and it was certainly remarkable to see the pace at which these active

young men with only one leg could get over the ground. The visitors were chiefly interested in the newest pattern of artificial limbs, especially arms. Many improvements have been made, all in the direction of combining strength, lightness, and simplicity, with efficiency. By means of various attachments men demonstrated how they could do carpentering and feed themselves with a fork; by means of very simple attachments to the handle of an axe or to a fork other men showed how they could chop and dig. Visitors also saw the long range of workshops which have been put up in the grounds, and were able to follow the whole course of manufacture of the artificial limbs.

Schools for Crippled Soldiers.

Dr. Raymond Cestan, professor of psychiatry in the Medical Faculty of Toulouse, and Dr. Paul Descomps, who are in charge of the neurological centre of the seventeenth region of the French army, in conjunction with Dr. Prost-Maréchal, director of the Sanitary Service of the Toulouse region, have established a school for the re-education of maimed soldiers in connexion with that of Ondes-sur-Garonne. The men are treated for four months and at the same time receive practical instruction in farm work.

A department for the supply of artificial limbs and the re-education of maimed soldiers has been opened in the English hospital at Venice. It is under the direction of Dr. Zoppi, senior orthopaedic surgeon to the civil hospital.

Physical Clinic for Wounded and Disabled Soldiers.

We have received the following communiqué: The Physical Clinic at 126, Great Portland Street, W., was opened for the treatment of wounded and disabled officers on Monday, July 3rd. Last week it was on view for members of the medical profession and for hospital matrons and nurses, and was visited by Queen Alexandra and by the Princess Louise. The treatment, by means of baths, massage, and mechanical apparatus, is entirely free of charge. Every case will be examined by a physician and a surgeon of the honorary medical staff. Medical men who have under their care officers who they think would benefit by physical treatment are cordially invited to consult personally with members of the staff at the clinic. Telephone, Gerrard 7345.

Scotland.

The Central Midwives Board for Scotland as finally constituted contains, in addition to those mentioned in our issue of February 12th, p. 253, the names of Miss Alice Helen Turnbull and Miss Isabella Scrimgeour, appointed by the Lord President of the Council.

The Royal Blind Asylum and School, Edinburgh, has now entered into possession of Newington House, which is to be used as a hostel for Scottish blinded soldiers and sailors. Provision is there made for thirty men. It is believed that the number completely blinded is at present about 200, but the directors of the school have kept in view the fact that there would be hundreds of men who, though not totally blinded at first, would eventually become wholly blinded unless kept under constant observation for some time by specialists.

Women Medical Students in Edinburgh.

As was foreshadowed in the Journal for June 17th (p. 866), the measures to be taken to meet the difficulties incident to the sudden great increase in the number of women medical students beginning in Edinburgh are along lines which differ from those that are being followed in Glasgow to meet the same sort of emergency. Recently a letter from the lecturers of the Edinburgh School of Medicine for Women was, we understand, submitted to the University Court, in which the difficulties of teaching the large number of women coming forward were set forth and a conference with members of the Court was suggested. The question also of the relation of the University to the teaching of women students in medicine arose in the Medical Faculty and in the Senatus Academicus. At the present time the University Court recognizes from year to year the lecturers of the Women's School (which is extra-mural) as the sole teachers of the women medical students in Edinburgh whose lectures qualify for graduation in the university. But it is not necessary for the women students to take all, or indeed any, of their medical classes in Edinburgh; they may therefore graduate in the university without any attendance in Edinburgh other than at the professional examinations. The rule as it appears in the Calendar is as follows:

So long as within the Faculty provision is not made for the instruction of women in any subject qualifying for graduation in which provision is made for the instruction of men, it shall be in the power of the University Court to admit to graduation women who have received the requisite instruction in that subject in any university of the United Kingdom, or in any Indian, colonial, or foreign university recognized for the purpose by the University Court, or in such medical schools or under such teachers as may be recognized for the purpose by the University Court. Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions laid down in the regulations for degrees in medicine with respect to the preliminary examination, and shall be examined in all the subjects necessary for graduation by the examiners of the university.

The Calendar further states that "so soon as within the university provision is made for the instruction of women in all subjects qualifying for graduation in which provision is made for the instruction of men, the conditions for the graduation of women shall be the same as the conditions for the graduation of men."

There is evidently a feeling in academic circles that the time has come when, in consequence of the growing number of the women students and as a means of relieving the difficulty of teaching them in the present school of medicine for women, the university should provide instruction for them within its walls. At any rate the Senatus Academicus had the matter before it at a largely attended meeting on June 28th (the new Principal, Sir James Ewing, being installed and presiding), and decided by a substantial majority to recommend to the University Court that the classes in the Faculty of Medicine should in future be open to women. The first step, therefore, has now been taken, and it is possible that the war which has brought about so many far-reaching changes may also throw open the gates of the university to the women students in medicine. The war has undoubtedly depleted the medical class-rooms of men students; it has certainly been one at least of the causes which have sent women in crowds into the medical profession and so thrown out of gear the existing extra-mural means for teaching women in Edinburgh, and it has emphasized the fact that women doctors will be increasingly called for in the immediate future. The action to be taken by the Medical Faculty and by the University Court will be awaited with great interest. No very long time now exists for making preparation for the winter session, and we understand that whilst most of the classes can still be suitably, if somewhat tightly, accommodated in the present extra-mural school, the calls of the anatomy students for a larger dissecting-room are insistent.

Military Orthopaedics.

The *Glasgow Herald* announces that the Scottish Branch of the British Red Cross Society had resolved to add a new block to the Scottish National Red Cross Hospital at Bellahouston Park for the reception of wounded men who require orthopaedic treatment. The executive of the Scottish Red Cross has voted £5,000 for the establishment at Bellahouston of an institute for massage and electrical treatment, in a new block containing fifty-six beds. Orthopaedic treatment in Scotland will also be provided at Bangour Hospital, Edinburgh, and at Oldmill Poor Law Hospital, as well as at Bellahouston, where between 200 and 300 beds are to be assigned for the work.

Ireland.

Dublin Castle Red Cross Hospital.

A meeting of the Committee of Management was held on June 29th at the hospital, when Mr. William M. Murphy, Chairman of the Finance and General Purposes Committee, presided. As this was the first meeting of the committee since the rebellion, a report from the resident medical superintendent was read, which showed the unprecedented work with which the hospital staff had to cope in connexion therewith. A further report from Captain H. V. Stanley, R.A.M.C., who had arrived on Easter Monday and taken over command of the stretcher party, and who, owing to the illness of the resident medical superintendent at the time, had to take charge of the hospital, was read. The committee confirmed, with approval, the letters of appreciation sent by the Finance and General Purposes Committee to the several gentlemen mentioned in the reports who had rendered such signal service to the hospital and to the

sick and wounded. Correspondence with the War Office was read relative to the rates of allowance for officers and men. The students of the Royal College of Surgeons having collected a sum of money for the equipment of a ward, the committee resolved to display a printed canvas bearing the College arms and a statement to the effect that "the students of the Royal College of Surgeons in Ireland have equipped a ward in this hospital." It was reported that the number of patients in the hospital on April 7th were 103, and that since there had been received 212, making a total of 315; since that date 256 had been discharged, leaving at present in the hospital 59. The total number received since the opening of the hospital was 1,303. During the rebellion no fewer than 202 patients were received, and for dressing purposes 250. Since the last meeting a number of gifts had been received in answer to the appeal for supplies of comforts for the wounded men, but the matron would be very grateful for tobacco, cigarettes, potatoes, vegetables, fruit, and jam.

England and Wales.

THE REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

AN interesting experiment is being made by the Central Liquor Control Board at Carlisle. The population of the city has been suddenly increased owing to the establishment of a large munition works within easy reach by train, and the quiet life of the border city seems to have been rather disorganized in consequence. The number of convictions for drunkenness in Carlisle has been increasing month by month; the convictions for drunkenness in April numbered 98, in May 114, and in June 139, as compared with 12, 12, and 10 in 1915. The total for the first six months of 1916 was 564, as compared with 72 in the first half of 1915. The assaults on the police also increased from 3 to 25 during the same period. The Board of Control has power to acquire any premises on giving ten days' statutory notice. The Board now proposes to deal with an area comprising the city of Carlisle (excluding two hotels) and the petty sessional divisions of Longtown and Cumberland Ward. Offices have been opened in Carlisle, under the superintendence of Mr. E. C. Sanders, general manager for the Board. The first step was to take means to provide additional accommodation for the workmen near the station, and for this purpose the Board has acquired the old post office, which is being converted into a place of refreshment and will be known as the Gretna Tavern and Coffee House. The use of the word "tavern," it was stated, was retained because the ancient true and principal use of taverns was to "provide food and shelter." In part of the building beer and stout and non-intoxicants, but no spirits, will be sold. The beer and stout will be brewed at one of the Carlisle breweries, and will be of the same strength as the beers and stouts now sold locally. In this part of the building there will be a stand-up bar for food. In another part, in a room 55 ft. by 40 ft., tables and chairs will be provided and food and drink of every description, except spirits and wines, will be sold. It is anticipated, however, that the chief business in this room will be in food and non-intoxicants. A kitchen is being fitted up, and local managers have been appointed. It is hoped that the house will be open within a fortnight. In addition, to meet the needs of men starting by early trains, the Board intends to provide three stalls at the station entrances, where tea, coffee, light refreshments, and tobacco will be obtainable from an early hour. The intention is to reduce the number of licensed houses in the city, but the extent to which this will be carried is not yet settled. The total number of houses acquired or to be acquired in the area is about two hundred. The Board is also acquiring four Carlisle breweries and their properties. What should be done with the houses belonging to the breweries outside the area is not yet decided. The guiding principle of the whole scheme is to provide real houses of refreshment, where good food will be obtainable under comfortable conditions and at reasonable prices, and where a customer who so desires can obtain draught or bottled beer. Great hopes are expressed locally that the experiment will be successful. It may be added that, owing to the large influx of munition workers, the Cumberland Infirmary has arranged with the Munitions Board to keep twenty-five beds always at its disposal for urgent cases, and that a small hospital is being established at Gretna for less urgent cases.

LIVERPOOL COUNTRY HOSPITAL FOR CHILDREN.

The report presented to the annual meeting of the Royal Liverpool Country Hospital for Children at Heswall, Cheshire, states that the daily average of beds occupied was 144, and the cost per bed £46. The Liverpool Insurance Committee maintained a large number of children suffering from tuberculosis (excluding pulmonary tuberculosis). Their education was not neglected, and for those who could profit by this training without interfering with treatment, a special school has been carried on to the satisfaction of the Board of Education inspectors. The salubrity of the surroundings has not escaped the eye of the War Office, and during the past year 142 sick and wounded soldiers have been under treatment. There is no doubt about the value of such a hospital, situated in the country away from the turmoil and noise of a large city. The importance of preventing in children chronic diseases leading to incurable disability cannot be overestimated, and this is the main object of the hospital. The average duration of stay was 176 days, or more than ten times the stay in an ordinary hospital. This hospital is said to be the fourth largest hospital belonging to Liverpool, and yet the beds in its wards are not sufficient to meet the wants of the city in this respect.

Correspondence.

ROYAL MEDICAL BENEVOLENT FUND.

SIR,—The Royal Medical Benevolent Fund, the great benevolent society of the medical profession, is sorely in want of money now.

Though in ordinary times the medical profession supports its own poor, in these war times this is no longer possible. At the May meeting the committee had a balance of only £17 in hand, and at the June meeting was faced with a deficit of £16. The demands were heavy and had to be met, and this could only be done by withdrawing £500 from the Bank.

As the direct outcome of the war, not only are the ordinary cases of poverty greatly increased in number but an entirely new class of case has arisen urgently requiring relief, in which, without actual poverty, there is great temporary distress—distress however which, it is hoped, will relieve itself soon after the war is over and the doctors serving return to their civil duties.

At the outbreak of war the medical profession responded freely to the nation's call. The territorial medical officers were at once called out, and other medical men volunteered. Both alike had to leave their practice at very short notice, and often without being able to make adequate provision for its continuance and maintenance during their absence. Their pay went but little way to supply the loss which their absence entailed, for the working expenses of the practice could not be materially reduced. The result was that many families found themselves in very straitened circumstances. Rent, rates and insurance brook no delay, but, worst of all, school bills could not be paid, and if help had not been quickly forthcoming the children would have suffered for the patriotism of their father.

The following are typical of the cases with which our Fund has had to deal:

A young doctor who had only been in practice a few years volunteered for service, and was killed in action a few days later. He left a widow, aged 35, with two young boys, aged 3½ and 1 year, entirely without means. The Fund voted £25 for her immediate necessities, and put her into communication with the Officers' Families Association, which gave further help.

A practitioner aged 38, earning £700 to £800, volunteered for service, leaving his practice in the hands of a neighbour who was not a success. There were two young children, and another baby was born shortly after the husband left. The wife contracted pneumonia and nearly died. A resident patient had to leave the house. Rent and other expenses led to a debt of about £80. This the doctor could not meet, and he hurried back from the trenches to save his home from being sold up. The Fund voted £25, the Guild gave £15, the Officers' Families Association £25, and the Professional Classes War Relief Council further help, with the result that he returned to the front with his immediate anxieties relieved.

A captain in the Territorials was called out, and had to leave

his practice in the hands of a locum who proved a failure. There were seven children, aged 2 to 14. Financial difficulties arose, and payment of the school fees became impossible. Between the Fund and Guild and Officers' Families Association the necessary funds were raised, and clothing which was greatly required provided.

These cases show well the way in which the Fund works, not only by giving relief itself in money and kind, but also by obtaining through co-operation with other benevolent societies more substantial assistance than it could afford alone.

But there is another class in which the distress is perhaps even greater, and adequate relief more difficult. It is that of men who left home and a good practice in vigorous health, and who have come back crippled by wounds or with health impaired to a practice severely damaged by their absence, and without the strength or energy to regain the practice and position which they sacrificed.

Our Fund has set apart a special sum to meet emergency claims of this kind, yet the demands are so great that it will soon be exhausted. We cannot now rely on the profession alone to supplement it largely, for the medical profession, like all other professions, is hit very hard by the war, and has no longer its old resources to draw upon.

What is required is an Emergency Fund large enough to deal adequately with these emergency cases arising directly out of the war, and for this we are driven to appeal to the public as well as to our profession.

We trust that our appeal will meet with a liberal response both from the public and from the medical profession, for unless fresh funds are quickly forthcoming it will be impossible to continue the relief which is so urgently required.—We are, etc.,

JOHN TWEEDY,
President.
SAMUEL WEST,
Honorary Treasurer.
G. NEWTON PITT,
Honorary Secretary.

11, Chandos Street,
Cavendish Square, London, W.,
July 1st.

MEDICAL PRACTITIONERS AND UNCERTIFIED MIDWIVES.

SIR,—I am directed by the President of the General Medical Council and the Chairman of the Central Midwives Board to send you for publication the accompanying copy of a correspondence which has recently taken place between a registered medical practitioner in England and the Chairman of the Central Midwives Board with regard to the conditions under which a medical practitioner may properly co-operate with an uncertified woman, not being a nurse employed by him, in attending a maternity case.—I am, etc.,

G. W. DUNCAN,
Secretary.

Central Midwives Board,
Caxton House, Westminster,
London, S.W., July 3rd.

June 8th, 1916.

Dear Sir,

Do you mind telling me if, in your opinion, the following case is that of "covering an uncertified midwife."

Mrs. ——, who was in practice before the Act, and who has since been crossed off the roll, or, to be strictly accurate, has resigned, still acts as a nurse, and tells everybody who comes to her that she cannot act without a doctor, and sends all the people to me. Am I justified in going to them? The instruction I give is that they are to send for me directly they want me, and in the event of the child being born before I arrive that the placenta is always to be kept for me to see.

As I have been in practice over thirty-five years, and done a good deal of midwifery, I am naturally anxious not to break the law, and sooner than do that I would rather tell Mrs. —— that I cannot go with her, either as a nurse or in any other capacity.

I am sorry to trouble you, but believe you are the Chairman of the Central Midwives Board.

Yours truly,

Littlemead,
Nutley, Uckfield,
June 12th, 1916.

Dear Sir,

In reply to your letter of June 8th, forwarded to me, in such a case as that which you mention, the woman having already been struck off the Midwives' Roll or having resigned:

You must take care that it is clearly understood that any patients whom you attend with Mrs. —— are *your* patients, and not hers, though she may have sent them.

In any dispute on this point the Central Midwives Board always goes on this principle, that the case belongs to the person who has undertaken to attend the confinement, *whenever it occurs* (day or night) *even if normal*. A monthly nurse summons the doctor so that *he* may conduct the delivery.

In many of the disputed cases it has been plain to the Board that this arrangement has not been made, but that the midwife and doctor have agreed that the doctor should *not* be called at night except in case of some abnormality, *or* that he should not be called to deliver *at any time* except in case of some abnormality. In these cases the Board holds that the case belongs to the *woman*, and that the doctor is covering her.

In your case I should *write* your instructions to the midwife, and should keep a copy in case of any dispute.

There is nothing to prevent Mrs. —— from acting as a *monthly nurse* under your orders. *You* are responsible for the cases, and for Mrs. —— nursing of them.

I am glad to help you, and only wish that more practitioners would adopt the course which you have adopted.

Believe me, yours very faithfully,
F. H. CHAMPNEYS.

June 14th, 1916.

Dear Sir,

I am more than grateful to you for your letter and advice. I have written to Mrs. ——, and enclose you a copy.

I wish to carry out the Act both in the spirit as well as the letter, and am naturally anxious not to run any risk myself.

With kind regards,
Yours truly,

June 14th, 1916.

To Mrs. ——,

I have made inquiries, and am quite willing to go with you—

(1) If you act as nurse *only*.
(2) If you look on the patient as *my* patient.
(3) If you send for me *before* the child is born. The only exception to this is where it is born in a hurry before your arrival, or directly after, before you have time to send.
(4) If you cannot keep to these instructions I cannot go with you at all.

THE LIFE-HISTORY OF *ASCARIS LUMBRICOIDES*.

SIR,—Will you allow me space to offer my warm congratulations to Captain F. H. Stewart, I.M.S., upon his work on the above subject (BRITISH MEDICAL JOURNAL, July 1st), the most important medical work which has been done for a long time past? The mode of entry of *Ascaris* has perplexed every one from the beginning of parasitology, because no intermediary host could be found or even suggested, while direct infection seemed unlikely for many reasons, in spite of the alleged result of various experiments. That rats and mice are apparently the intermediary hosts will come as a great surprise to many, and will constitute a valuable addition to medical zoology. But the importance of the find will be immense as regards tropical sanitation. These horrible parasites infest the whole of the tropics—India, China, Africa, and America—besides most temperate climates to a less degree, and I have always thought are often responsible for the physical weakness of millions of town dwellers in these countries. Of course they frequently cause little apparent illness, but every now and then have been known to produce serious results; and their prevalence is so enormous that the sum of the mischief due to them is probably very large. Captain Stewart's paper is as admirably written as it is scientifically important, and adds another disease to the account of rats and mice, and another reason why every one in the tropics should try to reduce these vermin as much as possible as a standing measure of tropical sanitation. His paper is also another proof of the common observation that important discoveries must wait until the proper kind of worker comes along to tackle them. I hope sincerely that, in spite of the war, every facility will be given to Captain Stewart to complete his invaluable work.

It may interest him to know that many years ago, in Bangalore, India, I put out slides containing ova of the human *Ascaris* in the sun on my verandah. The slides were left there for weeks without examination or water until they had become completely desiccated in the hot sunshine. But on examining them after a long period, amounting, so far as I remember, to something like six weeks or more, I was surprised to find that the embryos inside the eggs had fully developed, and were living and struggling as if to escape from the shells. I put them back in the sun after moistening them, but on examining them some weeks later still I found that they were still in the

eggs, but had all ceased to move. I gather, therefore, that the humidity which Captain Stewart refers to is not essential, at least for the human parasites and for their first development.—I am, etc.,

London, W., July 1st. RONALD ROSS.

THE PREPARATION OF CATGUT FOR SURGICAL PURPOSES.

SIR,—It is a pity that there should continue to be uncertainty among surgeons as to the best catgut prepared for operative purposes, considering that the perfection and simplification of the details were given to manufacturing chemists by Lord Lister in 1894, and described by himself in this JOURNAL on January 18th, 1908, p. 125, with a short note on January 23rd, 1909. These and a leading article on April 17th, 1909, are worth frequent study. Under the circumstances it may be worth while to repeat Lister's directions, the observance of which effectually sterilizes the raw catgut used.

The control suggested by Dr. F. J. McCann in the JOURNAL of July 1st, p. 30, might have a good effect if applied to the catgut made as suggested below, for, like himself, "I cannot understand why the market should be flooded with foreign produce, when a little more enterprise on the part of our manufacturers would help to keep the trade within the empire."

Directions for preparing Sulpho-chromic Catgut (BRITISH MEDICAL JOURNAL, *1908, January 18th, p. 125*).

"The preparing liquid must be twenty times the weight of the catgut; so, for 40 grains of catgut, 800 grains of preparing liquid are required. It is made by mixing two liquids, namely, the chromium sulphate liquid and the sublimate liquid.

"The sublimate liquid is corrosive sublimate 2 grains, distilled water 320 grains. The sublimate may be dissolved by heat, but the solution must be used cold.

"The chromium sulphate liquid is prepared thus: Chromic acid 4 grains, distilled water 240 grains. Add to this as much sulphurous acid (*P.B.* solution) as gives a green colour. If more is added the colour becomes blue, which shows that rather too much sulphurous acid has been used. It is well to reserve a few drops of the chromic acid solution to be added after the blue colour has just appeared, and restore it to green. Then enough distilled water is added to bring the green liquid up to 480 grains. Then add the sublimate liquid.

"The catgut is kept twenty-four hours in the preparing liquid, and is then dried on the stretch.

"*N.B.*—It is essential that the CrO_3 and SO_2 solutions be mixed before the $HgCl_2$ solution is added.

"Catgut prepared in this way remains actively antiseptic in its substance for an indefinite period" (as was shown by experiments given in Lord Lister's article). "But while the substance of the catgut is thus not only aseptic but powerfully antiseptic, its dry surface is liable to contamination by contact with septic material, and it is essential that, before being used, it be washed with some trustworthy germicidal liquid. My practice has been to put the catgut, like the instruments, in a 1 to 20 solution of carbolic acid about a quarter of an hour before the operation is begun. Any of the catgut that remains unused may be afterwards kept in a similar solution for any length of time without disadvantage.

"The essential precaution of purifying the surface of the catgut is, I fear, sometimes overlooked, the result being occasional suppuration attributed to defect in the ligature, while it is really the fault of the surgeon."

This catgut can be bought in the shops of any thickness requiring strength and of any thinness required by delicacy.—I am, etc.,

RUSHTON PARKER,
Professor of Surgery in the University of Liverpool, Lieut.-Col., R.A.M.C.(T.).

Liverpool, July 2nd.

THE SOLDIER'S HEART.

SIR,—I have to thank Sir James Barr for the courtesy of his reply to my query as to the method by which he excludes bacterial action from any part in the causation of "soldier's heart." It leaves me, however, with the impression that the exclusion is ill-founded.

Sir James tells us that the usual septic organisms of the mouth and nasopharynx and their effects are well known. I think few will be found to endorse this view. The very word "sepsis" is an acknowledgement of our ignorance of the bacteria involved, while clinical experience is daily opening our eyes to the number and variety of diseases which can be traced to dental (or nasopharyngeal) septic infection.

Sir James "sees much which appears perfectly harmless, even when the breath stinks." This seems to mean that he finds a healthy mouth and patient in presence of a stinking breath, and thereby he seems to me to discredit his claim to give an opinion on dental sepsis. I have never yet found a mouth free from clinical signs of inflammation in presence of stinking breath due to dental sepsis, and I suggest that Sir James Barr, in common with many others, dentists included, does not realize the less gross signs of inflammation in the mouth. If this be so, one may well question his statement that "there are many cases of the 'soldier's heart' without any evidence of sepsis or septic absorption, and the symptoms continue after the dentist has worked his sweet will."

I may be allowed to suggest that even if hyperthyroidism be the immediate cause, this in turn may be due to bacterial causes, possibly originating in dental sepsis. Myocarditis, possibly dependent on the same source, may also be suggested as a possible cause. The excessive fatigue to which the soldier is liable obviously opens the way to more serious results from an infection which the patient has hitherto carried about with him with apparent immunity. Perhaps some degree of "soldier's heart" is more common among civilians than Sir James knows.—I am, etc.,

London, W., July 4th. J. G. TURNER.

VENEREAL DISEASE AND SICKNESS BENEFIT.

SIR,—Your article in the JOURNAL of July 1st raises a very important question for the medical profession and their insured patients. I am doubtful, however, whether the method of dealing with the problem suggested by the Insurance Acts Committee will prove altogether satisfactory. It would be far better, and not really more difficult, to eliminate "misconduct" altogether as a justification for withholding sickness benefit than to set up a special exception in the case of venereal disease. Misconduct is extraordinarily difficult to define. It can rarely be proved to be the cause of disease. It can constantly be suspected. It can hardly ever be disproved. The stigma attaching even to an attempt publicly to deny it is so great that perfectly innocent insured persons silently suffer the injustice of deprivation of sickness benefit rather than contest the action of the approved society in withholding the payment on the flimsiest suspicion. In the few cases in which misconduct can be disproved this can sometimes only be done by aspersing another's morals. Insured persons have been deprived of benefit because the secretary of their approved society has thought that prolapse of the uterus, hydrocele, and enlarged prostate were always due to venereal disease, and that neuritis, gout, and arthritis were always due to drunkenness. It is uncertain whether misconduct means breaking the laws of morality, the laws of health, or the laws of the country. So experienced a member of the medical profession as our respected Chairman of Council, writing of the misconduct rules (p. 29), states that they "preclude any person suffering from an illness due to his own *fault* from receiving sickness benefit." If this were true, a man who caught cold because he forgot to take his umbrella with him on a showery day, might find his benefit refused. Either the misconduct clause should be ruled out by the Commissioners altogether, or misconduct should be defined as a proved breach of the laws of the country. If a man is convicted of burglary, of taking part in a prize-fight, or of being found drunk and incapable, it is unreasonable that he should receive sickness benefit for incapacity incurred in any of these exploits. But short of proved offences of this kind, the whole question of diseases of misconduct is full of obscurity, is an incentive to blackmail, and is a cause of great injustice. While we are about it, cannot we get rid of it altogether?—I am, etc.,

London, W., July 3rd. LAURISTON E. SHAW.

WOMEN MEDICAL STUDENTS AT KING'S COLLEGE, LONDON.

SIR,—I note that in your issue of July 1st Professor Halliburton states "that St. George's Hospital has made a step forward in admitting a limited number of women students to 'their' wards, and that the experiment has proved such a complete success that he is hopeful that other hospitals will follow their example."

Professor Halliburton, however, does not mention the fact, of which he is doubtless aware, that St. Mary's Hospital has already thrown open its doors to women students at the request of the authorities of the London School of Medicine for Women. Since May 1st women students have been admitted to the wards of St. Mary's Hospital for clinical instruction, and at the present time twelve are working there. This number, it is expected, will be largely augmented in October. No request was made for admission of women students to courses of instruction in preliminary or intermediate subjects.

In justice to St. Mary's Hospital Medical School I thought it my duty to place these facts before you.—I am, etc.,

JOHN F. H. BROADBENT,
July 3rd. Dean of St. Mary's Medical School.

*** The facts as to St. Mary's and St. George's Hospital were noted on p. 24 of the same issue of the JOURNAL as contained Professor Halliburton's letter.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates were approved at the examination indicated:

THIRD M.B.—*Part II, Medicine, Pathology, and Therapeutics:* E. H. R. Altounyan, K. B. Bellwood, S. L. Bhatia, H. V. Deakin, E. H. Dendy, W. F. T. Haultain, S. H. M. Johns, V. C. Pennell, J. Rickman, W. G. A. Schüddekopf, B. H. Swift, H. A. Whyte-Venables, R. S. Woods.

UNIVERSITY OF DURHAM.

AT the Convocation held on June 27th the following degrees and diplomas were conferred:

M.D.—T. C. Storey.
M.D. *(for Practitioners of Fifteen Years' Standing)*—J. A. Barnes, H. E. C. K. Murray, M. H. Smith.
M.B.—H. C. Broadhurst, Mary R. Campbell, J. A. Charles, H. G. B. Dove, H. Evers, N. A. Martin, G. N. Metzger, D. O. Richards, W. O. F. Sinclair.
B.S.—H. C. Broadhurst, Mary R. Campbell, J. A. Charles, H. Evers, R. A. Hooper, N. A. Martin, G. N. Metzger, D. O. Richards.
B.HY. AND D.P.H.—J. E. Baker.

The following candidates have been approved at the examinations indicated:

FIRST M.B.—*Elementary Anatomy and Biology, Chemistry and Physics:* *Dorothy Holmes, *H. N. C. Jaffé, *Edith C. M. Jones, *M. Myers, J. E. Basham, W. N. Crowe, E. C. Dagger, S. W. Davidson, E. R. Dingle, Kate Gray, Mary L. Griffiths, G. A. Haydock, Margaret B. Herbst, W. E. D. Hodgson, H. Holtby, L. Hunter, T. H. Kirk, J. J. Laydon, M. A. R. Mansoor, G. McCoull, T. S. Severs, J. Silverston, J. Stonehouse, Kathleen M. W. Watts, A. G. Weston, A. Woodman.
SECOND M.B.—*Anatomy and Physiology:* *P. C. Arnold, *C. N. Armstrong, *E. D. Charles, Dorothy O. S. Blair, W. D. Forrest, E. Girgis, Mary I. A. Grimmer, J. Hotherington, G. Hurrell, L. Levine, R. Sanderson, R. P. Wanless, A. H. Whyte.
THIRD M.B.—*Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology and Elementary Bacteriology.*—*J. Gilmour, *E. G. Anderson, *W. A. Freedman, Mary K. Henegan, W. A. Jaques, Phyllis Marriott, B. Sergeant, W. E. M. Wardill.
* With second-class honours.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—J. H. Allinson, H. Chadwick, R. Chevassut, W. Christopher, R. Colley, W. C. C. Easton, *E. W. Fish, Eva I. Gregory, O. Lapage, R. L. Nowell, F. C. Ormerod, N. H. Perry, [illegible], G. B. Weir.
Forensic Medicine and Toxicology.—G. E. Archer, Alice M. A. Arnold, Mercy D. Barber, W. T. G. Boul, Hilda K. Brade, Frances G. Bullough, C. F. J. Carruthers, Kathleen L. Cass, Ruth E. Conway, J. Heiker, S. Klotz, R. M. P. Martland, J. A. Panton, R. A. Paterson, A. B. Platt, Elizabeth C. Powell, J. Shlosberg, D. M. Sutherland, H. Taylor.
* Awarded distinction in Surgery.

THIRD M.B., CH.B.—*Pharmacology and Therapeutics and Hygiene:* N. Alsdell, T. H. Almond, Ethel Bailey, T. Colley, S. E. Critchley, F. L. Heap, A. N. Kirkham, J. Mills, Kathleen O'Donnell, Harriet R. L. Reid, Norah H. Schuster, L. J. Schwartz, Marie Wardman, F. L. Whincup. *Hygiene:* Mary G. Cardwell, E. Pigott, H. T. Savage, V. T. Smith, G. B. Wadsworth.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have been approved at the examinations indicated:

FIRST M.B., CH.B.—*Bessie M. Davidson, †D. W. Dawson, †V. S. Ewing, †Annie A. Fulton, †A. H. Harkins, *C. N. Little, †Gracie M. M'Rorie, †R. Norrie, †Amy M. Thoms.
SECOND M.B., CH.B.—*Physiology:* Margaret J. M. Cuthbert, Lorna Lennox, Mary R. Mitchell.
THIRD M.B., B.CH.—*Forensic Medicine and Public Health:* Frances Braid, Shiela Bridgeford, Annie R. Campbell, A. Chodak, J. M. Clark, J. C. Coutts, Mary I. S. Cuthbert, Kathleen I. David, J. Ferguson, D. Fisher, W. A. Fraser, J. Irvine, J. Kinnear, A. M M'Gillivray, J. C. M'Gregor, J. K. T. Mills, G. R. Rose, J. Shirlaw, Margaret W. Shirlaw, Dora M. Walker.
SECOND D.P.H.—*Practical Sanitation and Epidemiology and Sanitary Law and Vital Statistics:* A. C. Craighead, D. M. M'Gillivray.
* Inorganic Chemistry. † Organic Chemistry.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE.

THE following degrees in the Faculty of Medicine were conferred at the summer commencements in Trinity Term held on July 1st, 1916.

M.B., B.CH., B.A.O.—Esther V. Adderley, A. A. L. Albertijn, L. Blumberg, C. H. Comerford, Violet M. Deale, R. M. Gordon, Marie A Hadden, P. A. Hall, T. J. Lane, E. Lipman, C. L. M'Donogh, E. O. Marks, C. C. Mecredy, F. J. Murphy, A. H. Price, T. Stanton, H. J. Wright, C. O. J. Young.
D.SC.—W. Caldwell (stip. cond.).
M.D.—Eileen M. Hewitt, T. D. Power.

Medico-Legal.

FORCIBLE FEEDING.

AN echo of the embittered controversies of two years ago was heard in the King's Bench Division on July 3rd, when an action for libel in respect of an article published in the issue of the *Suffragette* of June 12th, 1914, was tried. The plaintiffs were Dr. F. E. Forward, Dr. F. J. W. Sass, and Dr. W. D. Higson, who, at all material times, were medical officers at Holloway Prison. Mr. Gordon Hewart, who appeared for the plaintiffs, said that the organization responsible for the *Suffragette* was the Women's Social and Political Union. The publishers were the Women's Press, and part of the matter complained of was written by Dr. Frank Moxon. The defences of the Women's Press, Mrs. Pankhurst, Mrs. Tuke, Mrs. Fox, and Mrs. Sanders, had been struck out as the defendants had refused to obey an order of the court. Dr. Moxon had originally sought to justify, but had since written a letter in which he withdrew all charges against the plaintiffs. Dr. Moxon was not present; he is now serving with the R.A.M.C. in France. The libel had reference to the fact that a considerable number of women detained in Holloway prison began a hunger strike. The plaintiffs came to the conclusion that these women must be protected against themselves, and that it was their duty, if the women refused food in the ordinary way, to administer it by artificial means. The operation was a simple one of allowing food to enter by gravitation, and not by the use of a pump. Dr. F. E. Forward, in his evidence, said that every prisoner admitted to Holloway was examined, and, according to her condition, was sent into the prison or the hospital. Hunger-striking was very detrimental to health, and in such cases it was a doctor's duty to order artificial feeding. In this the judge, Mr. Justice Darling, concurred. In reply to counsel, witness said that he had never, when forcibly feeding any of these women, administered drugs of a sedative and hypnotic character; the charges made in the *Suffragette* were absolute falsehoods. Dr. Sass and Dr. Higson also denied that there was any truth in the statements of which they complained. The only question left to the jury with reference to the defendants was that of damages, which they assessed at £750, to be divided equally among the three plaintiffs. Messrs. W. H. Smith and Sons, who distributed the paper, were joined as defendants, but the jury found in their favour. It was stated that the Scottish Newspaper Press, which had printed the paper, had apologized.

The Services.

EXCHANGES.

CAPTAIN, R.A.M.C.(T.), M.O. Yeomanry regiment, desires exchange overseas or military hospital home or abroad.—Address, No. 2600, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

IT is announced that Professor Emil von Behring of Marburg has retired from active service owing to the state of his health.

THE Massachusetts State Legislature has appointed a commission to study sickness insurance, and to recommend legislation to be introduced in January, 1917. California has a similar commission at work on the problem. Bills for health insurance have been introduced in the Legislatures of New York and New Jersey.

Obituary.

GEORGE HARRY MELVILLE DUNLOP, M.D., F.R.C.P.E.,

FORMERLY SENIOR PHYSICIAN, ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN.

DURING the last days of June news came from the front that Major Melville Dunlop, R.A.M.C., was suffering from pneumonia, and on July 3rd the sad intelligence reached Edinburgh from No. 6 Red Cross Hospital, Etaples, France, that the illness had ended fatally on that day. Meantime, Mrs. Melville Dunlop had been able to reach her husband's bedside, and was with him when he passed away. Dr. Melville Dunlop's face and figure were well known in Edinburgh streets till a little more than twelve months ago, when, as Major in the Royal Army Corps, he left for France; with the exception of a short week's leave quite recently, he had been at his post there ever since. He was in charge of the medical side of a general hospital, and was engaged alongside of his friend Professor Alexis Thomson of Edinburgh, who was doing surgical work there.

George Harry Melville Dunlop was born in Edinburgh fifty-seven years ago; he was educated at the Collegiate School and at the University, where he graduated M.B., C.M. in 1880, and proceeded to the degree of M.D. in 1884. He became M.R.C.P. in 1885, and F.R.C.P. in 1887. Among the junior appointments he held were those of house-surgeon at Leith Hospital and in the Royal Edinburgh Hospital for Sick Children, of clinical assistant in the skin wards, and of clinical assistant to the gynaecological department in the Edinburgh Royal Infirmary; but his life-work was centred in the Royal Edinburgh Hospital for Sick Children. He was elected an extra physician of that institution in 1886, and twelve years later he was advanced to the post of ordinary physician. This appointment he held for the maximum period of fifteen years, retiring in 1913. During these years of his hospital appointment Dr. Melville Dunlop also lectured first on diseases of children in the Extra-mural Medical School, and then, later, he gave clinical instruction in the hospital, and later still held the post of lecturer on diseases of children in the University of Edinburgh. He served for many years as an examiner in medicine and diseases of children for the Licence and for the Membership of the Royal College of Physicians of Edinburgh. Among other positions filled by him were those of physician to the Royal Blind Asylum and to the Royal Public Dispensary, Edinburgh. Dr. Dunlop's retirement, comparatively early in life, from his hospital duties set him free to render such help as his country required of him when the war broke out, and this help he very readily and very heartily gave. He has died whilst striving to bring to others the alleviations of suffering which the medical art offers, especially when administered by kindly and skilled hands. The measure in which his patients in Edinburgh missed his professional services (which he always gave as friend as well as physician) is that in which his work among the soldiers in France was accepted and appreciated; there was no more popular doctor than Dr. Melville Dunlop, and, as was to be expected, he was always the children's favourite.

Dr. Melville Dunlop was a member of several medical societies, including the Edinburgh Medico-Chirurgical and Obstetrical and the Harveian; and he made a number of notable contributions to the science of medicine. He wrote mainly on children's diseases, and his articles on chloroma, on cerebral tuberculous tumours, on syphilitic synovitis, on pneumonia, and on constipation in children are all worthy of study. Much earlier (1893) he contributed notes of six cases of myxoedema treated by thyroid extract, and his latest article was that on diseases of the colon, completed since the war began and published a few weeks ago in the third volume of the new edition of the *Encyclopaedia Medica*.

Dr. Melville Dunlop was eminently a friendly man, kindly, courteous, sympathetic, careful above the common of the name and reputation of a brother practitioner, and absolutely straight in all his dealings with his fellow men. He loved the open air too, and was an expert in fishing and shooting and curling and golfing. He was a strong supporter of the Church of Scotland, and whilst he was a Scotsman to the backbone, he had travelled and took wide views and had interests which found no narrow national limits. An appreciative writer in an Edinburgh newspaper describes Melville Dunlop as "a true friend, a bright companion, and a trusted physician," and whilst he was all these he was likewise a skilled specialist in pediatrics and the accomplished author of valuable articles couched in graceful English.

One of his former colleagues writes: He was a ready and inspiring speaker, and a popular and conscientious teacher in the wards. Although his contributions to medical literature were not numerous (he was often far too busy in other ways to write much) they were interesting and valuable, and they have been widely appreciated and quoted. In his hospital relations Dunlop was one of the best of colleagues—kind, unselfish, and "straight" in the last degree—and the staff to which he till lately belonged owed very much of its hearty good fellowship to the influence of his generous as well as genial personality. He was always a warm friend to what his heart and judgement approved, and an out-and-out opponent of what he held unworthy. His influence is one the loss of which cannot fail to be felt in the Edinburgh Medical School. Of his personal character and personal charm I need not write, but it was indeed no wonder he had so many friends.

DR. EVAN NAUNTON DAVIES, J.P., of Gadair-Wen, Pontyclun, Glamorganshire, died on April 26th, aged 60. He was born at Cymmer in the Rhondda Valley in February, 1856, and was the son of Dr. Henry Naunton Davies, Alderman and J.P. for the county of Glamorgan. He was educated at Cardiff and Taunton College, and studied for the profession at Guy's Hospital, which he entered in October, 1875. He took the diploma of L.S.A. in 1879, and that of M.R.C.S. in 1881. After assisting his father for two years he married and settled down in Penygraig, Rhondda Valley, in the district where his grandfather, Dr. Evan Davies, had practised before him. He retired from active practice in 1899, and a few years later removed to the country residence where he died. Dr. Davies was an active member of the British Medical Association, and in 1907 was President of the South Wales and Monmouthshire Branch; he was also a member of the Cardiff Medical Society. He took a keen interest in the Porth Cottage Hospital, was J.P. for the county of Glamorgan, for a few years was a member of the Glamorgan County Council, and served for a longer period on the Pontypridd Board of Guardians. He was buried on May 1st at Llantrisant Parish Church. He leaves a widow and three daughters.

Medical News.

AT the meeting of the Society for the Study of Inebriety, to be held at 4 p.m., on Tuesday next, at the house of the Medical Society of London, after a short presidential address by Sir W. J. Collins, Lord D'Abernon will speak on "Some aspects of the drink problem."

THE Harben lectures will be delivered this year at the Royal Institute of Public Health, 37, Russell Square, by Dr. A. C. Houston, Director of Water Examinations, Metropolitan Water Board, on Thursdays, July 13th, 20th, and 27th, at 5 p.m. The subject is "Rivers as sources of water supply."

A DISCUSSION on warfare injuries and neuroses of otological interest will be held by the section of otology of the Royal Society of Medicine on February 16th, 1917. Early notice is given because it is hoped that reports of cases will be sent, not later than November 30th, to Mr. E. D. D. Davis, F.R.C.S., 81, Harley Street, W., and that later on a further report on the progress of the cases, or pathological notes in any fatal case, may be sent, as it is intended to classify the reports in order to facilitate discussion.

THE Lady Priestley memorial lecture before the National Health Society was delivered by the Duchess of Marlborough on June 29th, the title of the address being "Saving the Children." After reviewing the causes of infant mortality, dwelling especially on the influence of the maternal health on the children, and of the effect of venereal diseases and alcoholism, the lecturer discussed possible remedies, and referred to the importance of ante-

natal care, longer absence of the mother from work, proper training and remuneration of midwives, the importance of breast-feeding, and the supply of pure cow's milk. The need for education of the girl, the adolescent, and the mother in personal hygiene, mothercraft, and domestic science was emphasized. Though some 750 infant welfare centres had been established there was great need for more, and for more health visitors. Finally, the importance of sanitation, adequate housing, and the prevention of overcrowding was discussed, and the development of garden suburbs, and cheap transit urged.

IN spite of a westerly wind people in Rouen on Friday, June 30th, knew from the sound of the guns that a vigorous bombardment was going on at the front, the nearest point of which must be at a distance of about ninety miles. We have not yet read of the guns being heard on this occasion in the south-east of England, parts of which are about the same distance from the front, but they have been heard on many others. In a paper on the audibility of the gun-firing in Flanders over the south-east of England September 1914–April 1916, read by Mr. Miller Christy and Mr. W. Marriott before the Royal Meteorological Society on June 21st, it was stated that the sound varied considerably; sometimes three to twelve shots a minute, each quite loud and distinct, were heard. They were believed to proceed from the bombardment by ships of the German positions on the Belgian coast. The sounds of firing have, as a rule, been more rapid, less distinct, and apparently more distant, due probably to fighting around Ypres, Dixmude, or Arras. The sound was faint, though unmistakable, from four to five shots up to one hundred a minute having been counted. This gun firing has been heard at one time or another over the counties of Essex, London, Kent, Surrey, and Sussex, the most distant place being about 150 miles from Ypres; it was heard usually when light surface winds prevailed, mostly between north and east, over the neighbourhood of the North Sea.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Articulate, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocre, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

INCOME TAX inquires whether "the Income Tax Commissioners can claim tax on earned incomes at the rate of 1s. 6d. in the £ *plus* 20 per cent. for the whole of the financial year 1915–16."

*** The Finance (No. 2) Act, 1915, increased the rates by 40 per cent. for the last six months of the financial year, it being provided that this increase should take effect as a rise of 20 per cent. for the whole year. The minimum rate of duty was 1s. 6d. in the £, and the corresponding increased rate is therefore 1s. 9d. in the £. In most cases this will operate to render an additional 20 per cent. of the January tax payable in July, but in those cases in which the total income of the person assessed was less than £600 the reduction in the scale of abatements effected by the same Act—that is, from £160 to £120, and from £150 or £120 to £100—will also increase the amount payable in July, and cause it to exceed one-fifth of the amount payable in January. Our correspondent does not give sufficient details to enable his point to be dealt with except in general terms.

W. P. has purchased a small practice, the consideration to be given by him being three annual payments of £100 free of interest. Can he make any deduction of these payments in making up his income tax return?

*** No. So far as our correspondent is concerned the payments represent further capital laid out in the purchase of a practice, and not expenses incurred in the conduct of that practice.

ANSWERS.

F. P. H. B.—In the last edition of Tomes's *Manual of Dental Anatomy*, edited by Dr. Marett Tims and Mr. Hopewell-Smith, it is stated that though the lower molars are commonly implanted by two roots, yet the groove in the median line of each root may be deepened so that four roots are produced; or this may happen with one root only, so that a three rooted tooth is the result.

HARVEST BUGS.

M.O.H. writes in reply to "M.D.": I have had a good deal of experience of these bites, both personally and in regard to members of my family. I have found that the best treatment was the application of a minute drop of pure carbolic acid to the centre of the swelling. As a rule one application is enough, but in some cases a further treatment may be necessary. In the West of England these bumps are called "heat bumps" among the country folk, and many a poor child is dosed with nauseous concoctions under the delusion that his "blood is out of order."

LETTERS, NOTES, ETC.

THE "MEDICAL DIRECTORY."

MESSRS. J. AND A. CHURCHILL, publishers of the *Medical Directory*, appeal to members of the profession to return the annual circular of inquiry posted on July 4th as promptly as possible, since the difficulty in obtaining labour is embarrassing them as well as all other persons concerned with printing and publishing. Messrs. Churchill express the hope that medical men serving in the navy or army have arranged for the circular to be forwarded to them.

SCHOOL CHILDREN AND THEIR DISEASES.

J. C. MCWALTER, M.D., R.A.M.C.(T.) (Dublin), writes: The note on the inspection of school children in Boston (June 17th, p. 848) states that of 49,777 pupils only 24 had tuberculous pulmonary disease. This proportion—less than 1 in 2,000—seems incredibly small. I happen to have examined, just at the same time, a number of army school children. These are undoubtedly better fed and better cared for than the average child of the same age, but the proportion of tuberculous I found was between 1 in 100 and 1 in 200. On the other hand, the proportion of cardiac cases which I discovered was about one-third of that shown by the Boston figures. The proportion of the Boston children classed as "defective" is about 70 per cent. My figures showed a proportion very much the same if the presence of one or two carious teeth constituted a "defect." A more lenient standard of perfection would bring the "defectives" down to under 10 per cent.

VALUE OF TUBERCULIN TREATMENT.

DR. HAROLD DOWNES (Ilminster) writes: The point raised by "Medicus" as to whether the discontinuance of tuberculin was a leading factor in the cure of his laryngeal symptoms (on which I beg leave to congratulate him) is one which I will not attempt to answer, although I think most specialists in tuberculosis will agree that they have observed great benefit from the use of tuberculin, especially in laryngeal cases. I would like, however, to emphasize the extreme value of complete rest of the voice in these cases, a line of treatment not sufficiently recognized. I would strongly recommend the ordinary perforated zinc inhaler as an auxiliary. Let this be worn while the patient is in company with others and only laid aside when at meals or alone. A few drops of any essential oil are used, but the kind of inhalant is immaterial. Local applications to the larynx, when skilfully applied, are of great use.

MEDICAL HERALDRY.

DR. W. FINGLAND (Liverpool) writes: A short time ago (BRITISH MEDICAL JOURNAL, January 1st, 1916, p. 24) you presented your readers with an interesting article on medical heraldry. In the *Bibliophile*, vol. i, March, 1908, Dr. George C. Peachey, in his paper on "History in bookplates," figures some further examples of the armorials of medical men, together with some curious biographical information relating thereto. They include the names of:

Thomas Bradford of the city of Durham, Doctor of physick.

Sir John Hill, Physician, Author, Playwright and Editor, of Dorham Place, Bucks.

William Henry Fitton, M.D., who by marrying a lady of means was able to retire from medical practise and devote himself to geological research.

Sylvester Douglas, Lord Glenbervie, the son of a country apothecary, one of the few members of the medical profession who have been raised to the peerage.

Benjamin Bates, M.D., of Little Missenden, Bucks, chiefly remarkable as being the last survivor of the so-called "Medmenham Monks."

Dr. Caius, the co-founder of Gonville and Caius College, Cambridge, as a charge in the arms granted to him in 1561 has, "on a square marble stone vert, *two serpents* erect, their tails nowed together azure."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

An Address

ON

SOME OF THE PRINCIPLES AND PROBLEMS RELATED TO THE TREATMENT OF GUNSHOT FRACTURES.

DELIVERED AT THE QUEEN ALEXANDRA MILITARY HOSPITAL, GROSVENOR ROAD, LONDON, ON MAY 26TH, 1916.

BY

HEY GROVES, M.S., F.R.C.S.,

SURGEON TO THE BRISTOL GENERAL HOSPITAL (LATE MAJOR R.A.M.C., IN CHARGE OF A SURGICAL DIVISION); HUNTERIAN PROFESSOR 1914.

INTRODUCTION.

AFTER nearly two years of military surgery, during the whole of which time I have been especially interested in gunshot fractures, the feelings which are uppermost in my mind are those of interest and hope in regard to a difficult problem, rather than complacent satisfaction about a fully accomplished task.

For many years the vexed questions of fracture treatment have absorbed my attention, and in order to satisfy myself about fundamental principles I had for some time been carrying on experimental work concurrently with clinical practice.

Now for nearly a year I have been placed in the fortunate position of having the control of hundreds of fracture cases in a large general hospital, and by the courtesy of the authorities and of my colleagues I have been able to see much of the work done at other large hospitals in the East. During the greater part of this time I was entrusted with the founding and administration of a central splint factory which brought me into very close touch with a great number of medical officers, and the various conditions under which military surgical work has to be undertaken.

In many ways our conditions of work were ideal for progress in knowledge; we had many men and many minds constantly in intercourse with one another, and we had a large workshop or factory on the premises of the hospital, freely open to all military medical officers, so that the treatment of cases and the manufacture of apparatus went on side by side, the latter being conditioned by the former.

I venture to think that this simple, efficacious, and economical plan might well be adopted in this country, so that in every city where there are military hospitals there should be one or more workshops where all fracture apparatus can be made according to the requirements of the staff, so that every encouragement should be given in the way of the trying of new ideas.

Because, after all, the treatment of severe gunshot wounds under modern conditions is a new problem, and it must be met by new devices. Not that gunshot fractures are a new thing, but since the last great European war we have attained fresh ideals of aseptic surgery, and we have a fresh standard set us by *x*-ray photography. We realize at once that limbs can be saved which in 1870 would have been amputated; and as we can see shattered bones at every stage in the progress of the case, we cannot allow gross malunion to occur without an attempt not only to save the limb, but to preserve its form and function.

It would be unjust to suggest that the attitude of the authorities is opposed to research and advancement in the Army Medical Corps. The generous provision of pathological laboratories gives ample evidence that they wish to advance knowledge even in its more theoretical and less utilitarian aspects. But it is not sufficiently realized how in matters of everyday surgical practice—for example, the treatment of fractures—there is scope also for research and advance.

These introductory remarks are offered as explanation or apology (if apology is needed) for introducing to you so many new types of splints and other fracture appliances. Every pattern has been worked out according to the demands of experience, but I am fully conscious of the fact that finality has not yet been reached, and that in every direction improvements are possible both in construction and still more in application.

I do not propose to weary you with any detailed description of these various splints, as this has recently appeared elsewhere,[1] and as I would prefer to demonstrate the apparatus individually to any who are specially interested. But I would propose to discuss certain fundamental principles which seem to me to underlie the whole subject, and to devote special attention to what we may regard as problems not yet wholly solved.

THE PROBLEMS OF WOUND TREATMENT.

It has been well said that every severe case of gunshot fracture presents two stages: in the first there is a wound complicated by a fracture, and in the second there is a fracture complicated by a wound. Whilst it is of cardinal importance to observe that at no stage can either wound or fracture be neglected, it is nevertheless true that the infected wound does claim first attention, and that until it has been restored to a healthy and healing condition it is useless to complete the restitution of the bone form. From the earliest possible moment and until bone union is firm the limb must be immobilized and placed in such a position that the wound can be frequently dressed without moving it, or at any rate without changing the relative position of the bone fragments. The object of this, in the first place, is to prevent pain and further injury to the soft parts by the ragged fragments of bone. When bone healing takes place the immobilization is necessary to secure proper form and union.

Having secured, then, immobilization of the limb, we have to consider very briefly the main points to be observed in the treatment of the wound.

In the early period—that is, within forty-eight hours of the injury—the ideal to be followed would be that every wound, except the clean through-and-through bullet wound, should be disinfected by excision and the removal of foreign bodies. At a period of a week or ten days after the injury disinfection of wounds seems hopeless, and a selective method must be adopted, leaving those alone in which infection is quiescent and opening up those only in which it is active. It is easy to state this principle, but it is a matter of some difficulty to carry it out correctly. There is no doubt that a ragged shell wound with a retained missile must be opened up early and freely, and equally that clean perforating wounds should be left alone; but there is a large class intermediate between these which gives trouble and anxiety. There has been a bullet wound, the missile is retained and lies some distance from its point of entry. To open up the whole wound track would involve a very large incision and the exposure of fragments of bone to fresh infection.

A great many such cases do very well without any incision, but sometimes disaster may attend upon temporization. I give two examples of the latter:

One was a man with a small bullet wound in front of the thigh, four inches above the knee, a comminuted fracture of the femur, and retention of the bullet which lay behind the fracture in the middle of the thigh. For a fortnight he seemed to be doing well, except for an irregular temperature. Then a swelling occurred in the thigh, and this on incision proved to be a large very foul abscess, caused by the *Staphylococcus aureus*. Subsequently he had a secondary haemorrhage, and died of septicaemia in spite of amputation.

The other had had a shell wound through the middle of the thigh, and the fragment of shell had been already removed, but the wound of entry was ragged and unhealthy. A drainage tube was inserted into the latter, but in spite of this the whole thigh became infected, and had to be opened posteriorly by incision, which extended from the knee to the buttock. I am glad to say that he eventually made a good recovery, but it would clearly have been much better to have opened up the unhealthy wound at first.

The only safe rule to pursue would seem to be to open up all cases in which there is any doubt. An irregular temperature, local tenderness, a rising leucocyte count, and an infection by the streptococcus, *B. pyocyaneus*, coliform or gas-producing bacteria, are all facts which require immediate operation.

As to the method of operation, it can only be said that nothing is really satisfactory except laying open the whole track of the wound down to the bone, and doing so in such a manner as to leave it widely gaping, so as to be independent of tubes or wicks for drainage. In the thigh the ideal situation for drainage is between the vastus externus

and the biceps, and by a partial transverse incision of both these muscles a wound is formed which by its position and its tendency to be kept open by muscular contraction is self-draining. As to the manner of dressing, it seems to me that loose gauze packing, with the addition, it may be, of salt bags or tablets, is best, and of tubes for irrigation where these may be necessary. As far as possible, deep pockets should be opened up so as to form shallow saucers, but this is not always possible, especially on the inner side of the thigh or in any situation where lie the great vessels or nerves. If a deep pocket has to be left, very special care must be taken in drainage. If a tube only is left, then a troublesome sinus results, whereas gauze packing to keep the cavity open is painful and difficult. A great help in this case may be found in the use of a special plugging instrument which I believe was invented many years ago for packing the uterus. It consists of a metal tube and a stylet terminating in a Y-shaped fork, and can easily be improvised. The tube is inserted at the bottom of the cavity to be packed and the r bbon gauze is pushed in by the stylet, the shape of the point always advancing the gauze as it is moved up and down in the tube.

I express no opinion about the relative advantages of various antiseptic or lymphagogic medicaments because most of my experience has been in the treatment of cases ten days after injury, at which time disinfectant treatment is almost hopeless. At this stage it seems to me that mechanical drainage and lavage must be the all-important elements of treatment by which the tissues can disinfect themselves.

The Question of Amputation.

The natural inclination of every modern surgeon at the beginning of the present campaign must have been to save every wounded limb, and never to amputate until forced to do so by the threat of death either of the wounded patient or his wounded member. But, laudable as is this inclination, it may be carried too far, and I would direct this criticism against the practice of the only surgeon with whose methods I am really intimate—namely, myself. On looking back over the surgical experience of the last two years nothing gives me more regret than the thought of how, in attempting to save shattered limbs, lives have been lost which might have been saved by timely amputation.

I believe that this regret will not be vain, because, in looking over my notes, it is not difficult to put forward certain rules for future guidance which will make mistakes fewer in the future. First, then, as to the facts. I exclude cases which have been so desperate in the extent of the wound and the degree of infection that death would probably have taken place in any case, whether amputation had been done or not. Of the remainder, when death resulted from gunshot fractures, which might have been prevented by timely amputation, all my cases fall under two anatomical and four pathological categories. Anatomically they have been injuries of the femur and the humerus; pathologically they have been (1) concurrent infection of the knee-joint; (2) secondary haemorrhage; (3) severely infected wounds of the thigh which could not be fully laid open; (4) loss of a large part of the femur associated with severe infection.

The fallacy which leads to disaster in all these cases in my experience has been the idea that it was safe to delay in the hope of saving the limb, reserving the idea of amputation, then death occurs before this can be done, or soon afterwards. Apparently this factor—that is, the danger of delay—is far greater in the case of septic fractures above the elbow and knee than those below; at any rate, I cannot recall any case of the latter in which amputation was postponed too late to save life.

It is not necessary to say anything further about the first two categories in the above list, but some qualifying remarks are called for about the others.

Sometimes a case is seen with a very septic lacerated wound going right through the thigh, so that the marvel is that the great vessels have not been severed. It may be impossible to open up such a wound without almost cutting the leg off.

For example, such a case came under my care in August, 1915. The wound was foul and sloughing, and passed from before backwards through the thigh at the junction of the middle and lower thirds. The femur was much comminuted. The patient was very ill, suffering from septic absorption and dysentery. Under an anaesthetic the wound was cleaned as much as possible, and as one could pass four fingers right through the thigh, drainage was very free. Continuous irrigation was carried out, but he died four days later.

In such a case the wound could only have been laid open by cutting right through all the muscles on the inner aspect of the thigh, which would have left the limb attached only by the soft tissues on the outer side of the leg. Such a procedure would really have been the first stage of an amputation, and if rapid improvement had not followed, then the complete removal could have been effected after a few days.

I think that this should be our rule in such desperate cases, to open up the wound at all costs by a transverse incision, and to amputate later if necessary. This gets over the difficulty and danger of a high amputation performed in a condition of sepsis and collapse. By doing it in two stages, as it were, both the shock and the sepsis are diminished, and there is a faint hope that when the first stage has been done and all the infected tissue excised, recovery may occur. The last category which I have mentioned is that in which a great part of the femur has been lost, either by the original gunshot or by subsequent operations. We have to consider various circumstances before deciding whether to retain the limb or not. If four, six, or more inches of the bone are lost; if the ends of the retained bone are septic, or devitalized—that is, appear to be bare in the wound—and if there are manifest signs of septic absorption, then surely it is better to remove the limb without delay, otherwise the future of such a case promises nothing better than a leg six inches shorter than its fellow, with a flail-like thigh, unless bone-grafting can be done. On the other hand, if any considerable loss of bone has been accompanied by rapid healing of the wounds, and the patient has retained his general health and vigour, it is always worth waiting for a future bone graft.

The Treatment of Foreign Bodies.

On this subject I would only point out two types of mistake which are often made. They represent the opposite extremes of practice. The commonest is the quite unnecessary seeking for inoffensive bullets, simply because these may be shown by an *x*-ray plate. In relation to a fracture, it is far better not to perform any operation which necessitates extensive opening up of the tissues simply to remove a bullet unless there is clear evidence that the latter is keeping up septic infection. In other words, the removal of a bullet should only be undertaken as a part of the cleaning of an infected wound, and not merely on account of the presence of a foreign body.

The other mistake is of a much more serious kind. It is the postponement of the removal of shell fragments until these can be located by the *x* rays. If I had not seen so many instances of this, it might be regarded as unlikely of occurrence. A man has a small, obviously infected wound caused by a shell fragment, with no exit. He is sent from the clearing station to ship, and thence to a general hospital for localization of the foreign body. By the time that this is done the most acute, and often fatal, sepsis has been set up. In such cases it is usually only necessary to enlarge the entry wound and insert the finger in order to find the shell fragment, with its fatal accompaniment of septic cloth taken in on its transit.

I have before me a piece of shell an inch and a half square and a third of an inch thick which I removed from a man's buttock seven days after his wound. He died from infection by a colon bacillus. I have seen a man who had travelled for six days with the time fuse of a shell in his shoulder-joint; he died of tetanus a few days after its removal.

The *x* rays should be our servant and not our master in the treatment of gunshot wounds. Septic shell wounds ought to be opened up without a moment's delay, and if metal fragments are present as an important element in causing the sepsis, they are easily traced.

On the other hand, because the *x* ray shows us a bullet, we ought not to open up the tissues of a fractured limb unless for the primary draining of a septic wound.

The Treatment of the Bone Fragments.

When in the early stages of the case the wound is opened up in order to provide drainage, or to remove

infected foreign bodies, there are encountered the shattered fragments of the bone, both main pieces of the shaft and many separate pieces. These ought to be treated with the greatest care, and never removed unless there is clear evidence of loss of vitality. Every bone fragment is a potential source of new bone growth. It has been proved both experimentally and clinically that comminuted fractures unite more quickly and more firmly than those in which there are only two fragments. But, on the other hand, a bone fragment is only a source of new bone when it is possessed of a vascular supply. If, therefore, a fragment of bone lies quite loose from all soft parts in a septic wound it is better to remove it. But generally it cannot be demonstrated that a splinter of bone is quite separated from its bed, and then it certainly ought to be left.

These remarks apply only to fragments of the shaft of the long bones. In the case of the articular ends of the bones the matter is quite different. In the shaft our ultimate aim is to restore strength, but near the joints the aim should be mobility, and if the joint is affected the bone fragments must be freely removed. Especially is this the case in the shoulder, elbow, wrist, and ankle. In the knee the problem is more complicated because both strength and mobility are necessary, and it is outside the scope of the present article to discuss this most difficult subject.

But to return to the question of a shattered shaft. If it is important to preserve the small fragments in their vascular bed, much more is it essential to take care of the main pieces of the shaft. Very often a free exposure of the fracture is made, one or other ends will appear to be bare—that is, denuded of its periosteum and soft tissues. But on this account such bare bone should not be cut off as if it was dead. It has its own vascular supply, which can be demonstrated by boring a hole into the bare bone, and noting how quickly this will bleed.

This leads to a most important point. In the early stages of treatment I would strongly urge that the less that is done to the broken shaft of the bone and its fragments the better. But later on, when the wound has been freely opened and is granulating healthily, pieces of bare bone may be seen in its depths. This is very frequent in wounds of the tibia, because of the superficial position of the bone. But it also occurs with any long bone if the overlying wound has been opened sufficiently freely. In such conditions, directly infection is over the repair may be greatly hastened by a simple procedure, which I have often carried out both for the femur and the tibia without an anaesthetic. The bare piece of bone is drilled by a ⅛-inch twist drill in a multiplying brace. Each hole is continued until it begins to bleed. Then within a day or two it will be noticed that each such drill hole is the seat of a small button of granulation, and before very long the whole bare area of bone will be replaced by bone granulation tissue or pro-callus.

The Relation between Treatment of the Wound and Treatment of the Fracture.

When I began my work with gunshot fractures I was greatly impressed with the idea that the treatment of the wound and that of the fracture ought always to go on side by side and at the same time, but I am now inclined to modify this to some extent—in the case, that is to say, of fractures associated with very extensive and severely infected wounds. In these cases my present feeling is that the only treatment required for the fracture is that of immobilization with just sufficient extension to secure this until the wound has become healthy. If angulation of the fractured bone occurs in such a way as to bring the fragments close to the surface of the wound, this ought to be maintained or even increased. It greatly shortens the cleaning of the wound and facilitates the drilling of any bare bone that may be present. When nothing but granulation tissue can be seen in the wound, then, and not till then, will the process of bone repair have reached a stage when the relations of the fragments to one another is of any moment.

Two other facts favour this suggestion, and one militates against it. These will now be considered.

First, there is advantage in delaying full extension of the limb during the existence of infection and inflammation in the soft tissues. This is because extension involves tension, and the less tension there is in the tissues, the easier the drainage and the better the natural resistance of the soft parts against inflammation.

Then, again, it must be admitted that full and adequate extension can only be applied to a limb for a limited time—possibly six or eight weeks. Now, it is quite clear that if we have only a period of eight weeks during which full and adequate extension can be kept up, this ought to be applied at that period when union of the bone is taking place.

In some cases the cleaning up of the wound occupies several weeks, and extension during this time is almost wasted, and then has to be relaxed long before the bone union is firm.

Against this policy of delaying full extension it may be urged that in the period of delay there must occur great contraction of the muscles and fibrous tissue, which will make it much more difficult to restore the position of the bones than if this restoration had been undertaken in the first place. This is a very weighty argument, and it can only be set aside by two considerations: First, that it is not proposed to delay full extension after cleaning of the deep wound has taken place, and during the period of acute inflammation very little fibrous tissue will be laid down; and the second is that by means of steady weight traction applied generally by means of a transfixion pin we have so efficient a means of extension that there need be no fear that it will be inadequate even if delayed, provided, of course, that it is not delayed after bone union has begun.

The Problem of Secondary Displacement.

If a broken bone is allowed to unite with a certain amount of angulation and overlapping or lateral displacement, this union will be by a bridge of callus, and for a very long period after its formation this callus is very feebly ossified, as can be demonstrated by the very unsubstantial shadow produced by the *x* rays. At any time during this period, the bone so united, if subjected to much muscular traction or to the body weight, will bend, and the original displacement will become much more pronounced.

This secondary displacement is common only in the case of the femur, because it is in the thigh only that the forces necessary for its production are present. But in this bone the possibility of secondary displacement is a matter of very great importance, which is not sufficiently recognized. Its importance lies in the fact that any restitution of form in a broken femur which is short of perfect at the time will become a source of serious deformity later on. One often hears and reads of cases of fractured femur so put up that there is less than 1 in. shortening. In the great majority of such, this shortening is not due to an actual loss of bone, but to the fact that the overlapping of the fragments has never been wholly reduced. One can predict with some certainty in such cases that this initial error will later on be greatly increased by further overlapping and by angulation. In other words, if we are content with any method which begins by allowing an inch shortening, we must be prepared to find that the final result is gross malunion, with several inches of error. This applies specially to septic fractures, for although I am aware that ultimately sepsis which has been overcome will produce an excess of callus, yet unfortunately in its early stages this callus is weak and readily yields to displacing forces.

The practical deduction from this consideration of secondary displacement of the fractured femur is that when we undertake its primary reduction we must do so as fully and accurately as possible, knowing that the final result is always likely to be less perfect than the initial.

The Principle of Axial Extension.

It is so generally admitted by all authorities that extension in the long axis of the limb is the fundamental principle in the treatment of septic gunshot fractures that it is not necessary to consider the arguments for this practice. Apart from operative fixation, indeed, it is the only principle which has been seriously advocated for the reduction of fractures which show initial displacement. The only diversity of opinion is as to the method by which extension should be applied and maintained.

In order to put the matter as simply as possible, and to avoid obscuring the issue by details, it may be stated that

there are two main views. According to the one which dominated practice long ago, before *x* rays were known, it was only necessary to pull the limb down to its full length and hold it there by a splint or retentive apparatus until union was complete. According to the other, which, although practised before radiography was invented, nevertheless owes its present position chiefly to the demonstration of its results by the *x* rays, reduction ought to be by the constant but gradual action of a weight or spring acting on the axis of the limb, and this extension force should continue its action until union is firm.

The first method is that of manual extension, followed by a retentive apparatus, and the second is that of constant extension, the joints of the limbs being left free for movements. In order to narrow down the present discussion, it is only necessary to consider the Thomas's knee splint as an example of the first, and the weight extension of the leg, slung in a cradle, of the second in the treatment of a fracture of the femur.

Thomas's Knee Splint.

The limb is passed through the padded metal ring, which takes its purchase upon the tuber ischii. The leg, to which adhesive plaster is attached, is pulled upon and the extension bands are tied to the bottom of the splint.

By this means, which can often be applied without an anaesthetic, it is claimed that the displaced femur is put into correct position and kept there until union takes place. This, indeed, is nothing more nor less than the claim of the surgeon of the old days, before radiography, that he could by a single manipulation "set the fracture" and by a simple apparatus keep it there until union has occurred.

If I doubt whether, when used for a gunshot fracture of the femur in an adult, the Thomas's splint makes good this claim, it is on three grounds. The first will only appeal to those who have been accustomed to operative treatment of fractures. But I would ask such to recall the common experience of even a recent simple fracture of the femur exposed under full surgical anaesthesia. Is it the case that by a single act of traction from the foot the bone readily falls into good position? Quite the reverse. It is usually a most difficult and strenuous task to replace the bone in full length and alignment even when guided by the hand and eye. Is it likely, then, that the same manipulation can effect this result so easily when the bone lies buried and inaccessible in the soft parts?

My second reason for doubt is that, though I have recently seen a fair number of cases treated by this splint, I have never yet seen one in which gross displacement had been corrected by it. On the other hand, in the great majority this displacement was unreduced.

My third reason is that those who commend its use either do not give any statement as to the length of bone attained by it, or else make use of such expressions as: "In the presence of free suppuration, half to one inch shortening may be regarded as the average."[2]

A further reason for thinking that satisfactory restitution of form does not always result from the use of the splint is to be found in the fact that so many have added to it some device by which a more efficient extension may be obtained. For example, Wallace and Mayberry have added a screw winch at the lower end by which the limb can be further extended. And Major Hull depicts in his book on *Military Surgery* (Fig. 9, p. 65) an arrangement by which an elastic band ties the lower end of the splint to a pole fixed below the bed, so that the fixed extension of the original splint may be supplemented by a constant elastic traction. (This is, of course, to adopt the principle of a Hodgen's splint.)

If there is reason to doubt whether the original traction on the leg accurately "sets" the broken femur, still more is it open to question whether such a correct position can be maintained for the six, eight, or twelve weeks occupied in firm union of the bone. It only needs a little slipping of the adhesive plaster, a little stretching of the adhesive bands, a little giving on the part of the soft tissues over the tuber ischii, to allow the powerful thigh muscles still further to drag the bone fragments out of position.

And when used for a gunshot fracture with a large wound, the leg has to be raised every day for purpose of dressing, and this movement alters the relative position of the femur to the tuber ischii, and therefore modifies the extension every time. That a hard ring round the thigh is an uncomfortable device for a tender and inflamed leg would seem obvious, and it is very difficult to keep it from becoming soiled either by faeces or by wound discharges. If it is once soiled it cannot be replaced without taking off the splint, and this, too, must gravely imperil the position of the fractured bone. In this connexion, too, it may be noted that in spite of general assertions to the contrary, the discomfort of the thigh-ring is acknowledged by the advocates of the Thomas's splint, for in the same illustration to which I have just referred in Major Hull's book occurs the significant statement: "This elastic traction also relieves the patient of the pressure of the ring on his groin."

Continuous Extension.

It has always been recognized that it is the pull of the muscles which is mainly responsible for the element of displacement of a fracture which is most difficult to reduce. That this muscular tension is constant and elastic in its action, and not merely reflex or voluntary, is proved beyond all doubt by the difficulty in overcoming it when the patient is under full anaesthesia and the bones exposed in the course of an operation. Now, how is it possible to overcome this elastic tension of the muscles except by a constant traction in the axis of the bones?

If a constant weight extension (of 15 to 20 lb.) be efficiently applied to a recent fractured femur, so as to really pull upon the lower fragment, it will be found that within forty-eight hours the resistance of the muscles has been overcome and the bone has been restored to its full length or a little over. This is not a matter about which any doubt can exist after it has been put to a practical test. On a recent occasion I was able to demonstrate it to a number of medical officers. I showed them every case of fractured femur then in the hospital, numbering 36, and in every single case the bone presented the full length or from half to three-quarters of an inch increase. I do not suggest that this means that every case made a perfect recovery—as a matter of fact, some died and some had to submit to amputation—but nevertheless it served as a convincing demonstration that the system of continuous weight extension really and infallibly produced full reduction of the displaced bone; and, further, it can also be demonstrated that the reduction thus effected can be comfortably and fully maintained for three months.

The details of this method I need not go into, as I have so recently described them elsewhere.[3] There is no difference in principle between the system which I am advocating and that of Hodgen, Bardenheuer, Codivilla, Steinman, and of the Balkan splint. It is merely a matter of practical detail. For example, the cleverest splint for a fractured femur ever invented is that of Hodgen, but inasmuch as it involves a system of accurate balancing and of unstable equilibrium, it is difficult in practice to carry out well, especially when there is a large wound which requires frequent dressing. The wire cradle splints which I have designed are perfectly simple, and being self-contained can be perfectly adapted for transport.

Now, what is said against this method of constant extension? It is alleged that when a weight is tied to the end of a leg every movement of the patient alters the tension, which becomes in this way not constant but intermittent. But this is certainly not the case if the limb is properly slung and the weight made to act by a cord which runs properly over a pulley. However the patient moves the weight moves too, so that if he pulls himself up the weight is pulled up, always keeping just so much tension on the muscles, neither more nor less. Counter-extension is made not only by the body weight, but by a broad padded flannel bandage round the sound thigh, tied to the head of the bed. This has the advantage not only of preventing the patient being pulled down the bed, but also of keeping the pelvis tilted up on the sound side, so as to secure abduction of the fractured femur—a matter of cardinal importance when the fracture is in the upper part of the bone.

The whole point of difference between the two systems of manual reduction with a fixation apparatus and constant extension lies in the possibility of overcoming muscle tension by a constant pull and the impossibility of doing this adequately by a single momentary act, and what applies to the initial reduction of the fracture applies with tenfold force to the maintenance during the long period of four to twelve weeks occupied by the consolidation of

the bone. It has also been said that the constant extension involves constant pain. This is not the case. If the full weight be properly applied under an anaesthetic, then it is usual for one dose of morphine to be given to the patient, and after twenty-four hours he is perfectly comfortable, apart from symptoms associated with his wound.

Other points of importance in the weight extension system are, first, that the limb is from the very outset kept with all the joints semiflexed, and this in itself is of great advantage because being the position of physiological rest it secures that no group of muscles is placed at maximum tension. And, second, all the joints, hip, knee, and ankle, being left free from bandage or strapping can be kept exercised throughout the treatment so that when the femur has united the joints of the limb are supple, and the muscles well nourished.

Transfixion.

It will be noted that in the above discussion I do not refer to transfixion as a cardinal element in the extension method advocated. In my opinion it is not essential in the early stages of fracture treatment, though it is more reliable than any other method in certain situations. These are in the majority of fractures of the femur and in a few of the fractures of the lower leg bones. That extension by adhesive plaster alone is capable of reducing and retaining every kind of fracture has been long ago demonstrated by Bardenheuer and his pupils; but the method to be always successful needs considerable skill and experience; it often involves the use of very heavy weights, which cause considerable pain, and the main axial tension often needs supplementing by various lateral pulls, which complicate the method.

These drawbacks chiefly affect the problem of the fractured femur, and therefore for the moment I will confine my remarks to that bone. If, instead of indirectly pulling on the bone by plaster attached to the skin, direct traction is made on a pin driven through the distal fragment, all the above objections are overcome. That is to say, a comparatively small weight (12 to 15 lb.) will suffice to correct displacement fully, and there is seldom any need of subsidiary lateral traction. The method is shown by experience not only to be much more precise in its results, but it is less painful to the patient and it is likely to cause less soreness of the skin. Further, it allows greater freedom for massage of the limb and exercise of the joints. If it is carefully performed and not applied until active infection is over, it involves so little risk of further sepsis as to make its use free from objection. But in many cases it is much better to use both the adhesive plaster and the transfixion alternately rather than be content with one method only. The reason for this is, that it often happens that a long period is required before the bone union is firm. Thus, when severe initial infection occurs, it is better, for reasons above given, to begin with light plaster extension, just enough to secure fixation and alignment of the bone without attempting fully to correct the shortening. Then, when the wound is quite clean, transfixion is applied and the bone held by it for six weeks at full length, beginning by slight over-extension and then allowing the bone to drop back into accurate apposition. This is done by using 15 lb. for ten days and 10 lb. for the rest of the time (provided the limb is in a position of semiflexed joints). After the transfixion has been removed, the union may still be weak and the plaster extension can be reapplied for a further period.

One of the most important variations in the application of transfixion which ought to be made under certain circumstances is the placing of the pin not in the distal fragment of the broken bone but in the bone beyond the next joint. That is to say, in the head of the tibia for fractures low down in the femur or in the os calcis for those near the ankle joint. I have used this method much more frequently lately, and have been very pleased with its results. Whenever either the line of fracture, a haematoma, or a wound lies within a handbreadth of the lower end of the bone, it is much better to transfix below the joint. The objection that this site of transfixion will tend to immobilize the joint and to stretch the ligaments is more than counterbalanced by the freedom from septic infection of the pin-track, and the fact that by pulling apart the joint surfaces, stiffness in the articulation is avoided. Transfixion of the tibia at the level of the tubercle perforates nothing except skin, connective tissue, and bone, and there is therefore much less tendency to the formation of a septic sore in the soft parts than when a muscular region is perforated. Thus, if six weeks should be regarded as the maximum time for a pin to be left in the condyles of the femur it may remain for eight weeks in the tibia.

It is not necessary actually to transfix the bone in order to get mechanical fixation to it. The same result may be obtained by the use of a horseshoe screw clamp in which a screw is driven into the bone ¼-inch on either side.[4] I do not use this as a routine because it is a little more complicated and expensive, and because I do not regard the perforation of the bone itself as involving any risk. But it is very useful in one type of case, namely, in a T-shaped fracture into the joint either in the knee or elbow, with fracture of the femur or humerus. In such an injury the clamp presses together the separated condyles, and at the same time affords a fixed point on which traction can be made.

As regards the use of the double transfixion apparatus which I have described elsewhere, I think that its usefulness is very limited in gunshot fractures. If the simple distal transfixion or the screw clamp be first applied and traction adequately made whilst the limb is properly slung in a semiflexed position, it will be found that there is seldom any call for anything further. The chief value of the appliance is in order fully to correct overlapping of the fragments as the first stage of operative fixation.

Open Operations for the Fixation of Gunshot Fractures.

I see no reason to retract anything which I have already published as to the dangers of operations performed upon gunshot fractures in their early acute stage of infection. Any open operation must mean large incisions and multiple drillings of the bone. That they have been followed by wide necrosis requiring amputation has been demonstrated. And thus far no one has brought forward any consecutive series of cases proving the contrary.

If infection is absent, or when it has been cured, the matter stands just where it did for the closed fractures of civil life. But I am bound to say that the experience of the last two years has very strongly convinced me that a careful study and practice of accurately applied extension methods leaves very little scope for open operations.

Unfortunately in the present war there will always remain one large class of case which will require open operations—namely, ununited and malunited fractures of old standing. This is such an important subject that I cannot treat it adequately in this place, but I should like to put one or two observations before you.

The first relates to the restoration of form and length as the first stage of every operation. In an old malunited fracture this may be a matter of immense difficulty, but it can be overcome by appropriate means. These consist in first breaking down the malunion, by an open operation if necessary, and then by applying transfixion and extension, using 25 lb. in the case of a femur, and keeping the limb slung up in a wire cradle. All that I have said above about the immense superiority of a gradual constant traction over a violent momentary one applies here with tenfold force. A malunited femur of three months' standing will require perhaps 200 lb. to restore it by a sudden act to full length, even after the callus has been cut through. This is due to the dense mass of fibrous tissue and the contraction of muscles and fascia. It involves great risk of rupture of the soft tissues and even of the great vessels. But the same thing can be done by 25 lb. by the steady pull of a weight acting on a transfixion pin for one week. Then when the skiagram shows that the overlapping is reduced, an open operation can be performed without undue labour or anxiety.

It will often facilitate this operation if, as its first act, the double transfixion apparatus is applied by placing a pin through the proximal fragment. In this way good hold is secured of both fragments, and by suitable rotation or the extension of one or other lateral screws, the fragments can be accurately moved into any position desired.

The next point is also of great importance. It relates to the necessity of refreshing the bone ends. It is not at all satisfactory merely to cut off the sclerosed terminations.

If only a thin shell of bone is removed, the tissue left behind is often dense and avascular. If a free excision of bone be done this involves shortening the limb. But as Wildey[5] has shown, a much better way is to drill a number of holes into each bone end, or I would suggest parallel saw cuts, in the long axis of the bone, penetrating for half or three-quarters of an inch until freely bleeding vascular tissue is reached. By this means the active osteogenetic layers of the bone are opened up and rapid formation of fresh callus is secured. This restoration of the active osteogenesis of the bones may well be done at the first stage of the operation before transfixion and extension, and it will then be found in many cases that no further operation will be required.

My next point relates to the use of wire. Since plates have become the fashion wire has fallen into disrepute. Nevertheless, if it is used properly it is often a much better and more efficient means of suture than any other. Stout soft iron wire is, I think, the best material, and when it has been placed round the bones, or better still through them, it should be tightened by means of a special instrument which will prevent any slackness or kinking. The type of fracture in which wiring is much better than plating is the very oblique, that is, when the length of the fracture is three times the breadth of the bone.

My last word in regard to this subject relates to the use of plates. Whether used in a recent or an old case, the plate is nothing more nor less than an internal splint the design of which is to hold the bone in good position until natural repair has taken place. In an old fracture repair will be slow and the natural forces which make for displacement are especially strong. Therefore a long plate applied by a series of "wood-threaded screws" which hold only by a frictional grip is likely to become displaced before it has fulfilled its functions. The use of converging screws of "metal-threaded screws" tapped into the bone, or of opposite bolted plates will give a much more secure and enduring fixation.

If, however, only the ordinary plates and screws are at hand, it will greatly add to the prospects of success if the original transfixion pin be retained and a weight of 10 lb. be left for a further five weeks after operation, maintaining the bone in alignment and thus relieving the screws of the tension which otherwise will probably tear them out before union has taken place.

Bone Grafting.

The most interesting chapter in the repair of fractures is that which deals with their union by means of living bone grafts. This, too, is a subject on which I can merely touch in the briefest manner. It may be taken for granted that there is conclusive experimental and clinical evidence in favour of the use of autogenous grafts, and therefore it need not detain us to inquire as to the relative advantages of these over homogeneous or heterogeneous grafts, and much less about the rôle of dead or decalcified bone.

The theory of autogenous bone grafting is by no means settled, but that a freshly taken piece of bone will, when laid into a suitable bed, become united to it and form a living part of the skeleton is beyond all doubt, and the relative importance of osteo-conduction or osteogenesis is of no great practical consequence. But there are several points of practical technique which I am convinced are of paramount importance, but are not sufficiently recognized by surgeons.

First, as to the capacity of the graft. It has, I think, been proved that a graft can grow without any periosteal covering, but, on the other hand, if it has periosteum on one surface it will grow better and more surely. In other words, periosteum is not essential for vitality, but it will afford a ready means of interchange between the vessels of the graft and its bed. Another point which is quite certain is that a living piece of bone will not act as a centre of new bone growth if it is implanted anywhere in the tissues, and that if it lies loosely movable it will remain indolent and inactive.

Just as in plant grafting, so with bone—the graft must be firmly implanted in an active tissue of like structure and firmly held there, otherwise neither union or growth will occur.

The non-recognition of this fact has led to a long series of disappointing results in intra-medullary bone grafting for fractures. A piece of bone is taken, and loosely placed in the medullary cavity of two bone fragments of the fracture without firm adequate fixation. The result is a constant movement of the broken bone, and a failure of the transplant to take root. When we bear in mind the structure of bone, and how its active elements of osteogenesis are encased in minute canals, it is easy to understand that it is necessary for the graft to be brought into firm contact with its bed for new blood vessels to pass over from one structure to the other. We do not know whether there is any essential difference in the capacity of different bones—for example, the tibia, the fibula, or a rib—to act as a rapidly growing graft, but at present the tibial crest is all the fashion.

Secondly, as to the desirable characters of the bed. If a graft is to have the best chance of taking firmly and quickly it must be fixed to its bed over a wide area, and this area should be richly vascular. In the case of bridging a gap in a bone both these conditions are obtained by cutting a longitudinal slice or sector from each of the fragments to be united. Before fitting the graft on to the surface prepared for it the latter should be scored transversely by a fine saw, so as to provide furrows between the bed and its graft in which pro-callus can at once collect. But though the bony bed is the all-important one, the soft tissues should not be neglected. Scar tissue should be clipped away, and after the graft is fixed by its two ends the tissues round it should be snugly drawn together by catgut so as to avoid any dead spaces. If the periosteum has been preserved on the graft, it will adhere and become vascularized quickly from the soft tissue surrounding it, and this is its chief advantage.

Thirdly, as to suture or fixation of the graft. Recent workers in this subject, of whom the most eminent is Albee of New York, have discarded all metal fixation agents and use only animal ligatures. I venture to think that this may be carried too far; if followed rigidly it will greatly limit the possibilities of bone grafting in the restoration of bones from which a segment has been lost. In the humerus or the femur, for example, if we are to make good the gap, the bone graft, if only tied in place by kangaroo tendon or catgut, will be allowed a degree of mobility which will be very prejudicial to union.

On the other hand, if wire sutures, metal bolts, or even, though rarely, long plates, be used to fix the fracture and the graft, efficient immobility will be secured, and I have never found that these metal structures have given any trouble.

When Albee wants to use a small bone nail he makes it then and there from the patient's shin bone with a lathe. But this greatly complicates the matter and puts it out of the range of practical surgery. One might as well give up catgut and always make sutures or ligatures out of strands of the patient's own fascia. Ivory pegs hold firmly and are ultimately absorbed, and they will prove to be of great use in fixing a bone graft.

Conclusion.

In conclusion, if I have spoken to any purpose I have convinced you that the subject of the treatment of gunshot fractures is one in which there still remains many unsolved problems, and I would that I could say this in such a place and in such a manner as to secure further interest in the matter. In all truth it is important enough, for there are tens of thousands of our men, and before the war is over there will be hundreds of thousands, with broken bones.

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THE medical department of the University of Pennsylvania, the Jefferson Medical College and the Medico-Chirurgical College of Philadelphia, have been amalgamated. By their union they form the largest school of medicine in the United States. The total enrolment for the three schools in 1914-15 was 1,126, and the total number of graduates in 1915 was 284.

A RECONSIDERATION OF THE PRINCIPLES AND METHODS OF HUGH OWEN THOMAS.

I. SOME REFLECTIONS ON THOMAS'S SPLINTS.

BY

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YEARS ago, when I was under the spell of the great development of abdominal surgery then taking place, my friend, Dr. Joshua Powell, of Newcastle Emlyn, under whom I served my apprenticeship, told me that orthopaedic surgery was undergoing revolution at the hands of Mr. Hugh Owen Thomas, M.R.C.S., of Liverpool, and that in the course of a week he had spent with Thomas he had seen the work of a wizard. I suspected at the time that my friend suffered from an overdose of hero-worship, but on my return in 1900 from the South African war I had occasion to visit Mr. Robert Jones (now Inspector of Military Orthopaedics) in Liverpool, and found that he was applying the methods advocated by Thomas which had so impressed my old master. I returned converted. During my initiation I was startled to see the tibia and fibula fractured without anaesthesia, in the final stage of treatment of very bad talipes in children in order that the toes might be turned outwards, the little ones leaving his rooms within half an hour, not only with their feet duly corrected and splinted, but smiling.

Bonesetters.

During the last eighteen months I have had many opportunities of discussing Thomas's works, and have been surprised to find that the impression is still handed down by some members of the profession that he was a "bonesetter." It was entertained even by one who had bought the second edition of his work on *Diseases of the Hip, Knee, and Ankle.*

Three factors probably have contributed to this extraordinary but false report: (1) He was not in the habit of putting his qualification after his name in the books published by him; (2) he held no hospital appointment; and (3) he had his splints made and fitted on the premises, so that surgical instrument makers, whose catalogues and other advertisements circulate largely, had not the opportunity of spreading among general practitioners and others the knowledge of the numerous valuable inventions made by Thomas in splints and other orthopaedic appliances.

I cannot help thinking that if a book were written on the ironies of fate, no better illustration would be discoverable than the fiction that Thomas was "a bonesetter," for Hugh Owen Thomas in his day made a special study of "bonesetting" and of "bonesetters," and published his opinions in terms which were candid and unequivocal. Two examples of his views upon the teachings by the giants of surgery in his time will suffice to illustrate the point. Thomas says: ". . . the foregoing quotation" (from the *Clinical Lectures and Essays* of Sir James Paget, vol. i, p. 93, article "Bonesetting, etc.") ". . . is utterly at variance with my own personal observation." When dealing with a further quotation from another book on "bonesetting" he states: "Certainly not; . . . most of the evidence contained in Mr. Wharton Hood's treatise is secondhand, derived from an unreliable source; consequently not deserving of the serious consideration of practical surgeons." I cannot help thinking that H. O. Thomas's opinion of "bonesetters" might very well be quoted in the next edition of the books about secret remedies published by the British Medical Association, for it is a matter of public interest, and its wider dissemination would be a public service. It is expressed in the following unequivocal terms:

> A fallacy with the public, and a growing one among the profession, of late years, has been that some unqualified practitioners are in possession of an occult art in this branch. I have, after extended observation, ventured to declare this a fallacy; having been during the early portion of my life in the confidence, for years, of as many as seven of these manipulators, male and female, in various parts of England and Wales; and indirectly, watched the practice of six such others, distributed over England, Wales, and Scotland. In the sanctum of one I had the pleasure of meeting (incognito) one of our metropolitan professors of surgery in search of knowledge.
>
> These opportunities have given me the right, and in the interests of the progress of rational surgery, I feel it my duty to record the experience thus gained, which experience amounts to this: that this class of practitioners are not in possession of methods, "not dreamt of in our philosophy." . . . Many of them are only successful competitors with shrines, relics, and other nervine remedies, and I certainly would not advocate the addition of even a genuine relic to the surgeon's armamentarium.

Thomas dreamt of the redemption by the profession of the public from the wiles and snares of bonesetters. Their claims and pretences were exposed by Socratic methods. Their veil of mystery he tore down after studying the practice of *thirteen* of them—unlucky number! Members of our profession unacquainted with the facts still dub Hugh Owen Thomas (M.R.C.S.) a bonesetter! Is it, then, a wonder that every big city and large town is visited weekly by *soi-disant* bone experts who set up to correct our hypothetical or real blunders?

Thomas Splints for Fractures.

The recognition by surgeons of the value of Thomas's splints in the treatment of fractures is a recent development. The mastery of the principles involved in the construction and the application to a limb of his splints was not, to my knowledge, attempted by teachers in the early Eighties, for they, like others, were carried away by the successful and audacious raids of surgeons into untrodden and hitherto forbidden regions. The fascination of the aggressive successes in abdominal surgery has had much to do with the general failure of surgeons to appreciate or indeed to know anything about Thomas's pioneer work in the less exciting but equally important field of bloodless surgery. The manner in which he conducted his work, and the patience he showed in waiting to ascertain the end-results of his experimental work before publishing it, are indications of the character of the man. The care which he gave to every detail is shown by the fact that he had a workshop built on to his house and taught his own workmen how to fulfil his exacting requirements. He had treated over a thousand cases before he printed his first book, and he published it without putting any medical qualifications after his name.

If some of us who, like myself, have suffered from a mechanical turn of mind had had the opportunity of seeing and studying Thomas's practice, or had been taught the right way to apply his splints, and if we had known the trouble he had taken to obtain satisfactory models of splints to carry out the principles underlying treatment, there would not have been so many uncalled-for raids into the open field of operative intervention to force foreign bodies made of iron, steel, ivory, silver, or bone, into bone. Neither would "improvements" and "modifications" of his splints have so readily been devised. Forty years ago he foresaw that surgeons with incomplete knowledge might fall into these errors, for in the preface to the second edition of his work, which appeared within six months of the first, the following warning is to be found:

> "Since the first edition was published many suggestions have been made, some of which have diminished the utility of the machines employed; others I had already tried and set aside. . . . Some improvement, probably, will be made in the practical parts of my methods, and by strict adherence to the details I have indicated the innovator will probably avoid trying designs that have already been improved upon."

This warning seems to have fallen upon unappreciative ears, because two years later he gave a full-page plate showing no fewer than nine "incorrect models and appliances"!

But let not this attitude be misunderstood. His real anxiety was that those who adopted his practice in the treatment of fractures, whether accidental or made by the surgeon in the course of his treatment of deformities, should recognize the principles upon which it was founded—namely, "enforced, uninterrupted, and prolonged rest." "Some," he writes, "have admired the form of my splints, and have complimented me as though I were only an ingenious blacksmith," but "very few have understood the principles of the treatment." It must have been a source of intense gratification to this uncommon personality

to find that Rushton Parker, in discussing his methods as a practical novelty, concluded by stating that "At present they are the best methods ever devised, and I am not alone in this opinion." These words, written in 1878, were those of a prophet, but at that time Professor Rushton Parker's voice was that of one crying in the wilderness.

There is hardly a fracture or a deformity existing for which Thomas did not invent some simple appliance by which cure or improvement could be obtained, and I may be permitted to digress for a moment to quote his views upon a condition not wholly disconnected with fractures of the lower limb, which is often overlooked even at the present day. In this way will be shown also his keen appreciation of the perplexities of the psychological difficulties with which he had to contend when advising a sound, simple, but new device for cure during the initial stage of splay-foot. The story of a medical friend who consulted him about his son, both of whose feet were in the initial condition of splay, well illustrates the directness of his practice, the humour with which he viewed failure to accept his advice, and the quiet confidence he felt in the soundness of his device. "Money," he writes, "may be spent upon machinery, so-called spring-plates, rubber pads, and steels, but they cannot assist so effectively as a few pennyworths of leather used to vary the boot sole." After examination of the boy, Thomas advised the well known "crooked heel" to be worn. Meeting the boy some time afterwards in the street, he observed that he was "rigged with steels as if he was being scaffolded for general repair. The assistance was only a fraction of that which a sloped heel would have given."

Thomas was eminently successful in his pioneer work because he personally supervised the carrying out of every detail in the construction of his numerous appliances. He thought it was unwise for a surgeon "to trust to a surgical instrument maker to fit his patient; his training and opinions are too mechanical to qualify him to handle unsound parts. To efficiently apply the various knee and hip instruments . . . it is absolutely necessary that the surgeon employs a 'Vulcan' cutter and fitter, a mallet and a triple acting wrench. . . . Armed with these tools he can easily model . . . an unsuitable splint into an orthodox form, and obtain from it good assistance." In order to complete his armamentarium for every emergency the surgeon was also to take with him "a restorer" and a "boot heel plate." With these appliances, he said, the surgeon could, by himself, fit a splint that might be several inches too long or too short, to the patient and his bed in a shorter time than it would take a blacksmith to blow up his fire.

The deterioration of Thomas's knee-splint (more especially) is due to two circumstances. The first is that surgical instrument makers have not taken the trouble to master and copy accurately all the details in construction upon which he insisted, and the second is that surgeons who do not know how extension should be applied *à la* Thomas suggest to instrument makers innovations which are usually most eagerly carried out; the instrument makers then exploit a profession, untaught in Thomas's methods of dealing with fractures, with a modified splint rechristened and blessed with names of varying magnetism. On three occasions I have had the good fortune to find out in time that modifications I had approved were a degradation of the original.

The aluminium splinting introduced by Treves several years ago for temporary employment in military service is practically useless for the treatment of fractures of the lower extremity, and more especially of the femur with overlapping. It is not rigid enough to keep up the force of extension that is necessary, neither is it possible to get a suitable perineal ring for efficient counter-extension. I tried it many times before giving it up, but the tape measure told a tale which could not be disputed. I am one of those who believe that the great practical value derived from the use of the tape measure in determining the reduction or setting of a fracture, and particularly of the femur, has suffered very much on account of the introduction of *x* rays for diagnostic purposes; the tape is always available, *x* rays are not, and besides the tape is infinitely more reliable as a method of determining shortening of a limb than an ordinary *x*-ray photograph. Some twenty years ago I showed by experiment that an ordinary straight transverse fracture of a bone appeared in a skiagraph as V-shaped with a varying angle, except at one point, which was immediately underneath the anticathode. The distortions of fractures commonly shown in ordinary *x*-ray photographs are fairly well known, but to the medical practitioner who is untrained in skiagraphy these distortions as shown in ordinary skiagrams are most confusing. The only *x* ray photographs which convey a true impression of the conditions of a fractured bone are the stereoscopic. When stereoscopic skiagraphy becomes as popular as the cinema, when it is to be obtained in small villages, in the coal field of the Rhondda, or nestling in the wilds of Snowdonia, or near the snow lines of Kilimanjaro, then and then only will the time have come to attach to skiagraphy the same high value in diagnosis of shortening as belongs to the tape measure to-day.

A splint *per se* has no more power to effect the proper setting of a fracture than a pair of wings has to fly without motive power. Nevertheless, I have seen 1 to 3 inches of shortening in femurs where splints have been condemned for the shortening as if they were sentient beings.

The practitioner who says that he does not know the extent of shortening because an *x*-ray photograph has not yet been taken, has not been taught or has not realized the great teachings of our forefathers.

A recent writer on fractures has spoken of the setting of a broken bone as a myth. I am not quite sure what meaning he intends to convey, but if he means that the two fragments of a fractured bone cannot be brought into accurate alignment, and that shortening cannot be overcome in a large proportion—I would say the great majority—of all cases, then I maintain that he is mistaken, and that the surgeon who has grasped the principles and is not afraid to carry them out, can in all ordinary cases produce good alignment and a limb of normal length. These results can be obtained by the understanding of principles and the application in practice of methods which existed before the advent of *x* rays and the open method into the field of the treatment of fractures.

(To be continued.)

AN EXTENSION SPLINT FOR FRACTURES OF THE HUMERUS.

By DONALD HINGSTON, F.R.C.S.Ed.,
CAPTAIN C.A.M.C.

FRACTURES of the humerus, especially compound fractures, and more especially those caused by bullet or shell in which there is extensive laceration of skin and muscle, have proved difficult to treat during the present war, and this accounts for the unusually large number of new splints for this fracture recently described.

The splint I now submit was devised in September, 1915, and has been used with success on a number of cases—some with great splintering and extensive laceration.

It is a simple metallic extension hoop. I have used the aluminium splinting supplied in the field fracture box, and have found 21 inches by 9 inches a convenient size. It is applied in the following manner:

If the skin of the lower two inches of the arm is intact, and if the fracture is above that level, wide strips of adhesive are applied to the outer and inner surfaces of the lower part of the arm. These strips attach the arm below the fracture to the middle of the lower bar of the hoop (Fig. 1).



FIG. 1.

It is advisable to split the inner strip and thus avoid pressure on the pointed internal condyle. A piece of half-inch rubber tubing about 9 inches in length is wrapped around with absorbent cotton and made into a pad of comfortable size. This pad, well sprinkled with talc powder, is placed in the axilla, and tied to the upper corners of the splint by means of bandages passing through small holes through the rubber tubing near the ends. When tying gentle traction is made; the pull should not be too great; it varies according to the lesion and to the strength of the muscles. A feeling of comfort and marked relief are the guide as to when the correct amount is reached. This pull is maintained evenly distributed by the elasticity of the rubber tubing. The hand is then supported in a position of ease. It is usually necessary to tighten up the pull from time to time, the comfort of the patient being the index. Under this gentle traction, reduction of the fracture should take place slowly and painlessly. The muscles will act as splints, no other supports being necessary.

If the skin on the lower part of the arm is injured, and adhesive cannot be applied to it, or if the fracture is in the lower two inches of the humerus, extension is procured indirectly by applying the traction just below the elbow (Fig. 2). The forearm is flexed at right angles and the wrist firmly held up. The forearm should be protected by a pad that pressure may be evenly distributed. Any splinting can be used. A layer of absorbent cotton covered by a few layers of plaster-of-Paris bandage moulded to the forearm and bend of the elbow is most satisfactory.



FIG. 2.

This splint has many advantages. It is simple, easily applied, and with the exception of a little tightening of the pull from time to time it need not be altered for some days, and then the only necessary alteration is the changing of the absorbent cotton in the axilla.

Extensive lacerated wounds through the arm can be dressed without moving or taking off the splint. The patient can get up, and even travel without altering the splint or reducing the extension. Above all is the great comfort and relief it gives. This has been observed in all cases in which it was used.

In a very small number of cases there was swelling of the forearm, but this was temporary, and required no special treatment. It occurred in badly infected cases. No ill effects have occurred from pressure in the axilla. The points of support are the axillary folds and vessels, and nerves are in no way pressed upon. The traction is along the line of the bone, and the position of the fragments is necessarily correct.

THE Valentin Haüy Association, which has for many years occupied itself with the training of the blind in farm labour, including the care of animals, the making of butter, the binding of sheaves, the winnowing of grain, etc., is endeavouring to make men who have lost their eyesight in the war fit to return to their former work on the land. A missionary has been found in a man blind from infancy who is sent to teach the maimed soldiers. The results are already very encouraging. One man is reported to have quickly learnt to gather fruit and vegetables, to yoke and unyoke horses, to feed poultry, to milk cows, and to clean harness. Another can without help look after fifty hives of bees. Valentin Haüy, it may be mentioned, was the philanthropist who in 1785 founded in Paris the Institution Nationale des Jeunes Aveugles, said to be the first school for the blind.

A METHOD OF TREATMENT OF "SHELL SHOCK."

BY E. T. C. MILLIGAN, M.D., B.S.MELB.,
CAPTAIN R.A.M.C.

A WELL-KNOWN method of treatment of hysteria has been applied at this casualty clearing station to selected cases of what is now diagnosed as "shell shock." The results of this treatment have been so satisfactory that I desire to give some account of the details of the same in this brief note.

It is not the purpose of the note to classify the many different conditions caused by "shell shock," nor to suggest the pathological condition—psychical or physical—underlying them.

Nature of Cases Treated.

The cases treated were those who "could not speak," "could not hear," "could neither speak nor hear," cases of loss of memory, and cases obsessed by the memory picture of recent terrible experience, their minds being occupied, to the exclusion of all other things, by the bursting of shells in the trench or during the attack.

Other cases which have been treated are those of loss of function, partial or complete, in one or more limbs; of inability to walk, and of neuromimetic deformity of limbs.

We have endeavoured to select for treatment only cases of genuine hysteria and of conscious fraud. Malingerers with mimicry so close, and acting so consistent that it was difficult to discriminate them from genuine hysteria, respond more easily to the method, though in a different manner.

Cases Excluded from this Treatment.

Care has been taken to exclude all cases suffering from discoverable organic lesions of the special sense organs, the central and peripheral nervous system, and organic lesions of the above accentuated by hysteria. The underlying organic lesions in these cases must first be treated.

TREATMENT.

It is well known that during chloroform administration there is a stage before the involuntary struggling stage when a patient is highly susceptible to suggestion. It is while the patient is in this stage that suitable suggestion and stimulation should be used. The treatment must be conducted in a quiet room, apart from other patients. Chloroform is slowly administered, and suggestion carried out by the anaesthetist when the patient has reached the required stage.

In cases of loss of memory, and cases in which the memory of past experience is blotted out, and replaced by the mental picture of recent terrifying incidents, the past life of the soldier can often be recalled by suggesting to him some person or object of his affections, as his wife, his child, or his mother. Mention of his home life and country, his regiment and occupation, has proved effective in restoring the chain of past experience.

Mutism is treated by the insistent asking of suitable questions in the suggestible stage, and cutaneous stimulation is found of use.

Loss of hearing responds to the same methods.

Hysterical attitudes of limbs are changed to opposite attitudes and fixed there firmly with bandages; thus extension is changed to extreme flexion.

Loss of function in limbs is overcome by continuing to give passive movement together with suggestion as the patient is regaining full consciousness.

In obstinate cases complete anaesthesia is produced, and the patient is immediately allowed to recover from the anaesthetic. As he emerges he is again in an impressionable state, and this state has been used for suggestion with success where the first efforts of the operator were not successful.

In all types of cases suggestion should be continued till the patient has fully recovered consciousness. When quite rational the man is assured of his cure, promised a rest, given morphine, and allowed to enjoy a much-needed sleep.

The after-treatment consists in prolonged rest and change of surroundings, even although the most obvious symptom of the mischief—for it is a symptom only—has been remedied.

All cases should be treated at the earliest possible moment. Chloroform is better than other general anaesthetics for this purpose, because it produces definite stages of anaesthesia which can be readily prolonged as required. Cases which have been cured by abnormal experiences, such as an abdominal operation, or a shipwreck, would probably have been cured earlier by suggestion under chloroform.

GUNSHOT WOUND OF SPINAL CORD AND TRACHEA: RECOVERY.

BY

Captain G. W. THOMPSON, R.A.M.C.,

AND

Captain G. W. STANLEY, R.A.M.C.

A lieutenant was brought on to the hospital ship *Dongola* at about noon on October 14th, 1915. He was hoisted on deck and conveyed with great care to the officers' ward. He was seen immediately, and found to be in almost a dying condition—blanched skin, pinched expression, and dilated pupils. Respirations were very shallow, and the diaphragm apparently did not move. He was most comfortable in the sitting position, with the chest and shoulders supported; the chin was bent on to the chest. The only history supplied was that he had been wounded in the back two hours before admission. Pituitary extract was given hypodermically, oxygen administered, and hot water bottles freely applied. When the dressings were removed from the neck a gunshot wound was seen in the middle line of the back over the lower cervical vertebrae. The wound was found to go down to the spinal cord, and several loose pieces of bone were removed, and a smooth elongated, partially movable, body detected. This was believed to be a bullet pressing on the spinal cord. "Barker's" solution was injected all round the wound, and what we believed to be the bullet was seized with forceps, and very gently raised; it was found to be attached to the spine. Within two minutes the breathing became deeper and gradually natural, colour slowly returned, and the pulse improved. In half an hour respiration was natural, the pulse fair, and colour good. During manipulation of the partially attached piece of vertebrae air escaped through the wound at each respiration, and as the breathing became stronger each respiration was accompanied by a whistling noise through the wound. The wound and skin were thoroughly cleaned and dressings applied; the trunk and neck were fixed as firmly as possible between pillows in the semi-erect position.

On October 16th we immobilized the neck and back with plaster-of-Paris and adapted aluminium splints, shaped over the head, shoulders, and back. The same day he was transferred to H.M.H.S. *Aquitania* for England. Major Jackson, R.A.M.C., P.M.O. of H.M.H.S. *Dongola*, saw the patient several times with us, and Colonel Mayo Robson, A.M.S., who kindly came on our ship and agreed that the risk in movement, with the neck well fixed, was very small.

There is no doubt that the vertebral column was fractured and a fragment of bone was pressing on the spinal cord, also that the trachea was perforated.

On November 8th we heard from the patient at the 2nd London General Hospital telling us he was convalescent and hoped soon to be about again.

Captain Thompson writes under date May, 1916: Since writing these notes I have met Colonel V. Warren Low, A.M.S., who was attached to H.M.H.S. *Aquitania* as consulting surgeon, and watched the progress of the case on the voyage to England. Colonel Low tells me the patient developed a high temperature with dulness of one lung behind, but these signs cleared up before he reached England.

The Order of the Nile of the Third Class has been conferred upon Dr. Llewellyn Phillips, Honorary Physician to the Sultan of Egypt.

The Children's Country Holidays Fund is continuing its work under some difficulties, but managed in 1915 to send away 15,755 children at an expenditure of rather less than as many pounds. Towards the amount the parents contributed over £4,000. The weekly payment for each child had to be raised from 5s. to 6s. The fund, which has its offices at 18, Buckingham Street, Strand, London, W.C., appeals for subscriptions.

EUSOL AND OTHER METHODS OF WOUND TREATMENT.

By Major C. W. DUGGAN, R.A.M.C.

From the appearance of wounds transferred to the Military Hospital, Lincoln, after treatment with eusol, it is evident that a clean, healthy, granulating surface is readily produced by this antiseptic, but having reached this stage one has to admit that the further progress of the wound is delayed by the presence of a watery solution in contact with the wound, and hence recourse is had to various astringents to promote healing.

The reason for this interrupted success is due to neglect of the principle of osmosis without which all treatment is doomed to failure; it has also led to the bewildering number of remedies and methods recently recommended, and to the statement that no single dressing will suit all wounds, or the different stages in the healing of a wound. I have already written on this subject to the effect that the whole question depends on the carrying out of the two principles, namely, antisepsis and osmosis, and keeping these in mind the whole process of wound treatment is a comparatively simple and straightforward one. To fulfil these conditions any dry non-irritating antiseptic may be used; personally I prefer ichthyol; I have used it for more than a year in septic gunshot wounds, and have invariably been satisfied with the results. Glycerine exerts an osmotic action which is superior to all others, and if I were only allowed one drug in the treatment of septic wounds, I would employ glycerine in preference to any other. It is quite unnecessary to vary this treatment at any stage. I have been in the habit of swabbing the wound with pure rectified spirit, but if the patient complains of the irritation I do not insist on continuing its application.

As sepsis and secondary haemorrhage do not occur with this treatment, I am convinced that septic limbs would be saved from amputation. This statement is all the more important in reference to the lopping off of limbs in France, to be followed by a re-amputation in this country—a proceeding which appears to me barbarous in the extreme.

The saline treatment labours under the same disadvantage as eusol—a healthy wound surface is produced which requires the substitution of astringents to induce healing, and even with this change of dressing progress must necessarily be slow. In illustration of these points I quote the two following cases:

A German petty officer had his left arm shattered in a naval action in the North Sea on March 25th, 1916; the arm was removed on his own boat by means of a penknife about 4 in. below the shoulder; he was rescued from the sea by one of our torpedo boats; he remained on board for two days and was then taken to —— where the flaps were trimmed, the wound was dressed every two hours during the day and every three hours during the night with saline solution. After sixteen days he was transferred to a general hospital, and the wound dressed daily with eusol for four days, when he was sent to the Military Hospital, Lincoln. The wound presented a healthy granulating surface, a broad piece of strapping had been placed round the upper arm at the base of each flap, and another piece to bring the flaps together. I removed the strapping at 10 a.m., when I found the flaps gaped, so I painted the surface of the wound and the adjoining skin with 20 per cent. ichthyol in glycerine, and applied gauze, absorbent wool and a bandage. At 7 p.m. I found the flaps no longer gaped, having become adherent in this short period of time; the same dressing was applied. In one week the wound has become reduced to half its original size and in another week it will have completely healed over. The chief point of interest in this case is the rapid osmotic action of the glycerine.

Pte ——, on October 13th, 1915, was hit in the left hand by a bullet from a Maxim while he was in a German trench; first aid was applied and he then walked to the field ambulance where a dry dressing was put on. He was sent to Rouen for three weeks; he was next transferred to a general hospital in England, where he remained under treatment for nineteen days, and then he came under my care in the Military Hospital. He stated that the two end digits of his left ring finger had been removed at the general hospital. To relieve suppuration two incisions had been made in the palmar surface of the hand —namely, one near the little finger, another in the centre of palm, and there was a third incised wound 1 in. above front of wrist; a drainage tube had been passed from this wound to the wound in the centre of the palm. I removed the drainage tube at the first dressing, and did not replace it; no useful purpose was served by it, as the anterior annular ligament of wrist compressed the tube.

As a substitute for drainage tubes, I always syringe out with pure spt. vini rectificat., and in this case the spirit passed

readily from the one wound to the other; a sinus extended from the wound above the wrist for 2 in. higher up the arm; the skin of the hand was in a very sodden state from previous wet dressings. The hand was very much swollen, exceedingly painful, and suppurating freely; it had been kept in a bath for forty-eight hours, during which time the patient had had no sleep. Equal parts of ichthyol and glycerine were painted on the wounds twice daily, and where the drainage tube had been pure spirit was run through once daily. In one week the wounds had contracted, the discharge was less, and there was no pain in the hand. On the tenth day after admission there was no discharge from the wounds, the hand was no longer swollen, there was no return of pain, and the patient could move his fingers and wrist freely without pain. On the thirteenth day the wounds in the hand had healed and the wound above the wrist was about the size of a sixpence; in another week this had completely healed.

In this case there was no improvement during nineteen days' treatment with wet dressing, but a change to ichthyol and glycerine resulted in rapid contraction of the wounds and cessation of suppuration.

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MEDICAL, SURGICAL, OBSTETRICAL.

THE DANGER OF IODINE SOLUTIONS FOR STERILIZING THE SKIN IN ABDOMINAL OPERATIONS.

THERE are probably no intra-abdominal conditions that may be the source of more continuous suffering to a patient or be more difficult to treat than peritoneal adhesions. It certainly, therefore, behoves us in our own work to avoid any practice, however commendable for other reasons, that might conduce to such an undesirable result. It has long been my custom to discard the use of iodine solutions for the sterilization of the skin prior to an abdominal operation, although I have freely applied them after the peritoneal cavity has been efficiently closed. My reason was that I had occasionally seen the skin irritated as the result of its application; and the fear arose in my mind that the peritoneum, being a much more delicate structure than the skin, might suffer equally, if not to a greater degree, should any of the iodine applied to the skin gain access to it, directly or indirectly. My fears were later confirmed by papers by Propping and Bertelsmann in the *Zentralblatt für Chirurgie* (Nos. 19 and 26). The former proved by experiments on dogs that abundant fibrous agglutinations resulted from the injection of a solution made up of twenty drops of tincture of iodine in 80 c.cm. of salt solution into the peritoneal cavity. He further stated that he had seen six cases of ileus which he believed to be attributable to adhesions the result of iodine irritation. Bertelsmann recognized the possible danger connected with the use of iodine for sterilizing purposes. I have already drawn attention to the subject in my *Practice and Problem in Abdominal Surgery* (p. 67), where the matter is more fully discussed. The possible evils of the use of iodine in abdominal work has recently received further confirmation in a contribution to the *Annals of Surgery* (February, p. 198) by M. H. Walker and L. M. Ferguson, whose investigations were undertaken ostensibly for the purpose of determining what measures could be employed to prevent the formation of peritoneal adhesions. But, in their experiments upon rabbits, they, first of all, sought to produce adhesions, and found that "the densest aseptic adhesions were caused by touching the peritoneum lightly in five places with a small gauze pledget, dipped in half-strength tincture of iodine." One of the conclusions at which they arrived is "iodine should be used in abdominal surgery with great care, or better, not used at all, for a very little of it allowed to touch the bowel causes masses of adhesions."

I will not enlarge on the question as to what may be used in place of iodine for the sterilization of the abdominal skin; suffice it to say that the usual methods for the initial cleansing of the skin followed by the application of, first, a compress of carbolic lotion (1 in 40) for several hours, and, second, another compress soaked in lotion (1 in 20) for an hour or so will fulfil every requirement of efficient sterilization. When time does not admit of the longer process of preparation, spirit can be used, or even 1 in 20 carbolic solution alone.

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EXTRACTION OF INTRACRANIAL FOREIGN BODIES.

ON March 14th a boy, aged 16, walked into my surgery complaining of a blow on the head from a falling tree. My partner, Dr. Burn, saw him, and diagnosed a depressed fracture. I operated in the evening, and found what appeared to be a piece of detached bone. I removed with forceps what turned out to be a fragment of a branch. It was irregular, but measured approximately 1¼ in. by ¾ in. It had been driven completely through the skull, and was lying under the parietal bone. After removal of the wood I elevated the depressed bone, and closed the wound with the exception of a space left for drainage.

The patient progressed well till the seventh day, when he had very violent convulsions. I opened up the wound again to allow of more free drainage, and he made a complete recovery, returning to work five weeks after the accident. A striking point about the case is that there is no history that the boy was ever in the slightest degree unconscious, and that he was able to travel a distance of four miles, partly by train and partly on foot, after such a severe head injury.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

GRENADA BRANCH.

The Control of Yaws.

THE first meeting of the Grenada Branch was held at the offices of the International Health Commission, St. George's, Grenada, on May 5th, when the President, the Honourable E. F. HATTON, Colonial Surgeon, read a paper on the control of yaws in Grenada. There was, he said, evidence that the disease was introduced into the West Indies by slaves brought from the West Coast of Africa. Though the traffic in slaves was stopped in 1807, slaves taken from slave ships by the British navy were set free in Grenada at a much later date. Down to the abolition of slavery yaws was very prevalent; its contagious nature seemed to have been recognized from a very early date, and nearly every estate had its yaws house for segregation. Slavery was finally abolished in 1834, but a system of apprenticeship followed for four years, during which the yaws houses were kept up. At the end of this four years, in 1838, the slaves scattered all over the colony, many of them taking up gardens in the hills, and the yaws houses were done away with. In 1875, 33 cases of yaws were treated in the colony hospital, and in the following year an auxiliary hospital, providing for sixteen males and ten females, was opened. The number of cases admitted to it rose until it reached 118 in 1882. Increased accommodation was opened at the yaws hospital in January, 1883, at which time it was estimated that there were 800 cases in the colony, or about 2 per cent. of the population at the time. The number of cases admitted to the hospital fell from 376 in 1883 to 34 in 1894; thereafter it rose, with some fluctuations, until the large total of 605 was reached in 1915. Dr. Hatton pointed out that segregation, the policy relied upon for over forty years in Grenada, St. Lucia, and other neighbouring colonies, had not been successful. Yaws was an endemic disease, and isolation failed in such diseases, owing to the difficulty of isolating every case. There had always been cases of yaws hidden away, and it was doubtful whether all the cases discharged from the yaws hospital were cured; probably many of them were capable of communicating the disease to others under certain conditions, even after the outward signs had disappeared. The treatment of cases with salvarsan was begun in 1912 with encouraging results. The number so treated was 55 in 1914 and 20 in 1915. The decrease was due to the stoppage

of the supply of salvarsan. A large number of the inmates of the yaws hospital were children, but probably adults were less susceptible only because they had suffered in childhood. The East Indian adult immigrants suffered as frequently as their children. The disease was more prevalent in the country than in the town, and was much more prevalent in some islands than in others, although domestic and general sanitation were not more advanced than in Grenada. Dr. Hatton considered that as isolation had been tried for forty years without eradicating the disease it should be abandoned. It was very unpopular with the people, and without their co-operation could not be thoroughly carried out. The average stay of a patient in hospital was four months, and the long separation from friends was irksome, so that sufferers sought to hide the fact of infection, and parents concealed infection in their children. Dr. Hatton concluded by recommending the adoption of the following preventive measures:

1. Making the disease a notifiable one under the Public Health Ordinance.
2. Education of the people through the sanitary inspectors and by leaflets as to the nature of the disease and the manner in which it is spread from one person to another.
3. Sanitary inspectors to make house-to-house inspections, and to notify every case of this disease. These officers would give to every adult, or, in the cases of children, to their guardians, a numbered card, stating that the bearer had yaws and must attend at the district dispensary once a week until certified to be cured by the district medical officer. A record of these cards would be kept in the Colonial Surgeon's office, and every one of them would have to be accounted for.
4. Dispensaries to be opened in each district, where persons suffering from yaws will be treated, and where any person of the labouring class suffering from a sore of any kind will be attended to and supplied with proper dressings.
5. A general campaign to improve domestic sanitation by preventing overcrowding; encouraging the use of glass to admit sunlight; improving ventilation; the flooring of houses; the use of beds for the children.

The active treatment recommended consists of a free use of salvarsan and large doses of potassium iodide.

To carry out the treatment by salvarsan I recommend that three or four small hospitals be opened in the different parishes. Each hospital should accommodate four persons and be under the charge of a nurse.

Patients to be treated with salvarsan would be admitted for a few days only, and discharged as soon as it was safe to do so; further treatment to be undergone as outdoor patients.

As each patient would only be a few days in hospital a light diet only would be necessary.

The discussion which followed turned mainly on administrative questions. Dr. DURRANT and Dr. HUGHES approved of decentralization, but the former expressed the opinion that four dispensaries would be inadequate, as the distances patients would have to travel would prevent regular attendance; he suggested that the residence of every medical officer should be a dispensary under the scheme. Dr. PATERSON, Dr. O'NEALE, and Dr. ALEXIS spoke in favour of treatment by salvarsan at one central hospital, the first named observing that if one week were sufficient to dispel outward manifestations, further observation and treatment might be carried out by the district medical officers. Dr. BISHOP suggested, with the view of destroying the local foci of infection, that one area might be dealt with at a time, the patients being treated at a dispensary with salvarsan and kept for a reasonable time to get rid of the infection, and that this should be followed up by observation and treatment in their homes. When one area had thus been dealt with, another might be undertaken. Dr. MACDONALD agreed that the main point was to deal with the foci of infection. The recent discovery that a spirochaete was the cause of Weil's disease or a form of epidemic jaundice, and the demonstration that the route of infection was through the skin, was very suggestive. The improvement of the people's homes and the abolition of the damp and inevitably infected earth floors so frequent in the country should be aimed at. At the same time he admitted that salvarsan might aid prevention by removing the foci of infection. Dr. HATTON, in his reply, said that he was not opposed to segregation, but, believing that it was beyond the resources of administration, had endeavoured to put forward a practical alternative scheme. Undoubtedly the question of transport was a serious difficulty under any scheme, but on the whole the control by district dispensaries in close contact with the people's homes seemed to be the most economical, and to contain the greatest possibility of effecting most good.

At an earlier stage of the meeting the president had referred with regret to the death of Dr. Claude Hughes, who, in the few short years of his professional career, had won the esteem and respect of his colleagues and the love of his patients. The rules of the Branch were discussed seriatim and adopted. Dr. Bishop was appointed Honorary Treasurer and Dr. Angus Macdonald Honorary Secretary and Representative at Representative Meetings. The President entertained members to breakfast, and Dr. Macdonald gave a lantern demonstration of pictures connected with the ankylostomiasis campaign.

Reviews.

SCIENCE AT OXFORD.

To Oxford men generally, and to Magdalen men in particular, Mr. GÜNTHER'S Register of the Daubeny Laboratory[1] will appeal as an interesting contribution to the history of the part played by Waynflete's foundation in the advancement of science in Oxford. In this sphere of activity the University owes much to its constituent colleges. It would be invidious to draw distinctions where all alike have helped. Fortunately, some of these institutions are well endowed—Magdalen, amongst the number, having an income nearly approaching that of the University itself. To their credit be it said that, in most instances, the wealthy colleges have responded generously to the appeal of the University for financial support, and in this respect Magdalen has set a bright example. For this help those associated with science in Oxford are deeply grateful. At the same time, whilst congratulating Mr. Günther on the array of facts set forth in proof of the success of Magdalen men in the realm of science, he seems to us rather to underestimate the influence of university teaching as distinct from collegiate tuition on these men's undergraduate and post-graduate careers.

As a science tutor of long standing, Mr. Günther's views on the subject of collegiate instruction are worthy of all respect and consideration. On this matter he expresses his opinions in a somewhat lengthy preface, and it is to this part of the volume that we propose more particularly to direct attention. The author, in no unmeasured terms, criticizes the baneful influence exercised by the predominance of the classical element within the University on the development of science teaching. Whilst no doubt in some instances these criticisms are well merited, Mr. Günther must admit that during his twenty-five years' tenure of office the attitude of this section of the University has been very much modified, as proved by the liberality with which the university, according to its means, has built, staffed, and equipped many new departments for the teaching of science. To us it seems the more excellent way rather to encourage this more liberal and progressive policy, than to condemn the majority for their attitude in the past. The experience of recent events will not be lost on those who, possibly through lack of knowledge, have hitherto been half-hearted in their support of more up-to-date methods. We are all likely to profit, science as well as other branches of knowledge. Confidence inspires confidence, and we look forward to the day when, in the reform of our educational system, we can all stand united.

Further, Mr. Günther lays much stress upon the advantage of colleges being provided with laboratories; to this no reasonable objection can be taken, provided they are used for purposes of research by the members of the staff of the college; but in view of the fact that the University has incurred large expense in the provision of university laboratories, the upkeep of which is largely dependent on the fees accruing from undergraduates, it seems undesirable that a college should enter into competition with the university as far as actual teaching is concerned, and so deprive that institution of a source of income to which it is justly entitled. Rather would we wish to see a closer co-operation between the parent body and the constituent colleges—a co-operation all the more necessary when the

[1] *The Daubeny Laboratory Register, 1904–15.* By R. T. Günther, M.A., F.L.S., Fellow and Tutor of Magdalen College, Oxford; Printed for the Subscribers at the University Press. 1916. (Med. 8vo, pp. 305; 3 illustrations. 7s. 6d. net.)

resources of the University are strained to the utmost to meet its obligations.

Mr. Günther assumes that he makes a strong case out of the effect produced by the incidence of a "close time" for scholarship examinations on the output of science students taking medicine in his own college. Before this arrangement came into operation in 1900 he states that for the previous twelve years there were twenty-six such undergraduates at Magdalen, whilst during the twelve years subsequent to this date there were only seven. The author attributes this falling off in numbers to the circumstance that the college was debarred from always examining at a time when it could get the pick of the best men. In fairness, however, to many other colleges not so well provided with scholarship endowments, it may be pointed out that during this period the numbers entering these colleges have largely increased, proving obviously that the question must be considered from the wider standpoint of university policy rather than from the interests of one individual college.

These and many other points are some of the issues raised by Mr. Günther, and we can commend the perusal of his views to those who are interested in the inner working of the University, for he states very explicitly the opinions of one who represents the collegiate as distinct from the university attitude towards instruction. Of the benefits of appropriate collegiate tuition no one acquainted with Oxford can have for a moment any doubt, but it is questionable if it is sound policy to carry this too far to the detriment of the institutions which the University has provided to meet its educational needs.

To co-operate with the university rather than to compete with it should surely be the aim of its constituent colleges.

OBSTETRICS AND GYNAECOLOGY.

No book on obstetrics met a more obvious want than did Professor MUNRO KERR'S *Operative Midwifery*, on its first appearance eight years ago. It is a pleasure to add that no book could have met the particular want more admirably, and accordingly it has become a standard work. But the trend of opinion in operative midwifery has meantime changed somewhat, new methods of operating having been introduced and others discarded. Some revision of the volume was therefore needed, and this the author has well carried out in his third edition.[2] Except where necessary to bring it up to date the book has not been altered, and the features which have made it so valuable as well as so delightful a book to read are again found in it.

The first noticeable new section in the present edition deals with dystocia due to "contraction" and "retraction" rings. This subject has been fully discussed in the last six years, and the most important contributions to it have been made by British obstetricians. Dr. Munro Kerr states that he has encountered obstruction of this sort in "oblique presentations," and in head presentations where the head was low in the vagina and the shoulders were caught. He agrees with most writers in recommending Caesarean section in clean cases where the child is alive, but in others craniotomy after a full dose of morphine and atropine and an interval of rest to the mother. In regard to the treatment of myomata during pregnancy the advantages and encouraging results of enucleation as opposed to hysterectomy are fully expressed. The dangers of appendicitis during pregnancy, labour, or the puerperium are dwelt upon, and the advice given to treat all such cases on strictly surgical lines irrespective of the obstetrical condition.

The last few years have enabled us to form a more matured judgement on the real value and place of operations for enlarging the pelvic girdle. As between pubiotomy and symphysiotomy Dr. Munro Kerr withholds a final verdict, but he emphasizes—what is much more important than the choice of operation—the very careful choice of cases for operation, and states fully the conditions which indicate and justify this form of interference. On the very difficult question of Caesarean section or hysterectomy in presumably infected cases where the child is still alive, and the only alternative is craniotomy, the author takes a very sane attitude, and one that will bring comfort to many conscientious practitioners.

"I am still convinced," he says, "that craniotomy should sometimes be chosen even although the child is alive. So long as hysterectomy is the only alternative to craniotomy in such cases, it is very questionable if we choose wisely when we select the former operation. Do we really save mothers and children? We do not save mothers, for the maternal mortality from hysterectomy and craniotomy in presumably infected cases is almost identical; and although we undoubtedly save at the time a few more children by choosing hysterectomy, we sterilize a large number of young mothers upon whom, if craniotomy were performed in the first instance, Caesarean section might be done, and repeated with every certainty of success should other pregnancies follow."

Hundreds of practitioners are yearly forced into this position without any real chance to make the choice, and the weighty opinion quoted will undoubtedly mitigate the revulsion of feeling with which the necessity of the situation must often fill them. It is to be hoped that the work of prematernity clinics will diminish the number of cases of this sort in the future. Of extraperitoneal Caesarean section, about which there was considerable enthusiasm in Germany, the author has no experience, but he probably sums up the opinion of most obstetricians in this country when he writes:

"So far as I can judge it presents no advantage over classical Caesarean section, and will entirely disappear and be forgotten unless it is proved that the cicatrix in the lower segment is decidedly stronger than one situated in the upper part of the body of the uterus."

Vaginal Caesarean section he regards as an operation of great value, at present abused by too free employment. Up to the twenty-fifth week of pregnancy it is the best way of rapidly emptying the uterus; after that the abdominal route is the more sound in principle. We entirely agree with him in his absolute condemnation of this vaginal operation in cases of placenta praevia. The abdominal operation, however, he advocates in elderly primiparae in whom there is active bleeding, an undilated cervix, and a viable child. In accidental haemorrhage Dr. Munro Kerr does not despise plugging where the membranes are intact and the bleeding external. In other cases he uses the metreurynter, Bossi's and similar dilators being utterly condemned. Caesarean hysterectomy may have to be done in concealed haemorrhage, and here the vaginal route offers many advantages.

One of the results of the war in France, as also to some extent in this country, has been to compel many practitioners, who had long given up operating in their civil practices, to renew their familiarity with the actual practice of surgery either in the field or in war hospitals, or, owing to the scarcity of specialists, at home. We have seen this reflected in the output of new books in this country dealing with the various departments of surgery more directly connected with the war. But in France Professors LE DENTU and PIERRE DELBET have enlisted the help of a large number of distinguished collaborators in the production of a complete *Nouveau Traité de Chirurgie* in many volumes, and dealing with all phases of surgery, whether connected with the war or not. The thirty-fourth of these volumes, all undertaken and produced since the outbreak of the war, is upon gynaecology,[3] and is from the pens of Professors FORGUE and MASSABUAU of the University of Montpellier. The book, which is massive, containing more than 900 pages, opens with a section upon the methods of examination in gynaecology. This is followed by sections on diseases of the vulva and vagina; vesico-vaginal and other fistulae; diseases and tumours of the uterus; pelvic inflammation; diseases and tumours of the ovaries and tubes; malformations of the genital organs; and, finally, by a section on the general technique of a gynaecological laparotomy. The more important and historical papers on the different subjects are mentioned in the introduction to each section. French and German literature is extensively recognized, but the authors have not drawn so fully upon British and American work. In several instances this is a serious omission—as, for example, to mention only one instance,

[2] *Operative Midwifery. A Guide to the Difficulties and Complications of Midwifery Practice.* By J. M. Munro Kerr, M.D., C.M.Glasg. Third edition. London: Baillière, Tindall, and Cox. 1916. (Roy. 8vo, pp. 741; 308 figures. 25s. net.)

[3] *Gynécologie.* Par E. Forgue, Professeur de Clinique Chirurgicale, et G. Massabuau, Professeur d'Anatomie Pathologique à l'Université de Montpellier. *Nouveau Traité de Chirurgie.* Publié en fascicules, sous la direction de A. Le Dentu et P. Delbet. XXXIV. Paris: J. B. Baillière et Fils. 1916. (Roy. 8vo, pp. 928; 283 figures. Broché. Fr.25; cartonné. Fr.27.)

when no reference is made to Teacher's important work upon chorion-epithelioma. Indeed, the section upon ectopic gestation is the only one in which we observed anything approaching a proportionate recognition of British or American gynaecological literature. The pathology of the various conditions is fully considered, and, where necessary, conflicting views are fairly stated. The authors' own views are, however, always clearly expressed upon the controversial points, and the reader is not left in doubt as to their own teaching. A great many excellent illustrations, both macroscopic and microscopic, are from their own specimens. The illustrations are reproduced in a very satisfactory manner, but some of the histological views suffer from being drawn under too high a power and in too diagrammatic a manner. The illustrations of operative technique are clear and helpful, and in many instances might with advantage to the reader have been made more numerous.

It is interesting to find that much more space is given to the subject of fistula than is usual in our books. The section is therefore of peculiar interest to those who may be called upon to deal with this troublesome condition. Two points emphasized by the authors may be mentioned—first the fact, so often imperfectly grasped, that the success of an operation in fistula largely depends on the care taken beforehand to render the vagina and the bladder as aseptic as possible; secondly, the value in difficult cases of deep incision of the perineum—the paravaginal incision—so as to secure a good view of, and direct access to, the anterior vaginal wall. In the chapter on fibromyomata of the uterus we searched in vain for any account of necrobiosis or "red degeneration" of these tumours. There is likewise no mention of endotheliomata of the uterus even under the heading of sarcoma. However debateable the existence of these tumours may appear to the authors, one would expect some mention of them in a volume of this size. The authors are enthusiastic supporters of the removal of the uterus in all cases of double pyosalpinx. They maintain that it simplifies the operation by giving more room, that it permits of surer haemostasis and more perfect "peritonization," and that it is therefore less likely to be followed by the formation of adhesions. They prefer the supravaginal operation in all such cases.

Those who enjoy reading fluent French—and we hope their number is rapidly increasing in our profession—will find in the volume a thoroughly sound presentation of the subject of modern gynaecology; and those who are already familiar with the subject will find many points of interest and suggestiveness. Under any circumstances the book would be one upon which the authors would deserve hearty congratulations, but as an achievement begun, continued, and ended under the stress of the great war it is doubly meritorious.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

SIR CHARLES CAMERON'S elaborate *History of the Royal College of Surgeons in Ireland*,[4] now in its second edition, contains a vast amount of information concerning the progress of medical science in Ireland from the earliest days. The histories of the various Irish medical schools are traced, long chapters deal with the medical bibliography and medical worthies of Ireland at various epochs, and the many charters of the Royal College of Surgeons are recorded in full. Accounts are given of the college library, school, and museum, and the reader will find chapters on the various private schools of medicine and other educational establishments available for the use of medical students in Ireland. In addition, the author has collected a vast amount of biographical information concerning many of the eminent Irish surgeons and physicians whose names occupy such important positions in the history of the art of healing. The book is well illustrated and must be regarded as a storehouse of information to which all who are interested in the history of Irish surgery will apply.

[4] *History of The Royal College of Surgeons in Ireland and of the Irish Schools of Medicine, including a Medical Bibliography and a Medical Biography.* By Sir C. A. Cameron, C.B. Second edition, revised and enlarged. Dublin: Fannin and Co.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.; Edinburgh: J. Thin. 1916. (Med. 8vo, pp. 691, illustrated.)

NOTES ON BOOKS.

DR. HENRY J. HIBBERD, whose views on breads for children were briefly expressed in a letter published in this JOURNAL on March 4th, 1916 (p. 361), has now stated his opinion more at length in a pamphlet,[5] in which he argues strongly for the revival of the old method of milling, and adds some words on the merits of a co-operative system, such as that devised by Sir Horace Plunkett for Ireland.

The Night Cometh,[6] by PAUL BOURGET, is one of those profound and perhaps uninteresting efforts of psychological analysis with which that talented author has been enriching the world of novels for several decades. Here we have a drama of love-tortured souls, with a setting of hospital work, battle, murder, suicide, and sudden death. The protagonist, a celebrated Paris surgeon, figures in these pages also as a profound neurologist; he has invented an operation whereby "the bulbary syndrome" may be averted in certain traumatic cases, and so the novel is to be regarded as of special interest to surgeons and physicians. They should, however, read the book in the original French, for the translator has justified the gibe *traduttore traditore*.

Back to the World[7] is a novel dealing with the problems that may face a married heroine with puerperal insanity when she recovers and returns to ordinary life after five-and-twenty years of seclusion in an asylum. In this instance the heroine had been badly treated at the outset, and when she returned to her husband she found herself *de trop*. Fortunately for herself and others, however, she was a victim of the first air raid in London, and died. The book takes the form of the diary of a woman with a grievance, and so is painful reading. The subject with which it deals is unpleasing, and it receives unsympathetic and pessimistic treatment at the hands of the authoress. One may doubt, indeed, whether such topics as these are at any time profitable subjects for novels.

[5] *Our Children's Bread, as it affects National Health and Land Reform.* By Henry J. Hibberd, M.R.C.S. Brockenhurst, Hampshire: J. R. Stevens. (Price 3d.; post free 4d.)

[6] *The Night Cometh.* By P. Bourget. Translated by G. F. Lees. London: Chatto and Windus. 1916. (Cr 8vo, pp. 247. 6s.)

[7] *Back to the World.* By Mary Wall. London: Chapman and Hall, Ltd. 1916. (Cr. 8vo, pp. 328. 6s. net.)

MEDICATED WINES.

THE Central (Liquor) Control Board is taking in hand a number of abuses to which the medical profession has been calling attention for a good many years past. The action now taken, under the pressure of war conditions, is evidence that, although at the time little effect seemed to have been produced, yet a wider influence was in fact exerted than was apparent on the surface. The *Gazette* for July 7th contains an Order by the Central Control Board relating to the sale of medicated wines, made under the Acts and regulations relating to the defence of the realm. It provides as follows:

On and after August 7th

> "No person shall either by himself or by any servant or agent sell or supply to any person in any licensed premises for consumption off the premises or dispatch therefrom any intoxicating liquor in the form of or prepared as (*a*) medicated wine or (*b*) any mixture or preparation which contains any drug or medicament or is sold or advertised for sale as containing or purporting to contain medicinal properties except in a bottle or other vessel bearing a label correctly stating in clear and legible words or figures the amount of proof spirit contained in such medicated wine or mixture or preparation."

Nothing in the order shall be deemed to affect the sale of

> (*a*) Any medicine mixture or preparation appearing in the *British Pharmacopœia* or the *British Pharmaceutical Codex*.
>
> (*b*) Any medicine mixture or preparation which is made up for a customer on the signed prescription of a medical practitioner.
>
> (*c*) Medicated or methylated spirits or spirits made up in medicine and sold by medical practitioners or chemists and druggists.

The expression "licensed premises" includes any premises or place where the sale of intoxicating liquor for consumption off the premises is carried on under a licence. The order does not affect the sale or dispatch of intoxicating liquor to a trader for the purposes of his trade. In Scotland "excisable liquor" is to be substituted for "intoxicating liquor."

Any person contravening any provision of this order, or of the Liquor Control Regulations, is liable to imprisonment for six months with hard labour and a fine of £100.

ROYAL MEDICAL BENEVOLENT FUND.

(Concluded from vol. i, 1916, p. 888.)

THE following is a continuation of the summary of cases relieved by the Committee at its meeting on June 6th:

Widow, aged 38, of L.S.A.Lond. who practised in North London up to a few years ago, and latterly and up to his death in March of this year had been acting as locumtenent. Applicant was left unprovided for with five daughters, aged 17 months to ten years; at present they are staying with her mother, who cannot afford to keep them. Applicant's furniture is in store, with a large debt owing on it. If she could get her furniture she hopes to be able to make a living by taking in boarders. Only income £12 per annum from a relative. An immediate special grant of £5 has been given, and the Guild are already investigating the case. Voted £12 in twelve instalments.

Widow, aged 61, of M.R.C.S.Eng. who practised at Whitechapel and died in 1913. Applicant's only income is £28 per year, the income from the investment of a life insurance, and 3s. per week from a son. Son-in-law used to help by paying the rent, but owing to the war has had to discontinue this, so applicant is in great difficulties. Voted £12 in twelve instalments.

Widow, aged 64, of M.D.Glasg. who practised at Glasgow and died in 1908. Applicant was left totally unprovided for, and has tried to make a living by taking in lodgers, but recently has been unsuccessful, and during the last year has only received £20 from this source. Only other income £22 from other charities. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 51, of L.S.A.Lond. who practised at Leicester and died in 1910. Applicant was unprovided for, with two daughters now 21 and 22 years of age, and a son now aged 14. The girls are now both working, and pay their mother £1 16s. per week for their board and lodging. Applicant's health is bad, and she is only able to earn a little by needlework. Owing to the high price of food, finds it difficult to get on. Relieved four times, £46. Voted £12 in twelve instalments.

Widow, aged 58, of M.R.C.S.Eng. who practised at Enfield and died in 1905. Only income £37 from property and £40 from friend. Has two daughters, one married and the other a permanent invalid. Relieved five times, £25. Voted £5.

Daughter, aged 64, of M.R.C.S.Eng. who practised at Lydney and died in 1880. Applicant lost all her income through a defaulting trustee. Only permanent income now outside help from the Fund, a R.U.K.B. Association pension of £21. Relieved ten times, £104. Voted £12 in twelve instalments.

Daughter, aged 52, of M.R.C.S.Eng. who practised at Box and died in 1894. Is a permanent invalid. Lives with two sisters, only one of whom is able to earn a little as a companion, and the other has help from the Fund and Guild and another charity. Relieved five times, £66. Voted £12 in twelve instalments.

Daughter, aged 77, of M.R.C.S.Eng. who practised at Hackney and died in 1859. Applicant lost all her capital through bad investments by trustees, and is now dependent on friends, who provide £55 per annum. Relieved four times, £51. Voted £15 in twelve instalments.

Daughter, aged 64, of M.R.C.S.Eng. who practised at Liverpool and died in 1885. Applicant was left unprovided for, and acted as matron of a private home for many years at a small salary, and was unable to save, and had to retire after 60 years of age, and is now too old to undertake work. Has recently been elected to a pension of £30 from another charity. Relieved twice, £20. Voted £12 in twelve instalments.

Daughter, aged 67, of M.R.C.S.Eng. who practised in London and died in 1890. Applicant, with two sisters, were left unprovided for, but have tried to earn a living by taking in boarders and teaching, but of late have not been successful, and the house and furniture is in a bad state of repair. One of her sisters is also in receipt of help from the Fund. Voted £12 in twelve instalments.

Widow, aged 69, of M.R.C.S.Eng. who practised in Jamaica and died in 1884. Was left totally unprovided for at husband's death. Has three children, but none able to help. Only income a pension of £26 from a society in Jamaica, and occasional help from her brother. Health very bad. Relieved eleven times, £75. Voted £12 in twelve instalments.

Daughter, aged 59, of L.S.A.Lond. who practised at Long Sutton and died in 1879. Only income £25 per annum from dividends. Acts as housekeeper without salary, so as to keep together the home for the children of her late employer. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 55, of M.R.C.S.Eng. who practised at Stockton-on-Tees and died in 1897. Applicant was left without means with two young children, one of whom is now in the army, and a daughter who is a clerk, and pays 12s. a week for board and lodging. Has an army allowance of 7s. per week from son. Applicant acts as caretaker at a shop, so lives rent free. Health very indifferent. Relieved twelve times, £106. Voted £9 in twelve instalments.

Widow, aged 60, of L.R.C.P.Edin. who practised at Streatham and died in 1913. Was left entirely without means, and endeavours to make a living by taking in paying guests, but has not been successful recently. Receives a little help from friends. Relieved three times, £24. Voted £1 and her case referred to the Guild for a report.

M.R.C.S.Eng., aged 49, who practised at Wigan and abroad. Health became thoroughly undermined when abroad, and he had to be sent home and has not been able to work since. Lives with an aunt who cannot afford to keep him. Relieved twice, £20. Voted £5 and referred to the Guild.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

EDINBURGH SCHEME FOR MATERNITY SERVICE AND CHILD WELFARE.

I.

THE scheme which Dr. Maxwell Williamson, M.O.H. Edinburgh, has, after consultation and conference with various individuals and boards in the city, put into form and presented to the town council, is a large one. It has, of course, been adapted to the local conditions as they exist, and these include a large number of charitable institutions, such as hospitals and dispensaries; specialists in every branch of the medical profession; and a great medical university and extramural school with students in attendance requiring much clinical and practical instruction. These circumstances, whilst simplifying the problem in one direction, have complicated it in another, and have given to it peculiarities which may not be needed in other places.

The Preamble.

The Medical Officer begins by pointing out that the Notification of Births (Extension) Act for 1915 confers upon local authorities the power to frame and carry out schemes for the preservation of the health and life of the mother during her maternity periods, and for the supervision of the life and health of children under 5 years of age—the time when they are usually handed over to the continued care of the education authority. Allusion is made to the serious sacrifice of child life in all large communities, part of which at least is preventable. In the city of Edinburgh the total population under 5 years of age is close upon 29,000, and the average annual death-rate among these is 38 per 1,000; or, to put it in another way, during the five years (1911–1915) 5,578 children out of the total population of 29,000 in the city died. Further, the number of deaths in the various wards of the city differ considerably. During the five years referred to, the following number of children under 5 years died in the several wards: 112 in Morningside, 118 in Haymarket, 159 in Merchiston, and 172 in St. Andrew's, whilst in certain other wards of the city the numbers were enormously increased as follows: 374 in Gorgie, 472 in Dalry, 641 in Canongate, 669 in St. Leonard's, and 797 in St. Giles. The population does not greatly differ in the various wards, so that obviously conditions existed in certain of them the removal of which would cause a decrease in the deaths. The two outstanding causes of deaths among young children were measles and whooping-cough, the former during the five years under review exacting a toll of 451 deaths and the latter 489. There were 756 deaths under the heading of "pneumonia," but in a very large proportion of them it was a complication of one or other of these two diseases, the great majority of deaths from which occurred in the poorer districts of the city, where unsatisfactory surroundings, neglect of proper treatment, and often the absence of a medical attendant, speedily ended in the supervention of serious complications. Dr. Williamson's scheme is to be directed specially against these things, but he advises that both these diseases should be notifiable diseases, and that the number of hospital beds for their treatment should be substantially increased. The deaths among young children resulting from prematurity of birth, or associated in some way with maternity conditions, numbered 677; many of these under suitable treatment might undoubtedly have been prevented. The scheme would pay special attention to these causes. Again, the large number of fatal cases grouped under the general headings of digestive disease with diarrhœa and enteritis (508) were in many instances preventable, and would come under the action of the scheme.

The medical officer admitted that there was in Edinburgh less necessity for a far-reaching child welfare and maternity scheme than in some other places; but even in that city there was urgent need for a properly conceived scheme to bring together the existing agencies. In the past there had been overlapping and consequent loss of time, energy, and efficiency, amongst the agencies, some of which were excellent in every way. The city was happy in possessing not only an unusual number of voluntary agencies, but magnificent institutions which could be utilized in the efficient carrying out of a perfected child welfare and maternity scheme. It was conceivable that in some localities a special building might have to be erected, but speaking generally it was only necessary to select and make arrangements with the various hospitals, institutions, and agencies in order to carry the scheme fully into effect. The memorandum issued by the Local Government Board did not contemplate the inclusion of every institution, but only of those which the framers of the scheme considered necessary, and this restriction had been kept in mind.

The Scheme.

The work of constructing a scheme was greatly simplified by the fact that the institutions which could be utilized were situated in the very districts of the city where the cry for the exercise of child and maternity care and supervision was most urgent. In some of the institutions alterations and modifications and even extensions would be required to fit them for the new work, which would be both curative and preventive instead of simply curative. As far as possible it would be well to have both mother and child treated in the same institution although not necessarily on the same day. The whole scheme would be under the medical officer of health, and the central office would be the Public Health Department.

Main Centres.

The Edinburgh Royal Hospital for Sick Children was already recognized as a place to which children of practically all ages could be taken for advice and treatment; but in order to fit it into the scheme some rearrangements would be necessary. The hospital would have to agree to regard itself as a main centre under the Child Welfare Scheme, to hold two special clinics a week for children under 5 years of age, to recognize the physicians for children appointed by the various dispensaries under the scheme as its extern assistant physicians (in the same way as the Royal Maternity Hospital already recognized the obstetric physicians of the dispensaries), to keep records of the cases dealt with at the hospital and make them available for use by the Public Health Department, and that the hospital should be regarded as a consultative institution to which the more serious cases could be remitted from other institutions under the scheme. The second main centre, the Royal Maternity Hospital, would hold outdoor clinics conducted by a senior physician to the institution twice weekly for expectant mothers and for women suffering from ailments associated with child-bearing. Confinements would (as usual) be attended at the patient's own house by nurses and students residing in or attending at the institution, and one of the senior physicians would supervise this branch of the work, and, where necessary, give advice or assistance. The hospital had for a number of years contained a certain number of beds available for patients suffering from certain antenatal conditions which implied danger to themselves or their infants, but an increase in the present available bed accommodation would be almost immediately necessary.

Subsidiary Centres (Chiefly Curative).

It is recommended that some of the subsidiary centres should be devoted specially to curative treatment, others mainly to preventive work. The institutions necessary for the former purposes included the five dispensaries which were already associated with the Royal Maternity Hospital in so far as their obstetric physicians were concerned, and which, it was hoped, would be similarly grouped with the Royal Hospital for Sick Children in respect of their pediatric physicians, the Deaconess Hospital, the Hospice, the Hospital for Women and Children, Whitehouse Loan (with dispensary in Grove Street), the Royal Victoria Dispensary for Tuberculosis, Colinton Mains Hospital, and the two centres to be established at the lower end of the Canongate and in Gorgie.

Attached to the five associated dispensaries and to the Deaconess Hospital there would be consulting physicians, who, it was hoped, would be recognized as extern assistant physicians to the main centres, giving thus a certain cohesion to the scheme. At each of these six centres there would be two child clinics and two maternity clinics weekly. All expectant mothers, all nursing mothers, and all children under 5 years who might be found by the health visitors suffering from any form of disease or requiring advice of a curative or preventive nature would be at once sent to one of these institutions, where every form of non-infectious malady (skin, ear, eye, nose, throat, teeth) would be treated. Complicated cases requiring special consultative treatment or advice would be sent on to the main centres. One of the official nurses under the scheme would be present at each of the centres during the course of the clinic, and would be able, by subsequently visiting each case at home, to ensure that the advice given was properly carried into effect. A "card system" would be established under which cases found at home in need of medical advice would be passed on to one of these centres, met there by the nurse, and subsequently visited by her at home. Records of the ailments treated would be preserved in the Public Health Department. Obstetric work also would be carried out from these centres, and would be under the immediate supervision of the responsible physician to the institution, assisted by students, nurses, or qualified midwives. About fifteen hundred cases were attended annually from such institutions—persons who were not insured and who therefore received no maternity benefit, and were not in a position to pay for medical attendance. These institutions would supply the necessary medicines free of charge to those unable to pay for them.

Dr. Maxwell Williamson further states that the care of all infants immediately after birth would be relegated to the physicians in charge of the child branch of the work at the various dispensary and hospital centres included under the scheme—the maternity centres being limited in their duty to the care of the mother before, during, and after her confinement. It is doubtful whether the foregoing regulation will meet with general approval; doubtless it is easier for administrative purposes to make the line of separation between the child welfare and maternity work to be birth, but there are practical difficulties of a formidable nature, and the other separation time, weaning, has much to commend it. Maternity hospitals are accustomed to the management of infants, and it seems awkward to have two physicians (obstetric and pediatric) in attendance during the first month at least.

GRANTS.

The Notification of Births (Extension) Act, under which the scheme was framed, contemplated grants in aid, to be paid in respect of: (1) The formation of new clinics (maternity and child); (2) attendance on obstetric cases; (3) the supply of necessary medicines, etc. In addition to these it would be necessary to provide grants for medical attendance at the homes of patients unable to take advantage of the various clinics; this could, of course, have been accomplished by the appointment of several doctors acting directly under the corporation, but it was proposed rather to lay the responsibility of the attendance on outdoor cases (in connexion with each centre) upon the senior physician in charge of the clinics. Although this would involve an additional substantial grant being paid to each, it was certain that the outdoor work would thus be more efficiently carried on, and a continuity established between it and the clinics themselves. At the present time the custom was for students to attend the various dispensaries of the city and to visit the outdoor cases connected with them. Each student was expected to report to the senior physician any serious case to which he was called, and the physician was supposed to visit and advise as to subsequent treatment. But this arrangement was not common in practice, for in the past five years no fewer than 322 deaths had been certified by students. It was proposed under the present scheme to do away with this state of matters; under a financial arrangement with the senior physicians of these centres, each would be responsible for identifying himself with the work of the students attending the centre and personally visiting all the cases which, in his opinion, required such supervision.

(To be continued.)

British Medical Journal.

SATURDAY, JULY 15TH, 1916.

JUTLAND AND THE SOMME.

THE civil medical profession, which has contributed so many of its members to the medical services of the Navy and the Army, may well be proud of the praises those services have won from the Commanders-in-Chief in the battles of Jutland and the Somme. Sir John Jellicoe in his dispatch stated that the work of the medical officers was "entirely admirable and invaluable. Lacking in many cases all the essentials for performing critical operations, and with their staff seriously depleted by casualties, they worked untiringly and with the greatest success." Sir David Beatty speaks of the exceptional skill displayed in face of the fact that in some cases their staff was seriously depleted by casualties and in spite of the inevitable lack of such essentials as adequate light and hot water, in ships shattered by shell fire; conditions, he says, "which tried their skill, resource, and physical endurance to the utmost." Such praise must be a source of immense gratification to the present Director-General of the navy, Sir Arthur May, and his immediate assistants, on whom the heavy work of preparation fell, and also to his predecessor, Sir James Porter, who, not satisfied with paving the way, has gone back to the hard work of his service.

The observations of the new Under Secretary of State for War on the organization of the medical service in and behind the battle of the Somme must have been not less gratifying to the two Director-Generals of the Army Medical Service, Sir Arthur Sloggett, who, as Director-General in France, was responsible for the planning of all the local arrangements, and Sir Alfred Keogh, who, from his office in Whitehall, had the duty of providing from the resources of this country in men and material everything that was requisite for the treatment of the wounded and the swift transport of those who could bear the journey to this country. We are very glad to be able to say that the Commander-in-Chief in France has not been behind Lord Derby in prompt recognition of the excellence of the service rendered by the medical department. Within half a dozen hours of the end of the initial stage of the still continuing battle of the Somme, that is to say, on the fourth day, Sir Douglas Haig caused to be issued a Special Order of the Day, which was addressed from Advanced General Headquarters to the deputy directors of medical services, and by them readdressed to all medical units with instructions that it should be read on parade. The order was in the following terms:

"The Commander-in-Chief directs me to convey to you and through you to the directors and all concerned under them, his high appreciation of their hard work and the efficiency of arrangements for dealing with the medical aspect of the present situation."

This order will be read with great satisfaction by all medical men wherever situated, and must have been specially gratifying to Sir Arthur Sloggett, who, as Director-General in France, was responsible for the planning of the arrangements on the spot and personally supervised their working at the front during the days covered by the order. It will also be read with satisfaction by all those who have friends in France, for it affords ample assurance that no medical means that can relieve the sufferings of the wounded or prevent losses of life are being overlooked.

It seems certain that the proportion of light to serious cases has been unusually large, while even among the more severe the prognosis is regarded as more hopeful than usual. The reason would seem to be that the enemy depended for the most part on machine rifle fire in their endeavours to repel the attack, and rifle bullet wounds, if they do not cause immediate death, tend on the whole to heal more quickly than those caused by high explosive and other shells.

The rate of evacuation from the front to the bases was so considerable that by the end of the fourth day—that is to say, within a few hours of the end of the initial battle—most of the casualty clearing stations and field ambulances seem to have had very few patients left on their hands. The great majority had already been put on the ambulance trains or otherwise safely removed to a distance from the scene of action, and very many of them were in hospitals at home. The staffs of most of the units named had previously been strengthened by sending to them men who for the time being could be spared from their ordinary duties elsewhere. For the most part they were all medical officers who had had previous experience of the same kind of work either as battalion medical officers, field ambulance officers, or members of the staffs of casualty clearing stations. Such previous experience is very desirable, for the work that has to be done at front-line formations during the progress of heavy actions is quite special in its character.

The number of casualty clearing stations distributed within easy reach of the part of the line at which the operations were most active was, we believe, considerably above the usual proportion. As a rule, they were arranged in pairs with the idea of allowing one of the two to have time to deal with the cases already taken in, while the other was open for the admission of fresh cases. They emptied and filled alternately.

This was one strong feature in the arrangements; another was the care taken to provide for the prompt classification of cases. From the fighting line backwards the cases were winnowed and rewinnowed, men being sent to one place or another according as the apparent gravity of their wounds or their general condition seemed to demand. In addition, for instance, to the casualty clearing stations, there were also places to which those who were only very slightly wounded could be sent and receive immediate treatment, as well as medical rest houses, some for officers, some for men, to which could be sent those who were not wounded but only temporarily exhausted by their exertions.

A third strong point was the fact that the medical authorities did not depend for the evacuation of the casualties solely on the ambulance trains. Sometimes they used empty lorries for the evacuation of lighter cases from the field ambulances, and they had also brought up a large number of motor charabancs. There were instances in which the latter carried their loads of sitting-up cases right down to the base hospitals, some of which were established within two hours' drive of the real front. The staffs of these hospitals, in accordance with arrangements made in this country in advance, were strengthened by consulting surgeons who had been holding themselves in readiness at home.

A fourth strong point was the fact that the senior administrative officers, including the Director-General

himself, kept moving round the medical units encouraging the efforts of those engaged in executive work. To this may be added the stimulus of the knowledge not only that this work was appreciated by the men they were treating, but also, as evidenced by the Commander-in-Chief's Special Order of the Day, that its excellence was understood by the high command. Sir Douglas Haig's words will encourage every member of the service to meet all present and future demands upon it in a way to earn similar praise during all the trying times still in front of the army.

BASIS OF CALCULATION OF INCOME TAX.

Our attention has recently been called to the fact that in one of the northern cities the surveyor of taxes has declined to accept a statement of liability to income tax based on "cash receipts" unless the calculation is modified by adding to or subtracting from the result so obtained the increase or diminution in the amount of debts appearing on the books of the practice at the end of the year. This raises a question of very considerable importance to the medical profession, and although the case referred to appears at present to be an isolated example of misplaced zeal, we propose to discuss the matter in some detail, lest the same objection be taken in other cases and be allowed to stand without challenge.

At the outset we admit freely that there are cases in which the usual basis of "cash receipts" would not be proper or reasonable. For instance, where a practice is purchased from the executors of the previous proprietor on terms which permit them to collect the book debts outstanding at the date of transfer. In such circumstances the cash receipts of the purchaser may be almost *nil* in his first year, and very unsubstantial in his second year. His "income" cannot be fairly measured in terms of the accounts paid without taking into consideration the accounts unpaid, and it is therefore necessary to fall back on some measurement of the value of the fees booked. The reasonableness of this proposition is, we believe, generally admitted, and in such a case as we have suggested the revenue authorities would be justified in an attempt to discard the basis of cash receipts. To a much smaller degree these observations would apply to a rapidly increasing practice, but the converse would also apply to one in which the bookings were falling off—a point to which we shall have to recur.

That the practice of the Inland Revenue, which we contend should be continued, is of long standing, is shown clearly enough by the following quotation from our issue of November 30th, 1912, in reply to a question as to a specific case: "Unless there are very exceptional circumstances in the case, the surveyor's request is a distinct departure from the well recognized practice of dealing with professional accounts on a cash basis." Many new income tax regulations are appearing in statutory form as the existing high rates of duty gradually increase hardships or tempt to evasion, and it is the more desirable that convenient and reasonable methods of calculation which have grown up by tacit consent, and had taken firm root years ago, should be allowed to remain.

Let us consider the question theoretically before turning to its practical side. What does constitute the true sum of the receipts of a practice in a particular year? Clearly that which results from the year's work; but on the other hand those "receipts" which are never actually paid to the practitioner are not true receipts at all, so that the question may be answered by saying that the true amount is the value of the fees booked in the year. *Prima facie* this may seem to be leaning towards the revenue side of the argument, but it is to be noted that such a basis necessarily involves a valuation, more or less arbitrary, of professional book debts, and if there is any form of debt offering a wider margin of error in valuation than an unpaid fee we have yet to discover it. A trader can doubtless prepare his statements by taking his bookings and deducting from these the amount of the debts on his books which are known to be bad, but he can walk with precision in places that give a very uncertain footing to the medical practitioner, whose account may be paid to-morrow, or in several years' time, or not at all.

In its practical working the calculation of the cash receipts has everything to commend it; as was stated in an article which appeared in our issue of April 18th, 1914, it "has the conspicuous advantage that, as no credit is given to the Revenue for outstanding fees, the difficult problem of calculating the value of the 'bad and doubtful debts' is avoided." A medical practitioner does not as a rule prepare a balance sheet at the end of his year, showing therein his total book debts; in most cases it would serve no useful purpose, and he seldom has either the time or the clerical staff necessary for its preparation. On the other hand, the actual amount of fees paid to him during the year is ascertainable with comparative—though not absolute—ease. It is easy where a separate banking account is kept for professional receipts and payments, as, for instance, where two or more practitioners are working under partnership arrangements, and we may perhaps point out that in these circumstances the Revenue officials have a safeguard against errors that would not be found in a computation of total book debts.

A noteworthy feature of a medical practice is the comparative steadiness of the gross receipts—on whatever basis they may be calculated. The gross income of a solicitor varies with the number of conveyances or testaments prepared, and may be suddenly expanded by a lucrative and successful piece of litigation, and the profits of a trader must vary widely with the expansion or depression of trade, but the fluctuations in the fees of a medical practitioner are conscribed within much narrower limits and take place over much more extended periods of time. If this be granted—and it does not seem to be open to serious dispute—it follows that the amount of any one year's cash receipts is very much the same as the true value of the bookings for the same year, the omission of the unpaid accounts of the year being fairly compensated by the inclusion of the payments received for fees earned in previous years. Admittedly the method of dealing with cash only will have a "dragging" effect on the fluctuations of the income from the practice, but the Revenue authorities are as likely to gain as to lose from the additional steadiness thus imparted to the rise or fall, and where the level is steady the results of the two methods must be identical.

In point of fact, in the special circumstance of the moment the Revenue probably gains tax on the "cash basis" method of calculation. Under the provisions of the Finance (No. 2) Act, 1914, a practitioner whose professional income has suffered owing to the war is entitled to base his liability on the average of the year of assessment and the two previous years, instead of on the three previous years as usual, and if he is a member of the naval or military forces of the Crown he is entitled to discard the average altogether and to pay on the actual

year's result. If the calculation of this new liability rests on the basis of the cash receipts it will reflect the previous, and *ex hypothesi* more remunerative, year's work, and will therefore give a result in excess of that which is based on the value of the year's bookings; and we may perhaps add that as the practitioner is always entitled to revert to the three years' average in future years, that excess will be permanent.

We have no desire, and we trust no need, to labour the point further; it must surely be fairly obvious that the innovation which is suggested to us as possibly impending would involve an unreasonable amount of clerical work on the part of a profession already bearing a heavy burden of necessary and responsible labour, and would in the end be of no advantage either to the profession or the Revenue.

RESTRICTING THE SALE OF "MEDICATED" WINES.

IT is becoming a common observation that many reforms, demanded before the war, have been rendered obviously and urgently necessary by the altered conditions due to it. The opposition any proposed legislation for effecting such reforms would have encountered from interested quarters is entirely thwarted by the simple procedure of making an Order in Council under the Defence of the Realm Act and Regulations. Those who foresaw the need for such reforms in the days before the war and endeavoured to secure them are fully entitled to point to what has happened as evidence that their judgement in the matter was sound. An interesting case in point is that of medicated or so-called medicated wines. On page 78 is reproduced the text of an Order which has just been issued by the Central (Liquor) Control Board, forbidding the sale of such wines and some other compounds on "off-licensed" premises unless a clear statement of the amount of proof spirit present appears on the label. We have for many years past frequently pointed out the danger of "meaty" and other so-called "medicated" wines, which are often (as our published analyses have shown) wines containing from 17 to 20 per cent. by volume of alcohol (30 to 35 per cent. of proof spirit). They are advertised as medicines, and there is thus a great danger, which experience shows to be very real, of their being bought and taken by persons who never suspect, or wilfully close their eyes to the fact, that they are essentially ordinary wines with something added; they thus contract the alcohol habit unwittingly. We have pointed out the need for the obvious safeguard of requiring the alcoholic strength to be stated on the label, and it is gratifying to find that such a requirement is now seen by the authorities to be wise. The words of the order contain no definition of "medicated wine," but the term is given a sufficiently wide scope by being applied to "any intoxicating liquor in the form of or prepared as (*a*) medicated wine, or (*b*) any mixture or preparation which contains any drug or medicament or is sold or advertised for sale as containing or purporting to contain medicinal properties." Bona fide medicines are expressly excluded if they are preparations of the *British Pharmacopoeia* or *British Pharmaceutical Codex*, medicines made up to the signed prescription of a medical practitioner, or "medicated or methylated spirits or spirits made up in medicine, and sold by medical practitioners or chemists or druggists." Since practically all the advertised "medicated" wines can only be sold by retailers having a full wine licence, their sale in recent years has been chiefly confined to wine and spirit merchants, grocers, and "off-licence" public-houses; comparatively few pharmacists have found it worth the time and trouble to obtain a licence in order to sell them. It would appear from the wording of the order that a grocer who has been in the habit of selling both "medicated" wines and proprietary medicines may find the sale not only of the former but also of many of the latter now interfered with; if they contain sufficient alcohol to come under the description, "Any intoxicating liquor in the form of medicament, or sold or advertised as containing medicinal properties," they cannot in future be sold on licensed premises (except by a chemist or druggist) unless labelled with their alcoholic strength. It will be interesting to see how far the sales of such wines as those affected by the order will be maintained when the purchaser can see for himself what a strongly alcoholic liquor he is obtaining.

"PHYSIOLOGICAL ABSTRACTS."

WE have received some of the recent numbers of *Physiological Abstracts*, a monthly periodical established by the Physiological Society last April. We heartily recommend it to all readers who wish to keep themselves abreast of the modern progress of physiology; the term "physiological" is used in its wide sense to include important papers in allied sciences which have physiological bearings. Hitherto we have had to rely upon Germany for publications of this nature, and we congratulate the Physiological Society on its initiative in starting a periodical to replace those of alien origin. The society has been fortunate enough to secure the co-operation of physiological societies and journals in all the neutral and allied nations, the list of which is given on the title-page. A large staff of abstractors has been enrolled from among the physiologists, not only of this country, but also from America, Holland, Denmark, Sweden, Norway, Russia, and other lands; we note that the British physiologists include such names as those of Professor Sherrington and Professor Bayliss; among the Americans are Professor Benedict, Professor Macleod, and Dr. Percy Stiles; and from European countries we see Professor Arthus (Switzerland), Professors Babkin and Boldyreff (Russia), Professors Hamburger and Zwaardemaker (Holland), Professor Krogh (Denmark), Professor Dastre (France), Professors Aducco and Fano (Italy), Professor Overton (Sweden), Professor Torup (Norway) among the list of supporters. Cordial messages of good will have been received from the American Physiological Society and kindred societies across the Atlantic, and the Chemical Society in Great Britain and Ireland has promised its co-operation in certain directions. The new venture is starting under most favourable auspices. Professor Halliburton is the responsible editor, and we congratulate him on the prompt way in which he has secured publication of abstracts of the most recently published physiological writings. The last number to hand contains abstracts of no fewer than two hundred and twenty-four papers, and these are culled from sixty-four different journals at home and abroad. At this time when the nations are busying themselves with more important matters this number of physiological papers in a month seems a large output; as one would anticipate, America just now heads the list in the quantity of research work published. When the war is over, we foresee that *Physiological Abstracts* may have a harder time, but we wish our young contemporary every success. Messrs. H. K. Lewis and Co. (136, Gower Street, London, W.C.) are the publishers, and the annual subscription is 25s., post free.

GENERAL GALLIENI'S SANITARY WORK IN MADAGASCAR.

THE military achievements of the late General Gallieni have given him a conspicuous place in the history of the present war. His work as a Colonial Governor, though less spectacular, showed a capacity for understanding and dealing with sanitary problems rarely found in lay administrators. This is well brought out in an

article on his work in Madagascar by Dr. A. Kermorgant, which appears in the *Revue d'Hygiène* for June. Gallieni's first care when he was appointed Governor was to make a survey of the island. He was deeply impressed by the deplorable hygienic conditions in which the natives lived. It was estimated that of every thousand deaths, at least one half were due to preventable diseases, the most common being digestive and respiratory affections, eruptive fevers, paludism, tuberculosis, and venereal diseases. The birth-rate was very low owing to the lack of proper provision for the treatment of parturient women. Gallieni set himself to reform these evils by organizing a system of medical assistance. In 1896 he founded a school of medicine for natives. The first students were unsatisfactory; they had to be taught with the help of interpreters; the idea of dissection was abhorrent to them; they disliked hospital work and considered the dressing of sores as the work of slaves. These prejudices have now to a large extent disappeared. The curriculum extends over five years, at the end of which the degree of doctor of medicine is conferred on candidates who have passed the statutory examinations. Women are trained as midwives, and the native women have learnt to take advantage of maternity institutions; this has had a happy effect on the birth-rate. To increase the population Gallieni adopted legal, fiscal, political and medical measures. The first comprised the regularization of marriages and strict supervision of divorce. The second consisted in exemption of fathers of five children from taxation, exemption from military service of all fathers of families, and a tax on bachelors who did not provide for the maintenance of a child. The political measures consisted in the institution of an annual children's festival, with the distribution of prizes to the mothers of the largest families. The medical measures were the foundation of hospitals, dispensaries, and orphanages in all the provinces. A Pasteur Institute was founded at Antananarivo in 1899 for the production of small-pox vaccine and the treatment of hydrophobia. Lazarettos were established for the internment of lepers. A central pharmacy for the supervision of drugs was established. Systematic efforts were made to educate the natives in sanitary matters by popular literature and lectures. Gallieni sent a communication to the Paris Academy of Medicine, in which he outlined his plan of medical assistance, and asked for advice as to further measures. The Academy expressed approval of what he had done, and made some recommendations as to the repression of alcoholism, paludism, and tuberculosis. Gallieni at once acted on these recommendations, and further issued instructions as to the means of protection to be adopted against plague, cholera, and yellow fever. The result of his activity was that small-pox was almost completely eradicated, paludism was greatly reduced, and both the morbidity and the mortality rates were diminished. To Gallieni belongs the credit of understanding the great part that can be played by the medical profession not only in colonization but in the pacification of new countries. So impressed were the Malagasy by the beneficial work of the French Governor that they called him "Ray Amandreny," meaning "both father and mother." The Academy of Medicine bestowed on him a gold medal, the highest reward in its gift, in recognition of his services to the cause of hygiene.

LIVER ABSCESS IN WOUNDED SOLDIERS DUE TO AN ANAEROBIC ORGANISM.

Buday[1] records a remarkable series of cases which occurred in the Red Cross Hospital at the small Hungarian town of Balassagyarmat, near Budapest, last year. The patients all had septic wounds due to projectiles, but there was otherwise nothing of special note; then high fever suddenly set in, and two-thirds of these patients died in ten to fourteen days from the initial rigor with the symptoms of severe sepsis. *Post mortem* the constant lesions found were abscesses of the liver, usually a large number; abscesses in the lungs were also frequent; the other organs were less often affected. The contents of the abscesses were odourless and quite necrotic; the only organisms present were abundant small, Gram-negative bacilli, which stained at the poles, and resembled *B. pestis* in appearance, but all attempts to obtain growths on the surface of various media failed. On making anaërobic cultures in media containing serum and blood, however, growth was obtained at body temperature in a number of instances. The organisms in the culture resembled those in the direct smears from the pus but were sometimes slightly larger, and very large involution forms occurred; they were non-motile and did not form spores; after a few subcultures they died out. Inoculation of rabbits and guinea-pigs with the pus and with pure cultures led to abscess formation. Similar organisms have been described by Veillon and Zuber in appendicitis as *Bacillus fragilis*, by Russ in suppurative periproctitis, and by Ghon in two cases of meningitis of otitic origin, but this appears to be the first observation in cases of liver abscess. The considerable number of cases, 22 in all, occurring at the rate of 2 or 3 a month, with a total turnover of 500 wounded cases in the hospital, raises a number of questions as to the source of infection to which no satisfactory answer has been forthcoming. Buday remarks on the fact that, though the liver was the site of election of the abscesses, pylephlebitis and cholangitis, and also clinical signs pointing to any disturbance of the alimentary canal, were absent, so that there was no evidence of the intestinal origin of the infection. In no case did the patient's wounds present evidence of highly active infection (gangrene or suppurative phlebitis). No cases in other places had come to Buday's notice. The delicacy of the organism made it unlikely that it was a saprophyte in the hospital. Whether it entered the tissues by way of the wounds or from the alimentary canal, where it may be a constant inhabitant, were unsolved problems, but the occurrence of such cases emphasizes the fact that there are still serious gaps in our knowledge regarding the group of pyogenic organisms.

[1] *Centralbl. f. Bakt.*, 1916, xvi, Ref. p. 95.

LONGEVITY IN THE INDIAN MEDICAL SERVICE.

The life of Surgeon-Major H. B. Hinton, of which some account is given in another column, takes us back a long time. It covered the last two years of the Napoleonic wars, and extended almost to the end of the first two years of this new world war. On the occasion of his centenary in 1913 he received the congratulations of the Council of the Royal College of Surgeons. Three years earlier it had congratulated Mr. Edgar Jones, of Great Burstead, Essex, who had taken the diploma of M.R.C.S. in 1834, on the attainment of the age of one hundred years; Mr. Jones died in 1912, so that Surgeon-Major Hinton, at the time of his death, must have been not only the oldest medical officer and the oldest officer on the retired list, but also the oldest member of the Royal College of Surgeons of England; probably he was the oldest member of the profession anywhere. He was serving in India when the first Afghan war began, though he himself did not take part in that war. He was the last survivor of the officers of the Indian Medical Service who served in the two Sikh wars, and there can be few, if any, officers or men now living who took part in those campaigns, the first of which was fought over seventy years ago. Hinton was the third retired officer of the Bengal Medical Service who has topped the century during the last twenty years. The first was John Bowron, who was born in February, 1799, entered the Subordinate Medical Department as a medical pupil on July 1st, 1813, was promoted assistant surgeon on December 20th, 1825, retired on December 31st,

1851, and died at Hove on March 5th, 1899, having just completed his century. The second was Thomas Lambert Hinton, who was born on May 1st, 1808, joined the service on January 30th, 1842, resigned, less than four years later, on October 24th, 1845, and died at St. Leonards on June 14th, 1908, six weeks after completing his hundredth year. He only spent a few years in India, but Bowron and H. B. Hinton put in nearly forty and thirty years' service respectively, under conditions of life infinitely more trying than those which now prevail. The two Hintons, although namesakes and contemporaries, were not related. H. B. Hinton had been the senior officer on the retired list of the Indian Medical Service for nearly twelve years. His predecessor in that position was Surgeon Francis Thompson, who was born on November 2nd, 1808, commissioned on April 18th, 1833, retired on July 14th, 1856, and died on August 22nd, 1904. The senior officer now living appears to be Surgeon-General Thomas Barkly Beatty, who was born on November 4th, 1827, entered the Bombay Medical Service on May 20th, 1851, and retired, after being head of that service for five years, on March 31st, 1885. Surgeon-General Sir Alexander Christison, Bt., who is five months junior to and nearly a year younger than Beatty, is now the senior Bengal officer.

INSTRUCTION IN SEXUAL HYGIENE IN GIRLS' SCHOOLS.

AT a meeting of head mistresses, held on July 7th at the Royal Society of Medicine, the recommendations of the Royal Commission on Venereal Diseases were discussed, with special reference to the education in sexual hygiene of children and adolescents. Mrs. Creighton took the chair, and Dr. Mary Scharlieb in the course of an opening address pointed out that from a consideration of the evidence laid before the Commission, together with its conclusions and recommendations, it was evident that there was a consensus of opinion that all classes of the community need instruction in this matter of national importance. With regard to children it was felt, in the first instance, that parents were the right and natural instructors, but inasmuch as unfortunately the great majority of parents are neither able nor willing to give the necessary instruction, that duty, like so many others, was delegated to teachers. It was felt that instruction of children in sexual hygiene and physiology should not be attempted in class, but that head masters and mistresses should make a point of interviewing pupils about to leave elementary and preparatory schools, and that they should also offer warning and guidance to any child who appeared to be in special need of such assistance. It was further evident that before adolescents of both sexes took up the work of life, whether as undergraduates going to a university, or boys entering commerce or factories, workshops and other callings, it was absolutely necessary that the head master of the school, or some one representing him, sometimes the school medical officer, or a clergyman, should endeavour tactfully and sympathetically to give such guidance as would help the young man to avoid immorality and its fatal consequences. It was pointed out that girls also were in need of sympathetic and tactful help, and that this was so was emphasized by the fact that the heaviest percentage of illegitimacy was found amongst the children of young servant girls. The meeting was well attended, and there was subsequently a brisk discussion. Most of the head mistresses present agreed that, failing the mothers, it was their duty to help the children under their care. Some of them felt that this duty was difficult of performance, and before the close of the meeting there was a general request for further instruction. This has been given at the house of the Royal Society of Medicine this week, and will be repeated on September 6th, 7th, and 8th, at 3 p.m. All women teachers are invited to attend.

REPORTS OF FACTORY SURGEONS.

THE Home Secretary has lost no time in giving effect to the recommendation of the Retrenchment Committee that the reports of certifying factory surgeons on accidents, which cost £12,500 a year, should be dispensed with. The Committee on Accidents and Factories recommended that legislation should be obtained to enable this to be done on the ground that they were now of little value and entailed in all serious cases a duplication of reports made by the inspectors. The clause in the Government omnibus bill, called the Police, etc. (Miscellaneous Provisions), Bill, to carry out this recommendation encountered a good deal of opposition, not only on the part of the certifying factory surgeons, but also from the representatives of labour in the House. The Home Secretary so far bent to this opposition as to introduce an amendment having the air of a compromise. This did not altogether still the opposition, but the clause as amended was carried by a substantial majority, though in a very small House. As it now stands the clause is a combination of the proposals contained in the Factory Bill of 1901 and the Accidents (Mines and Factories) Bill of 1905, which were not proceeded with owing to the strong opposition they excited. The clause now carried continues the duty of the certifying surgeon to investigate and report upon cases of injury by exposure to gases, fumes, or other noxious substances. Beyond this its main effect is to give the Home Secretary power to schedule any classes of accidents which must be investigated by certifying surgeons, and to give instructions as to the qualifying points which would justify a district inspector in referring any other accidents for investigation and report. In view of the very strongly expressed views of the Home Secretary it does not seem probable that this second part of the proviso will be of much effect. It seems unlikely that the Home Office will make regulations requiring the factory surgeon to investigate any classes of machinery accidents in the future unless very strong pressure is brought to bear. Such pressure could most effectually be exerted by the trade unions, but the clause was opposed by the National Society for the Prevention of Cruelty to Children and the National Union of Teachers, as well as by the Association of Certifying Factory Surgeons and the British Medical Association.

IN DIRTY DOGDOM.

THE French Council of Hygiene devoted the greater part of its last session to the consideration of the public dangers associated with the inordinate keeping of dogs and the insufficient control exercised over them. In the first place, the Council, having discussed at length the fact that there had been a recrudescence of rabies during the last few months, determined to require that the measures authorized for holding the disease in check should be most strictly applied. Next, Professor Raphaël Blanchard undertook to prepare a report on the dangers of the dissemination of hydatid diseases by dogs and the preventive means which should be taken. Finally, the Council adopted a resolution urging that the regulations with regard to the municipal taxes on dogs should be vigorously applied. At about the same time the Medical Committee of the British Science Guild was adopting a resolution condemning the pollution of the streets of London and of most cities and big towns by dogs, and suggesting to the Government and municipalities that the evil might be reduced by increasing the tax on dogs and enforcing by-laws. The committee considers that in towns the tax on one dog should be doubled, and a large progressive increase imposed on each additional dog. The proposal will probably have the cordial support of the majority of retail traders, who daily suffer loss owing to the primitive habits of the little darlings that women drag about with them; they contribute to the fouling of the streets and pavements, but in this respect the big dogs are of course worse, and they

always seem altogether out of place in towns. We suspect that the most important parts of the resolutions of both bodies are those advising more thorough enforcement of the licensing regulations. Whether the Inland Revenue has tightened up its administration lately we do not know, but undoubtedly there used to be a large number of dogs running about in small towns and villages for which no licence had been taken out.

Medical Notes in Parliament.

Local Government Board.

The vote for the Local Government Board was taken on July 11th. In moving it Mr. Long spoke of the enormous amount of work that had been placed on the shoulders of local authorities, and expressed his appreciation of the devotion, the spirit, and the ability with which they had applied themselves to it. The normal work of the Local Government Board had been greatly reduced by dropping much routine work and various statistical returns. Loans, excepting for war purposes or very urgent public health matters, had been stopped altogether. The Poor Law authorities had freely placed their workhouse buildings at the disposal of the War Office; some had been used as barracks, and others for hospitals, in which 40,000 beds had been made available. Accommodation had also been provided by the local authorities for infectious diseases among soldiers. One half of the medical staff of the Board had been engaged upon war work, chiefly the visiting of camps and billets, and the inspection of food, both here and abroad. It was in large measure due to their efforts that it had been possible to maintain so high a standard in the food provided to the army. At the beginning enormous numbers of men were collected in various areas, where there was all too often very insufficient accommodation, no sanitary arrangements, and none of the provisions necessary to defend the health of the community. The precautions taken had been followed by a steady decrease in enteric fever and in cerebro-spinal disease; small-pox, which at one time caused some alarm, had been satisfactorily dealt with, and this result was largely due to the prompt action taken by the officers of the medical department of the Board to secure among other things that three million tubes of lymph manufactured by the Board on the latest principles were supplied to the War Office. The response of local authorities to the appeal to institute schemes for the welfare of infants and mothers had been satisfactory. The amount of the grants last year to local authorities, equal to half the cost, was £42,000. Local authorities and voluntary associations were generally co-operating well, and no fewer than 900 health visitors had been appointed. Some of the local authorities had been able to provide nursing as required by the Notification of Measles Order, and the London scheme had been a notable contribution to the work. A grant of £50,000 had been made, and would be increased if needed.

Speaking as one with a quarter of a century's experience in various departments, he said that he had noticed during the last ten or twelve years a tendency for departments to take up work which really belonged to other departments, so that there were two views taken as to what ought to be done, and two inspectors visiting the same house. This duplication led to weakness in administration. He declined to deal with the relation of the heads of the Board of Education to the health of school children, but contended that the Board of Education existed for education and the Local Government Board to care for public health. There was overlapping, not because officials did their work improperly, but because Parliament for years had been passing Acts throwing similar duties upon different departments, this led to unsatisfactory administration, and in many cases to great waste of money.

He paid a tribute to the work of the Royal Commission on Venereal Diseases, whose recommendations it had been possible to a very large extent to adopt. An Order was about to be issued imposing upon local authorities the duty of organizing measures by which facilities in connexion with existing institutions, such as large hospitals, should be provided. The local authorities were called upon to provide (1) laboratory facilities for free diagnosis, (2) clinics at the large hospitals, (3) gratuitous supply of salvarsan. Some of those responsible for the hospitals entertained a fear that the reputation of a hospital would be injured by importing venereal cases into it. That this was not the case was shown by the experience of a London hospital. The State grant would be 75 per cent. of the cost, and in return he asked the hospitals not to consider it essential that the patient using a hospital should belong to the particular district the hospital served. With regard to ordinary medical work, he said that, although there was a considerable shortage of medical men, there were no fewer than 290 sanatoriums and hospitals, providing 11,743 beds for tuberculosis; in addition, 359 dispensaries had been approved, and there was sufficient accommodation for all present demands. All soldiers and sailors discharged on account of tuberculosis could be provided for in these institutions. Special arrangements for the treatment of officers had been made with King Edward's Sanatorium at Midhurst.

The demands upon the staff and upon the medical men of the country had been excessive in consequence of the war, and in many cases had thrown an immense burden of work upon medical men, but it had been possible to prevent normal work in connexion with public health falling behind, though no new fields of enterprise other than those he had mentioned had been entered.

He desired, he said, to pay a special tribute to the doctors in town and country. New legislation had thrown upon them an enormous burden of work. Very many doctors had been taken for the R.A.M.C., and this naturally and necessarily diminished the number available for the work at home. "Cheerfully and bravely have these men done it. Let any one examine the diary of their day's work, and see what it is now for a country doctor or a doctor in one of our great towns. Hours and hours do they labour, and when they come home there is a great deal of writing work to be done in the making up of the returns. There is no complaining and no grumbling. They are doing it with all the will in the world, and I think the nation owes a special debt of gratitude to these men who are labouring in order that we and the rest of the population might be sustained in good health. To them I desire to pay a special tribute, because I believe of all the civil professions there is none which has played so great a part in war time as these men have who are doing so much at this moment."

Mr. Long's statement had a very sympathetic reception, Mr. Crooks going so far as to suggest that the name of the Board should be changed to the Good Samaritan Department. Much of the discussion which followed was concerned with the work of local tribunals.

Welfare Schemes for Factories and Workshops.

Clause 7 of the Government's omnibus bill, called the Police, etc. (Miscellaneous Provisions), Bill, contains a clause enabling the Home Secretary to require an employer to make provision for securing for the workers such conveniences as arrangements for preparing, heating, and taking meals, a supply of drinking water, facilities for washing, accommodation for clothing, and ambulance and first-aid arrangements. The memorandum on the bill pointed out that in recent years welfare arrangements had been introduced by many employers, and that since the outbreak of war the arrangements had been extended on account of the increase in the employment of women and girls. Special care was taken to ensure health and well-being, to maintain discipline and order, especially where women worked with men, and to prevent individuals suffering undue fatigue or strain. The Munitions Act required such provisions to be made, and a special department of the Ministry had been constituted to deal with the subject so far as munition workers were concerned, but there was no power to deal directly with other industries. The clause was opposed on the ground that one of its provisions proposed that workers concerned should be associated in the management of the arrangements in any case where a portion of the cost was contributed by them. The opposition was due to a suspicion that the effect would be contrary to the object of the Truck Acts. The Home Secretary repudiated any such intention, but undertook to reconsider the clause, and on

July 10th brought up an amendment designed to meet this point. It was opposed, but finally adopted without a division, and the bill was read a third time and passed.

Reports of Factory Surgeons.

In accordance with an undertaking given on the second reading the Home Secretary, on July 6th, moved to amend Clause 8 of the Police, etc. (Miscellaneous Provisions), Bill, by inserting a proviso to retain the reports of certifying factory surgeons in cases not due to accident caused by negligence, but to exposure to fumes or other noxious substances. The clause as finally adopted, with the amendment, was as follows:

8. *Abolition of Investigations of Accidents by Certifying Surgeons.*—(1) After the expiration of one month from the passing of this Act it shall cease to be the duty of certifying surgeons to investigate the nature and cause of death or injury caused by accidents in factories and workshops or in premises to which the provisions of the Factory and Workshop Acts, 1901 to 1911, relating to accidents, are applied, or to send to the inspector of the district reports thereof:

Provided that nothing in this section shall affect subsection (3) of section seventy-three of the Factory and Workshop Act, 1901, relating to the investigation by certifying surgeons of diseases occurring in factories and workshops.

Provided also that it shall continue to be the duty of the certifying surgeon to investigate and report upon cases of injury caused by exposure to gas, fumes, or other noxious substances or due to any other special cause specified in instructions of the Secretary of State as requiring investigation, and the Secretary of State shall issue instructions defining the causes of injury to which this provision is to apply and requiring the inspector of the district to refer to the certifying surgeon all such cases reported to him. It shall also be the duty of the certifying surgeon to investigate and report upon any case of injury which the inspector of the district in pursuance of any general or special instructions of the Secretary of State may refer to him for that purpose. The certifying surgeon shall have, for the purpose of the investigation in any such case, the same powers and shall be entitled to receive the same fee as he would if the case had been a case to which section seventy-three applies.

The sentence in the second proviso assigning to the certifying surgeon the duty of investigating and reporting upon any case of injury which the inspector of the district in pursuance of any general or special instructions of the Secretary of State may refer to him, was introduced by Mr. Samuel, after protests from Sir Philip Magnus, Mr. T. Wilson, Sir R. Finlay, and other members. Mr. Denniss afterwards urged the rejection of the whole clause on the ground that it left the operators at the mercy entirely of the employers. Mr. Acland, after reminding the House that he had been chairman of the Committee on Accidents in Factories, said that that Committee was unanimous in recommending the abolition of the reports of certifying surgeons. Mr. Walsh opposed the clause very strongly, especially at the present moment, when there was a growing and urgent necessity for more careful provision, and he marvelled that at this time when one-third of the factory inspectors had gone, and when dangerous employments were increasing in a degree never known before, this particular economy should be brought forward. Mr. A. Williams and Mr. Wardle followed on the same side, and Mr. Whitehouse maintained that the clause did not carry out the recommendations of the Committee over which Mr. Acland had presided. Eventually the clause as printed above was carried on a division by 55 to 23.

Anthrax.—A question was asked by Mr. Thorne on July 10th with reference to an inquest held at Southwark on June 29th, with regard to the death of a waterside labourer from cutaneous anthrax contracted while handling infected Persian or China wool in bales. Mr. Brace stated, in reply, that the danger of anthrax arising through the handling of wool bales at wharves and warehouses had recently come into prominence, and the question of the steps to be taken to protect persons employed in such premises was under the consideration of the department. It was proposed to ask the Departmental Committee now considering the question of anthrax in the wool industry to make an inquiry into this subject also. Meanwhile, arrangements were being made for a circular to be issued to the occupiers of such premises, calling attention to the danger and recommending the adoption of certain precautionary measures which would include the posting and exhibition of a picture placard. In reply to a further question—with reference to another inquest—the President of the Local Government Board said that the question of issuing an order making all cases of anthrax compulsorily notifiable was under consideration.

Purchasing Power of the Sovereign.—The Parliamentary Secretary to the Board of Trade stated on July 11th that the average percentage increase in cost of food, clothing, etc. (including rent), was estimated to have been 16 per cent. between March, 1914, and March, 1915, and 33 per cent. between March, 1914, and March, 1916; in other words, it would have required a sovereign in March, 1916, to purchase an amount of the above commodities which would have cost 17s. 3d. in March, 1915, or 15s. in March, 1914. Mr. Hogge suggested that this meant that an old age pension was now worth only 3s. 9d. a week.

War.

British Prisoners in Germany.—A White Paper has been issued containing a further report from Dr. A. E. Taylor, dated May 24th, in which he states that since his last visit to Ruhleben "a considerable reduction has been made in the amount of foodstuffs allotted to the camp" and that the diet is now below that of military prisoners in other camps. On July 11th Lord Robert Cecil stated that a note had been received from the German Government in reply to that from the British Government urging that if Germany could not feed her prisoners they should be released. The German note denied that insufficient food was being given to the prisoners, and, while rejecting the British proposal as to exchange, made another on the subject. The British Government was considering its reply, which, together with the German note, would be communicated to the House as soon as possible. In the meantime a further report on the conditions at Ruhleben had been asked for.

Masseurs.—On July 6th Mr. Tyson Wilson asked whether members of the National Association of Trained Masseurs had applied for appointment as masseurs in military hospitals, but that although their qualifications were as good as those of persons who had been appointed, their applications had been refused. He wished to know why the War Office refused to make use of these fully trained masseurs. Mr. Tennant replied that appointments of masseurs in military hospitals were made without reference to the institute or association to which the individual applicant might happen to belong. They were selected by an advisory committee consisting of masseurs, matrons, and medical men. Certain qualifications had been laid down which candidates must possess before appointment. Each candidate was reported on individually and no candidate was rejected if possessed of the necessary qualifications. In response to a further observation by Mr. Wilson to the effect that forty members of the association mentioned who had applied for appointment were all refused, Mr. Tennant said that he would make inquiries.

Director of Medical Services, India.—Colonel Yate, on July 11th, asked from what dates prior to June, 1915, Surgeon-General W. Babtie was absent from his appointment as Director of Medical Services in India; where he was employed during that time; and who was the officer responsible in regard to the medical provision for the expedition to Mesopotamia during his absence. Mr. Chamberlain's written answer was as follows: "Surgeon-General Babtie left India for Egypt on February 6th and returned on March 19th. He was deputed to Egypt, at the instance of the War Office, to report on the Indian medical arrangements there. During his absence the routine duties of the office were carried on by the Deputy Director of Medical Services. The Government of India report that the latter dealt with no questions of policy."

Royal Army Medical Corps.—Mr. Watt, on July 3rd, asked whether time-expired men of the R.A.M.C., on offering themselves for re-enlistment, were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions. Mr. Tennant said that it would be in accordance with the principle frequently urged in the House that young single men in the R.A.M.C. fit for general service should be transferred to the infantry to make way for older married men who would rightly be given a preference, as regards service, in a service less exposed to danger. Such transfers would not, of course, be made, if they involved dislocation of the service from which the transfer was made.

German and Austrian Medical Practitioners.—On July 5th Mr. G. Faber asked how many German and Austrian medical practitioners, naturalized and enemy aliens respectively, were at present in this country; and whether any, and, if so, how many, of either class were interned. The Home Secretary replied that the information was not available, and could not be obtained without very great labour. The number of German and Austrian medical practitioners left in this country was, he said, small, as there was an arrangement for mutual repatriation at the beginning of the war.

Haslar Naval Hospital.—In reply to Mr. Gwynne, who on July 10th asked a question which seemed to suggest that adequate provision was not made for the comfort of convalescents at the Royal Naval Hospital, Haslar, the Parliamentary Secretary to the Admiralty said that there were two large smoking sheds, and six large colonnades, where, as well as in the airing grounds, smoking was permitted. It was not permitted in the wards. The patients were allowed to sit and lie on the grass in the grounds, and for them were available easy chairs, folding chairs of cane and canvas, ordinary bath chairs, Merlin chairs, spinal carriages as required, as well as numerous ordinary iron garden seats and forms at intervals throughout the grounds. Entertainments were given on five afternoons each week in the Erroll Hall.

THE WAR.

THE WOUNDED FROM THE SOMME.

EVEN during the first stage of the battle of the Somme—which stage, it seems to be reckoned, ended on Tuesday, July 4th—nearly all the chief military hospitals and many of the smaller in this country had begun to receive the wounded; indeed, in some instances, men were in hospital in London within twenty-four hours of being wounded. The reason for this rapid evacuation was, of course, that the fighting had only begun and that it was essential, in view of the possibilities of the immediate future, to empty the casualty hospitals quickly, and to keep as many beds as possible free in the base hospitals in France.

As to the success of the medical arrangements there is no doubt whatever. They are very comprehensive in character, planned on a large scale, and well thought out in detail. Furthermore, the various teams of M.O.'s and nurses and men had been well tuned up in advance and jumped splendidly into collar directly the call came, which it did like a wave from the foremost line backwards. Consequently the work, however strenuous, went on smoothly and rapidly. The moral of the men is splendid. This remark applies not only to the men who have been wounded and those in action, but also to men in the even more trying period of waiting. At plenty of places troops whose turns for action had not arrived volunteered to help with the carrying work at the casualty clearing stations and the like.

Some idea of the way in which the work was done may be gathered from the following extracts from a private letter received from a medical officer with the British army in France:

I was in Albert on the opening day of the battle, and after that was caught up in a whirlwind of work. Between Saturday night, or rather Sunday morning, and Tuesday noon I was giving anaesthetics and doing surgical assistance (splinting, etc.), with very short intermissions for grub and a doze. The front line medical formations were very busy for a time. The bases, too, were busy, and still are, but the wave of work reached them later. It is only at the bases on these occasions that there is commonly any opportunity for the finer kinds of surgery. At the front the most that can usually be done is to see that the wounds are well cleaned, freely opened and drained, hopelessly damaged tissues cut away, and fractures splinted in such fashion as to prevent movement while travelling. There are also cases in which it may be doubtful whether or no a limb should be removed, but a few hours' delay usually settles it; if not, there are the surgical consultants available, both near the front and at the bases, where they have been reinforced temporarily during the week. At the bases the new arrivals will divide the consulting work with the consultants already stationed there. They will deal with cases which are either recoverable within three weeks or are not fit for shipment for the present. Though all the bases are busy, none are overcrowded. The busiest are those from which shipments of early cases take place, since treatment and evacuation have to proceed side by side.

Casualties showing multiple wounds seem to have been common, and it was clear in many cases that the wounds could not all have been caused by one and the same missile.

The casualties include many cases of penetrating wound of the chest, as also many of wound of the neck and face, but wounds of the head seem to have been relatively uncommon. It is to be remembered, of course, that all the men engaged in the operations were wearing helmets.

But although so many of the cases were light, and relatively clean, gas gangrene does not seem to have been altogether lacking. It was found in some patients on their first arrival at the field ambulances, but in these instances the patients seem to have been men who had fallen in places whence they could not be collected for many hours after they were wounded.

On Tuesday afternoon, July 4th, the temperature suddenly fell many degrees, and shortly afterwards torrential rain commenced and continued for some hours. Had this change in the weather occurred earlier, it would have made much difference in the chances of recovery of many wounded men; but fortunately by this time a pause in the movement had commenced, and the sufferers in the great advance had all been collected and placed under cover. Casualties, of course, still continued to occur, but their rate and number had fallen more or less to those of ordinary trench warfare. The exposure of casualties to wet seems to tend to increase the degree of infection of wounds, intensifies shock, and often leads to the superaddition of chest troubles.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN HUBERT COWELL MULKERN, R.A.M.C., was killed in action on July 1st, aged 34. He was educated at the Godolphin School, Hammersmith, and at St. Mary's Hospital, and, after taking the M.R.C.S. and L.R.C.P.Lond. in 1906, went into practice at Kingston-on-Thames. After acting as medical officer at the military hospital at Kingston Barracks, he took a temporary commission as lieutenant in the R.A.M.C. in December, 1914, and was promoted to captain on completion of a year's service. After serving for some time with the Northumberland Fusiliers he was attached to the Royal Inniskilling Fusiliers and was with that regiment when killed.

Captain Arnold Bannatyne Tough, L.D.S., of the East Lancashire Regiment, was killed in the recent advance in France in the beginning of July. He was the second surviving son of Dr. W. R. Tough, of Parkside, Accrington, and was 26 years old. He was educated at the Victoria University, Manchester, where he took the diploma of L.D.S. in 1911, and before the war was in practice as a dentist at Accrington. At the beginning of the war he joined the 11th Service Battalion of the East Lancashire Regiment, became lieutenant on September 17th, 1914, and was promoted to captain on May 5th, 1915.

Lieutenant Douglas Rodger, R.A.M.C., was killed in action on July 1st, aged 33. He was the younger son of Mr. Rodger, of West Kirby, late of Cheetham Hill, Manchester, and of Hale, Cheshire, and was educated at Trent College, at Edinburgh, and at Manchester, where he graduated as M.B. and Ch.B. of the Victoria University in 1907, also taking the F.R.C.S.Edin. in 1912. After acting as house-surgeon of the Royal Eye Hospital, Manchester, he went to Australia as ophthalmic inspector of schools in Queensland. He took a temporary commission as lieutenant in the R.A.M.C. last September, and was working in an advanced dressing station when killed.

Second Lieutenant Charles Foote Snow, L.D.S., Royal Field Artillery, was killed in action on June 30th, aged 28. He was the elder son of Mr. W. H. Snow, of Westgate, Peterborough, and was educated at the Cathedral School, Peterborough, at Barton School, Wisbech, and at Guy's Hospital, taking the dental diploma of the Royal College of Surgeons, England, in 1910. After qualifying he went out to South Africa, and settled in practice as a dentist at Kimberley. He held a commission in the Diamond Fields Horse, and at the beginning of the war was posted as senior lieutenant of the 1st Battalion of the Kimberley Regiment, and soon after promoted to captain. He was then transferred to the South African Medical Corps as a captain, and as such served through the campaign in German South-West Africa. Coming home in October last, he got a commission as second lieutenant in the R.F.A. on October 21st, and went to the front on May 1st.

Died of Wounds.

Lieutenant Ernest Charles Lambert, R.A.M.C., who was reported as wounded in the casualty list published on July 1st, was stated, in the list of July 7th, to have died of wounds. He was educated at Westminster Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1898, also the M.D.Brussels in 1903. He had filled the post of assistant medical officer at the Banstead, Darenth, and Hanwell asylums successively, and at the beginning of the war was assistant medical officer of Wandsworth workhouse. He took a temporary commission as lieutenant in the R.A.M.C. in November, 1915, and was attached to the East Surrey Regiment.

Died on Service.

Captain N. J. Hofmeyr, South African Medical Corps.

Missing—Believed Killed.

Captain J. L. Green, R.A.M.C.(T.F.).

Wounded.

Captain J. H. Glover, R.A.M.C. (temporary).
Captain A. Hamilton, R.A.M.C.(T.F.).
Captain P. H. MacDonald, R.A.M.C. (temporary).
Captain W. K. A. Richards, R.A.M.C. (temporary).
Captain W. T. Smith, R.A.M.C. (temporary).
Captain J. H. Tomlinson, R.A.M.C. (temporary).
Lieutenant A. C. Taylor, R.A.M.C. (temporary).

Prisoners of War.

Brevet Lieutenant-Colonel S. Anderson and Captain F. H. Salisbury, both of the I.M.S., who were previously reported as among the prisoners who surrendered at Kut, are now officially stated not to be prisoners.

DEATHS AMONG SONS OF MEDICAL MEN.

Beddow, Victor, Second Lieutenant Devonshire Regiment, second son of Dr. Josiah Beddow of Thorverton, Exeter, aged 20, was killed in action on July 1st. He received his commission in March, 1915.

Dalby, Herbert Charles, Second Lieutenant York and Lancaster Regiment, eldest son of Major Dalby, R.A.M.C., of the Rosary, St. Mary Church, Torquay, killed in action on July 1st, aged 29. He got his commission on May 1st, 1915.

Davis, Wilfred J., Captain Northumberland Fusiliers, second son of the late Robert Davis, M.D., of Derrickwood, Orpington, killed in action on June 30th. He was educated at Harrow and at Clare College, Cambridge, got his first commission on August 22nd, 1914, and was promoted to Captain on April 29th, 1915, after the second battle of Ypres.

Farrow, Brian, Second Lieutenant Lancashire Fusiliers, son of Dr. Farrow, of Upper Chorlton Road, Manchester, now serving in the R.A.M.C., killed in action on July 2nd. He enlisted in the Public Schools Battalion at the beginning of the war, and got a commission a year later.

MacBryan, E. C., Second Lieutenant Prince Albert's Somerset Light Infantry, son of Dr. H. C. MacBryan, of Kingstown House, Box, Wiltshire, killed in the recent advance in France. He was a well known Rugby football player. Two of his brothers are also serving, Lieutenant R. A. MacBryan, K.O.S.B., who has been wounded, and Captain J. C. W. MacBryan, who is a prisoner of war.

Sweetnam, Rodney S., Captain Royal Field Artillery, only child of Deputy Inspector General Sweetnam, R.N., of Ballyshannon, Worthing, killed in action on July 1st, aged 24. He came home from the Malay States at the beginning of the war, and joined the Inns of Court O.T.C., got a commission in the R.F.A. in January, 1915, went to the front in May, and was promoted to captain in April, 1916. He lost his life trying to rescue a wounded infantry officer.

Traill, Kenneth R., Lieutenant Berkshire Regiment, younger son of Dr. Traill, of Cooralee, Sunningdale, Berkshire, killed in action on July 1st, aged 22. He was educated at Bradfield College, matriculated at London University, and entered Guy's Hospital as a medical student in 1911. At the beginning of the war he joined the Inns of Court O.T.C., got his commission in September, 1914, and was promoted to Lieutenant in December. He was previously wounded last February, and rejoined his battalion in March.

Twining, R. W., Second Lieutenant Devon Regiment, only son of Dr. Twining, of Salcombe, South Devon, killed in action on July 1st.

Vaisey, Charles Thomas Hinton, Second Lieutenant Royal Flying Corps, eldest son of Dr. Vaisey, of Winslow, Buckinghamshire, died on June 30th of wounds received while flying over the German lines the day before. He was educated at Trent College, and was sheep-farming in Australia when the war began.

White, J. V., Captain Manchester Regiment, elder son of Dr. White, of Park Road, Southport, killed in action on July 1st. His commission as lieutenant was dated January 1st, 1915.

MEDICAL STUDENTS.

Davidson, William Adrian, Second Lieutenant Gordon Highlanders, aged 21, the eldest son of Mr. Alexander Davidson, solicitor, of Aberdeen, died of wounds received in France on July 2nd. He was engaged in medical studies at the University of Aberdeen prior to obtaining a commission in the Gordon Highlanders.

MacKinnon, Lachlan, Lieutenant Cameron Highlanders, aged 25, killed in action, was the third son of Mr. Duncan MacKinnon of Tobermory, and previous to obtaining his commission was a medical student at Edinburgh University.

NOTES.

ROYAL NAVY.

Battle of Jutland.

THE dispatch of Admiral Sir John Jellicoe, Commander-in-Chief of the Grand Fleet, reporting the action in the North Sea on May 31st, was issued on the evening of July 6th. Appended to it is a report by Sir David Beatty. Sir John Jellicoe's dispatch contains the following reference to the medical service:

The work of the medical officers of the fleet, carried out very largely under the most difficult conditions, was entirely admirable and invaluable. Lacking in many cases all the essentials for performing critical operations, and with their staff seriously depleted by casualties, they worked untiringly and with the greatest success. To them we owe a deep debt of gratitude.

Sir David Beatty's report also contains a tribute to the medical service in the following terms:

Exceptional skill was displayed by the medical officers of the fleet. They performed operations and tended the wounded under conditions of extreme difficulty. In some cases their staff was seriously depleted by casualties, and the inevitable lack of such essentials as adequate light, hot water, etc., in ships damaged by shell fire, tried their skill, resource, and physical endurance to the utmost.

In concluding his dispatch Sir John Jellicoe says that he intends to bring to notice in a separate dispatch the names of officers and men, all of whom did not come under his personal observation, but who had the opportunity of specially distinguishing themselves.

THE ARMY.

Battle of the Somme.

One of the first acts of the Earl of Derby on taking office as Under Secretary for War was to give an interview to the London representative of the *Brooklyn Eagle*. In the opening passage he said that the British offensive on the western front, marked by extreme gallantry of action and buoyancy of spirit, was proceeding in logical accordance with the British policy of wearing down the enemy. An advance along twenty miles of difficult country, defended by immense masses of enemy troops, equipped with every deadly device known to modern warfare, could not effect a sudden collapse of resistance to our attacks. British preparations were complete to the last detail. The supply of munitions, resulting from months of strenuous nation-wide endeavour, adequately met the demands of unprecedented bombardment; the organization of our supply services was arranged to serve any emergency, and the co-ordination of each department of the army seemed to have been perfect. As an instance of the excellence of British organization, he took the medical service.

"The battle of the Somme," he said, "has emphatically demonstrated British organization to be markedly superior, in one very important respect, to that of the German forces. Our hospital arrangements have been superb. I do not believe the work of the Royal Army Medical Corps has been surpassed in any battle we have ever fought. Our soldiers are wounded one morning at the front in France; twenty-four hours later they are receiving expert medical attention in London hospitals. Such a feat has not often been paralleled; I think it may be taken as fair indication of the efficiency of the new British armies that wounded men may be rapidly transported along roads and railways carrying large quantities of munitions, food, and medical supplies towards the fighting lines. The new steel helmet, I might suggest, has completely vindicated its adoption. I have heard unofficially that minor casualties in our advance have been considerably reduced by this device; in fact, minor head wounds are now rare.

"Any advance like that now undertaken by the British army entails certain necessary casualties, but our losses have not been unduly large. It must be remembered that every soldier who passes through a dressing station, no matter how slight his wound or how quickly he returns to the front, figures as a casualty. A considerable percentage of our so-called losses have, therefore, been merely slightly wounded men. The method of the British advance is calculated to secure a permanent military advance for every serious casualty; we are not wasting men by sporadic tactics, but we are demanding the full price for every British life lost and for every foot of France we regain. Do not suppose that because our advance is slow it is not sure; it is because our advance is sure that it is slow."

MENTIONED IN DISPATCHES.

The *London Gazette* of July 4th publishes a dispatch by General Sir Beauchamp Duff, Commander-in-Chief in India, dated March 9th, dealing with the various minor operations in different parts of the frontiers of India from the beginning of the war up to date. These comprise several operations near and round Aden, including an attempt by the Turks to seize the island of Perim on June 15th, 1915, in the Gulf of Oman, in the Tochi Valley and Derajat, in the Mohmand, Buner, and Swat country, and in the Kachin hills in Burma. Among the officers specially mentioned are the following members of the medical services:

Aden.

Lieutenant-Colonel L. F. Smith, R.A.M.C.; Major T. B. Kelly, I.M.S.; Captain F. R. Coppinger, R.A.M.C.; Lieutenant J. S. Townley, R.A.M.C.(T.F.), Assistant Surgeon E. H. Gillson, I.S.M.D.; and Drs. Macrae and Young, of the Keith Falconer Mission.

Mohmands, Swat, and Buner.

Lieutenant-Colonels B. R. Chatterton, I.M.S., and R. J. W. Mawhinny, R.A.M.C.; Majors G. E. Cathcart, R.A.M.C., J. K. S. Fleming, I.M.S., and G. F. Rugg, R.A.M.C.; Captain J. Cunningham, I.M.S.; Assistant Surgeons E. V. Duckworth and A. N. Quick, I.S.M.D.; and Nursing Sisters Miss Ethel Green, Miss A. R. I. Lowe, and Miss M. A. Stronghill, of Queen Alexandra's Military Nursing Service for India.

VOLUNTEER DECORATION.

The *London Gazette* of July 7th announces the bestowal of the Volunteer Officers' Decoration, under the Royal Warrant of July 25th, 1892, on Surgeon-Major W. Richardson of the Isle of Man Volunteers and on Surgeon-Major E. Harvey of the Bermuda Volunteer Rifle Corps.

THE FREEMASONS' WAR HOSPITAL, LONDON.

The Masonic Nursing Home Committee have secured the old premises of the Chelsea Hospital for Women in the Fulham Road, the new building, which was opened by Her Majesty Queen Mary on Tuesday last, being situated in Arthur Street, between the Fulham and King's Roads. The old premises are to be taken immediately for two years at a moderate rental, with the option of purchasing the freehold at a reasonable price; they have been offered to the War Office through the British Red Cross Society for use as a military hospital during the continuance of the war and such further time as may be desirable. This offer has been accepted, and the hospital will be of Class A, and fully equipped on the most up to-date lines. It will provide from fifty to sixty beds. The medical advisory committee is now asking for the services of a resident medical officer. In order to maintain the Freemasons' War Hospital a large sum must at once be raised through the interest and generosity of the brethren.

England and Wales.

THE London County Council has decided to bring the Streatham Institution for Mental Defectives into use with the least possible delay, and to appoint a woman to be chief resident officer or superintendent. It has be n recognized also that it is desirable that the local authority should accept responsibility under the Act for destitute mentally defective children on their discharge from industrial schools at the age of 16, so that they might be sent to institutions for defectives, instead of, as at present, being discharged to the care of boards of guardians; but as sufficient accommodation is not at present available the present practice of discharge to the guardians must be continued for the time being.

The South London Hospital for Women, which is situated at the southernmost point of Clapham Common, was opened by the Queen last week. It is staffed entirely by women; it will provide paying wards. It has an isolation ward on its very high roof, a special ward for children, and an operating theatre and *x*-ray department, the latter as yet unequipped. The hospital is, indeed, far from being finished, as regards furnishing at least. This week Her Majesty also opened the new building of the Chelsea Hospital for Women. It will contain eighty beds, and will provide accommodation for paying patients.

THE UNIVERSITIES AND THE WAR.

The effect of the war on the Manchester University was very forcibly brought home in the speech of the Vice-Chancellor, Sir Henry Miers, at the degree ceremony last week. Men, he said, had been swept away as by a whirlwind. During the past year they had lost 30 teachers and 160 students. The number of men students had fallen to 620, as compared with the normal number of about 1 250, and he hardly thought the number would exceed 375 in the coming year. Among those who had left, 5 teachers and 90 students had met death. Practically every department of the university was now co-operating in war work, every scientific department being engaged in testing or investigation work in connexion with war needs. Many of the professors were serving on Government committees, and as a result more and more of the work had fallen on the women. The financial strain on the university had been very great. The sum of £5,000 out of the special Government grant to teaching institutions fell far short of the need, but he saw little probability of any further assistance from the Government this year. The Arts Building would cost £40,000, and there were practically no funds to meet this cost. Appeals had been made for funds for the establishment of a Chair in Russian, and £1,000 had been promised, though something like £15,000 would be required. At the beginning of the session the students numbered 1,165, the medical department having 260 students, including 67 women. Among the bequests to the university during the year were mentioned £5,000 from Mr. Sam Gamble for assisting women medical students, gifts from Mrs. and Miss Beckwith of Southport for the foundation of scholarships in mechanical engineering, £1,000 from the late Mr. J. F. Cheetham for endowment purposes, a second £1,000 from Mrs. S. A. Lees for Ashburne Hall, and an anonymous gift of £50 for women medical students.

The Vice-Chancellor, Dr. M. E. Sadler, who presided on degree day, said that nearly 1,400 of those associated with the University of Leeds were on active service, and 51 had received military distinctions. In accordance with a recent instruction of the Army Council the Officers' Training Corps was to be extended. By an order of the Board of Education, full-time students would not for the present be required to join the colours before the end of the term at which they attained the age of 18. Though the university, after the war, might have to pass through a period of financial embarrassment, its future was bright. The universities, old and new, would have immensely increased responsibilities and greatly enlarged opportunities of public service; they would doubtless receive in due time far larger subsidies from public funds. Universities were institutions with close territorial ties but of national standing. In order that they might do their duty to the nation, the empire, and to the populous districts in which many of them were set, they must continue to work in intimate co-operation with the great local authorities and with the Government, but they should never forget that the living power of their work would depend upon their continuing free from mistaken kinds of external control, however well meant. Sensitive as the universities should be to the many claims upon their service, they should also remain self-governing and free. Germany had failed, in spite of her brilliant endowment of knowledge, to keep unsullied in her universities freedom of moral judgement in respect of some vital questions of duty to the State and to mankind. The reason was that, having realized the political value of higher education to the State, she had gradually and half-consciously undermined, by subtle pressure of State control and by inducements of official distinctions, independence of moral and political judgement in some of the teachers through whom that higher education was given. The inner freedom of university life, the right (always to be used with self-restraint and with consideration for the standpoint of others) to think and to teach what study, reflection, and conviction led teachers to hold true, was the secret of the strength of a university in doing its duty to the community and the world, and should at any cost, be defended and preserved.

At the degree day of the University of Sheffield, when not a few of those who received degrees were wearing khaki; the Vice Chancellor, in the course of his address, said that the Roll of Service of the University contained 780 names, sixty-nine belonging to the staff. Lieutenant D. M. Pitchford, who was present to receive the degree of B.A., had, the Vice-Chancellor said, received the French Croix de Guerre for his valour in Gallipoli, while ten students of the university and Mr. Lightfoot, the Sorby Research Fellow, had been awarded the British Military Cross. The Junior Pro-Chancellor, Colonel Stephenson, and Colonel Clifford, another member of the council, thirteen students, and two members of the staff had been mentioned in dispatches; one student was a prisoner of war, twenty-eight had been wounded, and twenty-four students and two members of the staff had been killed. It would, he said, never be forgotten how graduates and undergraduates of British universities streamed off to the war. Whatever criticism might be brought against our educational system, it would be the wildest paradox, in the face of this great and notorious fact, to deny that it had at least produced valour, courage, a lively sense of moral issues and devotion to duty in every class of the community. All the departments of the university had been affected by the war; the scientific department was doing important work for the Government. Though it was the custom to take the virtues of the medical profession for granted, he desired to express his admiring acknowledgement of the manner in which the members of the medical faculty in Sheffield had

met the great strain and stress of work which the war had brought them. The strain was felt not only in the hospitals, but in the laboratories of the university. A new department in glass technology had been established, a sum of £2,000 had been voted to the scheme by the two Yorkshire glass associations, and ordinances had been adopted for a diploma in glass technology. While German would always remain an essential acquisition for students who intended to progress far in literary, scientific, or technological directions, it would henceforward have an important rival in the Russian language, and recently a great Sheffield firm had endowed a lectureship in Russian. When the university was first founded some of the endowments came from the slender purses of Sheffield working men, and now through a great endowment, due to the liberality of the late Mr. Edgar Allen, the university would be enabled to open its doors to the sons of men earning weekly wages.

PHYSICAL EDUCATION.

At a meeting of the Royal Sanitary Institute, held on July 7th at the Municipal School of Technology, Manchester, a discussion was opened on the necessity for a national scheme of physical education by Major R. Tait Mackenzie, R.A.M.C., professor of physical education at the University of Pennsylvania, who is now spending a year's leave of absence in this country and is doing good work at the convalescent camp at Heaton Park, where some remarkable results are being obtained in the treatment of men with stiff joints caused by injuries in the war. He began by calling attention to the remarkable and almost daily physical improvement following on the course of gymnastic exercises to which recruits are first submitted on joining the army, and expressed his conviction that after the taste of active outdoor life many of the men would never again reconcile themselves to office and factory life, but would feel an irresistible call to the more untrammelled life of the colonies. He dwelt on the advantages to be gained by a proper supervision of children's playgrounds by trained and tactful men and women; city life weighed specially on children, and playgrounds for them ought not to be more than half a mile apart. Plots of ground of two to ten acres should be provided with a gymnasium, baths, and possibly a running track, and in all cases a supervisor with administrative offices should be provided. For girls he recommended group games rather than public competitions. For all school children who did not care for ordinary games there should be a compulsory course of gymnastics, and for those ready to take exercises a progressive course of gymnastics and athletics should be arranged. On the other hand, the excessive devotion of others to the playfield should be tempered by making a rigid standard of scholarship a necessary condition for membership of a team or eligibility for competitions. He advocated the establishment at universities and at certain schools and colleges of courses of instruction in physical education to prepare teachers who might take places of equal dignity with the rest of the teaching staff. For this purpose diplomas or certificates should be awarded which would be recognized by educational bodies throughout the country.

Scotland.

THE Merchants' House of Glasgow has offered to provide funds from the Buchanan and Ewing bequests for the payment of university lecturers in electrical therapeutics at the Royal and Western Infirmaries.

The Mid and East Lothian miners have followed the example of the Fife miners by deciding to double their contributions to the Edinburgh Royal Infirmary for the next six months. Formerly they gave 1d. a fortnight; from July 1st to the end of December they will give 1d. a week.

At the closing meeting for the session of the Royal Society of Edinburgh a number of British honorary Fellows were elected. Among them were Dr. J. N. Langley, professor of physiology, and Dr. Alexander Macalister, professor of anatomy, respectively in the University of Cambridge. The following foreign honorary Fellows from allied or neutral nations were also elected: Professor M. E. Gley (Paris), Professor Golgi (Rome), General W. C. Gorgas (U.S. Army Medical Department), and Professor Grassi (Rome).

The recommendation of the Senatus Academicus of the University of Edinburgh to the University Court, that the classes in the faculty of medicine should in future be open to women, was discussed by the Court on July 10th and agreed to in principle. The matter was referred to a committee which is to report to the ordinary meeting of the Court on July 24th.

EDENHALL HOSTEL FOR MAIMED MEN.

The Princess Louise Scottish Hospital for Limbless Sailors and Soldiers at Erskine, near Glasgow, in the West of Scotland, is well known, and contributions on its behalf had on July 5th almost reached the large sum of £100,000; but Edenhall Hostel, between Kelso and Coldstream, although less in the eye of the public, was able some weeks ago to celebrate the first anniversary of its opening (in June, 1915) by issuing a leaflet telling in a most interesting and readable way of the work which had been accomplished in it. Like the institution in the west, it caters for limbless sailors and soldiers, supplying and fitting them with artificial limbs under instructions from the Chelsea Commissioners; it has already dealt with 127 patients, of whom 24 were arm cases, 86 were leg cases, and 17 were convalescent; and it is at present full, with many waiting for admittance. H.M. Queen Alexandra is its patroness, and it numbers among its patrons Lord Reay, K.T., Lieutenant-Colonel the Lord Billing, C.B., the Earl of Haddington, K.T., the Lord Polwarth, the Lord Provost of Edinburgh, the Duke of Roxburgh, K.T., and the Earl of Home, K.T. Its chairman is Admiral of the Fleet Sir William May, G.C.B., who preceded Sir John Jellicoe; and on the committee are Mr. James Scott and Dr. George Henderson of Coldstream. The treasurer is Mrs. Douglas, Mansefield, Coldstream, and the hostel has for secretary the Lady Issobel Douglas Home. With the exception of two women and the orderly the staff is composed entirely of voluntary members of the Coldstream Red Cross Detachment, with Mrs. George Henderson (lady superintendent of the detachment) as sister-in-charge. Patients have come to the hostel from the 3rd Northern General Hospital, Sheffield, the 1st Northern General Hospital, Newcastle, the 2nd Scottish General Hospital, the Bangour War Hospital, the D.L.I. Dépôt, Newcastle, the 1st and 4th Western General Hospitals, the Lanarkshire Red Cross Dépôt, the Soldiers' and Sailors' Association, and the Leicester War Hospital; its sphere of usefulness has therefore been a very wide one. It is a sure guarantee that the 110 men who were fitted with artificial limbs were well served when it is stated that the consulting surgeon is Lieutenant-Colonel Charles W. Cathcart of Edinburgh; the limbs come from Messrs. Scotland and Co., Glasgow, and the fitting of them is cared for by Mr. Carr, that firm's manager. It is estimated that in usual cases the men can leave, fitted with arm or leg, in six weeks, although, of course, a longer residence is needed for some. But for the shortage of skilled artificial limb makers, due to so many being away on army service, the output of artificial limbs would have been greater. Some of the patients help with the limb making (says the booklet referred to), some are busy carpentering, carving, etc., and what with work, measuring, fitting, and exercise, the workshop is the busiest, brightest, and most interesting part of the hostel. The hostel, originated by the Countess of Home, was started (financially) on voluntary lines, and funds were forthcoming, so that now some twenty-six beds are endowed. The pamphlet goes on to say, "It was the first institution for limbless men started in Scotland. . . it can claim to have filled the first need for limbless men next to Roehampton, and therefore benefited first by the support of the public. Lately it has been made an auxiliary Red Cross Hospital, Class B. There can be no doubt that its situation (in view of the Cheviots), its staff, and its furnishing are all well fitted to restore maimed men to health and usefulness again."

THE New York City Board of Health has appointed a medical adviser to whom those who have, or think they have, venereal disease may apply for counsel. His functions are purely advisory and educational; all cases requiring treatment are referred to a private doctor or to a clinic.

Correspondence.

THE USE OF BONE GRAFTS.

SIR,—In the last paragraph of Colonel Robert Jones's paper in the BRITISH MEDICAL JOURNAL of July 1st he advises a long period of waiting before resorting to bone grafting, but the military considerations do not favour any such delay in the case of the private soldier, and the alternative of discharging him to seek cure in civil life is disadvantageous both for the State and the soldier.

I quite agree that good union will take place in a wonderful manner, and to a hitherto unsuspected degree, after gunshot wounds of long bones, even when some three or four inches have been blown to smithereens; yet we are now getting returned for advice and treatment a lamentable number of pensioners with large fragments of bone missing, and there is every reason to fear that this number must enormously increase if the doctrine of a well-known London operator is adhered to, in which he advocates the removal of all loose bone fragments in the early treatment of these cases. To my mind this is most pernicious, and exactly opposite to what I have every reason to believe, from the last twenty-two months' experience, to be sound surgical practice.

Of the principles underlying bone grafting, the following seem to me of chief importance. I claim no credit for any originality in setting them forth, but having put them to the practical test of my own work, I know that they must be adhered to if success is to be ensured.

The graft must be autogenous, and while composed largely of compact tissue for stability, should, for ensuring a fair degree of osteogenesis, consist partly of cancellous bone. I have seen nothing in my own cases which leads me to ascribe any virtue to periosteum attached to the graft, except in so far as it limits the circumferential spread of bone cells which otherwise form an annoying mass of new bone. The graft must not be subjected to either stress or strain, otherwise it will tend to be absorbed, and, most important of all, it and the bone defect which it is intended to bridge must be *absolutely immobilized*. I am glad to find that Colonel Jones agrees with this last point, but while he insists upon it he gives us no help in letting us into the secret of the method by which he has attained immobilization after the grafting of these bone defects from gunshot injuries.

The chief disaster which has to be feared, and which in my own work has several times led to failure, is the lighting up of the original infection; it would appear, therefore, that fixation by plaster, even if this is admitted to ensure perfect immobilization, is out of court for the first few weeks after operation.

The other method of external fixation by means of splints does not completely satisfy our requirements, so one has to fall back on methods of internal fixation, and at present, in spite of the obvious risk, I see no alternative to screws with or without the support of Lane's plates. Colonel Robert Jones has given me no assistance in this difficulty beyond what is conveyed by Fig. 2, *b* and *c*. In the former the graft is fixed with catgut, surely inadequately, and in *c* with two nails, again inadequately, and obviously they should be no less suspect than the plates and screws which he condemns.

I would dissent from two opinions which Colonel Jones holds connected with the treatment of simple fractures of civil practice. I quite agree that the common spiral fracture of the lower third of the tibia often needs operative treatment, but I entirely fail to be convinced that all that is necessary is the interposition of a bone graft "to lock the fragments" so as to "prevent rotation." A large percentage of my fracture operations have been on this class of case, and, while I have not found rotation a difficult factor to deal with, the tendencies of the lower fragment to fall backwards and of sliding to recur unless fixation is absolute, are such ever-present difficulties, and can be so completely overcome by a long plate fixed with at least three screws in each fragment, that I am loath to rely on the support of an unaided graft, which surely can attain the essential requirement of perfect immobilization to a far less certain degree; it must be borne in mind that in nearly all cases of this type the opposite side of the parallelogram—the fibula—is also broken at a higher level.

Colonel Robert Jones writes: "Experienced surgeons know that they (plates and screws) produce actual delay in true and efficient osseous union of the fracture." This statement has often been made by others;[1] those who make it should support it by evidence, and owing (as I am glad to have the opportunity of admitting) much to the practical writings of Colonel Jones on bone surgery, I cannot think he would repeat it without abundant personal evidence. I can only say that from a constant and most intimate acquaintance with the work of the introducer of plates during the last eleven years, and from a smaller personal experience of my own, I can only recall one case in which union of a fracture could be even suspected of being delayed after plating; but in saying this I make one proviso: My statement does not apply to any plated fractures which were originally or became later infected. I can well believe, and in fact would suspect, that in a septic plated bone rarefying osteitis would lead to delayed union, but I submit this is no less a travesty of what always happens in a clean plated fracture than the statement which appears in a well-known many-volumed treatise on operative surgery, that screws in a few hours lose the binding power of their threads, and then become mere pegs.—I am, etc.,

C. H. FAGGE,
Lieutenant-Colonel R.A.M.C.

London, W., July 6th.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—In my papers dealing with paralytic ileus[2] I have considered only one form of this condition—namely, that which results from definite peritonitis, usually of appendical origin, either confined to the pelvis or spreading thence into the upper regions of the abdomen. I am grateful to Mr. R. P. Rowlands for his letter on May 20th, in which this point was clearly made on my behalf. It seemed unnecessary after that letter to labour the point further, but Mr. H. T. Hicks's paper in your issue of July 1st shows that it needs further emphasis.

It is evident that there is no greater resemblance between (*a*) intestinal paralysis resulting from the extension of severe peritonitis to the muscular coat of certain segments of the bowel, and (*b*) general paralytic ileus following severe abdominal operations and unaccompanied by clear evidence of peritonitis (Bonney) than there is between typhus and typhoid fever. The arguments of Mr. Bonney and Mr. Hicks may be perfectly valid with regard to condition (*b*). Upon this point I am not prepared to offer an opinion.

In regard to condition (*a*), which lies, mainly at all events, outside the scope of gynaecological experience, my arguments remain untouched by observations derived from cases of condition (*b*). Mr. Hicks's criticism of my work is irrelevant because it confuses two conditions which are not alike.

I hope that Mr. R. P. Rowlands may yet be persuaded in cases of condition (*a*) to abandon enterostomy for ileo-colostomy (or jejuno-colostomy) with caecostomy. Even when enterostomy is done by the improved technique which Mr. Rowlands suggests, I believe that the balance of advantage is against it. It is true that lateral anastomosis takes rather longer, but even patients who are extremely ill stand it very well, and without appreciable shock. It is unnecessary to say that, before the anastomosis is made, all the viscera except the two coils to be anastomosed must be returned to the abdominal cavity, that the abdominal wall must be kept warm with hot towels, and that the patient must not be "soaked" with anaesthetic, nor allowed to become cyanosed. If these precautions be observed, the operation is almost "shockless." Of course, in patients so gravely ill, any operation involving exposure of and traction on or removal of large areas of the bowel would be out of the question. But if these evils are avoided, the mere sewing together of two coils of intestine need not strain the vital powers.

As soon as the patient leaves the table—and I have never lost a case during operation—all the advantages during convalescence rest with lateral anastomosis as opposed to enterostomy. It seems to me that the persistent loss of fluid entailed by an enterostomy must surely make its mark in the death-rate of a series of cases.

[1] See Frank: *Surgery, Gynaecology, and Obstetrics*, December, 1915.
[2] *British Journal of Surgery*, No. 10, 1915; BRITISH MEDICAL JOURNAL, April 8th, 1916.

Mr. Rowlands suggests that jejuno-colostomy may be attended by unpleasant sequelae. My patient during convalescence had occasional fluid actions of the bowels after taking food, but these have ceased and she has gained weight since the operation.—I am, etc.,

London, W., July 4th. W. SAMPSON HANDLEY.

GARLIC IN WHOOPING-COUGH.

SIR,—The interesting communication on "Garlic in whooping-cough" by Mr. T. Mark Hovell (JOURNAL, July 1st, p. 15) set me referring to my notes of past practice, for it was my custom to employ that remedy extensively in the treatment of that disease many years ago. I find in those memoranda an extract from a paper contributed to the BRITISH MEDICAL JOURNAL, vol. ii, 1878, p. 864, by the late Sir Richard Quain on diseases of the bronchial glands, the statement that:

> In this affection (whooping-cough) enlargement of these glands has so frequently been observed by Dr. Guéneau de Mussy that he believes this disease to be an exanthem of the bronchial mucous membrane, and that this local disease leads to enlargement of the glands which, again by pressure on the pneumogastric and recurrent nerves, gives rise to some of the special phenomena of the disease, such as crowing cough, and even to the vomiting frequently observed in this disease. It is right to observe here that the late Dr. Hugh Ley speaks interrogatively in his work on laryngismus stridulus of enlarged bronchial glands being capable of producing a cough like whooping-cough; and he further alludes to some cases of whooping-cough in which the glands by the side of the trachea were enlarging. He asks, "May it not be that an enlargement of these glands from a specific animal poison, similar to that of the parotid gland in mumps, is, after all, the cause of whooping-cough?" In a note of mine below this quotation I have written: "This theory may explain the good effects produced by the use of liniments (such as tinct. opii, tinct. lythe āā ʒij, spt. ammon. fort. ʒiij, lin. camph. co. ad ʒij, or garlic (which is almost a specific) stewed down in olive oil and rubbed into the back and chest."

While writing about drugs which are "almost specifics," I would like to say that if guaiacum is given in the early stage of tonsillitis it may be said to possess this character. I used it extensively in this connexion, giving it in the form of mistura guaiaci, and with admirable results.—I am, etc.,

Tunbridge Wells, July 3rd. H. A. LATIMER, M.D.

SIR,—Garlic has an even wider range of usefulness than Dr. Hovell has suggested in the therapy of chest complaints. For the last three years I have been using the fluid extract of the drug as an inhalation in pulmonary tuberculosis, and am absolutely certain that its action is as beneficial and much less irritating than a dilute solution of formaline, which I had formerly used for this purpose. Tuberculosis of the joints can also be treated successfully by garlic juice applied on a piece of white lint and covered with gutta percha tissue to keep it moist. Those who would like further information may consult the book of Dr. Minchin, of Dublin, entitled *Allyl Sulphide in the Treatment of Lupus and Tuberculosis* (1912).

Dr. Hovell states that unless two pairs of stockings are worn the pressure produced by walking on the thin slices of garlic is apt to produce irritation. In my opinion the irritation is produced by the garlic itself. When the fluid extract is applied to a tuberculous joint it frequently produces profuse vesication, so much so that treatment has sometimes to be suspended until this has passed away. Dr. Minchin, however, states that in those cases in which vesication is produced, the progress towards recovery is always more rapid than in those in which no irritation of the skin occurs.—I am, etc.,

JOHN BAIN, M.B.,
Temporary Lieutenant, R.A.M.C.

Horton Camp, Cremlington, July 2nd.

The Services.

INDIAN MEDICAL SERVICE.

Appointment of Selection Committee.

IT was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the service would be made by nomination by the Secretary of State. To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the service, Mr. Chamberlain has appointed a Selection Committee, who will summon and interview such applicants as may appear to be *prima facie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the service can be obtained from the Secretary, Military Department.

EXCHANGE.

MAJOR R.A.M.C.(T.), attached to a Field Ambulance, Salonika Force, desires exchange with officer on field ambulance or other front line unit or C.C.S. abroad.—Address No. 2700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

WALTER W. H. TATE, M.D.LOND., F.R.C.P.,

OBSTETRIC PHYSICIAN AND LECTURER ON DISEASES OF WOMEN, ST. THOMAS'S HOSPITAL.

WE deeply regret to have to record the death of Dr. Walter Tate, which occurred on July 5th, at his residence in Queen Anne Street. He was born in London in 1865, the son of Dr. George Tate, who practised in North London. Dr. Walter Tate received his education at University College School, and studied medicine at University College, which he entered as a student in 1884, and its hospital, where he worked in the wards as clerk to Dr. Sydney Ringer and Vivian Poore, and dresser to Sir Rickman Godlee and Mr. Marcus Beck. In 1888 he gained the diplomas of M.R.C.S. and L.R.C.P., and took the degree of M.B.Lond. in 1891 and that of M.D. in 1893. In 1888 Dr. Tate held the appointment of obstetric assistant in the hospital, and was afterwards successively house-physician to Dr. Frederick Roberts, house-surgeon to Mr. Christopher Heath, and lastly resident medical officer in the hospital. In 1889 he distinguished himself by winning the Atkinson Morley surgical scholarship. The diploma of F.R.C.P. was conferred upon him in 1903. In March, 1893, Dr. Tate was appointed physician to out-patients at the Samaritan Free Hospital for Women, London, an appointment which he filled for seven years. After holding a temporary appointment at St. Thomas's Hospital he was elected assistant obstetric physician on May 13th, 1896, and full obstetric physician on November 20th, 1901. Dr. Tate was an able gynaecologist, and an excellent colleague, equally popular at the Samaritan Hospital and at St. Thomas's. He became a member of the Obstetrical Society of London in 1892, but it was not until 1897 that he began to take an active part in its discussions. In that year he read a paper on pyometra complicating cancer of the cervix uteri; it was founded on the fact that he had observed retention of pus in the uterine cavity in no fewer than three out of twenty-eight cases of cervical cancer. It gave rise to an active discussion, in the course of which some stress was laid on the extensive induration due not to malignant but to inflammatory deposit, characteristic of pyometra associated with cancer of the cervix, an appearance liable to mislead the observer. In 1904 he read another paper before the same society on intestinal obstruction following operations for fibroid tumour of the uterus—a condition he had encountered thrice in 150 supravaginal hysterectomies. It was an argument in favour of panhysterectomy in preference to the supravaginal operation in the majority of cases. After the establishment of the Royal Society of Medicine in 1907 Dr. Tate took an active part in the meetings of the Section of Obstetrics and Gynaecology, and at the last annual meeting was unanimously elected president of the Section for 1916–17, but death has removed him before he had even the opportunity of inaugurating his presidency. Dr. Tate was an excellent teacher, and from 1906 to 1910 was examiner in midwifery and diseases of women to the Conjoint Board.

The funeral service was held at St. Andrew's Church,

Wells Street, on Saturday, July 8th, and the interment took place afterwards at Highgate Cemetery.

Dr. J. S. FAIRBAIRN, assistant obstetric physician to St. Thomas's Hospital, sends the following appreciation: Nowhere will the death of Walter Tate, at the zenith of his powers, be more deeply felt and regretted than among his hospital colleagues and the St. Thomas's students. It is just over twenty-three years since he came from University College to take up the duties of a new post, then established for the first time—that of Obstetric Tutor and Registrar.

For the four years during which he held this office he did duty during Dr. Cullingworth's holidays, and gradually came to take an increasingly active share in the ward work, so that when Dr. Cory resigned in 1896 and he was definitely appointed to the staff, the only difference was that he gave up his tutorial classes and began regular clinical teaching in the out-patient department. Five years later he became full physician, Dr. Cullingworth retaining charge of a quarter of the beds for three years.

Tall, spare, and almost frail-looking, Tate did not give an impression of strength or endurance, yet he was capable of long and strenuous work, and to those who knew what he did he seemed almost incapable of fatigue. His gentleness and quietness of manner, too, covered a strong, self-reliant character. Much of his success was due to his confidence in himself, his quick decision and action. By his clinical clerks, house officers, and those practitioners who called in his aid—all of them in a position to form a critical judgement—his skill in forming sound and accurate diagnoses was acknowledged, so that it is not remarkable that the opinion of his hospital colleagues and students spread further afield and brought him an extensive consulting practice. He was a brilliant operator, and was never seen to greater advantage than in some surgical case presenting unexpected difficulties. But to these, what may be termed professional qualities, were added personal characteristics which were equally responsible for Tate's success in practice. He was extraordinarily thoughtful and gentle with his patients, and had a way of communicating to them his own confidence in his power to help them. They seemed to be constantly in his mind, hospital or private, serious or trifling, and whether the patients were gravely ill or merely suffering from minor discomforts that worried them, he would visit them or run in and see what a few cheery words could do. Even when away on a much-needed holiday he did not forget the comfort a letter or telegram, or even a hurried visit to town, would bring. Indeed, no effort on his part was too much if it brought the slightest help to those under his care. Those who worked with him at the hospital know how closely he kept in touch with his patients. There was no question of his duty to them being over with an operation performed; the after-care of his cases was never left to house officers and nurses. He was generous to a fault, and among the poor women who have been helped back to health by him there will be many sore hearts and much mourning over his death. He loved doing kindly and charitable things to the distressed and disabled women coming under his care, and doing them so that truly his left hand knew not what his right hand did. As a teacher Tate chiefly attracted those who could learn by watching and following his methods. To serve under him was an education in itself. Pathology did not appeal to him, his interest lay almost entirely in clinical work and practice, in gynæcology rather than midwifery. He took an active part in the work of the medical school. He was lecturer in midwifery for over ten years, and on diseases of women up to the time of his last illness. He was a member of the school council, and always took a lively interest in the amalgamated clubs. He was president of the athletic club, and a constant visitor at all cup ties, athletic meetings, and at smoking concerts, at which latter he was at one time a frequent and welcome performer. Many of his former students and house officers will have pleasant memories of evenings spent at his house, where he loved to make those who could or would take a part in song or at the piano, for Tate was a great music lover and had a good voice, which always seemed at its best on these evenings in his own house. He used to describe himself as a real Cockney in his enjoyment of an evening out in London, and was an inveterate theatre-goer. His chief outdoor relaxations were motoring and archery.

On those who knew Tate intimately his lovable character and great personal charm made a lasting impression, and his memory will be cherished by all who came in touch with him.

A CENTENARIAN INDIAN MEDICAL OFFICER.

SURGEON-MAJOR HENRY BENJAMIN HINTON, late of the Honourable East India Company's Bengal Army, died at Adelaide, South Australia, on May 14th, aged 103. He was born on March 7th, 1813, the son of Benjamin Hudson Hinton, cashier in the Portsmouth Bank, and took the diploma of M.R.C.S. in 1835; after making two voyages in an East Indiaman, he entered the Bengal Medical Service as assistant surgeon on January 14th, 1839. He became surgeon on December 31st, 1852, surgeon-major on January 14th, 1859, and retired on March 7th, 1868. His war services comprise the Gwalior war of 1843–44; the first Sikh war or Sutlej campaign of 1845–46, when he was present at the battles of Aliwal, Badiwal, and Sobraon (medal and clasp); the second Sikh war or Punjab campaign of 1848–49, when he served in the dépôt hospital at Firozpur, and was present at the battle of Gujrat (medal and clasp); and the second China war of 1858–60.

An account of his long life, illustrated by a portrait, was published in the BRITISH MEDICAL JOURNAL on March 15th, 1913, when he became a centenarian, and it is interesting to remember that when, in 1866, a medical board at Calcutta allowed him furlough on sick leave for two years, it was the general feeling that he would never reach Melbourne; he returned, however, to India much improved in health, and left that country in 1867; finally, on May 7th, 1868, he was rather reluctantly granted his pension; this amounted to £456 per annum, and in addition there was £300 a year from the Bengal Medical Fund. These allowances he drew for forty-eight years.

Dr. LENDON of Adelaide, who knew him well during the later years of his life, writes:

When in his 99th year Dr. Hinton sustained an intracapsular fracture of the head of the left femur, and after this was unable to walk and could only manage to shift himself from his bed to a chair. Although I had made his acquaintance some thirty odd years ago it was only during the last five years that I had really known him well from constant attendance upon him in the private hospital. From the time of his accident he had the usual indications of "surgical kidney," but his final illness only lasted a couple of weeks and his intelligence was preserved till near the end; a few days before death he inquired for the latest news of Verdun. He attributed his longevity partly to heredity and partly to his abstinence; he was a non-smoker, practically a teetotaler, and a very small eater. He had one strange habit: he always slept with his head covered with blanket and sheet. He abhorred cold weather and loved his sunny clime, though it was strange to hear an old Anglo-Indian sometimes complaining of our summer heat. His sedentary life allowed him to indulge to the full his bent for literature. In this respect he was voracious and omnivorous; magazine and newspaper, novel or biography, nothing came amiss. His only attempt at writing is now lying on my table; it is an autobiography written in 1887 and dealing with his life up to the time of his departure from India. This was offered, but refused, by several London magazines, to his great disappointment; though exceedingly interesting, it is not in its present state suitable for publication; it requires judicious editing, and some day this may be done. His writing illustrates a common defect—the failure to see the wood for the trees. Whilst history was being made in India on a large scale, he was more concerned with recording petty squabbles with his superiors, in which he never came out on top, and cantonment scandals and their consequences, which had better have been forgotten.

As an old man he was at his best when he allowed himself, as he occasionally did, to be drawn out in conversation. Then his reminiscences of the surgeon to whom he was apprenticed, of his former teachers at the London and at Westminster Hospital (of whom Guthrie, author of *On Gunshot Wounds*, was perhaps the most famous), and of the examinations as conducted at the College in 1835, were worth hearing. If his memory and description are to be trusted the examination was over in one evening, and was entirely *viva voce*. He recalls a compliment from the deaf

Sir William Blizzard on the way he spoke out. But more interesting, and intensely vivid, were his word pictures of India and the campaigns in which he shared. The journey from Dinapur to Agra, some 450 miles, might now well be done in a night, but in 1843, by Dak gharry, drawn either by horse or bullock, it took three weeks; hence he was too late for the battle of Maharajpore, though he assisted with the wounded. His next campaign was on the banks of the Sutlej, and more than once I have heard the story of Aliwal, and of the bloody field of Sobraon, from the surgeon's point of view. Incidentally one learns from his writings that there were German missionaries at Gorruckpore in 1849, but selected by the Church Missionary Society on account of their cheapness. Hinton's experiences in the Mutiny included a thrilling march from Bowsee to Raneegunge with his regiment (32nd N.I.) for the purpose of being disarmed; the massacre of the officers on the march was only averted by the colonel receiving a letter of warning. So, too, there were tales of the second Sikh campaign of '48–'49, of the China war of 1858–60, and of the Bhootan campaign in 1864.

Of late years his birthdays were generally honoured by a visit from the Governor; Admiral Sir Day Bosanquet, our late Governor, had served as a midshipman outside Canton when Dr. Hinton was camped inside. Our present Governor, Sir Henry Galway, also usually visited him, and the late Chief Justice (Sir Samuel Way), when Lieutenant-Governor, always made a point of calling on him. Many distinguished visitors, ranging from Sir Ian Hamilton to Madame Melba, also from time to time were taken by me to see and chat with him, and then conversation would turn upon Sobraon and cannon-balls, Governors-General of India, and Commanders-in-Chief, Lord Gough and Sir Colin Campbell (Lord Clyde), Captain (afterwards Field-Marshal Sir) Patrick Grant, and Sir Hugh Rose (Lord Strathnairn), Sir William Mansfield (Lord Sandhurst), and Sir Harry Smith.

Dr. Hinton was frequently irascible, and often deficient in tact. As a consequence, it would seem, promotion was slow, and the medals and clasps for his campaigns were not always forthcoming. Nor does he seem to have taken advantage of the many openings for professional, for scientific, or for administrative work which in the case of other Indian surgeons have led to fame. Nor after his retirement did climate and leisure modify his temperament; the result was too evident: he made no friends. Still he was perfectly happy, even if rather egotistic. He was of a restless disposition, frequently changing his residence, and residing mostly in very second-rate hotels in town or country. When 90 years old he felt impelled to visit Africa with a vague idea that he might be of service during the Boer campaign. Up to the time of his accident he considered he had failed in his duty towards himself if for any reason he had not taken his daily walk of six or eight miles.

The remains were privately cremated at Adelaide on May 15th, and the ashes were buried next day at the North Road Cemetery in the grave of his wife, who had predeceased him by some thirty years. Simple in his habits and unostentatious in manner, he stipulated that his death should not be announced in the papers till after the cremation, for he had an aversion to the pomp of a military funeral or the attendance of the Corps of Veterans, to which he had been appointed surgeon on the occasion of his centenary.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have satisfied the examiners at the examinations indicated:

D.P.H.—*Part I:* Isobel Mitchell. *Part II:* Elizabeth F. Butler, A. K. Soutar.

FIRST M.B.—*Human Anatomy and Human Physiology:* H. G. Burford, F. B. Dutton, R. Gainsborough, T. Patterson, W. V. Robinson, H. W. Toms, B. Tordoff.

SECOND M.B.—*Materia Medica and Pharmacology:* C. W. W. Armstrong, I. H. Beattie, E. A. Crook, W. Gover, R. M. Humphreys, R. T. F. D. Roberts, J. J. Savage, G. K. Stone. *Pathology:* C. W. W. Armstrong, G. K. Bowes, W. Burridge, G. R. Cowie, W. Gover, W. F. Harvey, R. B. Hervey-Wyatt, R. M. Humphreys, R. W. Lush, K. A. I. Mackenzie, R. T. F. D. Roberts, G. H. Rossdale. *Forensic Medicine and Public Health:* F. L. Apperly, I. H. Beattie, J. N. L. Blamey, G. K. Bowes, W. Burridge, J. M. H. Campbell, L. M. Davies, W. S. Dawson, G. I. Evans, T. E. Micklem, G. Perkins, N. A. Sprott, S. C. Varley. *Medicine, Surgery, and Midwifery:* J. N. L. Blamey, J. M. H. Campbell, W. S. Dawson, T. E. Micklem, G. Perkins, N. A. Sprott.

M.S.—A. L. Pearce-Gould.

UNIVERSITY OF ST. ANDREWS.

THE annual graduation ceremony took place on July 6th, when Principal Herkless, Vice-Chancellor, presided. The following were among the degrees conferred:

M.D.—Captain J. Taylor, R.A.M.C.

M.B., CH.B.—Mary M. G. Ferguson, N. B. B. Fleming, Elsie L. Kyle, M. M'Gillivray, D. Roger, A. G. Stevenson.

HON. LL.D.—Dr. James Musgrove, Bute Professor of Anatomy in the University.

UNIVERSITY OF ABERDEEN.

THE summer graduation took place on July 8th. The Principal, Sir George Adam Smith, presided at the capping ceremony. The following were among the degrees conferred:

M.D.—J. Watt (highest honours for thesis), G. Byres (old regulations), Major A. W. O. Wright, I.M.S.

M.B., CH.B.—†**W. Corner, †*A. C. MacDonald, R. J. Clark, A. H. Craig, G. S. Davidson, G. Ewen, *A. Fowler, D. M. M. Fraser, *A. Johnston, G. J. Key, D. Lyon, G. S. Mather, J. A. Nicholson, A. K. Robb, *D. S. Scott, R. J. Smith, G. Thomson, W. D. Whamond.

* Passed Fourth Professional Examination with "distinction."
** Passed Fourth Professional Examination with "much distinction."
† Second class honours.

The John Murray medal and scholarship, awarded to the most distinguished graduate (M.B.) of 1916, has been bestowed upon Dr. Andrew G. Reid, who also received the Lyon prize.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ON Thursday, July 6th, the election was held of four Fellows to fill the vacancies occasioned by the retirement in rotation of Sir A. Pearce Gould, K.C.V.O., Mr. W. Haslam, and Sir W. Arbuthnot Lane, and by the death of Mr. Stanley Boyd. Mr. Haslam was re-elected, and Mr. T. H. Openshaw, C.M.G., Mr. Raymond Johnson, and Mr. Vincent Warren Low, C.B., were elected. Mr. Warren Low being fourth on the poll was declared substitute member for the late Mr. Stanley Boyd until July, 1917. The number of Fellows voting was 660, of whom 654 voted by ballot papers, but only 6 in person. Seven ballot papers were received too late.

	Votes.	Plumpers.
Mr. W. F. HASLAM	353	... 24
Mr. RAYMOND JOHNSON	315	... 23
Mr. THOMAS HORROCKS OPENSHAW, C.M.G.	282	... 33
Mr. VINCENT WARREN LOW	217	... 39
Mr. Francis J. Steward	208	... 55
Mr. Herbert Stringfellow Pendlebury ...	177	... 21
Mr. John Murray	160	... 6

Medical News.

THE annual general meeting of the Medico-Psychological Association of Great Britain and Ireland will be held on July 27th at 11, Chandos Street, Cavendish Square, W., at 2.45 p.m., when papers will be read by Sir George Savage on mental disabilities for war service, and by Captain Colin McDowall, R.A.M.C., on functional gastric disturbance in the soldier.

MAJOR R. TAIT MACKENZIE, R.A.M.C., professor of physical education, University of Pennsylvania, will read a paper on the treatment of convalescent soldiers by physical means, at a meeting of the Section of Surgery of the Royal Society of Medicine, on Friday next at 5 p.m. It will be illustrated by lantern slides of cases under treatment.

AMONG the pensions granted during the year ended March 31st, 1916, and payable under the provisions of Section 9 (1) of the Civil List Act, 1910, are £30 to Miss F. L. Bryant, in consideration of the surgical work of her father, the late Mr. Thomas Bryant, F.R.C.S., and of her inadequate means of support; and £50 to Dr. George Cunningham, in recognition of his services to the study of dentistry and of his straitened circumstances.

WE are informed that a Federation of Medical Women's Associations has been formed. It will be managed by an elected representative council. The organizations at present represented are: The North-Eastern, the Northern, the Midland, the Irish, the Scottish, and the Registered Medical Women's Associations. Inquiries may be addressed to the Secretary, Medical Women's Federation, 122, Harley Street, London, W.

THE S. Weir Mitchell Memorial Dispensary of the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases was formally dedicated on June 1st. An address in memory of Dr. Mitchell was delivered by Professor W. W. Keen. The building cost about £8,000.

AT a meeting of the Paris Academy of Medicine on March 28th, 1916, Professor Gaucher read a communication on syphilis in war time (abstracted in the EPITOME, June 10th, par. 78) which led to the appointment of a committee to study the whole question. The report of that committee—consisting of Drs. Balzer, Landouzy, Marie, Pinard, and Vaillard, with Dr. Gaucher as reporter—was presented to the Academy on June 6th. The recommendations are that there should be daily supervision and inspection of women in licensed brothels (*maisons de tolérance*); that other registered prostitutes should be inspected twice a week; that soldiers should be inspected every fortnight; and that men on leave should be inspected before they go home and on their return. Solicitation in the streets should be absolutely forbidden, and the police order relative to the supervision of furnished apartments, places licensed for the sale of drink, and every house open to the public should be rigorously enforced. Women not belonging to the district should be forbidden to reside within army zones. The natives of Africa and Asia brought in large numbers to work in war factories should be inspected on their departure from their own country and on arrival in France. Special hospitals at which persons suffering from venereal diseases, soldiers and civilians, men and women, could receive advice and receive out-patient treatment should be created; the patients, it is said, should be treated by "the most rapid, most active, and most certain methods." It is further suggested that courses should be established in the special clinics of medical faculties for the instruction of army doctors appointed to the charge of services of venereal disease, and that the lectures and demonstrations already given to soldiers by medical officers on the danger of such affections and the means of avoiding them should be multiplied. The majority of the committee were in favour of extending the system of licensed houses in garrison towns as well as in the fighting zone. Dr. Gaucher dissociates himself from that opinion, holding that it would be better to appeal to the moral sense of the men, and to insist on the expediency of continence as a measure of precaution. The recommendations as to women in war zones and as to the treatment of syphilis were referred to the committee for further study.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2650, Gerrard. (3) MEDICAL SECRETARY, *Mediocrity, Westrand, London*; telephone, 2650, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

DR. GEORGE PERNET asks for particulars of cases of mycosis fungoides treated by salvarsan. He states that Brault of Algiers has recorded a case unsuccessfully treated by salvarsan and hectine, and that in a case of mycosis fungoides *à tumeurs d'emblée* observed by himself salvarsan did no good; it may, he thinks, do harm.

LETTERS, NOTES, ETC.

M.O.H., who, while driving his car on duty, has been accused of being a "joy rider," writes to suggest that medical men should have some distinguishing mark on their cars to show that they are being used for professional purposes.

WOMEN STUDENTS AT THE LONDON HOSPITALS.

PROFESSOR W. D. HALLIBURTON (Dean of Medical Science Faculty, King's College, London) writes: Sir John Broadbent's letter in your issue of July 8th demands a word of explanation from me. I am mentioned by St. George's Hospital as having admitted women students to its wards because that hospital was the only one of the four hospitals with which we at King's College are associated that had taken this step up to the date of his letter. I was dealing with the matter solely from the point of view of providing clinical instruction for women students who take their preliminary and intermediate work with us. I was quite aware that St. Mary's Hospital had thrown open its doors to women students, and I understood from a letter which Sir John Broadbent wrote to me about a month ago that his agreement with the London School of Medicine for Women precluded him from taking women medical students from any other source. From the King's College standpoint, therefore, St. Mary's Hospital was of no use to us, and that is the simple reason why I omitted to mention their recent action.

*** Charing Cross Hospital may now be added to the hospitals in London which have decided to admit women students. They will be admitted on the same terms as men, and can enter either for the full course or the final studies only. This decision, which is of temporary application, follows on the action of the Medical Science Faculty of King's College, with which Charing Cross Hospital is in relation.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

DR. WILLIAM BRAMWELL (Liverpool) writes: With regard to those "eight rather bad blunders in English" which it appears are to be found in my letter, I would like to say to Dr. Mercier what Ulysses said to Eurymachus:

Ἀλλὰ μάλ' ὑβρίζεις, καί τοι νόος ἐστὶν ἀπηνής.

Dr. Mercier knows perfectly well that neither Dr. Lipetz nor I mean to advocate the word "marked" as the only adjective of intensity. We intended only to show that Dr. Mercier has made an unjust charge against medical writers, and that his statements as to the overuse and misuse of the word "marked" are very much exaggerated, in proof of which Dr. Mercier fails to show in reply to the challenge of Dr. Lipetz where such word is used as equivalent "to slight or scanty." I am, however, glad Dr. Mercier admits that I am more genteel than he in my repudiation of the word "sloppy." It is a confession on his part that, although he may consider the word neither vulgar nor meaningless, he at any rate regards it as not genteel, and hence he to some extent substantiates the justice of my remarks. But with regard to this word it is a strange inconsistency that Dr. Mercier in seeking to limit the use of the word "marked" to its most primitive meaning, an intention which he plainly shows in his first letter, should attempt to stretch the application of the word "sloppy" to an extent which borders on the ludicrous. As a further instance of Dr. Mercier's inconsistency I would like to point out that the words "bally" and "blooming" and "others beginning with 'b'" and the phrase "has me on the hip" are not expressions which should have been allowed to appear in the letters of one who has undertaken to teach the medical profession how to write correctly. Dr. Mercier could have expressed his meaning much more forcibly by a choice of words which one is accustomed to meet with in good English. He could have made up sentences which the profession looking upon as examples of good composition could have profitably studied and copied from Dr. Mercier as a teacher. As it is, he has already an imitator in one of your correspondents, who spoils an otherwise well-worded letter by very unnecessarily introducing the word "damn," which, coming where it does, jars on sensitive ears like a false note in music. But, in my opinion, the most regrettable example which Dr. Mercier sets—regrettable because it is utterly at variance with correct composition—is that many of the similes or comparisons he uses are totally inapplicable to, and quite out of parallel with, the subject he is discussing. The use or misuse of the word "marked" in medical writings has no similarity whatever with the plebeian habit of "throwing orange peel into the street" or the mere accident of "spilling tea on the tablecloth," the kinds of carelessness involved being much too widely different to be capable of appropriate comparison, neither the wilful act nor the accident admitting the smallest defence; while, on the other hand, the word "marked" has its legitimate and justifiable use—a fact to which even Dr. Mercier now agrees, since he admits that "it is not incorrect," and that "it will serve." Other comparisons of even more glaring inaptitude he adopts in connexion with the word "develop." To say, for instance, that a man cannot "look a disease" or "appear it" are statements so absurd that they could be easily misunderstood as denials of the very existence of the physical appearances on which correct diagnosis in many cases must very largely depend; and ambiguity in similes is not permissible. Surely his last two letters are so unlike the writings of the Dr. Mercier we have been accustomed to know that we may well feel he has disguised himself in the mask of the "Abbot of Unreason."

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An Address
ON
INDUSTRIAL DISEASES
*PREVAILING AMONGST IRON AND STEEL WORKERS IN MIDDLESBROUGH.**

BY
J. WATKIN EDWARDS, M.B., C.M.,
MIDDLESBROUGH.

IN the *Supplement* to the Sixty-fifth Annual Report of the Registrar-General I find the following statement under the heading of "Iron and Steel Manufactures":

The mortality in this industry at every stage of life is above the standard for "Occupied and Retired Males."
At every stage of life the death-rate exceeds the average for "Metal Workers Generally"; in the main working period (25 to 65 years) the comparative mortality is 18 per cent. above the standard.

The number of persons engaged in these industries (including coke-burners) in England and Wales is, according to the last report, 135,000. In Middlesbrough are employed roughly 8,000, or about one-sixteenth of the whole.

An industrial disease has been defined as "one which is caused by and arises in the course of an industry."

The importance of the subject is at once evident when we consider that at least one-third of each day is spent by every man under conditions required by his occupation, and the total influence upon his life and health is not fully stated by that proportion, for

(*a*) The effects of overcrowding are more harmful during active work than when workers are at rest; and
(*b*) The evils of overcrowding are aggravated by:

(1) Exposure to changes of temperature;
(2) Inhalation of dust and irritating particles;
(3) Absorption of chemical poisons; and
(4) The effects of undue strain and exertion.

If the amount of air inspired while at rest is = 1
The amount inspired when standing erect is = 1.3
While walking at the rate of four miles per hour is = 5

Every effort should be made in industrial towns towards making the lot of our workmen—both while at work and when off work—as perfect as possible. In this way we shall (1) increase the efficiency of labour, (2) promote contentment amongst the workers, and (3) increase the wealth of the nation.

In a general way it may be said that where work entails great effort, and the full natural workday of 240 foot-tons is much exceeded, an eight-hour day should be the maximum demanded. Full recreation is necessary. Sunday, above all things, should be retained as a day of rational rest of body and mind, in which music should probably play a large part.

Much has been done by employers in adopting means for (1) improving ventilation, (2) promoting cleanliness, including the provision of baths; and by employers and reformers in the formation of social and athletic clubs and winter gardens; but a good deal remains to be done by various agencies in various directions.

If we study the subject with special reference to Middlesbrough, we shall find several matters which seem to call for inquiry:

Death-rates in 1911 at all Ages.

	Males.	Females.
In county boroughs of North of England ...	19.2	16.6
In Middlesbrough	22.3	17.9

The chief industries of Middlesbrough are of so laborious a nature that no women are engaged in them. Of the men employed in the iron and steel trades in Middlesbrough 5,306 are between the ages of 25 and 55 years; the number at all the other age-periods together is 2,495.

The next largest employment is at the shipyards, where the number in the age-period 25 to 55 is 2,000, and at all other age-periods 1,200.

The death-rates in Middlesbrough of males between certain ages is compared with that of females. It is found that in males between 25 and 65 it is 14.2, and in females between the same ages it is 10.5, so that the number of men who die between those ages is about 40 per cent. above that of women.

The chief industries of Middlesbrough are: Iron and steel manufacture, etc., coke burning, manufacture of slag manure, girder work and bridge building, foundry work, engineering, shipbuilding, salt mining, dock work.

The diseases which caused the largest number of deaths in 1911 amongst males were:

Organic heart disease	61	deaths
Pulmonary tuberculosis	70	,,
Bronchitis	85	,,
Pneumonia	264	,,

These figures do not, however, at all fully represent the amount of industrial disease prevailing in the town, for there are many minor complaints which do not appear as causes of death, being curable, but which give patients a good deal of pain and practitioners a great deal of trouble. These are cases that figure less upon the visiting list than upon the consulting-room list, and there they appear in daily profusion. A few of these complaints are dyspepsia, sciatica, lumbago, neuritis, etc., also a pitch disease causing hypertrophy and ulceration of the skin in various parts, which I have met with amongst those who work at chemical works.

The adverse influences which appear to be at work in causing these diseases are:

(1) Working at high temperatures.
(2) Long hours of work, fatigue; insufficient rest, sleep, and recreation.
(3) Working at night.
(4) Careless exposure to cold and wet.
(5) Intemperance.
(6) Inhalation of dust.
(7) Inhalation of poisonous gases, such as CO.
(8) Trauma.

1. ORGANIC HEART DISEASE.

This accounted for 61 deaths among males. Rheumatic fever caused only 2 deaths in 1911, and does not appear to prevail to a sufficient extent to be the causative agent in any great degree. I think, however, we can find other causes elsewhere.

(1) *Heat.*—A high temperature reduces the working capacity, and is injurious to health. In mines a temperature of 82° F. (wet bulb) raises the body temperature and increases markedly the pulse and respiration rates. Other factors co-operate with heat—namely, exposure to intense light and to strong currents of air.

(2) *Fatigue: long hours and too little rest* are bound to affect the health of the heart by not permitting heart nerve, heart ganglion, and heart muscle rest and repair. The night shift work is, in my opinion, especially harmful in this way, since it forbids rest at the time when Nature calls for sleep.

(3) *Intemperance* probably acts by depressing and paralysing the cardiac nerves, poisoning the protoplasm of heart muscle, and causing fatty degeneration.

There are no means of knowing what were the particular lesions present in these cases, but my own experience, while showing a proportion of obvious valvular lesions, reveals a large number of cases indefinite in character showing only hypertrophy or dilatation or signs of degeneration. Under rest, fresh air, dieting, and general treatment these cases respond very well, and the man can as a rule be allowed back to work without much loss of time.

2. PULMONARY TUBERCULOSIS.

This condition was the cause of 70 deaths amongst males. The causes which lie at the root of its prevalence are:

(*a*) *Inhalation of dust* at the works (where it is chiefly composed of inorganic particles), but especially in our streets and in dwellings and places where people congregate. The disease known as pneumonoconiosis is known to kill large numbers of Staffordshire potters, Cornish and Transvaal miners, and Sheffield grinders. Dust from any cause, especially that produced in the manufacture of manure from basic slag, causes bronchitis, asthma, chronic

*The address was delivered during Dr. Edwards's tenure of office as Chairman of the Cleveland Division of the British Medical Association, 1913-14.

cough and emphysema, and pneumonia, and, no doubt, predisposes the body to the attacks of the tubercle bacillus. As these dust diseases develop insidiously, the workmen engaged in such occupations should have their chests examined periodically, and any signs of commencing disease should be regarded as a disqualification for that particular kind of employment.

(*b*) *Improper food* and drink appear to be the second factor. The enormous increase in the consumption of animal food is a phenomenon of the present generation and the gain is problematical. To our forefathers meat was almost a stranger, except on one or two days a week, and there is no conclusive proof that they were any the worse on that account. Similarly the workers of France and Germany, the coolies of China, and the natives of Japan are able to perform prodigious tasks on a diet into which meat enters either not at all or in relatively small quantities. The popular notion that health and strength are to be found in direct proportion to the quantity of solid food put into the stomach, especially in the form of butcher's meat, washed down with copious draughts of beer, is probably quite wrong. The immediate results are dyspepsia and clogging of organs of excretion, and ultimate plethora, and sooner or later chronic disease. This applies to men especially. Women often make the opposite mistake of taking too little solid food, and induce imperfect nutrition from abuse of tea.

The question of drink is a difficulty at best, but especially is it so with respect to men who work in hot places and perspire freely. In advising patients on this point we are met with difficulties which arise from traditional beliefs, inherited craving, personal tastes, and custom and habit. It is the firm belief of many workmen that beer is necessary for their well-being, and that nothing can take its place. Some take it because they are genuinely fond of it, some because others do, and many are simply the victims of a vicious ancestry. It is, I believe, the daily experience of all physicians and surgeons alike that their work is hindered and hampered by the alcoholic habits of the nation. Illnesses are brought on directly by it, and diseases that should run a short course run a long one. Indulgence in alcohol reduces the number of white corpuscles and repair takes place very slowly. Delépine has shown that the lungs of alcoholics are liable not merely to catarrh but to haemorrhages. All occupations conducted in hot workplaces tend to intemperance. It seems to me that one of the greatest needs of the age is that of a drink —a thirst quencher—which, while supplying the bodily needs for fluid, will be sufficiently palatable, and will help to maintain industrial efficiency while the constitutional ill effects of alcohol are avoided.

Tea is largely drunk at the works, so is to some extent oatmeal water and herb beer. At present, for those of our patients who have to endure great heat, the best advice we can give is to drink in small quantities at a time cold weak tea or coffee, oatmeal water, or plain water. I would suggest in addition to these, when possible, home-made lemonade or some other fresh fruit drink. An old friend of mine, a physician of great experience, writes to me as follows:

> My reason for suggesting oatmeal water as the best drink for men working in hot temperatures is that it is a good thirst quencher and food owing to the nutritive constituents extracted from the oatmeal. The best method of preparing it is to pour boiling water on oatmeal, let it stand for three or four days in the vessel until acid fermentation is set up, then as the clear liquid is drunk add a little boiling water and oatmeal daily, leaving the dregs in order to set and keep up the acid fermentation. The acid is lactic, which acts favourably on digestive organs.

I have failed up to the present in making this drink very palatable.

(*c*) *Insufficient Breathing Space and Housing.*—I have no doubt whatever that the air space of many of the houses of working men is totally inadequate. The result is that large families are being brought up under conditions as regards housing in which they have little chance of either living healthy lives or of working regularly, or of living long. Small houses for a family of five or six, with a front living-room and a scullery, in neither of which is there room to move about freely, and two small bedrooms with one fireplace, will of themselves account for the spread of several diseases, and also for the careless lives led by both men and women. Many of the bedrooms have little more than enough room for a bed, and the actual available breathing space is often exceedingly scanty. The outlook upon life is bounded by these four walls, and is correspondingly gloomy. Young married people lose heart, hope, and ambition, and degenerate rapidly.

This condition of things in their homes accounts for some of the bad habits of the men which, in my opinion, predispose to disease. Men coming off the night shift, tired, cold, and hungry, knowing that they have only comfortless homes to go to, find themselves tempted to turn aside into the brilliantly lighted and cheerful looking places on the way. Here they are often led to stay, clad in damp working clothes, for hours, and when reaching home some time in the forenoon they fall asleep in front of the fire before a meal can be got ready for them. At 5 p.m. they have to go to work again, and they start for the works unchanged, tired, chilly, insufficiently nourished, and with tissues soaked with alcohol—in a condition eminently suitable for the attack of any bacillus of disease.

Carbon monoxide poisoning is apt to take place at many of the works during the charging of blast-furnaces in the course of manufacture of steel (especially by the Siemens process) and in the manufacture of coke. The gas from a blast-furnace contains from 4 to 12.4 per cent. of carbon dioxide and from 27 to 36 per cent. of carbon monoxide.

The symptoms produced are giddiness, headache, throbbing of the temples, ringing in the ears, and a sense of weariness; in severe cases convulsions and unconsciousness occur. When treated early and successfully, the following symptoms have been noticed later: Inability to swallow, muscular tremors, cough and blood-stained mucus, alteration and loss of speech, inco-ordination; ultimately nystagmus, nervous exaltation, and excitement. Some of these symptoms persist. Treatment consists in removing the patient to the open air, artificial respiration, oxygen, and the administration of a diffusible stimulant. It is important that the oxygen should be warmed by passing it through an indiarubber bag placed in hot water.

3. BRONCHITIS.

This condition caused 85 deaths among males and 49 among females; 47 of the males were over 25 years of age. Simple bronchial catarrh and sore throats are very common in Middlesbrough. I would place the following amongst the most common causes in men:

(*a*) Exposure to heat and sudden changes of temperature.
(*b*) Exposure to dust while at work.
(*c*) Night work.
(*d*) Careless exposure to cold winds whilst overheated at work.
(*e*) Carbon monoxide poisoning.

There is nothing new to say regarding its treatment save that where it persists the chest should be carefully examined for emphysema and phthisis. If either of these conditions be present a cessation of work or change of employment should be recommended.

4. PNEUMONIA.

Pneumonia caused 264 deaths amongst males in 1911, and 202 in 1912.

If we take the main working period of life (25 to 65 years of age), we find the following comparative death-rates in 1911:

In county boroughs of the North	1.6 per 1,000
In a town such as Sheffield	1.2 per 1,000
In Middlesbrough amongst females ...	0.9 per 1,000
In Middlesbrough amongst males ...	3.4 per 1,000

The death-rate from pneumonia in Middlesbrough is, therefore, between two and three times higher than that in the county boroughs of the North, in Sheffield, and in the country generally amongst males between the ages of 25 and 65 years, while it is between three and four times higher than that among females in Middlesbrough.

Pneumonia has been called with a great deal of truth "the friend of the aged," inasmuch as through an illness, short, sharp, and not always painful, it enables the old to escape those "cold gradations of decay" which often make the passing to the tomb so painful and wearisome. But in 1911 in Middlesbrough, only 33 who died from this disease were over 65 years of age, while 83 were between 25 and 65 years of age. I would suggest that here it is, and has

been for many years, "the terror of the middle-aged." Males appear to be a little more susceptible than females generally, but in our town it occurs in the large proportion of nearly four males to one female. It appears to be more common in cities, and natives appear to be more susceptible than newcomers. This, I believe, to be true of Middlesbrough also. I have no doubt whatever that it prevails to a much greater extent among working men and the "casual" class than among business men or the leisured classes. The highest incidence is said to occur in winter and spring, but in Middlesbrough more appears to depend upon the state of the atmosphere, and I have thought from my own observation that a dry season is more favourable to attacks of pneumonia than a wet.

I have not found figures dealing with the factor of occupation either in respect to Middlesbrough or any other industrial district, but I am convinced that in Middlesbrough at any rate men engaged in iron and steel manufacture are much more liable to the disease than others. I have endeavoured to glean information in this connexion from the statistics for 1912 kindly supplied to me by Dr. Dingle. It is not possible to be exact, but approximately it may be said that of the total number of deaths between 25 and 65 years of age a little under one-fourth were females, about one-third were men outside ironworks, and almost exactly one-half were men employed at works.

I have already pointed out, however, that more than twice the number of men between the ages of 25 and 55 are engaged in those trades than there are at all other age-periods put together—5,306 to 2,495. With respect to occupational causes I would like to emphasize the following:

(*a*) Working in high temperatures with sudden exposure to cold, strong currents of air, and to powerful blasts of fiery and suffocating gases. Chilly air besets every form of half-open shed within which there is high temperature.
(*b*) Inhalation of dust of various kinds. This is specially true of the dust given off in the manufacture of slag manure.
(*c*) Injuries of any kind, but especially in the neighbourhood of the chest.
(*d*) Excessive fatigue, especially after night work.
(*e*) Careless habits after leaving work.
(*f*) Intemperance in food and drink.

Prophylaxis.

In the majority of cases the disease is conveyed by auto-infection. A condition of lowered resistance, due to one or more of the above-mentioned causes, furnishes a state of ill health favourable to the growth of an organism either already present in the mouth or throat of the patient or inhaled with dust or bad air. Patients, therefore, who have suffered from pneumonia (as well as those who have not) should exercise the greatest care in keeping the teeth, mouth, and throat in a healthy condition. Oral sepsis should receive energetic treatment; bad teeth should either be removed or filled; enlarged and unhealthy tonsils and adenoids should be removed; indigestion and constipation corrected.

The sputum should be carefully destroyed as soon as possible. For this purpose the patient should expectorate into squares of paper, or into small cardboard receptacles containing a layer of common salt or other suitable disinfectant, and the whole destroyed at frequent intervals by fire. Every reasonable care should be taken to prevent the patient coughing into the faces of the attendants, or on to the bedclothes, or upon the floor; such accidents frequently happen, especially in the case of semi-conscious patients; the infected spots should be scrupulously cleansed with turpentine or spirit, and the clothing of the nurses and of those in attendance should be protected by overalls. The rooms in which pneumonia patients have been treated should be thoroughly disinfected, and I am glad to observe that this is now undertaken by the municipality. In Middlesbrough we find a very fatal type of pneumonia, accounting for one-fifth of all deaths in 1911.

Treatment.

In regard to treatment, I may be allowed to make a few observations, fully realizing, however, that each practitioner has his own way of treating the disease, and that each man is successful in his treatment.

(*a*) *General Management.*—The patient should be placed in a warm room which admits a large amount of sunlight and fresh air without draughts; he should not be burdened with bedclothes, but it is important that the lower limbs should be well covered and tucked in with blankets (and rubber or paper sheet); poultices should be discouraged as far as possible; a cotton-wool jacket or sheet may be applied to the chest in such a way as to permit of examination and daily sponging of the skin with the least possible disturbance to the patient. I think rubbing the chest walls with camphorated oil promotes the local circulation, relieves pain, and comforts the patient. The mouth may be kept clean by frequent drops of plain or lemon water and glycerine and lemon juice.

Antitoxin treatment with either serum or vaccine has not been very successful so far. I have used the vaccine in a few cases only; the patients did not die.

(*b*) *Diet.*—For the first three days I think little more is necessary than water, and I allow plenty of water, plain lemonade, or weak tea, six to eight glasses in twenty-four hours. It is difficult to persuade the patient's friends that this is right, and they want to be giving milk and soda every few minutes, with quantities of beef-tea and whisky between times. After three days we should try hot milk and hot beef-tea every alternate three hours, but not oftener. Carbohydrates may be given as milk sugar in the milk or ordinary sugar in the lemonade.

(*c*) *Bowels, Skin, and Kidneys.*—An initial dose of calomel is very useful, and may be repeated with or without a saline aperient occasionally when necessary. In children a small alterative dose every six or eight hours may be given. Meteorism should be treated by preventing constipation, restricting the diet, and giving plenty of water. It is very important to get the skin and kidneys to act freely. I give large doses of ammonium acetate or ammonium citrate at the outset.

(*d*) *Hydrotherapy.*—For high fever, constant tepid sponging of accessible parts of body.

(*e*) *Pain.*—I have found small doses of aconite and antimony at frequent intervals useful; also Dover's powder, grey powder, and quinine in powder or capsule, together with a good diaphoretic, very useful in many cases. In some cases leeches or cupping.

(*f*) *In toxaemia* more water should be given and means used to promote diaphoresis and diuresis; constant sponging; calomel followed by a saline and alcohol (as whisky or brandy) with the milk and bovril every three hours in doses of one teaspoonful to a tablespoonful or more if necessary. I have lately tried in alcoholic cases a mixture of potassium iodide and creosote with good results, and I think this mixture deserves a further trial in suitable cases.

(*g*) *Failure of Circulation.*—More fresh warm air; more sunlight, and a mixture of ammonium carbonate, liq. strychninae with or without tincture of digitalis.

(*h*) *Dyspnoea.*—I have found oxygen useful in some cases; it would possibly act better if it were used warm.

(*i*) *Sleeplessness.*—I do not think that any of the modern soporifics are very useful. I think we should trust rather to general measures, wise nursing, quietness, coaxing, and a dose of morphine with or without atropine at bedtime, if necessary. The patient should not be disturbed at all during the night, not even for nourishment, once he has been made comfortable.

HEAD INJURIES IN WAR.

BY

AUGUSTUS W. ADDINSELL, M.B., C.M.EDIN., M.R.C.P.LOND.; CAPTAIN R.A.M.C.

IT seems probable that the experience of this war will confirm the principle that no injury of the head is too slight to make light of or too severe to despair of.

The treatment of wounds of the head must always be a matter both of anxiety and importance. This has been intensified in certain aspects by the appearance of an article in the BRITISH MEDICAL JOURNAL of February 19th by Colonel Gray, C.B. No apology, therefore, is needed for the consideration of a subject of such vital moment.

The interest that this article has aroused lies not in the fact that we have been taught anything new, but that the

doctrines inculcated are liable to be accepted by many junior officers, having very little experience to guide them, as the authoritative utterance—the "last word"—on head surgery.

We are told that "practically always" depressed fracture of the inner table is accompanied by "a cone-shaped pulping of the underlying brain," which is described as "a mixture of useless brain matter and blood which acts as an immediate source of irritation to the surrounding brain," and therefore the "apparently wounded dura" should be opened. If this useless brain matter does not immediately come forth, a pair of forceps is inserted to aid its exit.

Dr. Buzzard has very pertinently asked how this pulping is to be recognized before the dura is opened, and what evidence there is that softened brain tissue is a source of irritation.

In those cases in which I have removed pieces of depressed bone and foreign bodies, and the dura has been intact, I have not opened it, and I have refrained for the following reasons:

1. There is no direct evidence that the brain underlying the depressed bone is "pulped and useless beyond recovery."

2. If the underlying brain be damaged there is much less risk of it becoming infected with a dura intact than with a dura incised, and the process of repair has a far greater chance of success than if it be interfered with by a pair of forceps or a finger.

3. If there be evidence of intracranial pressure, lumbar puncture is easily performed and may easily be repeated.

4. The scar that is formed as a result of the healing process is probably less likely to bring about serious remote consequences, such as epilepsy, if the dura be not involved.

Perhaps the time is yet too short, but it would be of interest if some indication could be given us as to what is happening to those patients who have been operated on, and are being kept under observation in England; for, after all, it is the remote result that is of chief importance.

Here at the base our immediate concern is with the septic wound, the fractured skull, or with the localization of the foreign body in the brain. But our interest in these problems must not entirely obliterate our view of the patient's future.

During the last eight months thirty-seven cases of injury to the head have come under my personal observation, and I propose to limit my comments entirely to my own experience, because I believe that the recording of individual methods is the most satisfactory way to arrive at the best line of treatment. This contribution, therefore, may be regarded as a pebble thrown upon a heap. But each pebble has its place.

The plan usually adopted is to let the patient have complete rest for three or four days, unless the symptoms be very urgent calling for immediate interference.

I believe this rest and quiet to be great value. The prolonged exposure and work of the trenches, or the charge; the shock of the injury; the unavoidable but frequent moves until the patient reaches the base, must all tend to bring about a condition of exhaustion and a longing for rest in a comfortable bed.

During the first forty-eight hours much may be learnt. Symptoms of shock or concussion, or of pressure due to oedema from cerebral disturbance, may disappear, or show signs of improving. On the other hand, local paralysis, at first slight, may deepen. Evidence of cerebral irritation may manifest itself. Symptoms and signs, at first vague, may become definite.

Subsequent action greatly depends upon this period of inactivity. There is time to deliberate and decide. No operation is done "as a matter of course."

My present attitude, therefore, is to be content to follow the policy which has been found to produce the least unsatisfactory results, and that is to avoid surgical interference unless it be urgently and insistently called for.

I pass on to the consideration of a group of cases in which the disappearance of symptoms after operation has been so complete and immediate that one feels justified in attributing a large share of the credit for recovery to the operation.

I realize full well that concussion may play an important part in the early symptoms of these head injuries, and that paralysis and other symptoms may disappear without any operation, but in a number of cases that have come under my own observation the results have been so striking and so satisfactory that one feels encouraged to continue one's present practice.

Perhaps a brief description will best illustrate the type of case to which I refer.

CASE I.

Private A. B., wounded by rifle bullet in the trenches on October 12th, 1915, was admitted to a general hospital on October 14th.

On admission he was dull and apathetic, and it was difficult to elicit any history. There was a long "gutter" wound of the scalp passing obliquely downwards from the vertex to the left temporal region. The right leg was a little spastic. There were no other focal symptoms.

The dullness and apathy improved greatly with rest in bed.

Early on the morning of October 20th, six days after admission, he had an epileptic fit. The first sign was a spasm of the right arm, with a cry. The right leg was next involved, and the spasms very quickly became general. When he recovered there was complete right-sided hemiplegia. A second seizure followed about two hours after he had recovered from the first.

Trephining.

The *x* rays did not show any depression of bone, but as the outer table was grooved it was decided to trephine. The operation was done three hours after the second seizure. A depressed fracture of the inner table was found lying over the Rolandic area. The fragments of bone were removed. The dura was intact and was left intact. A lumbar puncture was done. A drainage tube was placed in the lower angle of the flap and left there for twenty-four hours.

After-History.

The man had a slight seizure eight hours after the operation. On October 22nd—that is, forty-eight hours after leaving the theatre—there was a slight movement of his fingers; the next day he could move his hand; movements rapidly returned in the right arm and leg. The patient went to England on November 29th, able to walk well, and the grip of the right hand was indistinguishable from that of the left.

CASE II.

Private T. A. W. was wounded on January 28th, 1916. He was admitted with four small punctured scalp wounds. There were no intracranial symptoms; the scalp wounds were cleaned and the patient kept in bed; the man seemed to be perfectly well. He was quite bright, and said he felt "in the pink." However, at 9 a.m. on February 3rd, five days after his admission, he was seized with an epileptic fit. The right side of his face was first affected, then the right arm, then the right leg, and then the convulsions became general. After recovering from the attack there was marked weakness of his right arm. A second and a third fit followed in quick succession, leaving his right arm and leg completely paralysed.

Trephining.

At 2 p.m.—five hours after his first seizure—he was trephined over the right arm area. The inner table was found to be fractured, with spicules of bone penetrating the dura. The bone was removed; the dura was not further opened; a flap of aponeurosis was reflected over the excised wound. A drainage tube was placed in the angle of the flap and retained there for forty-eight hours. Lumbar puncture was done.

After-History.

Two hours after the operation the man had another fit. During the next day—February 4th—he had no more fits; the temperature was normal, and the pulse 78.

On February 5th the right hand was weaker than the left, but movements had returned in both arm and leg.

On February 8th the grip of the right hand was almost equal to that of the left.

On February 18th it was noted that he had had no fits since February 4th, and that his general condition was excellent. He went to England a month afterwards apparently well.

I have cited these two cases because they illustrate several principles to which I attach importance.

Both these men lay in bed—one for six and the other for five days—with remarkably few signs or symptoms; one of them, indeed, had none at all, and in the other the dullness and apathy were improving rapidly and had almost disappeared, yet quite suddenly both had epileptiform seizures, leaving paralysis in their train. In both instances the damage to the outer surface of the skull was trivial, and the depressed inner table was not revealed by the *x* rays. Yet the consequences were severe.

The cases show that a wound of the skull, however slight, should not be regarded too lightly. They also go to show that the damage by the depressed bone to the underlying brain was irritative rather than destructive, and that even if a cone-shaped area of underlying brain had been beaten into a "mixture of useless brain matter and blood," its presence did not act as a source of irritation, because directly the bone was removed the symptoms disappeared. Another point they seem to show is that when definite focal symptoms arise whilst the case is under careful observation they should be dealt with promptly if they be within the reach of legitimate surgery.

It may be argued by the advocates of more heroic measures that had I operated at once the epilepsy would not have occurred. That may be true, but the negative examination of the *x* rays and the entire absence of symptoms justified an expectant attitude.

Again, it may be, and probably will be, urged that had I continued to leave them alone and had refrained altogether from interference, the epileptiform seizures would have ceased and the paralysis have disappeared. That also may be true, but it cannot be proved.

All that can be proved is that some cases of early epilepsy which have been left alone have got apparently well without operation.

On the other hand, one of the cases quoted above was rapidly passing into a condition of status epilepticus, and it seemed obvious that the first thing to do was to try and relieve the cortex of the source of irritation. An empty house is better than a bad tenant. The early onset of epilepsy is comparatively rare, and is probably due to cortical irritation, and if that be so, the sooner the cause of irritation be removed the better.

But I must not venture into the labyrinthine paths of neurological pathology. I content myself with stating that all of the patients who have developed epileptiform seizures and paralysis while they have been in hospital, and whom I have operated upon for depressed fragments of bone, have either recovered from their symptoms or improved, and in none have the symptoms returned prior to their transference to England.

What their subsequent history may be I cannot say, but there is one case that has been reported since his arrival in England which presents several features of such interest that I venture to record it.

CASE III.

The patient was struck by a piece of shell in the occipital region on February 10th, 1916. The wound was incised and cleaned under novocain at a clearing station at the front. The cranium was furrowed, there was loss of consciousness, and the man vomited and complained of headache. There was no obvious paralysis, but he was very drowsy and his mental condition was dazed.

On admission to a general hospital on February 13th, 1916, the patient was very drowsy; the pulse was 44. There was no paralysis, no optic neuritis, and no ocular signs, but he complained of severe headache. The *x* rays showed a fracture of the skull in the right occipital region with a foreign body in the left temporo-sphenoidal region.

The wound was kept clean, and healed rapidly. The pulse-rate varied between 44 and 54. No further symptoms developed, but right-sided hemianopsia was observed.

On March 6th, twenty-six days after the infliction of his wound, at 2 p.m. the patient complained, saying "My eyes feel funny"; at 2.20 p.m. the nurse noticed his right eyelid twitching; immediately afterwards his right leg was drawn up; this was followed by convulsions of the whole of the right side, which quickly became general, and when I saw him at 2.25 p.m. the patient was unconscious, and the convulsive movements were quieting down. When he had regained consciousness it was observed that the left pupil was rather more dilated than the right. The knee-jerks were present on both sides; Babinski's sign was absent; there was slight ankle-clonus on the right side. Mr. Verdon then reported right-sided hemianopsia; pupils active to light, no squint, no optic neuritis.

Captain McDonald reported that the *x* rays showed the presence of a foreign body in the left temporo-sphenoidal lobe in a line directly upwards from the mastoid process, and at a depth of 0.6 centimetre from the surface of the brain.

Trephining.

At the operation, which took place at 5 p.m. on that day, a needle was driven through the scalp, making a fine point on the bone, which corresponded with the surface marking on the scalp made by Captain McDonald. A flap was turned down, the point of a trephine was placed on the spot marked by the needle, a disc of bone was removed and brought into view the posterior branch of the middle meningeal artery. The dura was incised a little above this; a fine telephone probe struck the foreign body; this was removed, though from a slightly greater depth than had been estimated.

The dura was stitched up. A lumbar puncture was done.

After-History.

Forty-eight hours after the operation Mr. Verdon reported: Optic discs healthy. Full field of vision in each eye to hand test; can read large print with difficulty.

The wound healed by first intention, and the patient made an uninterrupted recovery. His pulse varied from 64 to 80, and his temperature remained normal.

I have recently (May 12th) seen this man in the Maida Vale Hospital. He continues well, has had no more fits, and his headaches have disappeared.

However apt one may be to attribute to the *propter* that which only belongs to the *post*, it is difficult to deprive the former of its share of credit in this instance. The prompt disappearance of all headache, though only a subjective phenomenon, was nevertheless an intense relief to the sufferer, and the immediate rise in pulse-rate from 44 to 68, together with the return within forty-eight hours of a complete field of vision and the non-return of any epileptiform seizures, would seem to point to the conclusion that the removal of the piece of metal from this man's brain had some direct relation to his improvement.

Mr. Verdon tells me that he can only account for the disappearance of the hemianopsia by the suggestion that the removal of the foreign body in some way relieved tension on the cortical centre for vision.

There is one other matter to which I should like briefly to refer, and that is the question of drainage. Personally I rarely use a drain inside the skull. If the damage to the skull and the dura be so extensive that the brain matter oozes out, there seems to be no need for one. This principle applies not only to those cases which are brought down to the base with brain matter exuding before any operation is attempted, but equally to a large number of cases in which the removal from the brain of pieces of bone and foreign matter is immediately followed by exudation of destroyed brain matter.

What has happened in this latter class of case? The driven-in bone or the missile, or both, have destroyed the brain matter in their course, the removal of this foreign material opens up a track along which the destroyed brain matter passes, along the line of least resistence, impelled by the intracranial pressure. A silver tube, or a perforated zinc tube or a solid rubber tube, have never appealed to me as suitable for putting inside the brain, so I rely, whenever the wound of the brain is not too deep, upon intracranial pressure for getting rid of destroyed tissue.

There are, however, a certain number of instances in which the wound of the brain is so deep as to give rise to grave risk of the destroyed and infected brain matter finding its way into the ventricles. In these cases drainage is necessary; for, as Sargent and Holmes point out, cerebral oedema and increased intracranial pressure are factors tending to bring together the walls of the track, and thus act as a block to the free discharge of the infected brain tissue. Still the greatest care must be exercised in using a solid drain, and it should never be inserted too deeply.

My attention has several times been drawn to the great difference in consistency of the brain matter in these cases of cerebral injury. In some the surrounding brain matter is firm and resistant and altogether different from that of the damaged area; whereas in others the surrounding brain is soft and yielding, differing very little in resistance from the damaged tissue in the region of the wound.

The danger of damaging uninjured brain matter with a solid drain tube seems to me to be very real, and I have seen more than one instance in which the solid drain has worked its way into normal brain tissue.

One other practical point is the matter of the incision of the scalp. I nearly always turn down a flap. In quite an appreciable number of scalp wounds caused by shrapnel the injury through the soft tissues is oblique, and the wound of the skull is not directly under the external opening in the scalp. The result is that if a linear incision be made for the purpose of examining the bone, the bone injury may easily be missed. This condition, in my experience, is never found in wounds by bullets of high

velocity, but I have seen quite a number of cases where small pieces of shell or shrapnel have pierced the scalp in an oblique direction, and the fracture to the skull has occurred at some distance from the wound of entrance in the scalp.

One of the last operations I did illustrated this point. The piece of metal lay on the dura, without having torn it, but in getting there it had pierced both outer and inner tables of the skull in the thickest part of the occipital region in an oblique direction, and was found fully an inch away from the entrance of the scalp wound.

A flap avoids all risk of missing a skull fracture, gives an ample field for operation, and the septic wound of entrance can be adequately dealt with.

In closing the wound I make no attempt to tie any arteries of the flap, relying upon accurate apposition and firm stitching.

If the medical and surgical literature of this war is to possess any value, it must, in my view, be based solely upon individual experience. There can be no such thing as a hard-and-fast rule binding our practice. If it were so, surgery would cease to be an art. It would become a trade.

The utterance of pious opinions, unsupported by careful observations, can have no place in these records of facts, the examination and sifting of which may be destined to prove of supreme importance to future generations of soldiers who fall wounded in the fight. Our views as to technique may change, time may modify our practice, but, whatever else may alter, the principle of applying to each case full deliberation and well-considered judgement should "stand like stone."

NOTES ON THE TREATMENT OF HERNIA CEREBRI.

BY

S. SMITH, M.B., B.S., CAPTAIN (TEMP.) R.A.M.C.

DURING eighteen months' experience at a base hospital in France, during which time between six and seven hundred cases of gunshot wound of the head have passed through my hands, one of the most difficult problems which have arisen has been the prevention, or where this has been impossible, the treatment, of hernia cerebri.

The life of the patient is in grave jeopardy as long as this serious complication exists, especially if it shows a tendency to progress, constituting as it does both a warning and a menace.

It warns us of increased and increasing intracranial pressure, and, unless a state of equilibrium be speedily established, the patient will die from compression, causing paralysis of his vital centres. The progressive protrusion of brain matter through a small cranial wound may also produce further or new functional disturbance, not only because the herniated brain is disintegrated, but because the fibres in its neighbourhood are displaced, stretched, and often ruptured. It is not, for instance, rare to find hemiplegia supervene where a hernia develops either in the frontal or post-parietal region.

A hernia, too, especially if large, acts as a direct menace, by reason of the tendency for it to become gravely infected, and for this infection to spread to the underlying brain substance, leading to a generalized cerebritis, or to the spread of infection into the lateral ventricle. The danger of this latter event is all the greater because often there is a diverticulum of the ventricle in the hernia.

Serious infection of the hernia is most likely to occur in those cases where it is strangulated, as so often happens when the bony opening through which it protrudes is too small, the familiar "button" hernia, with its attenuated and constricted pedicle, being thus produced; such strangulation of the protrusion is followed by softening and sloughing, and thus the facility for deep infection is increased.

It has seemed to me that the brain, perhaps because normally it is so effectually covered and protected by its bony envelope, evinces, more than any other tissue of the body, a tendency when exposed to become ulcerated and sloughy, and this should be given great weight when the question of operative measures comes to be considered.

1. *Limitation and Protection of Exposed Brain.*

It has been our constant endeavour, therefore, to limit as far as possible the amount of brain exposed, making wherever feasible the plastic floor, and draining by rubber tubes passed in at the angles of the flap, a procedure introduced and advocated by Lieutenant-Colonel Sargent, R.A.M.C.[1] The technique of this operation is simple, and in suitable cases it gives excellent results. The larger the dural defect, the larger is the extent of the exposed brain and the greater the risk of infection. Consequently, I consider it of importance, apart from the danger of opening up the highly susceptible subarachnoid space, that the dural opening already produced by the wound should not be enlarged.

Still more important is it not to incise the dura if it be found intact, as this procedure is accompanied by grave risk of infecting the damaged, but not septic, brain underneath, thus leading to the very condition of affairs favourable to the formation of a hernia that we are doing our utmost to prevent.

As a means of diminishing the cerebral exposure we have found suture of the edges of the scalp wound after excision of the edges of the original wound only possible in a relatively small proportion of our cases, the wound generally having been far too extensive and septic for the performance of such a desirable procedure. Moreover, where such a method of closure has seemed practicable, the tension necessarily produced would have made efficient drainage very difficult, and there is an obvious objection to a tight suture line lying pressed up against the exposed brain, which we are trying both to protect and to drain.

2. *Antisepsis and Drainage.*

It goes almost without saying that another eminently desirable factor in the prevention or limitation of hernia cerebri is the effective treatment of the ever-prevalent sepsis, both by the use of efficient drainage with frequent dressings where necessary, and also by the use of antiseptic lotions.

After many experiments with various lotions, I have used latterly a mixture consisting of equal parts of carbolic lotion (1 in 20), hydrogen peroxide (10 vols.), and water, as suggested to me by Mr. Parry Morgan, M.B. (late Captain (temp.) R.A.M.C. The hydrogen peroxide is specially valuable by reason of its faculty of breaking up and facilitating the removal of sloughs, clots, and disintegrated brain matter that may have blocked up the lumen of the lateral rubber drains, and may so be interfering with the efficient drainage of the underlying brain. This lotion has also been found most useful in the treatment of those cases in which an exposed hernia cerebri already exists. It is very necessary that old dry dressings should be "wetted" off such a hernia and not torn away, for not only does a hernia from which a dressing has been roughly torn evince a tendency to troublesome haemorrhage, which is often difficult to stop, but frequently once the thin outer wall of the hernia is removed there is a marked tendency to the onset of rapid sepsis with the subsequent breaking down of the septic mass.

Before settling down to the routine use of the peroxide-carbolic mixture, I used at one time saline solutions of various strengths, even putting saline tablets rolled up in gauze in direct contact with the brain in certain cases; saline, however, was not very satisfactory, and had a marked tendency to render the brain in contact with it "boggy," with increase in the size of the hernia. Various spirit solutions—among them mercury biniodide in spirit, formalin, and even absolute alcohol—were also tried with a view to drying up the excrescence, but although in many cases the hernia itself dried up satisfactorily enough, the general hardening and fixing of its surface produced by the spirit did not allow the septic foci from bone fragments, etc., at any depth to come to the surface; and although the hernia looked clean and shrunken, the patient frequently died from meningitis or cerebritis extending from such bottled up foci.

3. *Postural Treatment.*

It is important to make use of gravity in the treatment of hernia cerebri and also in its prevention, and with this end in view we always, when possible, sit our patients up

as soon as they are sufficiently recovered from the effects of the operation; this procedure is, unfortunately, impracticable in many cases, as, for instance, when the patient is unconscious or very restless, or where some such complication as a fractured femur exists. In those cases, however, in which it can be done, this manœuvre has a remarkable effect in limiting the hernia, and will even cause it to subside altogether in many cases. It is specially efficacious in herniae of the frontal region or near the vertex, where gravity has full play and the tendency for the brain is to fall away from the wound. It is also important that, by the free administration of morphine, heroin, or similar drug, the patient should be kept quiet and so prevented from bruising his hernia by knocking it against the head-rail—a by no means rare occurrence; with this end in view, too, it is well to keep the hernia, if protruding to any extent, surrounded by a sufficiently large "buffer" of wool to prevent injury.

4. *Lumbar Puncture.*

In spite of every care, however, hernia cerebri will always be met with in a certain number of cases, both following operation and also in those in which no operation has been performed. It is here that the *systematic* use of lumbar puncture is of the utmost value.

For many months past we have been treating hernia cerebri by repeated lumbar puncture, using the sitting posture as a valuable auxiliary. Although many cases so treated have died, our results on the whole have been more satisfactory than before these two simple and logical lines of treatment came into general use.

Increase in the intracranial pressure, which is the fundamental factor in the production of hernia cerebri, may be due to:

(*a*) An actual swelling of the brain substance itself, commonly due in the early stages to traumatic oedema cerebri. This may be succeeded at a later stage by that common and fatal sequel—spreading cerebritis. In these cases, where increase in intracranial pressure is due rather to increase in the actual volume of the brain itself, owing to the oedema and consequent swelling of the individual cells composing it, rather than merely to increased accumulation of cerebro-spinal fluid in the ventricles and subarachnoid spaces, lumbar puncture by itself appears to do little good. It is a desperate disease requiring a desperate remedy, and often a contralateral subtemporal decompression, combined with repeated lumbar puncture, are the only measures holding out any prospect of success; although there is some risk in conveying infection to the subarachnoid space, some cases thus treated have lived and gone home in a satisfactory condition who must otherwise inevitably have died from cerebral compression.

(*b*) Haemorrhage, either extra- or intra-cerebral, is rarely sufficient in cases that reach the base to give rise to symptoms; but secondary haemorrhage into the damaged brain, in or beneath the hernia, is not uncommon, especially in cases sent down to us too soon after operation. In these cases a patient, who appears to be progressing satisfactorily, will quite suddenly evince symptoms of increased intracranial pressure, and the accident is evidenced externally by a rapid and enormous increase in the size of the protrusion, from which dark blood and disintegrated brain escape in large quantity. This is specially liable to occur when infection by *B. perfringens* is present. Death is usually too sudden in these cases of secondary haemorrhage into the brain substance to allow of any operative measures.

(*c*) Some degree of meningitis will cause increase of fluid in the ventricles and subarachnoid space. It is, of course, this third factor in the production of increased intracranial pressure which can often be so effectually treated by repeated lumbar puncture.

Character of Cerebro-spinal Fluid.

The character of the fluid drawn off by lumbar puncture in these cases has been found to fall into one of the following groups:

1. Quite clear though under increased tension, containing no cells and showing no evidence of meningitis. This is probably the type of fluid associated with the early traumatic oedema.

2. Definitely turbid, containing many morphonuclear and mononuclear cells, often tinged with blood, and showing a stray staphylococcus, streptococcus, or degenerated *B. perfringens* in one or two cells amongst those examined. These I have labelled cases of reactive meningitis, and they are probably associated with a localized or generalized meningitis of low virulence.

3. Purulent, crowded with leucocytes, with many organisms in the field, staphylococci, streptococci, *B. coli* or *B. perfringens* growing on culture. *B. perfringens* is rarely met with as a primary infection of the meninges but is common as a terminal event, and is often superadded to a staphyloeoccal or streptococcal meningitis towards the end. The explanation appears to be that the *B. perfringens* (*B. welchii*) is of low "serophytic" power, and it is only when the patient's power of resistance has well nigh vanished that this organism is able to make any real headway.

4. Definitely blood stained, often presenting the appearance of almost pure blood. This is usually evidence of haemorrhage, commonly near the base, and indicates an unfavourable prognosis.

Both in Class 1 and in Class 2 we have had many successes with repeated lumbar puncture; and although, so far, we have not succeeded in saving a case in Class 3, we kept one patient with a virulent streptococcal meningitis alive for nearly a month.

Out of one series of twenty cases with varying degrees of hernia cerebri from which cerebro-spinal fluid has been drawn—

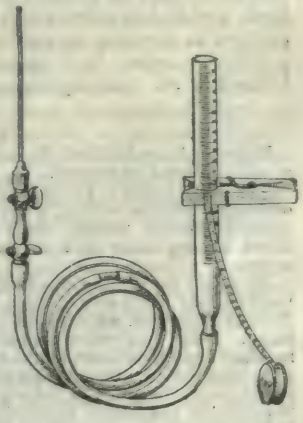
In 5 the fluid was clear (in two cases tinged with blood).
In 9 the fluid was turbid, containing many polymorphonuclear cells and a few stray pyogenic organisms.
In 4 the fluid was frankly purulent (staphylococcus 2 cases, streptococcus 2 cases).
In 2 the fluid was purulent though no organisms grew on culture.

Method of Employing Lumbar Puncture.

In every case, except where the patient is unconscious or dull, general anaesthesia, preferably chloroform, has been used. Our reasons for employing general anaesthesia for such an apparently trivial operation is that usually the patients, during the stage in which we see them, are very restless and extremely sensitive, often arching their backs violently even when touched with the hand, and, in our experience, local anaesthesia with novocain has not been sufficient to overcome this repugnance. Further, such violent straining naturally leads to the protrusion of more brain and the consequent destruction of more functional tissue. In some few cases in the past we found it possible to insert the needle under local anaesthesia at the first visit, but the patient violently resisted any subsequent tapping. It is fortunate in this respect that head cases do not resent the frequent lapses into oblivion necessitated by this procedure as do normal individuals.

Having inserted the needle, and before running off any of the fluid, we estimate the pressure of the cerebro-spinal fluid by means of the simple manometric apparatus described originally by Page and Cassidy.[2] Percy Sargent has also described its use in connexion with head injuries.[1]

The instrument consists simply of about 3 ft. of narrow rubber tubing, connected at one end to a narrow glass barrel funnel some 6 in. in length, and at the other to a small metal fitting with a tap, allowing it to be connected up with the special lumbar puncture needle provided with the apparatus, and which is also fitted with a tap. The tubing and about half way up the glass funnel are now filled with warm normal sterilized saline, and the apparatus fitted on to the needle.



When connected up it will be found—if the needle connect with the intrathecal canal and is not blocked by a plug, as of fibrin—that the saline in the glass funnel will undergo small regular oscillations of an amplitude of from 2 to

5 mm. The glass funnel is then held vertically over the point where the needle enters the patient's back, and moved up and down in a vertical plane until the upper level of the saline column is stationary, save for the small oscillations already referred to. A measurement is then taken with a centimetre scale from the point where the needle enters the back to the upper level of the fluid. Normally, we have found that the column of saline thus supported varies from 15 to 25 cm. The amount of fluid to be withdrawn will roughly depend on this reading, and varies from 4 to 8 fluid drachms, according to the initial pressure recorded. Even where the initial pressure is very high (in one of our cases it amounted to 108.5 cm.) it is not necessary to remove more than from 4 to 8 fluid drachms, as the pressure recorded after the removal of this quantity will rarely register much above the normal. It is important, too, that the fluid be withdrawn slowly, almost drop by drop, as otherwise the hernia, with the too sudden relief of pressure, may sink back through the bony opening into the brain, leaving a deep cavity where before there was a large hernia. This is dangerous, for adhesions may be broken down and a septic meningitis lighted up. Before we realized the danger of this phenomenon, one of our patients, who until then had progressed favourably, suddenly developed fatal meningitis soon after his hernia had involuted in the manner above described—as the result of lumbar puncture where too great a quantity of fluid was removed at too rapid a rate. After removal of the fluid into a sterile test tube for subsequent examination the pressure is again taken and recorded; if still too high, a small amount more fluid may be removed.

The intervals allowed to elapse, between which repetitions of the puncture are necessary, depend on many factors, some of which will now be discussed.

If after the first puncture the hernia shows no sign of decreasing, and compression symptoms do not decrease, it has generally been our practice to repeat the tapping on alternate days, until the pressure as shown by the manometer readings is brought down to within reasonable limits; in a few cases of high pressure with rapidly increasing hernia and progressive signs of compression we have repeated the operation daily, though this, in my experience, is rarely necessary, the performance of the tapping on alternate days giving equally good results. If the fluid is clear, thus showing that there is, in all probability, no inflammatory process at work, it is permissible to wait longer before repeating than if it is turbid, crowded with leucocytes, and, maybe, giving growths of organisms on culture. One cannot assume, however, that clear cerebro-spinal fluid drawn off by lumbar puncture necessarily means absence of meningitis, for more than one of our patients have died in whom lumbar puncture gave clear fluid until the last, though subsequent autopsy revealed extensive suppurative meningitis.

In this connexion it is interesting to note that during the early days of the war I had a case (not a wound of the head) die from what autopsy revealed to be well-marked meningococcal meningitis, with much pus both at the base of the brain and also along the cord, which, when cultured, gave a pure growth of meningococci. Lumbar puncture was performed on the day preceding death, and gave clear fluid, containing a few stray cells, but no organisms visible in films or growing on culture.

The following two cases are illustrative of several treated in our ward by repeated lumbar puncture:

CASE I.

Private A., admitted November 22nd, 1915, suffering from [illegible] wound of vertex.

Wounds on Entry: Dirty wound, ½ in. in length, stretching obliquely across vertex, 6 in. behind nasion. *Exit:* Larger, more explosive wound, with much septic and disintegrated brain coming from it, 2 in. to left and 1 in. behind wound of entry.

Condition on Admission.—Dull, difficult to examine, exhibiting weakness of right side of face. His tongue protruded to right. He had paralysis, with slight general rigidity of right arm and hand. Both legs were paralysed, and in that condition of marked rigid extension and adductor spasm typical of wounds near the vertex. *Treatment November 23rd:* usual flap made, many bony fragments driven into brain were removed, the wounds in his scalp were joined and sutured and the flap replaced. The flap was drained by two small rubber tubes, one passed in at each lateral angle of the flap. The scalp was in too septic a condition to allow of the plastic floor being made.

Manometer Readings.

Date.	Clinical Condition at the Time of Lumbar Puncture.	Initial Pressure shown by Manometer.	Quantity and Character of Fluid Removed.	Pressure after Removal of Fluid.
1915. Nov. 29	Slight hernial protrusion through wound	72 cm.	3 vj of slightly turbid fluid removed. No organism. Fair number of polynuclear and mononuclear cells. Sterile on culture	30 cm.
Nov. 30	Slightly better. Protrusion the same	21 cm.	3 vj of slightly blood-stained and turbid fluid, presenting same characters as before	11.5 cm.
Dec. 2	More hernial protrusion	24 cm.	3 v of slightly turbid fluid still containing many cells. Sterile on culture	12.5 cm.
Dec. 3	More protrusion	53 cm.	(No note made.) Fluid removed slightly turbid. Many cells	26 cm.
Dec. 5	Hernia has receded			
Dec. 6	Hernia again protruding	50 cm.	3 vj of slightly blood-stained and turbid fluid removed. No cells apart from blood	17.5 cm.
Dec. 7	Hernia slightly larger	50.5 cm.	3 vj of quite clear fluid removed. Contained no cells	20 cm.
Dec. 13	Hernia, which had receded after last tapping, again increasing	36.5 cm.	3 vj of clear fluid removed	13.5 cm.

No further tapping was required. Patient sent home December 27th, 1915, with hernia flush with skull opening. General condition greatly improved, although his paralysis persisted.

CASE II.

Patient B. was admitted on July 13th, 1915, with a history of having been wounded the day previously.

Wound.—Septic gutter wound 3 in. in length of right parietal region. Much septic brain substance extruded. Patient was trephined on July 14th. There was much fracturing, with comminution of the skull under the wound. A deep track led from the wound deeply into the brain substance. This contained many indriven bone fragments, which were removed. The cavity was then washed out and the track drained by one of Sargent's perforated metal tubes 2 in. in length.

Manometer Readings.

Date.	Clinical Condition and Condition of Wound.	Initial Pressure.	Quantity and Character of Fluid.	Pressure after Removal of Fluid.
1915. July 17	Wound clean Some protrusion around tube. Patient restless. Temperature 103.8° F.			
July 27	Hernia increasing, tube pushed out by pressure of brain. Pulse remains rapid. Temperature down			
Aug. 2	Very drowsy. Hernia larger and tense	47 cm.	Fluid clear. 3 vij were removed. Contained many polymorphonuclear cells. No organism present	23.4 cm.
Aug. 4	Rigor, followed by cramps in legs after last tapping. Hernia slightly larger. Some tendency for it to break down	41 cm.	3 v of clear fluid removed No cells or organism present	17 cm.
Aug. 6	Condition slightly better	42 cm.	3 vij of clear fluid removed	12 cm.
Aug. 8	Slightly more protusion. General condition improved	19 cm.	3 iv of clear fluid removed	7.5 cm.
Aug. 14	Hernia breaking down, and slightly larger	27.5 cm.	3 vj of clear straw-coloured fluid removed	11.5 cm.
Aug. 18	Hernia much smaller Temperature and pulse normal. General condition much improved. Sent to England			

Both of these two cases were of a type with progressive hernia cerebri, which would, in our experience, have died

if their increased intracranial pressure had remained unrelieved.

The following case is interesting as showing how a patient may drift on from week to week with a streptococcal meningitis.

CASE III.

Private M. was admitted on August 8th, 1915, with a history of having been wounded seven days previously by shell fragments.

Wound.—A dirty gutter wound 2 in. in length immediately behind pinna of left ear.

X-ray examination showed a bone defect of considerable extent under wound, with indriven pieces of bone and many shell fragments lying in the brain substance at varying distances from the wound of entry. The patient was trephined on August 9th, 1915. Fragments of bone were removed from the brain substance underlying the wound. No attempt was made to reach the shell fragments; wound too septic to allow of its being floored in.

Manometer Readings.

Date.	Clinical Condition and Condition of Wound.	Initial Pressure.	Quantity and Character of Fluid Removed.	Pressure after Removal of Fluid.
1915.				
Aug. 14	Complaining of intense headache. Some hernial protrusion through wound	46.5 cm.	3 vj of turbid fluid removed, containing many leucocytes. Streptococci in pure culture	22 cm.
Aug. 15	Still has intense headache. Temperature high	66 5 cm.	3 x of turbid fluid mixed with blood removed	Not taken.
Aug. 17	High, irregular temperature. Hernia increasing. Headache severe	58 cm.	3 (?) removed. Fluid straw - coloured, slightly turbid. It contained many cells. A few colonies of streptococci on culture	
Aug. 19	—	51 cm.	3 ij (all that could be got to run) of turbid fluid, containing many fibrinous strands, removed. Fluid contained many leucocytes	
Aug. 21	Patient no worse	44.5 cm.	3 v of almost clear straw-coloured fluid removed. Very few colonies of streptococci on culture	
Aug. 26	Semi - conscious. Increasing hernia cerebri	108.5 cm.	3 v removed. Fluid opaque and straw-coloured. It contained a few flakes of dense white fibrinous material	16.5 cm.
Sept. 1	Semi - conscious. More hernia cerebri	65 cm.	3 viij of turbid fluid containing many white shreds	
Sept. 5	Patient unconscious, temperature high, pulse weak. Patient died			

Our comment on this case would be that it is only rarely that a case of streptococcal meningitis lives as long as three weeks. His condition appeared to improve steadily up to August 21st, 1915, when the fluid, which had been turbid, was almost clear, and if only he had been tapped on one or two occasions between this date and August 26th, when the pressure was so high (108.5 cm.), we might conceivably have saved him.

It has seemed to us, after a lengthy experience of these more chronic cases of septic meningitis, that the virulence of the disease, both as manifested by the patient's clinical condition, and also by the number of cells, organisms, etc., in the fluid drawn off by lumbar puncture, shows a tendency to wax and wane, as if, from time to time, owing to the breaking down of adhesions, fresh showers of organisms were conveyed from the local site of infection—that is, the wound—to the meninges at large; just as in the more chronic cases of miliary tuberculosis successive showers are conveyed at varying intervals from the local lesion, it may be a caseating patch in the lung or a broken-down gland, to the blood stream and the various organs of the body.

It is with this factor in view that we should endeavour to secure and maintain efficient external drainage of the wound, even when there is a generalized meningeal infection.

That lumbar puncture, even, is not always without its attendant risks may be illustrated by the following fatal case following its use:

CASE IV.

Private S. was admitted on December 31st, 1915. The wound, a fairly clean punctured wound, was situated in the frontal region.

X-ray examination showed a track leading from the wound of entry down to the occipital region, where lay several shell fragments embedded in the under aspect of the right occipital pole.

An operation was performed on January 3rd, 1916. The wound of entry was cleaned up and pieces of bone removed from the brain substance. No effort was made to remove the shell fragments. The patient was well until January 7th, 1916, when he complained of severe headache. After that he had a steadily rising temperature and some hernial protrusion through the wound of entry. Lumbar puncture was performed under general chloroform anaesthesia. The initial pressure of the fluid was 53 cm. After about 5 fluid drachms of clear fluid had been removed, it began to become increasingly blood-stained, the last drachm containing almost pure blood. Almost immediately the needle had been withdrawn the patient suddenly became intensely cyanosed and his respiratory movements spasmodic, long irregular intervals occurring between each aspiratory effort. In spite of this, however, the pupils remained contracted and the pulse-rate normal and of good volume. Artificial respiration and the inhalation of oxygen produced no effect, and finally, about an hour after the commencement of the attack, he died, the pupils having dilated widely, and the pulse having given out a moment before death.

The autopsy, performed by Captain Henry, R.A.M.C., showed a septic track leading from the wound of entry to the under surface of the right occipital pole, where there lay several large fragments of shell casing. The under surface of the right occipital lobe was bathed in a large quantity of recently-shed blood. Secondary haemorrhage had occurred from the ragged torn end of a small cortical vessel lying on the under surface of the track.

We may reasonably assume that in this case it was the sudden removal of a certain quantity of supporting cerebro-spinal fluid that had just been sufficient to start the haemorrhage.

Except for this unfortunate accident, and the other case already described, in which fatal meningitis followed the rapid involution of a hernia after lumbar puncture, we have had no death attributable, either directly or indirectly, to the performance of lumbar puncture.

I am much indebted to Lieutenant-Colonel Sargent, R.A.M.C., and Lieutenant-Colonel Gordon Holmes, R.A.M.C., for their help in the preparation of this paper, which is largely a result of their work. My thanks are also due to Lieutenant-Colonel Ellery, R.A.M.C., Officer Commanding the Hospital, for permission to make use of the notes of cases treated there.

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TREATMENT OF FRACTURED MANDIBLE ACCOMPANYING GUNSHOT WOUNDS.

BY

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THE object of this article is to call attention to some methods of treating fractures of the mandible resulting from gunshot injuries, the more so since very few if any of those described in textbooks are suitable.

In a fractured mandible caused by gunshot there is practically always an external wound or wounds, though in not a few cases the bullet seems to have entered through the mouth. The fracture is always compound, and there is more or less loss of bone through comminution or actual carrying away of a portion of the mandible.

The result of such an injury is primarily to exaggerate considerably the typical displacements usually seen in civil practice. Any splint or other remedial treatment should be designed to correct such displacements, and it is necessary to recognize what these are likely to be.

Fractures of the anterior portion of the jaw involving the incisor region lead to (1) narrowing of the arch of the jaw; and (2) twisting inwards of each horizontal ramus, brought about chiefly by the action of the mylohyoid muscle.

Fractures of the posterior portion of the mandible lead to (1) considerable elevation of the posterior fragment (temporal and masseter muscles); (2) retraction and deflection of the chin; (3) depression of the larger fragment on the injured side. (2) and (3) are due to the unopposed actions of the genio-hyoid, genio-hyoglossus, and mylohyoid muscles.

As part of the conditions bearing upon treatment, it has to be remembered that many of the men have either (1) lost a large number of teeth; or (2) have a number of septic teeth present; or (3) were wearing dentures, which disappeared at the times of the injury.

These being the conditions, it is necessary to select some method of treatment which will conform to them and which will reduce any future deformity or disability to a minimum.

In the first place I will briefly review the better known methods and splints, and show in what way they fall short of requirements.

I. *The Four-tailed Bandage.*

This is worse than useless, since it in all cases (except simple fractures) further retracts the chin, increases the displacement, and causes increased laceration of tissue. Further, if tight it is very painful, and if loose it does not immobilize.

II. *Interdental Splints.*

There are general objections of a serious nature to all these. First, they require a plaster cast to be taken of the parts—a difficult and painful proceeding. Secondly, they require to be specially made for each individual case. Thirdly, to carry this out the services of trained specialists and special equipment of a cumbrous nature are required. Fourthly, the majority of such devices are unsuited to the nature of the injuries and do not control the displacements.

1. *The Hammond (wire) splint*, perhaps the best-known of interdental splints, cannot control either the marked upward displacement of the posterior fragment, nor prevent the inward tilting of fragments in anterior fractures. Moreover, its use necessitates the presence of a very large number of sound natural teeth.

2. *The Gunning splint*, and its modification the *cradle splint*, are unsuitable for posterior fractures; their use may result in permanent "open bite"; they are cumbersome and keep the mouth permanently propped open.

3. *The "Kingsley" splint* is perhaps the best form of interdental splint; it will effectively control all displacements. The sole objections to it are those attaching to the fact that it must be specially made for each case.

4. *The "Ottolengui"* and similar metal cap splints are unsuitable owing to the tediousness of their manufacture for every individual case.

III. *Plate and Screws and Wiring.*

Plating is, of course, inapplicable owing to the sepsis and to the space frequently existing between the ends of the bone. Wiring may be utilized with advantage in those cases in which the loss of tissue has not been too great. But when there has been much loss of bone, to draw the two ends together and wire them would either be impossible or grotesque, and would not result in a jaw which could be used subsequently for mastication. This method may, however, be employed in a modified manner as described below.

Suggested Immediate Methods of Treatment.

In view of the conditions of the injury and the disabilities pertaining to usual methods of treatment outlined above, I have utilized the following methods and found them quite satisfactory:

1. *Splint.*

From what has been written above it might be inferred that I would not suggest the use of any form of splint, but in the one to be described it is believed all the enumerated objections have been overcome, with the added gain of extreme simplicity.

The splint advocated is a modification of the Kingsley splint. It has been adopted by the New Zealand Government (Defence Department) and supplies have been sent to the front for use chiefly on hospital ships.

The accompanying illustrations demonstrate the design and use of the splint. It is made of metal—nickel-silver, gilded — and consists of a body and two arms (Fig. 1). The body is concave and moulded to the shape of a dental arch. The arms are made of stout wire soldered to the body. The concavity is filled with old "modelling" composition. The splints are made in three sizes—small, medium, and large.

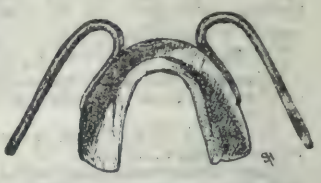


FIG. 1.—Writer's modification of Kingsley splint, showing concavity, which is filled with "modelling" composition.

The following are the instructions sent out with each set of splints:

The "Pickerill" Splint.

This splint is a modification of the "Kingsley" splint for fractured mandibles. The modification provides a ready-made splint for any case, instead of a special dental splint having to be made to fit each individual case. It can be used for simple and compound fractures, and also in cases when a portion of the bone is missing, to maintain the relative position of the two fragments, and especially to counteract the upper displacement of the posterior fragment, which in such cases always renders any subsequent prosthetic operations difficult or impossible, and more or less incapacitates the patient for life.

It can be removed and replaced without difficulty for dressing wounds. It requires no special technical skill for its adaptation. It may be used advantageously in combination with "wiring."

Directions for Use.

1. Splints are provided in three sizes—large, medium, and small. Select one which is of the approximate size required.

2. Remove the red composition by placing the splint in hot water.

3. Try the splint in the mouth over the teeth. If it is too deep at any point, trim it down with the scissors provided, leaving no sharp edges. Any other adaptations required may be made with the pliers provided.

4. Heat the composition in hot water and replace in the dried and warm splint. Whilst the composition is still warm press the splint down into position over the teeth and jaw, observing—

(1) That the composition is not too hot, or the subsequent removal of the splint may be difficult.
(2) That the fragments are in normal position.

5. Pass a bandage under the mandible up between each arm of the splint and the cheek, over the arm and down under the mandible, and there tie it firmly. The jaw is thus securely clamped (Fig. 2).

(A pair of pliers and a pair of small metal-scissors are sent with each batch of splints.)

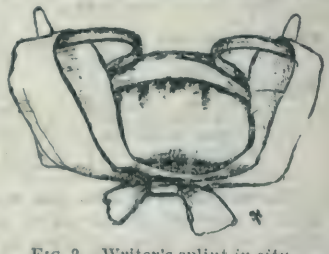


FIG. 2.—Writer's splint *in situ*.

2. *Intermaxillary Lacing.*[1]

This consists essentially in absolutely immobilizing the lower jaw by lacing it up to the upper jaw by means of wire ligatures around the teeth.

The following is the method used and described by the author.[2] The ligatures should be of silver or copper-gilt wire (gauge 21 or 20 B.W.G.), and the premolar teeth are the most suitable to which to affix them. These teeth are not so far back as to be inaccessible, and the comparative narrowness of their necks makes them useful for retaining the ligatures (see Fig. 3.) Two horizontal ligatures are first passed through the interdental spaces between the canine and first premolar, and the second premolar and first molar in both jaws, so as to include both premolar teeth. This should be done on both sides of the jaw. The horizontal ligatures on either side are then connected by vertical ligatures, all the wires being applied quite loosely.

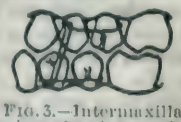


FIG. 3.—Intermaxillary lacing, showing method in which it may be employed for the "permanent" treatment of fractures of the mandible.

The horizontal wires are next tightened, and then the lower teeth are made to articulate absolutely accurately with the upper teeth, and whilst in this position the vertical wires are tightened and the jaw thus immobilized. The method may be used as a temporary measure in all fractures of the mandible, in which cases ligatures of silk

or silkworm gut may be placed round the anterior teeth, as shown in Fig. 4. This affords the patient much relief, and is much more reliable than a four-tailed bandage.



FIG. 4.—Intermaxillary lacing, showing method in which the principle may be used as a temporary measure to prevent the depression and falling back of the chin.

The method may also be used as an adjunct to the open surgical methods of wiring the fragments, when fixation of the temporo-maxillary joint may be desirable for a time at least. Even if all teeth are present, the patient does not suffer from inability to take sufficient nourishment. There is always sufficient space between the teeth and behind the last molars for liquid food to pass. Patients do not suffer very much from a diet of milk, porridge, arrowroot, soup, etc., for five or six weeks. In a similar way a patient can use an antiseptic mouth-wash and use the tongue as a toothbrush on the lingual surfaces of the teeth.

The vertical wire ligatures may be left on for three weeks, after which in some cases they may be removed and passive movements allowed; they may be replaced by silk ligatures, as being easier to apply. A vertical ligature should be continued until the sixth week, especially during the time or times the patient sleeps, in order to prevent yawning, as the latter does far more harm than even a slight amount of mastication.

Another method of intermaxillary lacing is by means of "Angle's bands." These bands, either made or procured, are clamped to the teeth by means of a thread and nut. There are studs on the buccal surfaces round which ligatures are passed in order to bind the two jaws together.

Absence of teeth is no bar to intermaxillary lacing. When teeth are absent or so carious as to be useless for retention of ligatures I proceed as follows:

1. Holes are drilled through the jaw at the level of the roots of the teeth, and about three-quarters of an inch away from the ends of each fracture line. Stout silver wire is then passed through the holes and the fragments approximated if possible.

2. Further holes are drilled in the region of the lateral incisors of both upper and lower jaws, or other suitable positions, according to the site of the fracture, and a silver wire passed through both. The mandible is brought into the normal or desired position, and the wire tightened by twisting. The upper jaw is thus utilized quite satisfactorily for immobilizing the lower jaw.

3. *Submandibular Screws and Wire Splint.*

In cases in which none of the other above described methods are available for some reason, such as an extremely septic mouth or the loss of much of the alveolar processes, the following method may be adopted:

1. A very stout piece of German silver (or even iron) wire is obtained and bent to the shape of the lower border of the mandible—as the latter should be normally, and extending from angle to angle.

Four steel screws 1 in. or 1½ in. long, and preferably nickel-plated, are required, and some fine silver or brass wire for ligatures.

2. The skin under the mandible is sterilized, and four small incisions are made directly over the lower border of the bone, two on each side of the fracture line (avoiding, of course, the facial arteries). Holes are bored in the bone for the reception of the screws, and the latter are then screwed in firmly for a depth of about half an inch.



FIG. 5.—Submandibular screws and wire splint. The transverse wire is auxiliary to the main curved wire, and may not be necessary. The fine wires ligaturing the wire "splint" to the screws are not shown.

The stout wire splint is then ligatured securely to the four screws with the fine ligature wire, and the mandible is securely clamped (Fig. 5). Every effort should be made to prevent infection reaching the screws, or they may become loose before the fracture has united. It is an advantage to have the wire "splint" nicked frequently with a file near each screw to prevent the ligatures from slipping.

4. *Wiring.*

This method is desirable under two conditions:

1. When there is not much loss of tissue, and the fragments can be reasonably approximated.

2. When there is an appreciable loss of bone, and the fracture is so far back in the mandible that it is difficult or impossible to control the posterior fragment.

A wire may then be utilized, not so much absolutely to approximate the two ends, but to prevent the posterior fragment being so much elevated as it otherwise would be. Thus the bar of fibro-cicatricial tissue is considerably shortened, there will be more power in that side of the jaw, and the subsequent fitting of dentures may be done with less difficulty and with more chance of their being efficient and functional. For practically all fractures of the horizontal ramus the operation can be performed wholly from within the mouth. The difficulty, or otherwise, and success of the operation depends entirely upon the amount of swelling and sepsis present. Where this is marked and this method of treatment is deemed most suitable for the case, I prefer to immobilize the jaw by temporary intermaxillary ligatures for some days or a week, whilst antiseptic mouth washes are being used and the wound cleaning up. The method then employed is to drill through the bone between the roots of the teeth about half to three-quarters of an inch away from the fracture on either side, with a suitable drill. (For fractures in the premolar or molar region a "contra angle" bandpiece is used in the engine.) In order to mark the site of the perforation the drill is dipped in pure carbolic acid. Well gilded copper wire is then passed through the holes,* and tightened by twisting the ends, which are cut off and covered with either gutta-percha or fine rubber tubing. It is then advisable, wherever possible, to supplement this single suture by either interdental or inter-maxillary lacing in the neighbourhood of the fracture.

The wire suture should be removed (by being cut) at the end of six weeks. This may require a general anaesthetic, but it can usually be done under cocaine. This method has the advantage of being rapid, simple, and inexpensive.

Precaution.

Care should always be taken to clear out any comminuted fragments of bone from the wound at the time that the injury is treated by splints, or wiring, or lacing, otherwise, of course, union will be prevented, or a sinus will continue discharging long after the soldier might have returned to duty.

Treated by one of the above methods, there is no reason why many men whom one sees at present more or less totally incapacitated (from a military point of view) should not be back in the firing line in six weeks from the date of injury.

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THE TREATMENT OF CHLORINE GAS POISONING BY VENESECTION.

BY

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IN the BRITISH MEDICAL JOURNAL for May 27th, 1916, Professor Sir E. A. Schäfer writes that venesection might be tried in acute poisoning by chlorine gas. As the result of the attacks on April 27th and 29th of this year in front of Hulluch, in which chlorine gas was used by the Germans, I had the opportunity of treating a number of cases. As the patients arrived in a condition requiring more drastic treatment than the mere inhalation of ammonia or the injection of atropine, I tried the effect of venesection, and was so struck with its effects that I began to adopt it as a new line of treatment in specially selected cases; only those of the cyanotic type with much distress but with a good pulse were bled.

Selection of Cases.

Venesection is not required for all cases. The two types I called the "cyanotic" and the "cardiac failure." The latter are pallid, collapsed, and require no bleeding. They

*It is sometimes stated that there is considerable difficulty in returning the wire through the holes, but with a few common-sense precautions this is really a very simple matter.

are suffering from cardiac failure, due to a cause other than that of overstrain caused by the increased resistance through the pulmonary system. Cardiac stimulants are required and venesection has no marked result. The congestion found is secondary to cardiac incompetence, and in one case signs of chronic heart disease were present.

The cyanotic type has a different appearance, and is in the majority. The patient is deeply cyanosed, very dyspnoeic, but with a strong pulse, and the immediate trouble is due to the heart becoming increasingly weaker from overstrain in working against an increased pressure through the pulmonary system due to the inflammatory condition of the alveoli.

Result of Venesection.

In theory the two effects of venesection are:

(*a*) The resistance of the heart is lowered in ratio to the amount of blood withdrawn.

(*b*) The resulting abstraction of fluid from tissues to make up for the loss—and it is not unreasonable to suggest that this abstraction takes place from a place where fluid is in excess—that is, in the waterlogged lungs. This again would lead to a lessened resistance through the pulmonary system.

In practice the following results are obtained:

1. Relief of cyanosis (great).
2. Relief of congestion in the lungs, enabling the patients to breathe more easily.
3. Relief of the acute headache to which patients are subject after twenty-four hours of the gas poisoning.
4. Promotion of sleep by the physical withdrawal of blood from the system; a patient wakes refreshed and less distressed than before.

Time.

The time at which venesection is indicated is important. Early venesection is necessary, as is shown in the following example. Ten cases were cyanosed and equally distressed; 5 were venesected and did well with no further treatment; of the remaining 5, 2 died within twelve hours and 3 became livid and more distressed within twelve hours, and venesection was done then. These three required cardiac stimulants after bleeding. The longer the heart has to work against an increased peripheral resistance the weaker it becomes, and by bleeding early the resistance is lowered and the heart is not put to so great a work.

Method.

Direct incision into median cephalic or median basilic vein—or dissection with ligature of proximal end and then incision into vein. The amount of blood extracted depends upon the patient; from plethoric and alcoholic men 20 to 25 oz., from less robust or elderly men 15 to 20 oz. The time taken to extract 20 oz. is from fifteen to twenty minutes, because symptoms of collapse are produced if the depletion is quicker. The blood in all cases is dark and easily coagulates; in no case was there any odour of chlorine given off from the extracted blood.

Detailed Account of 30 Cases Venesected.

The following is a list of the first 30 cases upon whom venesection was performed and who lived. The result of the bleeding was taken in the patients' own words:

1. Pte. C., aged 22. Admitted very cyanosed and distressed. Oxygen administered. Bled 15 oz. Colour improved. Pulse becomes slower and patient sleeps six hours.

2. Pte. McF., aged 28. Admitted cyanosed, pulse rapid. Bled 20 oz. Says, "Relieved chest, which was fairly choked, and made me sleep well." Colour improved and remained good.

3. Lance-Corpl. McG., aged 32. Admitted cyanosed. Venesection done under oxygen. Bled 20 oz. Says, "Felt chest relieved, and made me sleep." Colour improved slowly and good progress.

4. Pte. C., aged 40. Admitted April 29th. Became cyanosed on May 1st. Bled 20 oz. on account of plethoric and alcoholic type. Says, "stopped me breathing so quickly and made me sleep." Colour remained good.

5. Pte. P., aged 31. Admitted delirious and restless. Very cyanosed. Bled 20 oz. Says, "Relieved pains in head, eased breathing, and made me sleep." Colour improved.

6. Sergt. F., aged 35. Admitted cyanosed and unconscious. Bled 20 oz. Says, "Felt grand. Relieved headache and eyes, and slept whole afternoon after it." Colour remains good.

7. Sergt. McC., aged 47. Admitted cyanosed, delirious, and collapsed. Bled 15 oz. Says, "It did good to breathing, and relieved pain in head." Colour remains good and pulse slower.

8. Lance-Corpl. L., aged 23. Admitted unconscious and cyanosed. Pulse feeble. Given strychnine. Pulse improved next day, and bled 20 oz. Says, "Helped well; slept well after it, and relieved pains in head."

9. Pte. H., aged 37. Admitted cyanosed, dyspnoeic, and delirious. Bled 20 oz. Says, "Felt improved, lighter in head, and relieved tightening in chest." Colour remains good.

10. Lance-Corpl. G., aged 31. Admitted very cyanosed and dyspnoeic. Bled 25 oz. Says, "Cut did good. Relieved pain in head, made breathing easier, and made me sleep." Colour remains good.

11. Pte. A., aged 22. Admitted slightly cyanosed, and pulse good. At night became worse, and following morning very cyanosed, delirious, and pulse rapid. Bled 20 oz. Slept afterwards. Colour improved, but remains delirious. Following day conscious; colour good and pulse-rate lowered.

12. Corpl. M., aged 29. Admitted very cyanosed and dyspnoeic. Pulse 124. Bled 25 oz. (plethoric). Says, "Relieved my breathing, and I slept well." Colour remained good, and pulse-rate 100 six hours later.

13. Pte. H., aged 21. Admitted very cyanosed. Quick, irregular pulse. Bled 15 oz. Says, "It relieved my head and the tightness of chest and made me sleep." Colour improved, but not good. Oxygen given under pressure at intervals. Twenty-four hours later colour and pulse much improved.

14. Lance-Corpl. K., aged 22. Admitted unconscious, cyanosed, dyspnoeic, and rapid pulse. Bled 20 oz. Says, "Slept for hours after it—did good to my head and chest, and I have felt better ever since." Pulse slower and colour remained good.

15. Pte. C., aged 28. Admitted unconscious, very cyanosed and dyspnoeic. Bled 20 oz. Says, "It made my chest easier, and I could breathe better. My headache was cured." Condition remained good.

16. Lance-Corpl. M., aged 34. Admitted unconscious. Very cyanosed and very dyspnoeic. Bled 20 oz. Says, "Felt a good deal better; cleared my head; chest felt lighter, and made me sleep." Breathing became slower and colour improved.

17. Lance-Corpl. McK., aged 19. Admitted quite livid and unconscious. Pulse feeble. Cardiac stimulants were first given, oxygen, then venesection. Bled 15 oz. Became conscious twelve hours later. Cardiac stimulants repeated. Oxygen given under pressure at intervals, and colour improved. Eight days after admission he was evacuated in good condition.

18. Lance-Corpl. C., aged 38. Admitted very cyanosed and distressed. Brandy given and oxygen. Had been bled at field ambulance, but, on account of cyanosis, venesection was again done. Bled 20 oz. Colour improved and became less distressed. Five days later still unconscious, but less distressed and colour improved.

19. Sergt. L., aged 25. Admitted cyanosed, dyspnoeic, and vomiting. Bled 20 oz. Says, "Slept immediately after it, chest felt lighter." Colour remains good. Gastric distension relieved with sodium bicarbonate.

20. Pte. R., aged 23. Admitted unconscious. Very cyanosed and distressed. Bled 20 oz. Says, "Slept after it and felt easier." Colour improved, but still a little cyanosed. Oxygen given under pressure with benefit. In twenty-four hours colour improved and remained good.

21. Pte. K., aged 26. Admitted semi-conscious and much distressed and cyanosed. Bled 15 oz. Says, "Felt easier; chest and head were much relieved, and my breathing was improved." Colour improved and condition remained good. Four days later developed gangrene (dry) of left leg below knee, due to embolism of popliteal artery. Ten days later amputation at seat of election, with good recovery.

22. Pte. E., aged 47. Admitted semi-conscious, very cyanosed, and very dyspnoeic. Bled 20 oz. Says, "Felt grand; slept; eased chest and head." Colour remained good and breathing improved.

23. Pte. F., aged 19. Admitted very cyanosed and distressed. Previous bleeding at field ambulance, but owing to distress a second venesection was done. Bled 15 oz. Says, "It did good to my chest and head, and I slept after it." Colour improved, pulse became feeble, and cardiac stimulants were required. Evidently his condition was serious at the field ambulance to necessitate bleeding there, and his journey from there would cause his second bout of distress. Later he developed acute bronchitis, but his condition is good.

24. Pte. N., aged 20. Admitted very cyanosed, very dyspnoeic, and vomiting. Bled 20 oz. Says, "Felt better, and relieved breathing and awful pains in head." Colour remains good.

25. Pte. D., aged 26. Admitted unconscious, very cyanosed and distressed, and vomiting. Bled 20 oz. Says, "Helped head and breathing, and felt better." Colour remained good.

26. Pte. H., aged 26. Admitted unconscious, very cyanosed and distressed. Bled 20 oz. Says, "Felt a great deal better, relieved breathing, and slept eight hours after it." Colour remained good.

27. Pte. E., aged 37. Admitted unconscious, very cyanosed and distressed. Bled 20 oz. Colour improved and breathing became less distressed; twenty-four hours later returned to consciousness. Had an uninterrupted recovery.

28. Pte. B., aged 32. Admitted cyanosed and unconscious. Bled 20 oz. Condition improved and colour remained good. Later developed acute bronchitis, but condition is improved.

29. Pte. B., aged 19. Admitted very cyanosed and distressed, and vomiting. Oxygen given under pressure while venesection was done. Bled 15 oz. Says, "Felt chest easier, headache gone, and breathed better. Slept well after it." Colour slowly improved, and remained well.

30. Pte. Q., aged 45. Admitted very cyanosed and dyspnoeic. Alcoholic type. Bled 25 oz. Says, "Relieved me more than anything else, and I slept for hours." Colour improved and remained good.

These are notes on those of the patients who were venesected and lived. They were taken two days after bleeding. All cases were evacuated to the base on the seventh or eighth day after admission with the exception of A., F., and L., who were still in hospital with acute bronchitis.

The effect of venesection on all the cases was the same. The great thing the patients needed was freedom from the heart's embarrassment and rest. Whether the improved condition was due to the rest or the venesection I do not know, but I firmly believe that it was the depletion of blood which caused the sleep, and hence the benefit, and I began to rely upon venesection as a routine line of treatment for the cyanotic group of cases.

DEATH AFTER NITROUS OXIDE-OXYGEN AND LOCAL ANAESTHESIA.

BY

W. J. McCARDIE, B.A., M.B., B.C.CANTAB.,

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IN a somewhat large experience of nitrous oxide and oxygen anaesthesia, with and without the addition of ether, I have never seen any other case like that which I here relate. The patient very nearly died during the operation, and succumbed two hours and a half later without recovering consciousness.

I was asked to give an anaesthetic on January 29th, 1915, to a patient of Mr. Gilbert Barling, F.R.C.S. The operation was to be gastro-enterostomy for ulcer of the stomach, which was probably simple. The patient, aged 66, was a thin and anaemic-looking man of earthy complexion, of whom his medical attendant, Dr. Paulin of Malpas, said that he was very nervous. Seven weeks before Mr. Barling saw him he had fainted while conducting a religious service. He had been in bed for six weeks under careful treatment, and had had a very profuse haemorrhage from the bowel twelve days before operation; no rectal haemorrhage nor vomiting of blood had occurred since then. During the haemorrhage morphine, gr. ¼, had been injected several times, and he bore it well. He said that he had no cough, and nothing abnormal was found in his lungs. The pulse was soft, the apex beat was a trifle out—about ½ inch outside the usual position—while his heart sounds were rather "flappy," but clear and regular. Nothing abnormal was found in his urine.

Mr. Barling thought the patient was a good subject for nitrous oxide and oxygen anaesthesia, and I fully agreed with him. One and three-quarter hours before operation morphine gr. ¼ and scopolamine gr. $\frac{1}{150}$ was injected, and just before operation, as the patient was not drowsy and answered questions promptly and clearly, gr. ¼ of morphine was injected intramuscularly before he was carried downstairs to the theatre. On the table gas alone was quietly and easily administered for about ten breaths, then 5 pints of oxygen a minute were added to it, and rebreathing of the gases was allowed. As soon as the patient was unconscious the layers of the abdominal wall were infiltrated with weak novocain solution, and when the abdomen was opened the peritoneum was infiltrated with quinine and urea solution by Crile's method.

The patient's pulse from the very first became very, very weak, but the breathing was good and regular, and when the operation was begun, in spite of much more oxygen, the pulse could hardly be felt at the wrist. Throughout the operation there was no haemorrhage from the wound, and no artery forceps were applied. As operation very rapidly proceeded his pulse vanished, respiration gradually became deeply gasping, although practically no gas was administered and seven or eight pints of oxygen a minute were turned on, which is more than twice as much as is usually given. Air also was allowed at times, and for the latter part of the operation only pure oxygen was given. When the pulse became bad the patient's colour was greyish and pallid, but never blue. Muscular relaxation was absolute throughout the operation. At first the patient's pupils were well but not minutely contracted and fixed; the eye reflexes, brisk at first, were very dull for about twenty minutes, but later on they returned with the administration of pure oxygen. For the last twenty minutes of operation the patient appeared to be dying, the pulse being impalpable and respiration being very prolonged, slow, and gasping, although pure oxygen was administered; therefore, before the abdomen was closed, a vein in the arm was opened and saline solution, to which was added a few drops of pituitary extract and some brandy, was injected. The pulse soon became palpable, gradually improving in quality, and the eye reflexes became quite active and respiration less gasping; 1½ pints of saline were infused; a rectal injection of glucose and sodium bicarbonate in tap water also was given on the table.

When the patient was back in bed the pulse gradually improved further, and became really very good in volume, regular and steady (120); he groaned during respiration, which was quiet, and we thought that he would recover, but consciousness never returned.

About one hour later collapse occurred. More fluid with brandy was given intravenously, but the pulse became flickering, respiration very gasping, and after about three-quarters of an hour his jaw dropped and he soon died.

Unfortunately no *post-mortem* examination was allowed.

The anaesthesia lasted thirty-five minutes, during the last fifteen of which hardly any gas was given but a good deal of air, and a large quantity of oxygen with rebreathing. There was no respiratory obstruction at any time.

Why did this man die? As a comparison I may say that five days previously I had administered gas and oxygen by the same method to an old lady of 72, who appeared to be in worse condition than he, for a severe gall stone operation; the difference in the treatment was that she had before operation a trifle less morphine, which made her drowsy beforehand. The anaesthesia and muscular relaxation were perfect, much less oxygen was necessary than in the case I have related, her colour was pink throughout, and respiration and circulation were very good; there was no evidence of shock, although the administration lasted one and a half hours.

Points that occur to me for consideration are:

1. That the circulation failed long before respiration.
2. The failure could not have been due to traumatic shock, because it began before incision.
3. The morphine could not be incriminated, because the patient had had as big or bigger doses before, and was not drowsy before operation.
4. There was no asphyxia from obstruction to respiration, and twice as much oxygen as is usually necessary was inhaled, while very little gas was given.
5. I do not think that death was due to too much gas, because circulatory failure occurred very early, beginning with the administration of the gas.
6. The patient was psychically a very curiously nervous man, and I am inclined to think that psychic shock, together with anaemia, causing heart weakness, were largely responsible for the fatality. This explanation, I admit, is hardly satisfactory.
7. Why did consciousness never return?
8. Would the early addition of a small quantity of ether to the gases have been of value?

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SYPHILIS: TWO EARLY CASES OF REINFECTION AFTER TREATMENT WITH SALVARSAN AND MERCURIAL INUNCTIONS.

IN July, 1915, Dr. —— asked me to see one of his patients whom we had treated for syphilis (acquired twelve months earlier) in February and March of the same year, by giving three injections of salvarsan and using mercurial inunctions for a period of two months. He had a chancre on the glans and enlarged inguinal glands, and admitted the possibility of reinfection. At that time he did not wish to have further salvarsan treatment, and in six weeks developed all the usual secondary signs and symptoms, which immediately cleared up when kharsivan was given.

A prostitute, aged 21, was discharged from this institution in November, 1915, after having been treated for syphilis with kharsivan and mercurial inunctions for a period of a month. She returned on March 28th, 1916, and when I saw her in April had a chancre on the right labium and enlarged inguinal glands. She admitted still earning her living by prostitution.

These two cases I think serve to demonstrate the possibility of effecting a cure by the use of the above method, if the kharsivan or salvarsan is given at suitable intervals, as it seems hardly possible for a person to be reinfected unless the first infection had been eradicated.

Gateshead. LIONEL L. WESTROPE.

A CASE OF LYMPHANGIOPLASTY.

It is said that, whereas lymphangioplasty gives great relief in the brawny arm of cancer of the breast, in lymphatic oedema of the leg its results have not been satisfactory. I venture, therefore, to publish the following case:

J. B., aged 28, was scalded on the lower parts of the legs, ankles, and feet when 13 years old. Healing was very slow, and she was unable to walk for six months. Then the legs became very swollen and painful on standing or walking. The usual methods of treatment failed, and she was obliged to give up her work, which entailed long standing.

On June 30th, 1913, lymphangioplasty was done in both legs after Sampson Handley's method (see BRITISH MEDICAL JOURNAL, April 9th, 1910). No. 12 woven tubular silk was used, but no special instruments. She was allowed up after fourteen days. Improvement was slow but continuous, and now (July, 1916), she walks many miles every day without discomfort or swelling.

HAROLD HARTLEY, M.D., F.R.C.S.,
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Reviews.

NERVE INJURIES.

A BRIEF and business-like account of *Nerve Injuries and their Treatment*[1] has been written by Temporary Colonel PURVES STEWART, A.M.S., and Captain EVANS, R.A.M.C.(T.). Most of these injuries are traumatic, the nervous symptoms occurring either at once or after the lapse of time. Others occur independently of any known trauma, such as various forms of peripheral neuritis (including some instances of "trench foot"), and cases of the compression of nerves by such things as cervical ribs or aneurysms. The authors discuss the conditions simulating nerve injury, and consider the prognosis before and after surgical treatment. Stress is laid on the importance of securing strict asepsis before any operations for the suture of nerves are undertaken; hence in cases of shot and shell wounds the suture is commonly to be undertaken only after the primary wounds have healed. The last hundred pages of the book deal with the signs and symptoms produced by trauma of the individual nerves. The book is well illustrated, and should be of great service to the many surgeons and physicians who have to deal with the wounded from the front.

TREATMENT AFTER OPERATION.

MR. LOCKHART-MUMMERY'S *After-treatment of Operations*[2] has become a standard manual. It was published originally in 1903, and a fourth edition has recently been issued. The experienced operator is often anxious lest his house surgeon, or the practitioner in charge of the case, should be unable, however willing, to carry out his instructions about after-treatment. This treatise will, as its title professes, afford that necessary information. The general teaching is very sound: thus the author reminds the reader that a slight rise of temperature is still the rule after an operation of any magnitude, however well the surgeon may have carried out aseptic precautions. The superstition about keeping the operation case in the dorsal recumbent posture, less prevalent at the present date than it was when the first edition appeared, is judiciously deprecated, and the reader is taught that for elderly subjects the semi-recumbent position is, whenever possible, the only posture in which the patient should be placed. The directions for the after-treatment of certain operations new, or now far more frequently undertaken, such as suprapubic cystotomy, are highly satisfactory, and in these war-stricken days the addition of a chapter on gunshot wounds is most acceptable. The last words, however, remain the most important, for they impress upon the reader that the best results will always be obtained by the prevention rather than the treatment of shock.

[1] *Nerve Injuries and their Treatment.* By Purves Stewart, M.A., M.D. Oxon., F.R.C.P., Temporary Colonel A.M.S., and A. Evans, M.S., M.B. Lond., F.R.C.S., Captain R.A.M.C. Oxford Medical Publications. London: Henry Frowde, Hodder and Stoughton. 1915. (Demy 8vo, pp. [illegible], 92 figures. 8s. 6d. net.)

[2] *After-treatment of Operations. A Manual for Practitioners and Hospital Surgeons.* By F. Lockhart-Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab. Fourth edition. London: Longmans, Green, and Co. 1916. (Cr. 8vo, pp. 285; 39 figures. 5s. net.)

MENTALLY DEFICIENT CHILDREN.

THE enactment of the Mental Deficiency Acts for England and Wales and Scotland and the amendment of the Elementary Education (Defective and Epileptic Children) Act have made it necessary for Drs. SHUTTLEWORTH and POTTS to subject their book on *Mentally Deficient Children*[3] to a thorough revision. The report of the Royal Commission, which was published in 1908, excited widespread interest among public authorities and social workers, and as the result of considerable pressure the Home Secretary brought in a measure to give effect to its recommendations in 1913. A short account of the principal provisions, more especially those relating to children, is given in the edition now before us. There is a very good description of the pathology of forms of mental deficiency; two interesting groups of cases spoken of as word-deaf and word-blind children are described, and the microscopical conditions found in cases of primary and secondary amentia are stated. In discussing inherited syphilis as a cause of mental defect, Dr. Mott's researches are described, and the confirmatory evidence recently obtained by means of the Wassermann reaction related. The results which different observers have obtained, varying from 1.5 per cent. to 60 per cent., differ so much, however, that they cannot be considered as final. A new chapter on the psychopathies of adolescence, in which juvenile general paralysis of the insane, dementia praecox, developmental epilepsy and epileptic mental degeneration, pubertal perversion of moral sense, and insanity in childhood are well described, has been added, as they are often closely connected with states of congenital unfitness. The medical examination of mentally defective children under the regulations of the Board of Education is the title of one of the chapters; it contains much useful information. The chapter is rendered more interesting by the inclusion of Dr. E. S. Pasmore's flag chart of heredity and a copy of the model arrangements issued by the Board of Education circular.

The necessity for after-care of these children has been established, and much has been accomplished in this direction by the formation of the Central Association for the Care of the Mentally Defective. A list of the certified institutions in England and Wales, of institutions for Poor Law cases, of certified houses and approved homes, of institutions for imbeciles and the feeble-minded under the Metropolitan Asylums Board, and institutions in Scotland, is given in the appendix, as well as a copy of the medical certificate required by the Mental Deficiency Act. There is a copious bibliography, and the number of illustrations has been considerably increased. This is the most concise and up-to-date book on the subject which we have read, and we would recommend every one who is interested to procure it and read it.

TROPICAL MEDICINE.

Mosquito Control in Panama,[4] by LE PRINCE and ORENSTEIN, is the title of a book descriptive of the methods used in the canal zone for combating malaria, yellow fever, and other tropical diseases during the building of the canal. There is an introduction by Dr. HOWARD. The work is divided into two parts: the first dealing with the antimalarial campaign, and the second with the yellow fever campaign; the latter includes an account of the work done in Havana during the campaign which stamped that disease out of the city. The result of the sanitary work in Panama—namely, the successful completion of the canal—is known to all; therefore it is specially interesting to have a detailed account of the different methods and plans that were adopted for this end. In this most interesting book all the details are presented in the clearest fashion, and by looking at the excellent photographs the reader will be able to follow everything as if one had actually been on the spot. It makes the work not only valuable for the history of the canal itself, but also for the practical application of similar methods in other parts of the world. The destruction of mosquitos is not

[3] *Mentally Deficient Children: Their Treatment and Training.* By G. E. Shuttleworth, B.A., M.D., etc., and W. A. Potts, M.D., etc. Fourth edition. London: H. K. Lewis and Co., Ltd. 1916. (Cr. 8vo, pp. 303; illustrated. 7s. 6d. net.)

[4] *Mosquito Control in Panama. The Eradication of Malaria and Yellow Fever in Cuba and Panama.* By J. A. Le Prince, C.E., A.M., and A. J. Orenstein, M.D.; with an introduction by L. O. Howard, LL.D. New York and London: G. P. Putnam's Sons. 1916. (Post 8vo pp. 382; 109 illustrations. 10s. 6d. net.)

an easy task, and to achieve success a combination of methods must be adopted. The importance of screening houses is well brought out. This is, perhaps, one of the most valuable means we have of preventing malaria and other mosquito-borne diseases, and the fact of the Americans having adopted it so largely in the Panama zone speaks for itself. One would like to see screening much more widely used in British colonies and in other parts of the world. The shortcomings of the oiling method are very clearly stated, as are also those attending the introduction of fish. Of course, all mosquito work involves a considerable outlay of money, but it is surprising how little this really comes to after things are going. The observations made on the flights of mosquitos are of the greatest importance, and should certainly be followed up both in the canal zone and in other parts of the world. It is quite possible that observations made in the canal zone may not equally apply to other parts of the world. The general principles, however, will, and details must be arranged suitable to special localities. As other guides, Malcolm Watson's work in the Federated Malay States will also be found useful, as well as the work accomplished by Ross at Ismailia and Sierra Leone. The importance of making the tropics more healthy is evident to all, but even granted that this can be done, it does not follow that the white man will be able to live indefinitely in such areas and propagate his species there.

In an essay entitled *The Trypanosomes of Sleeping Sickness*[5] the question of the alleged identity of *Trypanosoma brucei* with the trypanosomes causing disease in man (sleeping sickness) in Nyasaland is discussed. An analysis of the different curves of the various trypanosomes is first given, and though there are undoubted difficulties in the interpretation of some of these analyses, the author believes it possible that some, or even many, of the points at present obscure might be elucidated if all the circumstances were known. He considers that his investigation, which he admits is incomplete, has demonstrated that there is no scientific justification for classifying as identical, from length measurements, the *T. brucei*, the *T. rhodesiense*, the human Nyasaland strains, and the Nyasaland wild game strains, unless indeed all the dimorphic strains, including *T. gambiense*, are to be considered merely as variants of one species of trypanosome. As already stated, there are some reasons for regarding them as probably different, but until uniformity of method is adhered to it seems unlikely that much real information will be obtained from this method of investigation. Among other matters discussed, are the questions whether the trypanosomes have the same habits and actions, whether they infect the same animals and kill them in the same time, whether they have the same carrier, and whether their growth or development in the carrier follows the same course? Cross-inoculation experiences are next related, and finally experiences of the effect of various serums. The author ends by setting out a series of conclusions, the gist of which would seem to be that the subject is still *sub judice*. The paper is of a somewhat technical nature, and ought to be studied in the original by those interested in the subject.

NOTES ON BOOKS.

CHILD welfare forms the basis of national prosperity. Nations are gathered out of nurseries. The problem of the conservation of child life is of paramount importance. The loss of the nation's manhood in the war has done much to quicken the sense of what we owe to posterity in the care of children, a sense that had long been awakened by the efforts of many societies for promoting the welfare of infants and children during the last decade or more. Dr. T. N. KELYNACK has done a useful piece of work in editing a *Child Welfare Annual*[6] meant to be a companion year book to the monthly medical and educational journal *The Child*, in company with its companion volume *The Year Book of Open-Air Schools and Children's Sanatoria*. In this new annual will be found original articles dealing with various aspects of the welfare of children, schemes for child welfare work in various townships and counties, and a long *catalogue raisonné* of national associations, societies, orphanages, homes, and other similar institutions dealing with children in distress. The annual should be of great service to almoners, home visitors, workers of all sorts interested in child welfare, and secretaries of kindred associations. It contains abundant evidence that the nation is awake to the importance of protecting our children in every way.

Dr. EDITH B. LOWRY's guide for young mothers[7] gives an account of what the expectant mother should do to ensure that her child should be sound when born, and what she should do to keep it in health after birth. The various common disorders of infancy and their treatment are touched upon. The book is somewhat loosely written, but contains much sensible advice, and no doubt fills a want.

[5] *The Trypanosomes of Sleeping Sickness.* By G. D. Maynard, F.R.C.S.E. The South African Institute for Medical Research (No. VI). Johannesburg: Published by the Institute. 1915. (Sup. roy. 8vo, pp. 39; 26 charts. 5s.)

[6] *The Child Welfare Annual:* A Companion Year Book to *The Child*.

[7] *Your Baby: A Guide for Young Mothers.* By Edith B. Lowry, M.D. Chicago: Forbes and Co. 1915. (Cr. 8vo, pp. 251. 1 dol.)

VENEREAL DISEASES:

STATE PROVISION FOR THEIR DIAGNOSIS AND TREATMENT.*

The Local Government Board, by an order dated July 12th, has put into operation the recommendations of the Royal Commission on Venereal Diseases so far as the provision for diagnosis and treatment is concerned. A circular, addressed to councils of counties and county boroughs and the City of London, sets out the manner in which this new duty now devolving upon these local authorities is to be carried out. The basis of the scheme is the free provision for the whole community of laboratory facilities for diagnosis, and of adequate and skilled free treatment for all persons affected with venereal disease; 75 per cent. of the cost of carrying out schemes which have been approved by the Local Government Board will be met from imperial funds, as recommended by the Royal Commission.

The Regulations of the Order, which came into force on July 12th, have been made under the Public Health Acts. Section 2 of the Public Health (Prevention and Treatment of Disease) Act, 1913, provides that, except in case of emergency, the Board shall not require a county council to execute and enforce regulations made under Section 130 of the Public Health Act, 1875, without the consent of the council, but having regard to the findings of the Commission, the Board has arrived at the conclusion that the conditions of the present war constitute a case of emergency within the meaning of the Act of 1913.

The regulations provide that the council of every county and county borough (1) shall, subject to the approval of the Board, make arrangement for enabling any medical practitioner practising in the area of the council to obtain, at the cost of the council, a scientific report on any material which the practitioner may submit from a patient suspected to be suffering from venereal disease; and (2) shall prepare and submit to the Board a scheme (*a*) for the treatment at and in hospitals or other institutions of persons suffering from venereal disease, and (*b*) for supplying medical practitioners with salvarsan or its substitutes for the treatment and prevention of venereal disease. It will therefore be the duty of the council to proceed at once to the consideration of the steps which it should take in these directions and with the formulation of a scheme for the provision of the necessary facilities for diagnosis and treatment.

Provision of Laboratory Facilities.

As facilities for the practical application of scientific laboratory methods to the diagnosis of disease are already provided in many universities and large hospitals, a council is advised to make arrangements with the authorities of one or more of these institutions. The laboratory should be in charge of a skilled pathologist of experience in this particular work. It is not proposed that new laboratories should be established for this work. The facilities provided by the council should be available for the whole population of the area, and the arrangement

* Venereal Diseases. Circulars issued by the Local Government Board on the 13th July, 1916, to Councils of Counties and County Boroughs, Governing Bodies of Hospitals, and Boards of Guardians. Regulations made by the Local Government Board on the 12th July, 1916; and Memorandum by the Medical Officer of the Local Government Board on the organization of medical measures. London:

should provide for the examination without cost to the patient or the practitioner of specimens sent by any doctor practising in the area. It is not necessary that the laboratory utilized by the council should be situated in its area. The arrangements must be approved by the Board.

Provision of Facilities for Treatment.

Treatment should be available for the whole community, and should be so organized that persons affected by these diseases shall not be deterred from taking advantage of the facilities which are provided. This result would not be attained by the establishment of special institutions for the treatment of venereal diseases; the institutional treatment required should be provided at general hospitals. The special facilities to be provided should be designed chiefly for cases in which the diseases are in the communicable stage. In some cases it may not be practicable to secure the requisite facilities at a hospital situated within the area of the council, nor would this be essential if the hospital selected be accessible from the more densely populated parts of the area. Thus, in the case of areas adjoining the metropolis, it may be considered desirable to negotiate with the authorities of general hospitals in London, and in the provinces many county councils will find that the most suitable facilities for their areas can be provided at hospitals in the county borough situate within or near the geographical county.

In negotiating with the authorities the council should make it clear *that the treatment provided should be available for all comers, irrespective of the place of residence or the means of the patient.* Some beds in hospitals will be needed (1) for the treatment of cases of syphilis by salvarsan or its substitutes, (2) for the temporary treatment of acutely contagious cases both of syphilis and gonorrhoea, and (3) for cases in urgent need of surgical treatment. [The italics are in the original.]

In all cases it will be important to arrange *that the clinics are not specially designated as for venereal diseases and that nothing is done to distinguish the patients who attend for treatment of these diseases.* [The italics are in the original.]

Payments to be made by the council for the service rendered by the hospital authorities should be in the form of a lump sum annually, subject to revision in the light of experience; if this proved impracticable, the council might undertake to pay the actual cost incurred by the hospital authorities during the first year subject to some reasonable maximum payment. The council should make it clear that no interference with the internal administration of the institutions is proposed.

Local Committees.

For the purpose of disseminating information as to the scheme and for making suggestions to the council, the Board considers it desirable that a committee should be formed containing representatives of all doctors practising in the area, the police and Poor Law authorities, midwives, probation officers, rescue workers, clergy and ministers of all denominations, and voluntary agencies concerned in the treatment of these diseases; the committee should include a sufficient number of suitable women together with representatives of the Local Medical Committee for the county or county borough.

Relation of General Practitioners to the Scheme of Local Authorities.

The Board recognizes that it is essential to secure the co-operation of general practitioners with the local authorities which organize schemes of treatment and with the institutions which are comprised in these schemes, and that medical students and practitioners should have access to such institutions. The council should instruct the medical officer of health to consult from time to time the Local Medical Committee for the area as to the means by which the fullest possible use can be made of the facilities provided under any scheme. Every effort should be made to secure the full co-operation of private practitioners in the treatment of cases. The Board considers that every patient, whether or not an insured person under the provisions of the Insurance Act, who attends at an approved institution for treatment, may properly be asked whether he has a doctor of his own, and whether he is willing to be treated by that doctor. If the patient has no doctor, or being an insured person has not yet chosen a panel doctor, but is willing to be referred to a private practitioner for treatment in association with the treatment provided at the institution, he should be advised to choose a doctor who would co-operate in this treatment.

The council should include in its "scheme arrangements for the free supply of salvarsan, or its substitutes, to medical practitioners practising in the area of the council in cases in which the medical officer of an approved institution has authorized the administration of these drugs. The supply should be limited to those doctors who are known to have had experience in the administration of the drugs, or who have attended for a sufficient time the practice at the institution."

The facilities provided by the council should be available for the whole population of the area, and it should be understood that district medical officers and medical officers of poor-law institutions will be entitled to make full use for the benefit of their patients of the laboratory facilities provided by the council, including supplies of salvarsan or its substitutes, on the same conditions as those in which these drugs are provided for medical practitioners.

Memorandum by the Medical Officer of the Local Government Board.

The memorandum points out that the times for holding the out-patient clinic should be arranged to meet the needs of the largest number of patients. Arrangements should be made for some of the clinics to be held at, say, 5 p.m. to 7 p.m., or later in the evening. An essential condition of arrangements with hospitals is the preparation of returns relating to the cases treated.

The Board considers that some parts of the treatment required can in many cases be given by the patient's own doctor, and, where this is arranged, the medical officer should furnish the practitioner with a report on the patient's treatment at the clinic with suggestions as to continued treatment. Directions are given for the labelling and transmission of pathological specimens to the laboratories, and a draft of the form of report. Instructions are given for the taking of blood for the Wassermann test, for collecting cerebro-spinal fluid for the Wassermann test or for the microscopic examination of its cellular contents; for taking a specimen of exudate for the detection of the *Spirochaeta pallida*, and for taking specimens for the detection of gonococci.

The report of the Royal Commission gave draft forms of printed notices to be handed to patients found to be suffering from syphilis or gonorrhoea. It attached considerable importance to the warning of every patient by the doctor attending on the dangers of the disease to the patient and to others. The Commission held it to be a point of honour that this printed warning should be given to each affected person. But there is no direction on the suggestion in the memorandum of the medical officer of the Board.

EDINBURGH SCHEME FOR MATERNITY SERVICE AND CHILD WELFARE.

(*Concluded from p. 80.*)

Preventive Part of the Scheme.

Four "Edinburgh Child Health Centres," all situated in districts where there is a dense population of young life, already exist. Their aim has been to induce mothers to bring their children to the centre and to receive advice regarding proper clothing, feeding, and general attention. The mothers have attended in increasing numbers, and have shown a real interest in carrying out the instructions received. Nurses are present at the clinics, and subsequently visit the homes of the children. Dr. Maxwell Williamson considers that these centres should play an important part in the scheme, and that their number should probably be increased. If any diseased condition was found in any child at such a centre it would be at once passed on to the particular centre (dispensary or other) specially suited for its treatment, and would be connected with it by a "card system."

There are also the five kindergarten schools in the city; but Dr. Williamson points out that the number of children (twenty-five to thirty) supervised at each has been so small as even in the aggregate to amount to only a fraction of the number whose interests would require to be safeguarded in a well-conceived scheme. Children are brought to these kindergartens each morning by a responsible messenger, and along with them, where possible, their food for the day. Milk is supplied to them at a small

charge, or free if necessary. The children are kept clean and happy under the supervision of qualified teachers and assistants, and return home with their relatives each evening. There is, Dr. Williamson says, room for one such school in almost every street of the city, and he hints that money might better be spent on this than on some of the other health objects on which it was at present being expended by local authorities. In the meantime it is proposed to include all the existing institutions in the scheme. The four day nurseries in the city are all situated in densely populated districts, and all provide comfortable, cleanly, and homely accommodation for children whose mothers are at work or otherwise engaged during the day. From 20,000 to 25,000 children have passed through these nurseries each year, and under the system of visitation to be included in the scheme it will be possible more fully to utilize their resources, and so to end completely the objectionable and even dangerous plan of shutting up young children in the smaller class of tenement dwellings during the mother's absence.

Open-air Play Centres and Convalescent Homes.

Open-air play centres have been recognized by the corporation for some years as important preventive means. There are four of them, and recently the work of the "Outlook Tower" has included the provision of a considerable number of open spaces with gardens in some of the more densely populated parts. It is proposed that one open-air play centre should be at once included in the scheme. Others can be added as money and the voluntary supervision of the work by ladies become available. The city is fortunate in having several country institutions for ailing or convalescent children, including the Holiday Home at Humbie House, which will be included in the scheme, but it is hoped that the corporation will consider it proper to establish a much larger institution. The Polton Farm Colony, at present in use under the tuberculosis scheme, but not fully occupied, might possibly be utilized for this purpose.

Schools for Mothers, etc.

It is pointed out that the term "Schools for Mothers," which has been somewhat loosely applied, properly means classes in which mothers are taught such branches of domestic work as make for the improvement of their home conditions, giving better surroundings and feeding. Among the extension classes under the supervision of the School Board are courses of instruction to mothers in cookery, dressmaking, sick nursing, laundry work, and the like. In one year 679 women attended, and 403 of them earned the return of their fee through their constant and satisfactory attendance. Under the scheme this work would be left in the hands of those who were doing it so well. Further, the voluntary health visitors attached to the Public Health Department have recently, with the co-operation of the Insurance Committee, been carrying out an extension of this work; they have been giving cooking instruction in the homes of the people, and no fewer than 1,500 women have thus received instruction. The question of supplying food to nursing mothers and milk for infants is a debatable one; but the scheme suggests that the M.O.H. should have power to grant suitable supplies of nourishing food to authenticated necessitous cases.

Staff for and Method of Working the Scheme.

For some years there have been in the city 300 lady voluntary health visitors, with one official visitor, who have visited the homes of newly-born infants, and continued their visitation for the first year. This work (with the consent of the visitors) would now be merged in the larger scheme; but additions would require to be made to the staff. It is suggested that a woman doctor, acting under the M.O.H., should be appointed to supervise the whole work of the scheme, and to be responsible for the clerical work, including the keeping of records. She would also exercise supervision over the midwives practising in the city (a duty at present imposed under the Midwives (Scotland) Act on the M.O.H.). Two female clerks and three female district visitors (having special qualifications in nursing, midwifery, etc.) would be required, along with six district nurses. It is proposed to divide the area of the city where visitation is most necessary into three districts, for each of which there would be available for work 100 lady voluntary health visitors, one female district visitor, and two district nurses. Notifications of births, when received at the Public Health Department, would be considered in order to determine whether the cases were suitable for official visitation, as it is desired to safeguard the interests of the medical practitioner in his relationship to his patients. In suitable cases a female official visitor would, after making a preliminary inquiry, pass the case on to the care of the voluntary health visitors, who would continue to exercise periodic supervision. In all cases requiring medical advice the visitor would give a card for presentation to the private medical attendant, or, if unable to procure such, to the recognized centre of that particular district.

The whole scheme would work out as follows:

1. The duty of supervising the execution of all the details of the scheme would devolve upon the medical officer of health.

2. The additional official staff necessary would include one woman doctor, two female clerks, two female official visitors, and six district nurses.

3. Certain already existing institutions would be included in the scheme for the satisfactory working of it, and these would carry out work among women and children of a curative and preventive nature.

The institutions under the heading of "Curative" were the Royal Maternity Hospital, the Royal Hospital for Sick Children, and several named dispensaries. In each of these outdoor clinics for the benefit of mothers and children would be held twice weekly under the direct supervision of the physicians of the institutions.

(*a*) *Maternity Clinics.*—These would be open to all expectant mothers, who would attend at their own initiative or as a result of the advice given by the various visitors during the course of their daily visitation. The names of such expectant mothers would be registered at the various centres and such advice or treatment given to them as in the opinion of the physician was necessary. Their confinement, if the person was not insured or was unable to pay the fee of a medical attendant, would subsequently be supervised under the direct care of the physician to the institution or some representative approved of by him. For these services a special grant would require to be made. After the birth the mother would continue her attendance, if need be, at the maternity clinics, and should hospital treatment be necessary either before, during, or subsequent to confinement it would be duly arranged for at these centres.

(*b*) *Child Clinics.*—These, too, would be held at each of the centres enumerated twice weekly, and would be specially devoted to the care of infants and children between the time of birth and their attaining the age of 5 years. To these clinics the various official and voluntary visitors would send all children who appeared to require medical attention, if their parents had not a medical attendant of their own. (This detail in the scheme—namely, the separation of the infants from their mothers, for medical supervision, at the time of birth—has already been criticized.) Records would be kept at each centre regarding the conditions from which each child suffered, and for which it was treated. These records would pass between the various centres and the Public Health Department, and would be retained until the child reached 5 years of age, in order that it should be possible to hand a completed record to the School Board when the care of the child was taken over by that body. The physicians of these named institutions would be responsible for the visitation of children under 5 years of age residing within the district of their institution for whom visitors under the scheme request their attendance.

All the medicines necessary for the treatment of mothers and children would be supplied free by the institutions.

4. A supply of milk would be granted free for the use of infants and food for nursing mothers on the recommendation of any of the physicians in connexion with these centres, and subject to the approval of the medical officer of health.

5. Grants would be paid to the institutions named under two headings: (*a*) to each institution in respect of arrangements made for clinics and for the supply of medicines, etc., (*b*) to the physicians in charge, in respect of their attendance on mothers and children at their own homes, situated within the prescribed area of the institution.

6. The official visitors would have the assistance of the three hundred voluntary lady visitors who had already been identified with work among infants for some years. The city would be divided into three districts, and each would have the services of one official visitor, two district nurses, and one hundred voluntary lady visitors. Visits would be paid to all homes in which a birth had been notified where no physician was in attendance or where subsequent attendance was considered necessary. These visitations would be made periodically in all cases until the child had attained the age of 5 years. Each visitor would be able to advise the expectant mother in regard to the particular clinic where she should register and at which she should apply for advice prior to confinement. Each visitor would also advise mothers in regard to the institution to which they should take their children for medical advice, if necessary, or, if this should be not necessary, in regard to the particular preventive institution available for them. It would be necessary to ensure that advice given to mothers was in all cases carried out, and for this purpose a system of cards would be adopted. One of these would be handed to the mother for presentation to the particular institution, would be duly initialled on presentation, and would be available to the visitor on subsequent visits as an indication that the child was receiving the needful medical attention. One of the district nurses would attend each outdoor clinic, would receive the

patients there who had been sent by the visitors, would keep a record of them, and by subsequently visiting the houses would ensure that the treatment prescribed was duly carried out. There would be little difficulty in keeping a record of the health conditions of each child, and this could be made the more complete by adding to it the infectious disease history of each case (information which was in the possession of the Public Health Department through the operations of the Notification of Infectious Diseases Act).

7. The various preventive institutions and agencies would be largely taken advantage of, and the visitors would keep these fully supplied by sending to them suitable cases. In the event of any child arriving at any of these and showing symptoms of illness in any form, it would at once be passed on to the particular institution under the scheme which is suitable for its treatment.

8. Weakly children and those convalescent from illness who were found in the course of ordinary visitation would be recommended for a term of residence in the country, prior to which they would in all cases be examined by the physician attached to the particular centre in the district where they resided.

9. The Royal Hospital for Sick Children and the Royal Maternity Hospital would be regarded as the main centres under the scheme; and whilst child and maternity clinics would be held at each institution respectively, they would be regarded mainly as institutions of a consultative nature to which the more complicated cases would be sent from the subsidiary institutions. In these also bed accommodation would be available for children and mothers requiring hospital treatment.

Cost of the Scheme.

An approximate estimate of the cost of the scheme was a little over £6,000.

Value of Scheme.

Whether or not Dr. Williamson is right in his comparative estimate of the value of this large child welfare scheme there can be no doubt regarding the new possibilities of preventive medicine of the most hopeful kind that it opens up. If it work satisfactorily it means nothing less than the sending of every child as it reaches the age known as "official five" out of the "pre-school" into the "school" period of its existence with all that is necessary to be known of its past medical history along with it. It carries, so to say, its record in its satchel; it appears above the horizon of the school doctor not as an unknown constellation, to use another metaphor, but as a star whose magnitude, movements, aberrations, and eccentricities have been ascertained. The boon which this will be to the school medical officer can hardly be calculated: for him or her to know what infectious maladies the child has had, what skin diseases, what eye or ear troubles, what indications of bodily or mental weakness, what signs of incipient capacity, is information of the highest value. There will also be the possibility of going back to prenatal conditions and linking on the state of the mother before the child's birth with the development of the child after it; it will be known whether he came into the world prematurely, post-maturely, or at exactly the right degree of maturity; and it will be possible to ascertain whether in the act of being born he suffered any injuries of a slight or a serious nature such as to lessen his chances of success—first, as a scholar, and later as a citizen of the nation.

It would be easy to criticize certain details in the scheme—one is a little dubious, for instance, as to the wisdom of putting so much of the initiative into the hands of the small army of voluntary lady health visitors—but *mirror magis*, and one looks forward with great interest and expectation to the results as they begin to manifest themselves in a lessened infantile death-rate, in the setting free of school life from many of the ills which hamper and hinder its healthful progress, and in the building up of a stronger and more capable manhood and womanhood.

BASIS OF CALCULATION OF INCOME TAX.

Cash Basis.

We have received an inquiry from a correspondent which leads us to suppose that one of the points discussed in the article in last week's issue, p. 82, may require some further elucidation.

In the penultimate paragraph of that article some emphasis was laid on the fact that in present circumstances the Revenue authorities "probably gain tax on the 'cash basis' method of calculation," and it was suggested that it was rather surprising, therefore, to learn that in certain quarters pressure was being brought on practitioners to discard that basis of calculation contrary to long-standing practice and their own wishes.

The foundation of any argument on this question must always be that over a long period the total of the year's cash receipts will be substantially the same as the total value of the bookings for the same period. There will, of course, always be some book debts left over for realization, but, on the other hand, tax would be paid, on a non-cash basis, in the early years of a new practice, which might constitute a fair set-off to this consideration. But while this is true, it does not hold good for each particular year. For instance, if during, say, 1915, the work to be done falls off, the value of the bookings will show a corresponding diminution, but the cash received in that year will, for the greater part, be paid in respect of the previous years and will not be affected by the restriction of the practitioner's professional activities during 1915. This is the condition probably of many practices in this country at the present moment, provided that any army pay be treated, as it should be, as an entirely independent matter.

Now the Finance Act, 1914 (Session 2), gave a special right of adjustment to persons whose earnings had been adversely affected by the war. This relief has been discussed more than once in these columns, and it will be sufficient here to state briefly that where the practitioner is in naval or military service he can pay on the actual income of the year instead of on the three years' average, and that where he does not comply with that condition he can put the average period forward twelve months. But this relief is merely an adjustment of an assessment properly made on the statutory average, and does not affect future years in any way. In the latter case, therefore, the "lean years" will appear in the three years' average *four* times—namely, once on adjustment of the assessment, and then three times as a component part of the ordinary average. Where the relief extends to payment on the "actual" income, its effect is clearer, and we propose to deal more particularly with this case, remarking that the principle involved is the same, and that the difference between the two forms of relief is merely one of degree. Let us assume that the following profits are earned, and that the military pay and allowances have been excluded:

Years.	Basis of Bookings.	Basis of Cash Receipts.
	£	£
1912	1,050	1,050
1913	1,050	950
1914	900	1,000
1915	700	800
1916	600	700
1917	1,000	800
Total ...	5,300	5,300
1915-16 Assessed	1,000	Assessed 1,000
Reduced to	700	Reduced to 800
1916-17 Assessed	883	Assessed 917
Reduced to	600	Reduced to 700
1917-18 Assessed	733	Assessed 833
Not reduced		Reduced to 800

Assuming that the military service ceases in 1917, the assessment for 1918–19 would be £767 in either case, and for the two following financial years the cash receipt basis would give the practitioner some advantage. Nevertheless, it is clear that, on the whole, the benefit has been to the Revenue authorities, for they had the full advantage of the excess of the cash receipts over the value of the bookings in the lean years, whereas now those years are beginning to disappear from the average altogether. To put the matter briefly, the statute gives special weight to the "lean" years, and, unless the cash receipts fully reflect the diminution in the profits of the practice, their adoption as the basis of an income-tax calculation must deprive the taxpayer of some portion of the full relief.

We have one further observation to offer, lest our readers conclude too hastily that the "cash basis," in spite of its convenience, should be discarded for the present. The financial exigencies of the times have probably had a substantial effect in retarding the payment of accounts and thus accelerating the fall in the cash receipts. After all, the whole question is one of a comparison; if "bookings" are diminishing at a quicker rate than cash receipts—and in general we believe that to be the case—then the Revenue gains the advantage, but conditions vary according to the nature and locality of practices, and no general conclusion in this matter can be of universal application.

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SATURDAY, JULY 22ND, 1916.

STATE PROVISION FOR THE TREATMENT OF VENEREAL DISEASE.

A NOTE on the regulations made by the Local Government Board on July 12th for the provision and treatment of venereal diseases, and on the circular letter to councils of counties and county boroughs, and the memorandum of the medical officer on the organization of medical measures, is published at p. 111. The action thus taken is the sequel to the report of the Royal Commission on Venereal Diseases issued on March 2nd last. The general idea of the scheme shadowed forth by the Board is to provide free for all persons the best means of diagnosis and of treatment, in accordance with the recommendations of the Royal Commission, which were heartily approved by the medical profession, and have already commanded a large measure of public support. The schemes which the Local Government Board requires the county councils at once to proceed to elaborate (for the regulations came into force on the day they were promulgated) are to centre round existing pathological laboratories and general hospitals, particularly such hospitals as are the centres of instruction for medical practitioners and students. In its choice of institutions a county council is not limited to its own area; provided the places chosen are convenient of access to dense areas of population it has a wide range of choice. Arrangements are to be entered into by the medical officer of the council with the most convenient institution, and the cost of the work will be met as regards 75 per cent. out of imperial funds and for the rest out of the local rates. The institutions which contract to do the work are to remain autonomous—"the council should make it clear that no interference with the internal administration of the institutions is proposed"—but will be required to fulfil the essential conditions as to treatment and to make returns relating to cases treated. The clinics are not to be designated as for venereal diseases, and nothing is to be done to distinguish from others the patients who attend for the treatment of these diseases.

A strong point is made of the necessity for associating the local general practitioner with the actual work of treatment. "The Board consider that every patient . . . may properly be asked whether he has a doctor of his own, and whether he is willing to be treated by that doctor. If the patient has no doctor . . . he should be advised to choose a doctor who would co-operate in his treatment." The facilities for diagnosis at the laboratories are to be free to all doctors in the area; the work at the clinic is to be open to all medical students and doctors, and consultations may be arranged for the doctors' patients thereat. The desire is to make these clinics places of post-graduate study, so that there may be secured a speedy dissemination of the latest knowledge of the means of diagnosis and treatment amongst the profession.

The councils are informed that for the purpose of disseminating information as to the scheme, and for making suggestions to the council, "it will be desirable" that a committee should be formed containing representatives of social and public health workers, including a sufficient number of "suitable women," together with "representatives of the Local Medical Committee for the county or county borough." Further, the council is advised to instruct its medical officer to consult the Local Medical Committee for the area from time to time as to the means by which the fullest possible use can be made of the facilities provided under its scheme.

It is always desirable, when drafting a document for public information and instruction, in the first place to define the terms used, and if those who drafted the documents now issued had taken this elementary precaution not a little loss of time and uncertainty would have been saved to those who have to interpret their provisions. In the first place, throughout the circular of the Board and the memorandum of the medical officer, and even in the regulations themselves, the phrase "salvarsan or its substitutes" is used. Neosalvarsan and galyl are alternative drugs differing in composition from salvarsan, and kharsivan and neokharsivan, now manufactured in England under licence from the Board of Trade, are not substitutes for salvarsan and neo-salvarsan, but the same substances made in British instead of German factories. It is quite possible that a better drug, not less effective and safer in use, than salvarsan may be discovered, and there are those who consider that such a drug is already to be found in galyl. In the next place, the meaning of the term "local medical committees" is not defined. To most readers it will convey the impression that the committee of that name constituted under the Insurance Act is intended, but others will interpret it to mean a voluntary committee, and in that case believe it to refer to the committees of the Divisions and Branches of the British Medical Association. In the third place, the county council is not required to set up the nameless committee which is to disseminate information and make suggestions, and the powers of this committee, if it be set up, are wholly undefined. The degree of its influence will probably vary very much in different areas. As a rule, the county council will, no doubt, turn over the whole matter to the Public Health Committee, as has already been done by the London County Council.

The Council of the British Medical Association has lost no time in formulating a number of recommendations to be considered by Divisions and the Representative Meeting with regard to the measures proposed to be taken, and a joint committee of the Medico-Political, Public Health, and Hospitals Committees in drawing up these recommendations had the advantage, through the courtesy of the President of the Local Government Board, of seeing drafts of the regulations, circulars, and memorandum which the Board has now issued. The Board lays stress on the importance of enlisting the co-operation of general practitioners, which was considered so essential by the Royal Commission, and it is to be regretted that it has not seen fit to attempt to enlist that co-operation by awaiting the deliberation of the coming Representative Meeting, as a delay of a little over a fortnight would have been amply justified.

On comparing the instructions given by the Board to county councils with the recommendations of the Council of the British Medical Association, it will be seen that to a considerable extent they are in accord, but in at least one important respect the Local Government Board has practically ignored the opinion, specially communicated to Mr. Long, of the Council of the British Medical Association. In its

Supplementary Report (SUPPLEMENT, July 8th) that Council said "it was pointed out to the Board that it was considered essential, if the new scheme for dealing with venereal disease is to receive the hearty co-operation of the profession, that the local medical profession should be asked to nominate representatives to serve upon any committee having control of the arrangements under the local scheme." The recommendation of the Board, that medical officers of health should from time to time consult the Local Medical Committee, does not meet the requirements which the Council of the Association has stated with studied moderation. The profession has already some experience under the Insurance Act of what "consulting the local medical committee" means in practice, and what makes the matter worse is that that committee is to be consulted, not as to the drafting of the scheme, but only as to the best means of carrying it out after it has been fully arranged. The Representative Meeting of 1914 expressed the opinion that in any future developments of the medical service under the Insurance Acts the clinical arrangements should not be placed under the public health authority, but either under a new clinical authority composed of representatives of the insurance, public health, and education local authorities, with representatives of the Local Medical and Panel Committees and of the local hospitals, or under the Insurance Committees strengthened for this purpose by the addition of representatives of the above-named bodies. The proposals now made for dealing with venereal disease affect the whole population, and will affect a large number of insured persons and every panel practitioner. The inclusion of the public health authorities will introduce a complication into the working of the Insurance Acts which many will consider most undesirable.

Again, it cannot be said that the Local Government Board has in any way solved the difficulty, which counts for so much with persons suffering from venereal disease, of maintaining absolute secrecy as to the nature of the disease. The Board rightly insists on the necessity of not divulging the names of patients, and urges that the clinics shall not be specially designated as for venereal disease, and that nothing shall be done to distinguish a patient who attends for treatment of these diseases. As special medical officers are to be in charge of venereal diseases, and not only students but general practitioners are invited to attend the clinics, it is difficult to see how it can be possible to avoid such an amount of separation and discrimination of patients as will make patent to every one present the general character of the disease for which these persons are seeking treatment. Unless far more effective measures are taken than those mentioned in the documents before us to prevent such publicity it is at least questionable whether any great number of persons affected with venereal disease will take advantage of the clinics.

The provision in the regulations that every medical practitioner, without cost to himself or his patient, should be enabled to obtain a pathological examination of materials from patients suspected to be suffering from venereal disease, is excellent, for the Wassermann test, and even the detection of spirochætes and gonococci, may best be done in a properly equipped pathological laboratory. But the restrictions as to the supply of "salvarsan and its substitutes" will undoubtedly be severely criticized. The Council of the British Medical Association agrees that there should be some safeguards as to the use of these drugs, and that some discretion should be given to medical officers of clinics, but to give these medical officers full power, without appeal, to discriminate as to which general practitioner shall be supplied and which shall be refused a supply is practically tantamount to giving them power to mark out certain practitioners as competent and others as incompetent to treat venereal disease. General practitioners will be apt to resent the frequent insinuations in the circular and memorandum of the Local Government Board that so many of them are incompetent not only to use kharsivan and its congeners, but even to collect material for the pathological examinations.

If the scheme is to have the hearty co-operation of general practitioners, without which it will inevitably fail, they deserve and must have a greater share in the arrangements and a fuller recognition of their ability and readiness to help in the great campaign against venereal disease.

WAR FINANCE AND TAXATION.

As the Finance Bill was read a third time and passed by the House of Commons on July 17th, it may be convenient to deal here with the most important points discussed in the recent debates.

We omit from consideration the questions argued in the House at some length in connexion with the excess profits duty, because important as all questions with regard to so heavy an impost must be, the medical profession as such is not affected by that duty.

As a whole the bill has undergone more alteration in minor matters than might have been expected, and has apparently occupied more parliamentary time than the Government had anticipated. Indeed, more than one member criticized the allotment of time for discussion of financial measures, and offered such decided opposition to the "speeding-up" of the later stages of the bill that the Chancellor of the Exchequer was constrained to urge the importance of rapid progress, on the ground that it was really very important that the borrowing powers which the bill granted to the Government should be immediately available, as the existing powers were almost exhausted and the rate of expenditure had risen to £6,000,000 a day. There is, of course, inherent in present circumstances a constant danger that topics unrelated to finance, but of the utmost national importance, may make an unforeseen call on parliamentary time, and thus dislocate the prearranged programme, but it is certainly regrettable that taxation proposals should not receive the amplest opportunity for discussion.

The chief point of recent controversy was the proposal to restrict the life assurance allowance, in order to prevent its use, or abuse, as a means of unfair evasion. That an evil had sprung up which needed immediate repression was admitted on all sides, but there was great divergence of opinion as to the means to be adopted and the extent to which the repression was to be carried. The original proposal of the Government was not acceptable to the House, but the alternative proposal subsequently introduced was finally agreed to after substantial amendment.

As the provisions finally stand they make a clean sweep of the allowance so far as super-tax is concerned, limit the operation of new policies—that is, those taken out since June 22nd, 1916—to the extent of 3s. in the £, but leave old policies untouched. Inasmuch as it is only incomes amounting to £3,000 and upwards that are liable to super-tax, policy-holders whose total incomes do not reach that amount are not affected by the proposals, except as regards any

new policies they might enter into; the "retrospective" nature of the alteration in the law, which was the chief bone of contention throughout, is restricted to the super-taxpayers who now lose the allowance altogether. The final settlement of this difficult and not unimportant question is, then, eminently reasonable; although the allowances cease for super-tax purposes they will hold good, so far as old policies are concerned, to the full extent of the income tax, so that as compared with the earlier proposals even the super-taxpayer benefits by an additional 2s. in the £ on his premiums.

A somewhat cognate matter arose in connexion with an application for special consideration to be given in those cases where any additional premium is being paid on account of war or war service abroad. It has now been provided that the existing limitations—for example, that the allowance on a policy shall not exceed 7 per cent. of the actual capital sum assured—shall not apply to such "war insurance premiums." This is a "concession" so eminently reasonable that it is not surprising that it should have been made readily and without opposition.

Another interesting point dealt with was that of affording relief, under conditions, from income tax chargeable on newly planted woodlands. Forestry seems admittedly to be a proper subject for national encouragement.

It may be convenient to mention here the points on which those who have sent in their returns already for tax purposes should make sure that they have complied with new requirements: (1) Those whose incomes do not exceed £3,000 from all sources should have made a declaration of total income. (2) This declaration should show the unearned income separately in order that the rebate on that portion of the total may be calculated, and, in accordance with the Chancellor's undertaking, allowed for from the tax due from the practitioner. (3) If the total income is between £500 and £700 the relief in respect of children, now due by reason of the raising of the income limitation to £700, should be claimed, presumably through the surveyor of taxes.

THE KITCHENER MEMORIAL FUND FOR OFFICERS.

THE appeal issued by the Lord Mayor of London on July 14th for the Lord Kitchener National Memorial Fund met with immediate response, and by noon on the following day £18,000 had been contributed; by July 19th the total had increased to £92,000, including a special gift of £50,000 from Mr. Fenwick Harrison. The desire is to raise a large fund, the income of which shall be devoted in perpetuity to providing for officers and men of the Royal Navy and Army (whether in endowed homes or in their own homes) who have been disabled and whose pecuniary circumstances preclude them from obtaining such attention and comforts as they need. A portion of the Fund will be immediately applied to equipping a home for disabled officers for whose assistance nothing of a permanent nature has yet been considered. In view of the fact that the officer of the future is likely to be, as a general rule, slenderly endowed, his welfare, especially in the evening of his life, must claim generous attention. The appeal points out that many of the admirable institutions recently founded will cease with the war, or with the conditions following the war, or with the succeeding generation, whereas the scheme of the Kitchener National Memorial Fund is both retrospective and perpetual. The scheme will thus fulfil the two conditions the promoters set before themselves—namely, that any memorial should be permanent and perpetuate Lord Kitchener's to some object known to be near his heart. Those who knew Lord Kitchener best are in agreement that no subject was more constantly in his thoughts than the welfare of the King's Forces throughout the Empire. Queen Alexandra has become President of the Fund, and the council includes representatives of the Navy, the Army, and the Red Cross. The Lord Mayor is treasurer, and subscriptions may be sent to him at the Mansion House, London, crossed Bank of England; other communications should be addressed to Sir Hedley Le Bas, honorary secretary, Oswaldestro House, 34–35, Norfolk Street, London, W.C.

RESTRICTIONS ON THE SALE OF COCAINE.

IN the very nature of the case it is extremely difficult or practically impossible to gauge at all accurately the extent to which a vicious habit such as drug taking prevails at any given time, but there is good reason to believe that the restrictions on the sale of cocaine and some other drugs which have recently been imposed by an order of the Army Council have not come too soon. It appears that the armies now in training contain a number of persons addicted to cocaine sufficiently great to require that the matter should be dealt with very seriously. There may be several reasons for this state of things; now that every one of military age is compelled to serve, many neurotic and otherwise unsound individuals are swept into the ranks who would probably not be there of their own accord. The suddenly altered conditions of life which they encounter may lead such persons to look round for some artificial stimulant, and at a time when the facilities for obtaining alcohol are greatly restricted it is not surprising if cocaine has found favour to a considerable extent. Before the new order was issued there were already many difficulties in the way of obtaining this drug; as it is in Part I of the Poisons Schedule, it could only be sold by qualified pharmacists to purchasers known personally to them, or introduced by some other person known to them, and there is no reason to suppose that pharmacists have ever omitted to comply with these conditions. The new regulations refer only to sales to members of His Majesty's Forces; they do not, therefore, touch wholesale transactions, and do nothing to interpose new difficulties in the way of drug-taking by civilians. The restrictions attending the wholesale distribution of poisons are much less severe than those connected with the retail, and it is by no means difficult for persons intending deliberately to sell poisons illegally for improper purposes to obtain wholesale supplies, and as such persons carry on their retail transactions with secrecy, it will not be an easy matter to put a stop to their distribution of the drugs. The police, however, seem ready to act with vigour. At the instance of the Commissioner of Police for London a number of men have been charged with selling, or aiding and abetting the sale of cocaine to members of His Majesty's Forces, in contravention of the regulations above mentioned. The prosecuting counsel said that the drug was sold in small pill-boxes, and taken in the form of snuff. The majority of the accused persons appear to have been foreigners. Two were sentenced to three months' hard labour, and three others to two months' hard labour. In respect of three of the men sentenced deportation certificates were issued. Two other men, regarded as principals, were sentenced to six months' imprisonment and a fine of £100, with the alternative in default of an additional three months' imprisonment. A young woman, who said she was forced to sell the boxes by one of the two men, was sent to prison for fourteen days. The police are anxious for legislation, as the present regulations apply only to the sale of the drug to members of His Majesty's Forces, and it is understood that the Home Secretary intends to introduce a bill shortly. Prevention of the abuse is the thing to be aimed at, and it may be doubted, therefore, whether

drastically amended form imposed by the Order in Council will be sufficient to prevent the evil. It may be well therefore to consider what alternative means could be taken. Previous to the commencement of the war the production of cocaine was almost entirely in German hands. The total alkaloid of coca is usually extracted in factories near the places where the drug is collected in South America; this total alkaloid contains the other alkaloids naturally present besides cocaine, and also the benzoyl-ecgonine and ecgonine which are formed by decomposition of cocaine during the process of extraction. This crude alkaloid was imported by German firms and hydrolyzed, and the chief product of this process was ecgonine; the latter was then built up again into cocaine (methyl-benzoyl-ecgonine). At present the crude alkaloid is largely imported into this country and pure cocaine prepared from it in the same way. Ecgonine does not appear to be produced artificially at all; the source of the cocaine, therefore, is an imported product, although the cocaine itself is made in this country. From the moment the crude cocaine enters the country its commercial path might be recorded, and without undue interference with legitimate business it would be possible for Government officials to know exactly in whose hands all the cocaine in the country is at any given moment. It would not appear to be a difficult matter to ensure that in its wholesale distribution it should only go into the hands of pharmacists and medical men. It might be made illegal for any other person to be in possession of cocaine unless a satisfactory explanation could be given. Such legislation, if rigorously carried out, would prevent entirely the supply of the drug to those unscrupulous persons of whom some can always be found to engage in trading on the weaknesses and vices of others for the sake of the large profits which can so be made. The regulations here suggested are scarcely, if at all, more drastic than the recommendations in regard to morphine which were put forward two or three years ago by the Committee appointed by the Government to report on the whole question of trading in opium and morphine.

THE PREVALENCE OF SYPHILIS.

Although syphilis was long ago recognized by syphilologists as a cause of many morbid conditions of the nervous system and viscera, and strongly suspected of being an etiological factor in others, it was not till the application of serum diagnosis by means of the Wassermann and other tests became more general that the prevalence and etiological importance of syphilis became appreciated by the medical profession as a whole. Further evidence on these points is afforded by a recent research by Walker and Haller[1] of Boston, who have investigated the prevalence of syphilis among the ordinary cases presenting themselves at a general hospital by means of a routine examination by the Wassermann test. The technique employed was that of the original method, except that a 0.4 per cent. cholesterinized alcoholic extract of human heart was used as antigen. The number of patients examined was 4,000. A positive reaction was obtained in 487 cases with clinical syphilis, and in 113 others—namely, 54 with aortic disease, 10 with epilepsy, 10 with hepatic and 10 with renal disease, 9 with pneumonia, 7 with diabetes, and 13 with other miscellaneous disorders. In aortic disease, aortitis with aortic insufficiency came first and aneurysm next in order of frequency. Uncomplicated cases of arteriosclerosis only gave a positive reaction in two instances. Of special interest are the cases of epilepsy, in which the reaction was positive in 10 out of 71, or 14 per cent. These cases were relieved by salvarsan or mercury. Of 52 cases of cirrhosis of the liver 6 gave a positive reaction. One case of acute catarrhal jaundice gave a temporary and incomplete positive reaction, which became negative when the jaundice subsided. This is explained by the large cholesterin content of the bile. In 213 cases of chronic nephritis a positive reaction was given by 10 only, or 4.7 per cent. This does not support the theory that syphilis is a frequent cause of chronic nephritis. In the cases of pneumonia which gave a positive reaction there was evidence of previous syphilitic infection. Out of 89 cases of diabetes mellitus 7 gave a positive reaction, or 8 per cent., and in most of these there was a history of syphilis. Among the miscellaneous cases were three of special interest. Two of these showed symptoms of gastric ulcer; one was operated upon without any definite ulcer being found; the other cleared up under antisyphilitic treatment. The third case was one of colitis, and also cleared up with the same treatment. The authors found that the common infective diseases, such as enteric fever, scarlet fever, pneumonia, and tuberculosis, had no influence in causing a false positive reaction. As the result of their investigations they conclude that among patients applying for treatment at a general hospital cases of unsuspected syphilis are much more numerous than those frankly syphilitic.

[1] Journ. Amer. Assoc., February, 1916, p. 488.

GALYL IN SYPHILIS.

In the new number of the *Journal of the Royal Naval Medical Service* Staff Surgeon S. F. Dudley, M.B., R.N., gives his experience in the use of galyl, which has replaced neo-salvarsan as a routine treatment of syphilis at the Royal Naval Hospital, Chatham, since November, 1915. About 1,500 intravenous injections of the drug have been given, and the earlier experience with neo-salvarsan was also large. The routine followed was to give an intravenous injection of one or other of these arsenical preparations as soon as the diagnosis was made, and to repeat it twice at monthly intervals, with three injections of mercury (1 grain) after each intravenous injection. The patient attended at the hospital for the injections, and was seen by the surgeon at the start of treatment; one month later, when he had had one dose of galyl or neo-salvarsan, and three doses of mercury; and two months after the start of the treatment, when he had had two injections of an arsenical compound, and six doses of mercury. Part of the routine is to test the Wassermann reaction on each of these three admissions to hospital, but this section of the inquiry is not completed, as only about a third of the cases treated by galyl had been under observation long enough to be subjected to a third dose; so far as the results went, they were in favour of neo-salvarsan, which also caused a more rapid disappearance of the treponema in the lesions, though the number of cases observed was probably not large enough to settle the point. Salvarsan, which is now manufactured in this country under the name kharsivan by licence of the Board of Trade, is di-oxy-diamidoarsenobenzene bi-hydrochloride, and contains about 34 per cent. of arsenic. Neo-salvarsan, manufactured under the name of neo-kharsivan in this country, is sodium di-oxy-diamidoarsenobenzene-mono-methane-sulphonate, and contains 31.2 per cent. of arsenic. Galyl, a still more complicated compound, is tetroxy-diphosphamino-diarsenobenzene, and contains 35.3 per cent. of arsenic. As the dose of galyl used was 0.4 gram there was just half as much arsenic in it as in the dose used of neo-kharsivan, 0.9 gram. The conclusions drawn by Staff Surgeon Dudley are: (1) Less reaction is to be expected after galyl than neo-salvarsan; (2) the majority of reactions after intravenous injections of either drug are due to the liberation of the spirochaetal endotoxins; (3) galyl has slightly less effect on the Wassermann reaction than neo-salvarsan; (4) the treponemacidal action is a little slower; (5) a dose of galyl, 0.4 gram, is not quite equal to a dose of neo-salvarsan, 0.9 gram, in the cure of syphilis. It is suggested that the interval between the injections of galyl should not be so long as between those of neo-salvarsan. The long interval is designed to allow plenty of time

for the patient to get rid of the arsenic as a safeguard against cumulative poisoning following a second or third dose, but the dose of galyl contains only half as much arsenic as the dose of neo-salvarsan, and to get a therapeutic effect equal to that produced by the latter drug the injections of galyl should probably be repeated within a fortnight of each other. If three doses of galyl were given at intervals of ten days, it is possible that as good a curative effect would be obtained with it as with neo-salvarsan under the existing routine, and this plan would have the additional advantage of only keeping men three weeks waiting at the dépôts or elsewhere to complete their galyl course instead of nine weeks, as at present. The general effect of the study given to the subject is that galyl is a very safe, useful alternative to neo salvarsan or salvarsan, but that, owing to its small arsenic content, it should be used more frequently than the older drugs to get its full curative effect.

THE CONTROL OF YAWS.

THE control of yaws is a very important matter for many of the West Indian islands where the disease abounds. In the issue of the JOURNAL for July 15th a very interesting discussion on this subject at the first meeting of the Grenada Branch of the British Medical Association was reported. The President, the Hon. E. F. Hatton, Colonial Surgeon, in introducing the subject, stated that isolation for the disease had now been tried for forty years without any beneficial results. It is open, of course, to doubt whether the degree of isolation possible in the circumstances has been really strict isolation in the proper sense of the term; but nevertheless, just as in the case of syphilis, a proper and effective treatment of each individual infective case may ultimately prove to be the best method for limiting the disease. Yaws is due to a spirochaete, the *Treponema pertenue* Castellani, very like the parasite of syphilis. It is not a venereal disease like the former, the parasite gaining its entry by cuts, abrasions, or other breaches of continuity of the epithelium. The close personal contact in which natives in the West Indies and other parts of the tropics live renders infection in this way very easy. The analogy to syphilis is seen again in the fact that salvarsan is a specific for both diseases. In the old days patients used to have to stay four months or more in hospital until cured of the disease, but now definite disappearance of all lesions may be brought about by one or two injections, the cure even of deep tertiary ulcers often being completed in as short a time as three weeks. In many instances a single injection is apparently sufficient to sterilize the patient, and if after that a relapse takes place then a second injection is required. As soon as all superficial lesions have disappeared there would seem to be little chance of the patient being able to transmit the disease to others, so that the importance of this method of treatment is self-evident. There seems to have been some difficulty in getting salvarsan since the war began, but as there are now English and French equivalents this difficulty should disappear. Kharsivan, or neo-kharsivan (English), galyl (French) will act equally well, and there is therefore no sufficient reason for abandoning the treatment, even temporarily, in the West Indies. Once the people can be made to realize that this treatment is efficacious they will readily go to the dispensaries for it, and there is little doubt that the main feature in any campaign for stamping out, or at least in greatly mitigating, this scourge in Grenada and the other West Indian islands is to attack the foci of infection.

THE DOCTOR AS PATIENT.

DOCTORS have the reputation of being bad patients. Some hinder the healing work of Nature by nervous watching of their symptoms, which their condition makes them incapable of interpreting correctly; some attempt to interfere with the treatment; others, again, are refractory, and allow themselves an independence which they would not tolerate in a patient. Desgenettes, physician in-chief to the French armies in the East under Napoleon, was an example of the last class. He fell ill of typhus, and Masséna, who was very fond of him, had him transferred to head quarters. The general in turn fell ill, and Desgenettes directed the treatment from his sick-bed, insisting on blind obedience from his chief while he delayed his own recovery by all sorts of indiscretions. Masséna, losing patience, placed a guard about him to see that the treatment was strictly carried out. When convalescent, the insubordinate physician was sent to Nice under the escort of a brigadier of gendarmerie, who had orders to keep him in the strait path of medical discipline. It is deplorable to have to relate that on the journey Desgenettes attempted to corrupt his escort by asking him to share a present of partridges and old wine received from a too-generous Italian confrère. The gendarme indignantly refused, reproaching Desgenettes for his gluttony, and declaring that it was a disgrace for a physician-in-chief to do a thing for which a simple soldier would be severely punished. We are sure that Desgenettes, who was a man of generous nature, took the reproof in good part, and recommended his faithful escort for promotion. But as he was also a strong-minded and self-willed man we confess that we are doubtful whether he mended the error of his ways in the matter of régime.

BONE GRAFTING.

A DEMONSTRATION on bone-graft surgery was given by Dr. Albee, of New York, at a meeting of the Surgical Section of the Royal Society of Medicine on July 12th, Sir Frederic Eve being in the chair. A series of lantern slides were first shown, illustrating the growth of bone grafts in the various conditions in which they may be usefully employed, such as Pott's disease, ununited fractures, and fracture of the neck of the femur. *X*-ray plates were shown on the epidiascope, illustrating how rapidly these grafts become incorporated, and gradually increase in size and strength until they ultimately take on not only the function but even the structure of the bone they are intended to replace. The technique of the operation was next described and the importance of obtaining all the elements of the bony structure in the graft emphasized—that is, periosteum, bone substance, endosteum, and marrow. The second part of the demonstration consisted of the exhibition of cinematograph films showing the actual operations performed by Dr. Albee. Dr. Albee explained that in America of late years a series of films had been taken showing the various operations of surgery as performed by experts, and that these films were lent out on hire to the various medical societies throughout the country. These pictures are taken with the lens of the camera at short range, and include only the operation field, without showing unnecessary details. By special lighting arrangements the obscuring effect of the blood is minimized, and everything from the first incision to the application of the final dressing could be followed with the greatest ease. The impression gained was that there was a great future for the cinematograph in the teaching of operative surgery and technique in all its branches. A short description of one of Dr. Albee's operations may prove of interest. A film was shown illustrating the treatment of a case of ununited fracture of the tibia. Prior to bone grafting the case had been treated by the application of a metal plate without success; sinuses had formed, and a definite sequestrum could be demonstrated by *x* ray. This condition was treated in two stages: the metal plate and sequestrum were first removed and the wound plugged; after an interval, when the wound had firmly healed, without, however, any union in the tibia taking place, the seat of fracture was exposed by turning out a flap and the fibrous tissue removed between the fragments of the bone. The next step in the operation consisted in the removal of a strip of bone some $\frac{1}{4}$ in. in breadth and about 5 in. long from the two fragments; that is to say, a

gutter was cut in each, extending upwards and downwards on either side of the seat of fracture for the distance of about 2½ in. This was done with his electrically driven double saw illustrated by Lieutenant-Colonel Robert Jones in his paper published on July 1st (p. 3); it consists of two circular saws set on a central axis, so that a long strip of bone of the same width throughout its length is removed. A stream of saline is allowed to flow on the saws to prevent over-heating. In this way a bed was formed for what is known as an inlay graft. The graft was next cut with the same saws from the other tibia, so that a strip of bone was procured consisting of the four elements of the bone, and accurately fitting the bed already prepared for it. This graft was fixed in position by strong kangaroo tendon sutures, which are passed through holes drilled by the motor on either side of the gutter. The tendons are threaded through from one side of the gutter to the other, and are then pulled up from the gutter in the form of loops, under which the inlay graft is forced into place, and the tendons are then tied over it. It seems probable that the value of bone grafting in the treatment of ununited fractures will be more and more appreciated, especially for dealing with those fractures in which there has been great destruction of bony tissue, leaving an inch or more separation between the fragments. Dr. Albee mentioned cases in which a successful result had been obtained even though the graft spanned an area where active tuberculous disease was present, the essential being that the graft should have a good contact with healthy bone at either extremity. Dr. Albee's electrical apparatus is of great ingenuity, the outstanding feature being that the tools are driven from a motor in a sterilizable casing in the operator's hand. This lends itself to accuracy, and greatly adds to power.

WE greatly regret to have to record the death, at Amara, on the Tigris, of Sir Victor Horsley in his 59th year. He became a member of the staff of the 3rd London General Hospital with the rank of captain in 1910, but in May, 1915, was placed in charge of the surgical division of No. 21 General Hospital, with the temporary rank of major. The hospital embarked for Egypt on May 14th, 1915. In July, 1915, he was appointed a surgical consultant with the temporary rank of colonel, A.M.S., and proceeded to Mesopotamia from Egypt in March, 1916. We hope to publish a biographical notice in our next issue.

THE Commander-in-Chief's Special Order of the Day, quoted in the JOURNAL last week, expressing his high appreciation of the efficiency of the arrangements for dealing with the medical aspects of the battle of the Somme, has been read with great satisfaction by the medical profession, but we made an error in describing the manner in which it was issued. The Order was addressed personally to the Director-General, Sir Arthur Sloggett, and by him repeated to the Deputy Directors of Medical Services for transmission to all medical units. The Order was issued on the fourth day of the action; the medical organization has continued to respond splendidly to the prolonged tests to which it has since been subjected. The way in which all ranks are working is beyond praise.

THE treasurer of the Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, W., gratefully acknowledges the receipt of four large donations to the Emergency Fund in response to the appeal:

	£
Dr. A. Whitfield	100
[illegible]	100
[illegible]	100
[illegible]	100

At the meeting in the month of May the committee had a balance of only £27 0s. 1d., in June a deficit of £16 3s. 5d., and in July a balance of £74 13s. Grants in relief were made in May of £197, in June of £195, and in July of £230 15s. 6d. 15s. In all—the amount expended thus exceeding the receipts by no less than £452 5s. 4d. The need of liberal and immediate relief is obvious.

Medical Notes in Parliament.

Board of Education.

THE vote for the Board of Education was moved by Mr. A. Henderson on July 18th. The estimated expenditure, he said, had risen from £14,320,859 in 1911–12 to £15,186,732 in 1916–17. The chief economy effected had been through the exclusion from elementary schools of children under 5 years, which he seemed to regard as a somewhat doubtful advantage, pointing out that though a good home was the best place for children under 5, yet when the mother could not attend to them—and the number of women in employment had greatly increased—it was better that they should be at school. It was estimated that there would be a decline in the attendance for 1916–17 to something less than 1 per cent., due, among other things, to the declining birth-rate, but also the extension of the employment of children at an earlier age. This extension had taken place chiefly in agriculture. The concessions giving extension had been abused by certain local education authorities, and the Board was determined to do all in its power to prevent any further abuse. Since the trade boom which followed soon after the outbreak of war, the number of free meals to children had been reduced; but many authorities in poor areas had availed themselves of the permission to provide meals for school children during the holidays, with marked benefit to them. The estimates provided £100,000 for this purpose, and £22,000 for schools for mothers. The estimate for medical inspection remained unchanged at £200,000. Medical inspection included the treatment particularly of teeth, eyes, throat, and skin; 350 school clinics were in existence, and 75 authorities had made arrangements with hospitals, and contributed accordingly. In recent years the arrangements had become increasingly efficient. Down to March, 1915, the school medical service had remained practically unimpaired, but by March, 1916, no fewer than 300 out of the 850 school medical officers had joined the forces. So far the Board had succeeded in maintaining the minimum of treatment hitherto given and the careful inspection of children who appeared to be ailing. Any further release of medical officers would in some areas involve the total abandonment of the school medical service, and this could only be regarded as deplorable. Speaking on the general subject of the reorganization of national education, he recalled the fact that before the war the then Government were taking the first steps to effect such a general reorganization. The war had brought home to everybody the knowledge that national prosperity and security demanded greater concentration of trained intelligence on problems of industry, of commerce, and of public administration. The Government was instituting a general inquiry, and, as part of it, committees had been appointed to investigate three branches of the subject: The first was as to the education of young persons after the war, with special regard to those who had been abnormally employed, those who could not find employment, and those who required further training. Extension and reorganization was required to secure closer co-operation and continuity between the elementary schools and the colleges through technical, continuation, and secondary schools. It was to a large extent an economic problem, which could not be solved on educational lines, but an endeavour should be made to secure that when the child was capable and the parent willing means should be found for continuing the child's education. Two other committees appointed were to inquire respectively into the position of science and modern language teaching; the teaching of science must in the future become a greater feature of the educational system—not specialization upon any single branch, but a more scientific temper in all branches of education, in history as well as in chemistry. Larger facilities were needed for scientific teaching and research, and the claims of physical education should be recognized to a position, not of exclusive privilege, but equality in the curriculum of schools, and as a qualification for the public service.

Sir Philip Magnus, who followed, expressed regret that some of the evening technical schools had been closed, believing that they conferred a great advantage on the rising generation. He hoped that science masters would in future be regarded as being in an equal position with classical masters, with the same opportunities of advance-

ment and adequate salaries. Turning, then, to the committees of inquiry proposed, he said that the Board did not seem to understand what the public wished. It was not a series of committees appointed by the Board, but an independent tribunal before which the officials of the Board should appear as witnesses rather than judges. It was not desirable that the Board of Education should get too firm a grip on educational activities. One of the objects of an independent inquiry should be to put the relations of the Board with the local authorities on a more satisfactory footing. The time had come for the reconsideration of the organization of the Board of Education itself. Sir James Yoxall deprecated the introduction of German methods into this country. Mr. Ramsay Macdonald suggested the appointment of a Royal Commission to inquire into university education as a first step. Sir H. Craik questioned the value of commissions, and said that the first principle should be simplicity in the curriculum, and the second to leave initiative to the school.

Duty on Alcohol for Hospitals.—In reply to Sir P. Magnus, the Chancellor of the Exchequer said on July 17th that the Committee appointed to consider the question of relieving hospitals from the payment of duty on alcohol used for the purposes of the hospital had made a report which was now receiving consideration; it was hoped to come to a decision on its recommendations immediately.

Mental Deficiency Act.—In a written reply to Mr. Astor, Mr. Samuel stated, on July 11th, that the total number of local authorities under the Mental Deficiency Act, 1913, was 125, and 87 had submitted schemes. Other local authorities had been urged to carry out the important, but comparatively inexpensive, duties of ascertaining the number of defectives for whom they are responsible, and of providing supervision and guardianship where required. The restriction of capital issues during the war prevented local authorities from purchasing land or buildings, but the Board of Control had suggested that provision for urgent cases should be made by (*a*) leasing and adapting existing buildings, where this can be done at little cost; or (*b*) entering into contracts with the managers of existing institutions; or (*c*) applying for the approval under Section 37 of the Act of suitable portions of Poor Law premises. The local authorities for Middlesex, Lancashire and Mid-Yorks had provided accommodation for 322 persons, and proposals from Bradford, Leicester, London, and Sheffield, which would provide accommodation for 252 persons, had been approved, or would probably be approved. The number of institutions and homes provided by religious and philanthropic associations and by individuals was 54, giving accommodation for 3,808. In addition, nine hospitals and institutions formerly registered under the Idiots Act had been certified under the Mental Deficiency Act, and provided accommodation for 2,526 defectives. Twenty-six Poor Law institutions (not certified institutions) appointed under Section 37 provided for 1,283 cases. Sixty-six local authorities were sending persons to institutions mentioned above, the number down to June 30th being 1,361. In addition 75 had been placed under guardianship.

War.

Mesopotamia.—The most important passage in Mr. Asquith's statement in the House of Commons on July 18th with reference to Mesopotamia was that in which he said that transport seemed to be the weak point and the pivot of all the various troubles which had arisen. He excused the breakdown on the ground that the expedition first sent consisted of two divisions only. It was at first brilliantly successful, but in consequence of the reverses subsequently encountered, and in particular the beleaguerment of General Townshend at Kut, the expedition was increased to seven divisions, and the urgency of relieving General Townshend was such that it was thought right to push the troops on ahead apart from their transport. Two inquiries into transport had been made, one by Sir G. Buchanan, an expert in river navigation, who was sent to Mesopotamia early in the year by the Government of India, and the other by General Gilmour, sent out by the War Office in March to examine not only the question of the river, but of the railway transport, and of the facilities for it and the means of accelerating its completion. Though the Government was not satisfied, it was quite convinced, in consequence of these careful examinations from these different points of view on the spot, that the imperfections of transport were being largely remedied and would soon, so far as local circumstances permitted, completely disappear. With regard to the provision for sick and wounded soldiers, Sir John Nixon, the general then in command, had at the end of last November, after the action of Ctesiphon, in a report made to the Secretary of State for India from Basra, stated that in his opinion the medical arrangements had been quite satisfactory. In the next two months statements of an unofficial character were received from various sources, which seemed to point to a very different state of things, and in February the Government of India appointed a commission consisting of Sir William Vincent, General Bingley, and Mr. Ridsdale. This commission made an exhaustive examination on the spot during March and April; its report on the condition of things both at the base and at the front had now been received by the Government of India, but before transmitting it home that Government had asked the Commander-in-Chief in India, Sir Beauchamp Duff, to submit his observations. In reply to a direct inquiry by the Viceroy to the Commissioners as to whether any immediate action was called for in the conditions existing when they departed from Mesopotamia, they had stated that everything possible was being done. Surgeon-General O'Donnell, who was sent from France to India early in April, had made a report which showed that in some respects at that time there was still a shortage of necessaries. Every indication which he gave of a deficiency had peremptorily been required to be made good. It is unnecessary to report the numerous questions put after Mr. Asquith had sat down, because the matter both of Mesopotamia and of Gallipoli is to be discussed on Thursday, after this issue of the JOURNAL has gone to press, but we would direct medical attention in particular to the remarks Mr. Asquith made with reference to transport. Under the system by which the army is administered the Army Medical Service does not supply its own transport; it is, in fact, responsible only for personnel (surgeons, orderlies, and nurses) and for the supply of drugs. It must get its transport, trains, and ambulances on the lines of communication, and hospital ships and barges from other army departments, and its responsibility only begins after the transport has been provided.

Wounded from the Battle of Jutland.—On July 18th Sir A. Williamson asked a question with regard to the disposal of wounded after the battle of Jutland, which seemed to suggest that the wounded landed at a naval base in the North were sent by rail to Haslar and Chatham; that a number died on the long railway journey; and that there were, on the day in question, at least fifty beds vacant and held at the disposal of the military authorities within a short distance of the same naval base. He asked whether arrangements could not be made with the War Office to obtain temporary use of its unoccupied beds at the nearest suitable hospitals should such an emergency recur. The Parliamentary Secretary to the Admiralty replied that the condition of all the wounded landed after the battle of Jutland was carefully examined and only those sent away by rail whose condition justified that procedure. It was not the fact that any of them died, nor was it believed that any of them suffered injury. The arrangements made by the Admiralty would have enabled it, had it thought desirable, to have accommodated a larger number of patients in the neighbourhood of the landing places than were actually wounded. There was therefore no emergency such as seemed to be suggested. The policy adopted was that deliberately framed by the Medical Department of the Admiralty, partly in the interests of sound medical administration, partly for the convenience of men who preferred to be near their dépôts and their homes. He had not the slightest doubt that complete harmony reigned between the Admiralty and the War Office in this matter, and so far as these men were concerned there might be complete confidence in the Medical Director-General R.N. and his staff. Sir A. Williamson, in a supplementary question, suggested that an official at the Admiralty went to a hospital and asked whether the beds were reserved for the army, and when answered in the affirmative went away. The Parliamentary Secretary said that he would look into the matter, but it did not affect this particular case. Every possible care was taken, and there was no reason to complain in any way.

Transport Arrangements in India.—Major Astor, on July 17th, asked whether official reports had been received concerning the breakdown of the arrangements made in India for the moving of troops and drafts arriving from England. Mr. Chamberlain said that he had asked for a full report of the lamentable incident attending the recent movement of troops from Karachi. Meanwhile, he had taken steps to ensure that

troops should not be moved by rail from Karachi to Northern India under such conditions while the hot weather prevailed.

Medical Recruiting Boards.—In answer to Mr. Edmund Harvey, who inquired on July 17th whether attention had been called to the action of certain army medical boards in passing over medical evidence submitted by civilian medical men, the Financial Secretary to the Treasury said that the responsibility for the decisions taken by the recruiting medical boards rested with those boards, but they had been instructed to give due consideration to the medical evidence submitted by civilian medical practitioners regarding men who had been called up for service. He did not think that there had been any general failure to do this, but in view of statements which had been made attention had again been called to the point.

Taxation of Wound Pensions.—In reply to Mr. Malcolm, on July 17th, the Parliamentary Secretary to the Admiralty said that naval officers are taxed in respect of their pensions for wounds. He intended to discuss the matter further with the War Office and the Treasury.

Captains R.A.M.C.—In reply to Mr. Joynson-Hicks, on July 13th, the Financial Secretary to the War Office said that there were 254 regular captains R.A.M.C. who had held that rank since the war began. It was not proposed to make any permanent promotions in the near future.

THE WAR.

THE WOUNDED FROM THE SOMME.

Almost every day since July 3rd crowds have collected in the Strand, outside Charing Cross station, to see and cheer the removal of the wounded in the motor ambulances. How the crowds get to know that an ambulance train has come in to Charing Cross is not obvious, but of course a biggish crowd quickly collects in that part of London. A few days after each push a freshet in the stream may be expected. The number of arrivals, however, in the last week do not suggest that unless the forward movement is made to extend over a very much larger bit of the line than at present, the rapidity of the stream will be as great as at its first commencement within a day or two of the opening of the attack on July 1st.

Some of these early cases appear to have come on straight through from the casualty clearing stations, the ambulance trains on which they were placed at the casualty clearing stations having taken them straight down to ports where hospital ships were waiting. These hospital ships leave nothing to be desired in the way of appointments, and the staffs engaged on them are so competent in their duties that the severest cases travel with ease. The ships are fitted up for the performance of operations if required, but as the passages across are usually very short, and wounds are dressed just before patients leave the hospitals, nothing in the way of operative interference is usually necessary. Of course there is always the chance of some wounds starting to bleed afresh, and there are sometimes cases which are being treated by irrigation or fomentation.

There is therefore plenty of work for the doctors as well as for the nurses of a strictly professional kind, apart from that involved in recording the names of the patients and seeing that they are properly labelled according to the nature of their injuries and the hospitals to which they are consequently to go; as also in overhauling in advance all the machinery by which the patients are swiftly passed from ship to shore, and by which those who are thereafter responsible for them are duly posted in the nature of the cases.

The ambulance trains in France seem now very numerous, and to be mostly of the same type as those with which we are familiar in England. The number of coaches composing each train is, we believe, usually larger, and the rate of movement slower. From twelve to fifteen miles an hour seems to be about the average speed of a hospital train in France, and it is well that it should be no faster, since the permanent ways in France are less smooth, as a rule, than those of Great Britain. Another difference is that, whereas in Great Britain the movement and distribution of the trains are controlled from one of the ports, they are controlled in France by a special branch of the staff of the Director-General, Sir Arthur Sloggett. He has caused ship-loads to be brought almost to the doors of every casualty clearing station, when the loaded trains leave they go to a certain station, where they are turned in one direction or another as the progress of events demands, and the hospitals in the area for which they are bound are warned in advance as to the hours at which they may be expected. The whole thing seems exceedingly well managed.

The later batches of wounded include a certain number of patients who have reached the coast or port of departure in ambulance barges, of which a considerable number have been at work in the northern half of the British zone of operations for over a year; it appears that one of the preparations made by Sir Arthur Sloggett in anticipation of present events was to bring down a certain number of barges to work on the canals in touch with the southern armies. These barges are primarily intended for the reception and transport of abdominal and chest cases, and are very comfortable, but travel, of course, at a slow rate. It would appear from what late arrivals say, and the newspaper correspondents agree, that some of the more conspicuous successes of the past eighteen days, and notably the first bite at the enemy's third line, have been won at relatively small cost in killed and wounded. It appears also that the proportion of light cases continues to be large. By light cases in this connexion is meant a wound caused by a rifle or machine gun, or which for some other reason is not likely to endanger the patient's life seriously or incapacitate him for a very long period. All the hospitals, especially those in the provinces and at a distance from landing ports, report the proportion of such cases to be high.

But of course there are also many grave cases; bombing and artillery work seems to have figured more largely recently than in the opening days of the battle, and wounds thus caused always tend to be more serious on the whole than those caused by rifle and machine gun fire. Further, it must often happen when actions continue to go on day after day and fights in underground places are of very common occurrence, that men are not brought to the field ambulances and dressing stations until the lapse of a considerable number of hours, and in these the occurrence of gas gangrene, or occasionally of tetanus, may be expected.

The swift arrival of so many wounded in England is not to be taken to mean that the hospitals in France are overcrowded. The occurrence of such overcrowding is, of course, a possibility in these days, when such large numbers of men are engaged on either side, and when, owing to the introduction of barrage fire, high explosives, and other modern developments, a stupendous number of casualties might occur within a very few hours, and the difficulty of dealing with them be increased by large numbers of enemy wounded falling into our hands.

But the number of beds provided in France is reported to be large and the system of evacuation acts swiftly and smoothly. This swiftness is a great advantage from a military point of view, since it lessens the number of mouths that have to be filled in France, as also the store of drugs and dressings and surgical appliances that have constantly to be brought over and distributed by the railways. But it is also a very great advantage from a medical point of view, there being no doubt that if circumstances render it impossible that an injured person should remain to the completion of his treatment at the place where he is injured, the sooner he is got to a hospital where he can remain as long as necessary the greater are his chances of eventual recovery.

Swift evacuation is therefore a matter on which Sir Arthur Sloggett is on all accounts to be congratulated, as also are all those who have formed and operated the component parts of the machinery by which it is brought about. The strain upon them at times must be very great.

It is up, therefore, to the medical profession in Great Britain to assist individually and collectively in organizing the civilian medical work in such fashion as to set free more and more men for purely military medical needs. As was stated by Colonel Lee in the House of Commons last March, it was not even then true that more medical men were being employed in France than were required; he, in fact, said that places could be found for many more, and in any case constant reliefs to supply wastage were necessary. The published lists alone suffice to reveal that the wounded on the battlefield cannot receive swift attention without the occurrence of casualties amongst medical officers.

These losses occur despite the fact that medical officers of front line formations are ordered not to expose themselves unnecessarily.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN THOMAS ERROL GUTHRIE, R.A.M.C., was killed in action on July 4th. He was a New Zealander, the only son of Dr. Thomas Orr Guthrie, M.D., of Fielding, New Zealand, and was educated at Edinburgh University, where he graduated as M.B. and Ch.B. in 1909, joining the Special Reserve of the R.A.M.C. as a lieutenant on December 17th, 1909. Prior to the war he was in practice at Fielding, where he was honorary surgeon to Palmerston North Hospital.

Captain E. W. Lawrence, killed on July 10th, aged 28, was the eldest son of Mr. A. J. Lawrence of Pontycymmer. He was educated at Cardiff and Edinburgh, taking the degrees of M.B., Ch.B.Edin. in 1910. Prior to the war he was in practice at Bridgend, where he held, in addition to other public appointments, that of deputy medical officer of health for the Bridgend urban district. He was medical officer to one of the service battalions of the Welsh Fusiliers.

Captain George Oliver Maw, R.A.M.C., died on July 10th of wounds received the previous day. He was the son of Dr. Maw, of Shortlands, Kent, and was educated at Clifton College, at Pembroke College, Cambridge, where he graduated as B.A. in 1909, with first-class honours in Natural Science, and at Bart's. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912, and subsequently filled the post of house-physician of Bedford County Hospital. He took a temporary commission as lieutenant in the R.A.M.C. on January 12th, 1915, and was promoted to captain on completion of a year's service.

Captain John Cecil Rix, R.A.M.C., was killed in action on July 5th, aged 40. He was the son of the late Dr. W. H. Rix, of Tunbridge Wells, was educated at Cambridge, where he graduated as B.A. in 1898, and after taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902 succeeded to his father's practice at Tonbridge. There he was honorary surgeon to the Hawkenbury convalescent home for children. In 1911–12 he acted as medical officer of health, school medical officer, and police surgeon, until a whole-time medical officer of health was appointed, and in May, 1914, was appointed assistant M.O.H. He took a temporary commission as lieutenant in the R.A.M.C. on April 1st, 1915, becoming captain after a year's service, went to the front last September, and was attached to the Yorkshire Regiment.

Captain David Wallace Smith, R.A.M.C., was reported as killed in action, in the casualty list published on July 15th. He was educated at Glasgow University, where he graduated as M.B. and C.M. in 1901, and was in practice at Brixton. He was lecturer in hygiene to the London County Council, and a member of the Society for the Study of Inebriety. He joined the R.A.M.C. as a temporary lieutenant in the first fortnight of the war, on August 15th, 1914, was promoted to captain on completion of a year's service, and was attached to the Manchester Regiment.

Lieutenant Charles Patrick Kelly, R.A.M.C., was also reported as killed in action, in the casualty list of July 15th. He was educated at Trinity College, Dublin, where he graduated as B.A., M.B., B.Ch., and B.A.O. in 1914, and was senior house-surgeon of Southport Infirmary till he recently took a temporary commission in the R.A.M.C.

Lieutenant Walter Ronald Wilson, R.A.M.C. (temporary).

Died on Service.

Lieutenant-Colonel P. C. Gabbett, I.M.S.

Lieutenant-Colonel Charles Monk, Bombay Medical Service (retired), died after an operation on July 11th in the 2nd London General Hospital, aged 62. He was born on May 11th, 1854, educated at the Ledwich School of Medicine, Dublin, and took the diplomas of L.R.C.S.I. in 1874, L.K.Q.C.P.I. in 1876. Entering the I.M.S. as surgeon on March 30th, 1878, he became surgeon-major on March 30th, 1890, surgeon-lieutenant-colonel on March 30th, 1898, was placed on the selected list for promotion on March 31st, 1903, and retired on November 25th, 1908. He served in the Russo-Turkish war of 1877 and in the second Afghan war in 1880, and received the medal. On March 6th, 1914, he was appointed to the command of the 2nd London Casualty Clearing Station, and served with that unit in France.

Captain Edward Augustine Bell, R.A.M.C.(T.F.), was accidentally drowned, on service abroad, on July 11th. He was the son of the late William Bell, M.R.C.S. and J.P., of New Brighton, Cheshire, and was educated at King's College, London, where he held both the junior and senior medical scholarships; and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902, also taking the M.B.Lond. in 1902 and the B.S. in 1903. After filling the posts of prosector to the Royal College of Surgeons and house-surgeon to the Royal Free Hospital, he went into practice at New Brighton, where he was honorary surgeon to the Wallasey Cottage Hospital, the New Brighton Convalescent Home for Women and Children, and the Wallasey Ladies' Charity; also surgeon to the home for aged mariners at Egremont, and Admiralty surgeon and agent. He joined the 5th Highland Field Ambulance as lieutenant and transport officer on September 24th, 1914.

Captain Alexander Seabrooke, R.A.M.C., died on service on July 1st, aged 31. He was the son of Mr. J. Seabrooke, of the Elms, Grays, Essex, and was educated at Cambridge and at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912, the M.B. and B.C. at Cambridge in 1913, after which he filled the posts successively of assistant house-surgeon, clinical assistant, and house-surgeon at Guy's Hospital. He took a temporary commission as lieutenant in the R.A.M.C. on March 8th, 1915, and was promoted to captain on completion of a year's service.

Wounded.

Lieutenant-Colonel C. H. Howkins, R.A.M.C.(T.F.).
Captain F. M. Barnes, R.A.M.C. (S.R.).
Captain R. Dearsley, New Zealand A.M.C.
Captain J. M. Elliott, R.A.M.C.
Captain G. D. Fairley, R.A.M.C. (temporary).
Captain A. C. Haddow, R.A.M.C.(T.F.).
Captain G. Stanton, R.A.M.C.(S.R.).
Lieutenant M. C. Bridgman, R.A.M.C. (temporary).
Lieutenant J. R. Hall, R.A.M.C. (temporary).
Lieutenant L. M. Ingle, R.A.M.C. (temporary).

Prisoners of War.

Captain F. S. Park, Canadian Army Medical Corps, who was reported as missing in the beginning of June, has now been stated to be a prisoner of war.

A further list of prisoners taken at the surrender of Kut, last April, published on July 18th, includes the names of Captain P. B. Bharucha, I.M.S., Captain E. G. S. Cane, R.A.M.C., Captain W. L. E. Tretz, R.A.M.C., and Lieutenant P. E. O'Donoghue, I.S.M.D. Captain Cane's name was included in the first list published, but those of the other three were not.

Missing.

Captain V. D. O. Logan, R.A.M.C. (temporary).
Captain J. W. N. Roberts, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Beard, Frederic Gerald Vesey, Lieutenant Worcestershire Regiment, eldest son of Dr. Beard, of Croydon, killed on July 4th, aged 26. He was educated at Epsom College and at Trinity College, Dublin, joined the Public Schools Battalion in August, 1914, and got his commission as second lieutenant in the Worcesters on November 23rd, 1914. In July, 1915, he went to Gallipoli and served there until the withdrawal, taking part in the evacuation of both Suvla Bay and Cape Helles. He went to France last March.

Beckett, Victor Louis Sydney, Major the Yorkshire Regiment, who died in France on July 14th of wounds received in action on July 5th, was the youngest son of the late Dr. F. M. Beckett, of S. Audrey's, Ely, Cambs. He was educated at the King's School, Ely, and Christ's College, Cambridge. He passed into the army as a university candidate, and was given a commission in the Army Service Corps in 1902, which he resigned in 1905. He was for two years in Canada, and in 1909 he joined the Middlesex and Royal Dental Hospitals, and obtained the diploma of L.D.S. in 1913. At the outbreak of war he threw up a good appointment, applied for and received a commission as first lieutenant in the Yorkshire Regiment. Two months later he obtained his captaincy, and went to the front about a year ago with his regiment.

Bernard, Herbert Clifford, Colonel Royal Irish Rifles, son of the late Robert Bernard, M.D., Deputy Inspector-General R.N., killed in action on July 1st. He was born on July 15th, 1865, educated at Llandovery School and at Derby Grammar School, and entered Sandhurst as a Queen's cadet. He got a commission as second lieutenant in the Hampshire Regiment on August 25th, 1884, joined the Indian army on September 20th, 1886, became lieutenant-colonel on April 25th, 1909, and colonel on October 22nd, 1913. After spending nearly twenty years in Burma, in 1905 he was appointed second in command of the

45th or Rattray's Sikhs, and commanded that regiment from 1909 to 1914. At the beginning of the war he was appointed to the command of a battalion of the Royal Irish Rifles. He served in the Burmese war from 1885 to 1889, and was present at the capture of Minhla and Mandalay (medal and two clasps), in the Manipur expedition of 1891 (clasp), in Burma again from 1889 to 1892, in the Chinbok expedition (clasp), and in the Zakka Khel operations on the north-west frontier of India in 1908 (medal and clasp).

Brown, Andrew Cranstown, Second Lieutenant South Staffordshire Regiment, only son of the late James Brown, M.D., of Harvieston, Tring, killed July 2nd, aged 21.

Dawson, Gerald Moore, Lieutenant King's Liverpool Regiment, second son of the late Dr. T. Moore Dawson, of Liverpool, was killed in action on July 2nd, at the age of 22.

Don, David Fairweather, Second Lieutenant South Wales Borderers, youngest son of Surgeon-General Don, R.A.M.C.(ret.), of 52, Canfield Gardens, West Hampstead, killed on July 2nd, aged 22. He was educated at University College School, which he represented at Bisley, and when the war began was a member of the staff of the National Bank of India. He enlisted in the Honourable Artillery Company in January, 1915, and got a commission in the Sherwood Foresters in July. In October he was sent to Egypt, where he was attached to the South Wales Borderers, and went to the front in France last March.

Duke, Valentine Gordon, Captain Royal Garrison Artillery, killed on July 10th, was the second son of the late Colonel A. W. Duke, R.A.M.C., of Tunbridge Wells. He had served in Singapore, India, and Aden, and went with his battery to the front in August, 1915.

Harrison, William, Second Lieutenant Gordon Highlanders, attached Seaforth Highlanders, only son of Dr. John Harrison, M.D., of St. Machutes, Lesmahagow, died July 5th of wounds received on July 1st, aged 20. His commission was dated March 17th, 1915.

Hess, Arthur Frank, Major West Yorkshire Regiment, who died on July 14th from wounds received on July 1st, was the eldest son of the late Dr. A. Hess, of Courtfield Gardens, Kensington. He was 31 years of age, and received his commission in the Leeds Rifles (Volunteers) in 1903, and on the outbreak of war was appointed A.D.C. to Major-General Baldock, C.B. He went to the front in April, 1915, and on appointment as major three months later rejoined his battalion. He was wounded near Ypres in August, 1915, but rejoined two months later.

Hodgkinson, Alan, Lieutenant Royal Warwickshire Regiment, younger son of Dr. Alexander Hodgkinson, formerly of The Grange, Winslow, now of Bradshaigh, Lower Bourne, Farnham, Surrey, killed on July 1st, aged 25. His commission was dated February 2nd, 1915.

Holman, Guy Henry Wallis, Lieutenant Duke of Edinburgh's Wiltshire Regiment, son of Dr. H. J. Holman, of Eastbourne, died of wounds on July 6th, aged 20. He got his commission on March 17th, 1915, had been previously wounded at Hooge, and returned to the front last December.

Hunt, John Reginald Lilly, Second Lieutenant, killed in action on July 2nd, was the only son of Dr. J. Aspinall Hunt, of Borrowash, Derbyshire.

Hunter, John Maurice, Second Lieutenant Wiltshire Regiment, killed in action on July 3rd, was the son of Dr. John Hunter, formerly of Glasgow. The commanding officer, in communicating with Dr. Hunter regarding the deceased, said, "I regret his loss not only as an asset to the English army, but as a personal friend."

Millar, Walter Gordon, Lieutenant East Yorkshire Regiment, aged 19, killed on July 7th, was the elder son of Dr. William Millar, of Brough, East Yorkshire. During his four years at Clifton College, Bristol, he was a member of the O.T.C., and was gazetted to the East Yorkshire Regiment on August 15th, 1914. He joined the Expeditionary Force in the following December, and was promoted to lieutenant in February, 1915.

Murray, Randolph Noel, Captain Inniskilling Fusiliers, who was reported missing on April 27th, is stated to have died at the age of 21 in a German field hospital. He was the only son of Sir G. M. P. Murray, F.R.C.S.I., of Dublin. He was studying medicine at Trinity College, Dublin, when war broke out. He obtained his commission in the newly formed 7th Inniskilling Fusiliers, being gazetted as lieutenant in November, 1914, and captain in April, 1916.

Orr, J. Kenneth, Second Lieutenant Duke of Cambridge's Middlesex Regiment, eldest son of Dr. Orr, of East Finchley, missing, believed killed, July 1st, aged 21. He was educated at Highgate School and at King's College, London, where he was studying engineering, and was in the O.T.C. at both. He got his commission on March 10th, 1915, and went to the front in February, 1916.

Rieu, Alfred, Middlesex Regiment, fourth son of the late Dr. Charles Rieu, of 25, Woburn Square, London, killed July 3rd, aged 37.

Royston Pigott, George Arthur, D.S.O., Lieutenant-Colonel Worcestershire Regiment, eldest son of the late Dr. G. W. Royston Pigott, F.R.S., killed July 3rd, aged 41. He got his first commission in 1895, in the second battalion of the Northamptonshire Regiment, served with that regiment in South Africa, gaining the King's and Queen's medals with five clasps, got his majority on March 15th, 1915, and commanded the battalion at Loos, being mentioned in dispatches, and gaining the D.S.O. Subsequently he was appointed to command a battalion of the Worcester Regiment.

Sawers Scott, Ian A., Second Lieutenant King's Own Scottish Borderers, youngest son of Dr. Sawers Scott, of Withington, Manchester, killed on July 1st, aged 19. He was educated at Manchester Grammar School and at Fettes College, Edinburgh, where he was a foundation scholar, and gained a scholarship to the University. His brother, Lieutenant Norman Sawers-Scott, of the same regiment, was killed at Ypres last year.

Shaw, Robert Ramsay Stuart, Lieutenant and Adjutant Prince of Wales's North Staffordshire Regiment, only son of Thomas David Stuart Shaw, M.B., of Lichfield, Staffordshire, killed July 1st, aged 20. He took a commission as second lieutenant in the 5th Territorial battalion of the regiment on March 25th, 1914.

Stack, John Masfen, Captain North Staffordshire Regiment, second son of Major E. C. Stack, R.A.M.C., of Burton-on-Trent, killed on July 1st. His commission as lieutenant in the 5th Territorial battalion of the regiment was dated August 20th, 1914. His father is medical officer of the same battalion.

Stevens, Montague, Lieutenant Worcestershire Regiment, youngest son of Dr. A. F. Stevens, of Seaford, Sussex, killed July 7th, aged 25. His first commission was dated February 6th, 1915.

Stewart, J. C. M., Second Lieutenant Royal Flying Corps, eldest son of Dr. Stewart, of Lowell House, Leeds, killed July 3rd, aged 24. He served his apprenticeship as an engineer to Messrs. J. and J. Maclaren, of Leeds, and afterwards was engaged in experimental work in the laboratory of the Wolseley Tool and Motor Car Company. At the beginning of the war he joined the Leeds "Pals" Battalion, and on March 30th, 1915, got a commission in the West Yorkshire Regiment. Subsequently he was transferred to the Royal Flying Corps. On returning from a bombing expedition over the German lines, a chance shell struck his aeroplane, and killed both its occupants just as it was about to land.

Tindal, David, Private Highland Light Infantry, eldest son of David Tindal, M.D., of Hiawatha, Burnside, Rutherglen, killed June 30th, aged 25.

Trevor-Jones, Edward Evan, Second Lieutenant Rifle Brigade, elder son of Major E. J. Trevor-Cory, R.A.M.C.(T.F.), formerly of Aberdare, Glamorgan, killed July 2nd, aged 30. He was educated at Downside School and at Clare College, Cambridge, where he was a member of the O.T.C. He got his commission on December 16th, 1914, and went to the front in June, 1915, where he was for some time employed as bombing officer. He was killed while carrying a wounded soldier into safety.

Unsworth, Cyril, Lieutenant South Lancashire Regiment, eldest son of Dr. Unsworth, of North Road, St. Helens, killed in the recent fighting in France in the beginning of July.

Watts, Talbot Hamilton, Captain Middlesex Regiment, youngest son of the late Dr. F. Watts, killed in action while leading his company on July 1st, aged 33. He belonged to the firm of Messrs. Killick, Nixon and Co., Bombay, and at the beginning of the war was at home on leave. He at once joined the Public Schools Battalion, got his first commission in September, 1914, was promoted to lieutenant on January 27th, 1915, and to captain in January, 1916. He went to the front last November.

Wiglesworth, Godfrey, Second Lieutenant Royal Flying Corps, only son of Dr. Wiglesworth, of Winscombe, Somersetshire, formerly of Rainhill, Lancashire, killed at the front in a flying accident on July 8th, aged 21. He was educated at Clifton College and at King's College, Cambridge, where he was a medical student and a member of the O.T.C. He got his commission last December.

Wright, Private Alan W., aged 21, killed on July 1st whilst engaged in barbed wire operations, was the son of Dr. W. H. Wright of Liverpool. After receiving his education at the Liverpool College and King William College, Isle of Man, he was apprenticed to a firm of cotton brokers and had a promising career. He joined the colours in 1914, and went to France in November, 1915.

MEDICAL STUDENTS.

Fletcher, William George, Second Lieutenant North Staffordshire Regiment, third son of Mr. R. Fletcher, of 19, Wadham Gardens, London, N.W., killed in action on July 3rd, aged 22. He was educated at Highgate School and in France, and was a medical student at the London Hospital when the war began. He joined the Australian Voluntary Hospital, and went to the front with that unit. Later he came home, got a commission in the North Staffords on January 28th, 1915, and went to the front with the South Lancashire Regiment. He was wounded last January, and returned to the front in April.

Heaton, Eric Rupert, Second Lieutenant Middlesex Regiment, youngest son of the Rev. Daniel Heaton, Wesley House, Scunthorpe, reported missing, believed killed, on July 1st, aged 19. He was a medical student before the war, and a member of the London University O.T.C. He got his commission on March 17th, 1915. His three brothers are also all serving in the army.

Sternberg, R. O., Second Lieutenant Royal Field Artillery, son of Mr. L. Sternberg, Lyndhurst, West Didsbury, Manchester, died of wounds on July 1st, aged 23. He was educated at Charterhouse, and at Clare College, Cambridge, where he was studying medicine. He joined the army as a dispatch rider in September, 1914, and was at the front from October, 1914, to July, 1915. He came home on receiving a commission in the R.F.A. Reserve, and went out again last December.

Taylor, Ronald Woodhouse, Second Lieutenant, Northumberland Fusiliers, killed on July 7th, was the son of the Rev. G. R. Taylor of Newcastle upon Tyne. On completing his first term as a student at the Durham University College of Medicine he offered his services, and was granted a commission in January, 1915.

NOTES.

CANADIAN RED CROSS SOCIETY.

THE eighth annual report of the proceedings of the Canadian Red Cross Society deals with work of the year 1915 under three heads—the work in Canada, the work in England, and the active assistance given by the society in the several war zones through its commissioners in co-operation with the British Red Cross Society.

The number of branches of the society in Canada is now 484; of these, 300 were established during the year. In addition, a large number of auxiliary societies have been founded in places where the population is too small to warrant the establishment of regular branches of the society. A monthly bulletin containing information is published, and pamphlets entitled *Suggestions for Work* (of which about 200,000 copies have been sent out) and *War Work* are issued.

An information bureau in Canada has been established by Mr. Hugh Langton, the librarian of Toronto University, for the purpose of answering inquiries as to the whereabouts, condition, and progress of disabled Canadian soldiers. A number of ladies have given their services gratuitously and a card index has been compiled. An index list of Canadian prisoners in Germany is also kept.

As regards the work in England, which is under the able direction of Colonel C. A. Hodgetts, C.A.M.C., the Duchess of Connaught Red Cross Hospital, in Major Astor's park overlooking the Thames at Cliveden, under the command of Colonel Gorrell, C.A.M.C., of Ottawa, has accommodation for 900 patients, and the King's Canadian Red Cross Hospital at Bushey Park for 300. The Peak Hydro, at Buxton, has been taken over by the society and converted into the Canadian Medical Services Special Hospital for rheumatism; and as the need was felt for more hospital accommodation for officers a house in Hyde Park Place, London, was obtained through Colonel and Mrs. Gooderham, of Toronto, who paid for the equipment and alterations necessary to convert this residence into the Daughters of the Empire Canadian Red Cross Hospital; the cost of maintenance of this hospital has been undertaken by the Canadian Militia Department. The society has also given material assistance to a number of other hospitals and institutions in England and France and to the military hospitals established in Canada. The treasurer's report shows that the following contributions were made by the society during the year:

British Red Cross Society, 50,000 dols.; French Red Cross Society, 23,500 dols.; St. John Ambulance and Brigade, 25,000 dols.; Duchess of Connaught's Hospita , Cliveden, 14,950 dols; Queen's Canadian Military Hospital, Beechborough Park, 5,005 dols.

Other disbursements included: Amount remitted to London office, 340,796 93 dols.; ambulance and equipment, 41,281 dols.; clothing, hospital, and service supplies, 54,073 dols.; packing and shipping charges, 32,335 dols; badges, brooches, and pins, 6,214 dols.; advertising and publicity 7,847 dols.; office maintenance and expenses, 33,621 dols.

During the year 78 Red Cross nurses were sent to England by the society, and 45 of them subsequently went to the Mediterranean.

An agreement was made in May last whereby the position of the Canadian Red Cross Society in France was clearly established as a branch of the British Red Cross Society. The work in France is in charge of an assistant commissioner, Captain H. W. Blaylock, assisted by Captain G. W. Bridges. Two supply dépôts have been established at Boulogne, and there are advanced dépôts with each of the Canadian general hospitals. In Paris a dépôt has been established for the distribution of supplies to French hospitals and to the Canadian Hospital at St. Cloud. From November, 1914, to the end of 1915, fifty-six ambulances were placed by the society at the disposal of the C.A.M.C.

MENTIONED IN DISPATCHES.

Mediterranean.

The *London Gazette* of July 12th publishes a list of officers mentioned for good service in the Mediterranean Expeditionary Force during Sir Charles Munro's tenure of command of that force, in continuation of the former dispatch published on April 10th. Among those whose services are brought to notice are the following medical officers:

Head Quarters Staff.—Surgeon-Generals W. G. A. Bedford, W. G. Macpherson, C.B., C.M.G.; Colonels R. H. Luce (T.F.), C. C. Reilly; Lieutenant-Colonels H. A. Bray, T. P. Jones; Major W. M. B. Sparkes; all of the R.A.M.C.

R.A.M.C.—Colonel W. H. Willcox (temporary); Lieutenant-Colonels B. Forde, C.M.G., L. Humphry, T. C. Mackenzie, D.S.O., G. St. C. Thom; Majors E. H. Cox (T.F.), W. Jones, R. R. Lewis, C. H. Lindsay, C.M.G., A. McMunn, A. W. Moore (T.F.), H. Richardson (T.F.); Captains J. Anderson, R. G. Archibald, H. S. Beadles (T.F.), J. A. Bennett, L. C. Bruce (T.F.), E. T. Burke (S.R.), T. S. Eves, J. F. Farrow (T.F.), E. D. Gairdner (T.F.), A. Graham (T.F., died of wounds), C. Lovell (S.R.), W. Mathieson, H. F. Panton, R. Robeson, L. R. Shore, O. Teichmann (T.F.), W. T. Torrance (T.F.); temporary Captains G. S. Blandy, A. Bremner, F. Harris, W. H. Laslett, M. A. Macdonald, W. N. Rishworth; Surgeon-Captain W. T. Rowe; temporary Lieutenants C. T. Galbraith, E. C. Mackay, L. M. V. Mitchell (T.F.), G. Walker; Quartermasters and honorary Lieutenants G. A. Collier, C. J. Hazell, C. H. Inwood, B. B. Rhodes, R. Spencer.

Royal Naval Division.—Staff Surgeon E. B. Kenny; Surgeon J. H. Burdett; temporary Surgeons C. F. Mayne, C. H. S. Taylor, M. Onslow-Ford, G. Hamilton (all R.N.).

Australian Army Medical Corps.—Lieut.-Colonels A. H. Sturdee, C.M.G., C. T. C. de Crespigny; Majors G. W. Barber, A. Y. Fullerton; Captains E. T. Brennan, A. V. Houman, J. J. Black, R. D. Campbell, H. V. P. Conrick, C. W. Thompson; Quartermasters and honorary Captains A. E. Clarke, E. T. Boddam; honorary Lieutenant F. Marshall.

Canadian Army Medical Corps.—Colonel J. A. Roberts; Lieut.-Colonels E. J. Davis, E. J. Williams.

I.M.S.—Majors W. R. Battye, D.S.O., N. S. Wells; Captains T. J. C. Evans, G. S. Husband, C. J. Stocker.

I.S.M.D.—Sub-Assistant-Surgeons Bhagwan Singh (14th Ferozepore Sikhs), Daulat Singh, Ajudhya Parshad Misr, E. Abraham, Muhammad Hussain, Ishar Singh, Shankar Lal, Hasan Din Dar, Hari Chand, S. B. Murphy.

Mesopotamia.

The *London Gazette* of July 13th publishes a list of officers specially mentioned by Major-General Townshend, in continuation of Sir John Nixon's dispatch of January 17th, 1916. Among them are the following medical officers:

R.A.M.C.—Lieutenant-Colonels H. O. B. Browne-Mason, J. F. Donegan, C.B., J. Hennessy, C.B.; Majors E. V. Aylen, F. C. Lambert (died); Captains S. J. Barry, A. S. Cane, R. K. Mallam, A. T. J. McCreery, L. Murphy, J. Startin, G. Wilson.

I.M.S.—Colonel P. Hehir, C.B.; Majors E. F. Baines, C. H. Barber, W. M. Pearson, C. C. C. Shaw, C. H. Watson; Captains P. B. Bharucha, J. A. Cruickshank, K. K. Mukerji, M. L. Puri; Lieutenant W. C. Spackman.

I.S.M.D.—Assistant Surgeons N. P. Shemain, E. A. Cotton, D. D. Mackay, A. E. A. Phaure, S. A. De Souza, F. H. J. Rowley, M. J. Nicholas, E. B. Holt; Subassistant Surgeons Reuben Benjamin, Dul Basit, Mitthu Lall, D. V. B. Butt, Resar Singh.

H.M.S. Alcantara.

The *London Gazette* of July 14th publishes a number of honours, mentions in dispatches, etc., conferred upon officers and men of the Royal Navy. Among those mentioned for good service in the action between H.M.S. *Alcantara* and the German raider *Greif* on February 29th is Surgeon J. P. Barry, R.N.

HONOURS.

Among those invested by the King on July 11th with the insignia of the respective divisions of the orders into which they have been admitted were Surgeon-General John Dennis, R.N., C.B., and Captain J. A. Turner, C.I.E.

ARTIFICIAL HAND APPARATUS.

A committee, consisting of MM. Faure, Kirmisson, Quénu, Rieffel, and Rochard, announce that an anonymous benefactor has offered £2,000 to the Paris Surgical Society to be given as a prize to the inventor "of the mechanical apparatus supplying the place of the hand best." Competitors, who must belong to allied or neutral nations, will be required to exhibit mutilated men who have been using the apparatus for at least six months; the apparatus will be tested by the society for whatever length of time it may think proper, but the apparatus which wins the prize will remain the property of the inventor. The competition will be open till two years after the end of the war. Descriptions and samples should be sent to M. le Secrétaire Général de la Société Nationale de Chirurgie, 12, Rue de Seine,-Paris.

England and Wales.

LIVERPOOL AND THE PREVENTION OF VENEREAL DISEASE.

A CONFERENCE, convened and presided over by the Lord Mayor of Liverpool, was held at the Town Hall on July 12th. It was promoted by the Liverpool Medical Institution, a subcommittee of which, under the chairmanship of the President, Dr. Charles J. Macalister, is taking an active part in disseminating knowledge among all classes—civil as well as military—of the dangers of venereal disease. There was a good attendance of ladies and gentlemen, medical men and women, and representatives of various bodies concerned with social welfare and amelioration. Sir Thomas Barlow proposed the following resolution:

> That this meeting of the citizens of Liverpool, realizing the serious influence of venereal diseases upon the public health, approves the action of the Government in taking steps to give effect to the recommendations of the Royal

Commission, and undertakes by all means in its power to support the work of the Liverpool Medical Institution Branch of the National Council for combating venereal disease.

He cited the example the city had set with regard to the treatment of ophthalmia neonatorum, pointing out that nearly one-third of the blind owed their pitiful condition to gonorrhœa. As such beneficent results had been obtained in regard to early treatment in such cases, he urged that syphilis in adults should be treated far more promptly than hitherto. The public should be educated and made thoroughly alive to the danger of concealment and the risk of communicating infection to the innocent. He alluded to what Liverpool had done in the study of tropical diseases, and pertinently urged that this peril at home should demand at least equally serious attention.

Dr. F. W. Mott, in seconding the resolution, dwelt upon the importance of preventing the disastrous nervous sequelae by early and efficient treatment of venereal diseases. In this respect he mentioned the beneficial results that had accrued to the health of the army and navy, and urged that the industrial population should have similar opportunity for efficient treatment.

Dr. Arthur Newsholme argued that it was economically sound to spend money on early and efficient treatment, and so save hospital expenditure in treating the sequelae, which are a fruitful source of our social wreckage and fill our asylums.

Dr. Charles J. Macalister briefly outlined the work of the subcommittee appointed by the Liverpool Medical Institution in November, 1913. He laid stress on the value of the educational programme that had been carried out not only among various civilian classes of both sexes but also among the military stationed in and around Liverpool.

In the evening Dr. Mott gave a public lecture, illustrated by lantern slides, on the influence of venereal diseases in civic life, and pointed out how a sovereign spent in combating the disease at the outset would save hundreds. The general feeling is that Liverpool has made a good start and is determined to do its best.

Midwives and the London County Council.

At the meeting of the London County Council on July 18th the Midwives Act Committee pointed out that certain alterations which the Council had suggested had not been adopted by the Central Midwives Board in its new rules. These suggestions referred to certain particulars in the apparel of the midwife, to compelling her properly to wash and cleanse her patient during the lying-in period, to enlarging the list of cases in which medical aid must be summoned, and to the need for the midwife to visit a new case within twelve hours after the birth of the child and subsequently daily for ten days. The Board had, however, adopted the Council's view that the requirements as to summoning medical aid should be applicable if attendance was renewed after the expiration of ten days, and that the midwives should be required to notify their liability to be a source of infection. The Board had also incorporated, in a modified form, an amendment suggested by the Council with a view to ensuring that medical aid should be secured with greater promptness, while special attention was drawn, by way of a footnote, to the urgency in cases of inflammation of the eyes. At the same meeting of the Council the remuneration of the lecturers at the classes for midwives which the Council is instituting was fixed at two guineas for an attendance of about two hours.

It was announced that during the last three months twenty-six applications for the registration of lying-in homes had been granted by the Council under its new powers. In one case registration had been refused, and in another it had been subsequently cancelled, while in several instances it had been made conditional upon alterations or repairs to the premises. It was also stated that the number of establishments for massage or special treatment registered within the same period was 178, making 795 in all. So far only seventeen applications had been refused.

University of Wales.

At the congregation of the University of Wales for admission to degrees held at Aberystwith on July 15th, the vice-chancellor drew particular attention to the fact that the degrees of M.B. and Ch.B. awarded to Mr. James W. T. Thomas of Cardiff were the first degrees in medicine granted by the University of Wales. Many of the male graduates in other faculties were not present to receive their degrees, being absent on military service.

Scotland.

Professor Matthew Hay, M.O.H. Aberdeen, reports that during June twenty-nine cases of acute anterior poliomyelitis were notified in the city, and ten additional cases during the first week of July. With the exception of three, all were in children of the age of 3 years or under, the majority being about 1 to 2½ years. The cases have practically been confined to families of the working classes, on the whole well cared for and above the average in respect of cleanliness. All, with three exceptions, occurred in houses of three rooms and under. Only in a very few instances had a connexion between cases been traced. Two deaths have occurred.

St. Andrew's Ambulance Association.

Sir Alexander Ogston presided at the thirty-third annual meeting of the St. Andrew's Ambulance Association held in Glasgow on July 12th. The report stated that all the military hospitals of Scotland, officers and men, were staffed from the home hospitals' reserve of the St. Andrew's Ambulance Corps within forty-eight hours of the outbreak of the war. The original staff of non-commissioned officers and men provided by the corps was sent on foreign service in October, 1915, and within one week the hospitals were again staffed by members of the corps. After the adoption of the report, Sir Alexander Ogston formally presented a motor ambulance wagon to the Belgian Government. No one, he said, could dream of the war being concluded without provision being made for the restoration of Belgium and reparation for the wrongs done to that country.

University of Edinburgh.

The graduation ceremonial in arts, science, and medicine took place on July 11th, when Sir Alfred Ewing, the new principal, presided. Many of the new graduates wore khaki and navy blue uniforms under their academic robes. The principal, after recalling the fact that he had entered the university first as an undergraduate forty-five years ago, said that a university had three functions—to furnish the mind with knowledge, to quicken and widen the intelligence, and to mould and set the character; the greatest of these was the last. The war had swept aside much that was mean, petty, and sordid, had made plain the primary duty of self sacrifice, and had brought men and women back to the eternal difference of right and wrong. More than 4,000 members of the university were serving with the forces, and more than 3,000 held commissions. The influence of the war on the social fabric could be compared to an effect sometimes seen in the study of metals. Let a piece of metal be exposed to certain conditions, and almost suddenly a great internal transformation occurred. Its external form showed no change. In the last analysis of the chemist it was still the same substance. The same molecules were there; but silently and invisibly they had marshalled themselves into wholly different patterns of structure. In a very real sense the material had become new. Its old attributes had disappeared. What was hard and brittle was now plastic; it might readily be shaped into other forms; it was capable of uses to which it could not have been put in its former state. The effect was permanent, persisting after the conditions which produced it had been removed. Was there not, he asked, some parallel to this in the new-made world that awaited us after the war—in the enormous changes, spiritual, social, political, economic, industrial, educational, that were even now taking place, and must increasingly take place in the early years of peace? When our civilization, which was now straining to save itself, settled to the task of reconstruction, would it not find men's minds more plastic, traditions less controlling, prejudices less final? A far-reaching revision of methods and aims in education might be expected. The universities would continue to be sanctuaries of the spirit of man, and temples of research, but was it not reasonable to look for a more direct relation in their future work to industrial requirements and economic problems? It would be for the universities to promote

industrial efficiency, to bring science to bear on manufacture, and to lead capital and labour into co-operation by a revision of the dogmas of political economy in the light of broader ethics. Women in their response to the nation's urgent call had shown capabilities and adaptability beyond expectation. This would not come to an end with the war, and a permanent increase in the army of productive workers ought to be welcomed. The responsibility of the university in providing higher education for women would thereby be enlarged. While a larger proportion of the people would seek to obtain the higher education, it was certain that all would be less able to pay for it, and as the universities of Scotland had always boasted that their doors had always been open to the poor, this might throw upon them a relatively large share of the common work.

Ireland.

THE TUBERCULOSIS INSTITUTES OF BELFAST.

THE statistics of the Tuberculosis Department of Belfast for the year ending March 31st, 1916, lately presented by the chief tuberculosis officer (Dr. Trimble), give interesting and important information. There are two institutes in the city; the one for the co. Antrim, which forms the larger portion of the town, and the other for the co. Down side of the city. Patients are examined at both institutes, and also at the Union Infirmary and at their own homes. The number of medical examinations and visits was 11,690 to old patients, and 1,615 to new patients; the number of nurses' visits was 17,957 to old patients, and 1,277 to new patients.

Table A, extracted from the returns made to the Local Government Board, show the number of persons treated for tuberculosis under the Corporation scheme, whether at the dispensaries, at the sanatoriums and hospitals provided by the County Council, at the Union Infirmary, at the Forster Green Hospital, or at home (domiciliary treatment):

TABLE A.

Insured and Exempt:			
Adult males	1,085		
,, females	1,720	—	2,805
Non-insured:			
Adult males	286		
,, females	589	—	875
Male children	345		
Female children	397	—	742
Gross total			4,422

Table B summarizes the cases of pulmonary and non-pulmonary tuberculosis treated during the year at the dispensaries, the county sanatoriums and hospitals, Forster Green Hospital, Union Infirmary, and at home.

TABLE B.

Cases of Pulmonary Tuberculosis:			
Adult males	1,296		
,, females	2,109	—	3,405
Male children under 15	266		
Female children under 15	326	—	592
Cases of Non-pulmonary Tuberculosis:			
Adult males	75		
,, females	200	—	275
Male children under 15	79		
Female children under 15	71	—	150
Gross total			4,422

The total figures do not represent individuals, as one person may have received all the forms of treatment—that is, institute, sanatorium, hospital, and domiciliary—in the course of the year. The number of individuals who received treatment during the year amounted to 3,246.

In ordinary times the population of the city would now have mounted to about 400,000; this indicates that somewhere about 1 in each 100 of population receives some form of treatment at the hands of the tuberculosis officers in the year. But the work of the department is only commencing; it is another step towards the State or municipal treatment of disease. Crime, lunacy, public health, and now tuberculosis and the infectious fevers are added. It is a gigantic experiment; success seems to be coming, although slowly.

Correspondence.

THE RELIEF OF DISTRESS IN THE MEDICAL PROFESSION ARISING OUT OF THE WAR.

SIR,—The war has already produced much distress in the medical profession, and this is certain to increase if the war continues long. The distress will, I trust, gradually be relieved when the war is over, and the doctors now serving return to their civil duties. Meanwhile the present distress is considerable.

The Auxiliary R.A.M.C. Fund which has been proposed will, if worked on the lines of the regular R.A.M.C. Fund, provide, so far as I can judge, only for the education of the orphans of officers serving temporarily in the war, and who are subscribers to that fund. This requires a large capital sum, and involves considerable liabilities extending over many years. Worthy as such an object is in itself, it does not deal with the immediate distress at all.

A scheme which appears to be strongly supported proposes to deal with this temporary distress by way of loans. For such a purpose a very large sum will be necessary. It is a scheme which no doubt would be very appropriate for certain cases, but experience has shown that a loan fund is very difficult to administer satisfactorily. Loans, too, require time for arrangement, and in many of the most urgent cases time is pressing, and there may be no security upon which loans can be safely raised.

In most cases what is required is immediate help, and often to a substantial amount. It is this class with which the Royal Medical Benevolent Fund is already dealing, so far as its means permit, from its Emergency Fund, for which an appeal was issued three weeks ago. This department of the fund is a going concern, and it only needs larger resources.

I have not seen that it has been proposed to form any new fund upon the same lines, and on general grounds such duplication is neither necessary nor desirable.

The profession wants, I am told, a workable scheme, and I make this suggestion in the belief that this plan would be the simplest and least expensive way of dealing with the problems that have arisen.—I am, etc.,

15, Wimpole Street, W., July 18th. SAMUEL WEST.

THE POSITION OF MEDICAL OFFICERS OF HEALTH.

SIR,—In an interesting article on pages 49 and 50 of the BRITISH MEDICAL JOURNAL of July 8th on the care of the pregnant woman you suggest that "medical officers of health would be much more useful to the community if they would have the courage to tell the public bodies to which they are advisers the disagreeable truth (in regard to housing and other matters) in place of suggesting small measures," etc.

On most public bodies owners of property are well represented, and as the authority has the final decision in regard to the closing and demolition of houses under the Housing, Town Planning, etc., Act of 1909, the advice of the medical officer of health in regard to housing and other matters is frequently ignored. In the absence of security of tenure the medical officer of health cannot insist on his recommendations being carried out, and may even lose his appointment if he pushes things too far. In commenting on the action taken by the Bath City Council (page 53) in regard to their medical officer of health, you suggest that the Local Government Board might go a good deal further than it has hitherto in dealing with local authorities.

It is in the interest of the public that public health administration should be put on a proper basis, and until the just demands of medical officers in the health and school services for reform in regard to security of tenure, superannuation, and promotion are met the health of the public must suffer. More attention than ever has during the present war been called to the importance of the national health; it will therefore be necessary that energetic measures should be taken by the British Medical Association and the Society of Medical Officers of Health to demand these reforms. What is wanted is the establishment of a ministry of public health; this would directly

or indirectly lead to inquiry in regard to public health reforms and as to what legislative measures were necessary to carry out such reforms.

The security of tenure promised by the President of the Local Government Board in connexion with all new appointments will only affect a very small number of medical officers of health.—I am, etc.,

July 7th. MEDICAL OFFICER OF HEALTH.

THE CARE OF THE PREGNANT WOMAN.

SIR,—Your leading article of July 8th on this subject pays eloquent tribute to the important contribution by Professor Donald in the JOURNAL of that date.

Professor Donald points out in the first place that the fashionable term "antenatal" as applied to the treatment of the infant is but a synonym, and an objectionable one, for "the care of the pregnant woman," which has engrossed the attention of at least one great maternity hospital for thirty years. With delicate irony he suggests that the disuse into which this sensible phrase has fallen might be due to the niceties of taste of officers of health who shrink from such vulgar expressions as "the care of the pregnant woman." Moreover, it sounds so dreadfully commonplace in the ears of those eager to thrust this "new" department upon a public alive at last to this question of national import.

In his calm and dispassionate survey of the position, Professor Donald utters a warning note against basing expectations too high on antenatal treatment in general and the systematic notification of pregnancy in particular.

Professor Donald writes from the standpoint of the accomplished gynaecological surgeon and obstetrician of wide experience, but assuredly his observations, so logically presented, will appeal very forcibly to the great bulk of the profession in general practice, many of whom have served a term as resident medical officer in a maternity hospital—to their lasting profit.

The futility of notification, with its inevitable compilation of statistics, is clearly exposed in his paper; yet it is not surprising to find this method publicly supported by some writers on the subject. Notification is the panacea of the hour, which at a stroke diverts this grave question into the capacious maw of the public health service—for example, the Huddersfield scheme.

The purely scientific practice of the profession is becoming more and more subordinated to the ever-growing burden of statistics and records, wrung from its members. Really we can picture the consulting-room of to-morrow as a compartment lined by a card index system, with a concealed emplacement beneath for those instruments of precision with which a medical man was wont to practise his craft, to be produced only after some apologies to the ticketed specimen who ventures into his sanctum.

Concerning the fundamental needs of the pregnant woman, Professor Donald insists on securing "freedom from occupations which are unhealthy or too arduous." In the manufacturing towns of the North, with their thousands of married women textile workers, do the existing conditions of labour conform to this ideal? We must unhesitatingly affirm that they do not. The unwholesome atmosphere of the cotton mill, with its long, dim hours of toil, the distracting turmoil of noise, is not a fit environment for the young expectant mother.

But modern matrimony has strayed far from the tenets of the Prayer Book. It was ordained for the procreation of children; but too often, in industrial centres, the child is a mere embarrassment in the search for the maximum weekly wage. Further, though hardly within the scope of this letter, I think it will be allowed that the appalling infantile mortality of the North of England is due in great part to the employment of young married women in factories and workshops. Lastly, in the course of some admirable practical suggestions, Professor Donald urges the subsidization of existing maternity hospitals and the creation of similar institutions in the smaller towns and country areas.

His reasoned plea for their establishment will carry conviction, I believe, to all conversant with the extraordinary varieties of environment under which the art of obstetrics has on occasion to be practised in the home.—I am, etc.,

GERALD RALPHS, M.B., F.R.C.S.E.

Dukinfield, July 11th.

IN DIRTY DOGDOM.

SIR,—I hope that your timely note on this subject will be followed up by correspondence and lead to some action. Every one will agree that the number of dogs in town streets is far in excess of requirement. Doctors who visit the poor are well aware that dogs are kept by persons who have no proper accommodation for them, and even by those who are too poor to provide wholesome food for their children. A guinea tax on dogs would reduce their number by one half, much to the satisfaction of motorists and all drivers of vehicles, the safety and comfort of cyclists, and the gratification of sanitarians and all who care for the cleanliness of our streets.—I am, etc.,

Nottingham, July 15th. JOS. S. BOLTON, M.D.

THE SOLDIER'S HEART.

SIR,—Mr. J. G. Turner is still under the impression that my exclusion of bacteria from the causation of "the soldier's heart" is "ill founded." It may be difficult to convert him, but as presumably he has an open mind, and more especially as, further on in his letter, he seems trembling in the balance and only half-heartedly playing the part of the devil's advocate, it may be worth another attempt to turn him away from his errors.

Mr. Turner takes exception to the generic term "sepsis" as merely "an acknowledgement of our ignorance of the bacteria involved," and we find him dropping laboratory methods and telling us that "clinical experience is daily opening our eyes to the number and variety of diseases which can be traced to dental (or nasopharyngeal) septic infection." It is high time that amateur bacteriologists learnt the postulates of Koch and stuck to them. It is not sufficient to ask me to prove that these septic organisms have no part in the causation of "the soldier's heart"; it is for Mr. Turner and his friends to prove what the different members of the septic flora of the mouth do, and thus get rid of their acknowledged ignorance. I have shown that the cause of "the soldier's heart" is hyperthyroidism, *quod erat demonstrandum*, and, acting on the truly scientific spirit of Sir William Hamilton's law of parsimony, I am not going to admit any other cause which is not proven.

No doubt on the question of oral sepsis Mr. Turner is quite at home, but when he wanders further afield he gets into a hopeless morass. My statement to the effect that you can have septic organisms in the mouth and even a stinking breath without the individual suffering therefrom elicits from him the following comment: "This seems to mean that he finds a healthy mouth and patient in presence of a stinking breath, and thereby he seems to me to discredit his claim to give an opinion on dental sepsis." This is a queer medley for a scientific man to make. I wish him clearly to understand that I mean exactly what I say, and my clear, definite, unsophisticated words will not bear the interpretation which he has put on them. What right has he to mix up "a healthy mouth and patient" without even a comma to separate them? Is the mouth not on the surface of the patient? There may be any number of organisms on the surface, and so long as they remain there they are harmless to the patient. The micro-organisms under the surgeon's nails are harmless there, but when they are introduced into the patient's body there may be a different tale to tell. So long as the patient has no abrasion in his mouth he may even suck the dentist's finger, but unfortunately dentists are very prone to make abrasions. A pneumococcus is fairly common in the mouth, and perfectly harmless in that position. The same can be said for many septic organisms. It is now very many years since I first advocated that no serious operation on the mouth should be undertaken merely after disinfection, but before the first line of defence was broken down a further protective barrier should be set up in the patient by the use of serums, vaccines, and calcium salts. Those surgeons who have followed my advice have been rewarded with a lessened mortality.

Mr. Turner further says he has "never yet found a mouth free from clinical signs of inflammation in presence of stinking breath due to dental sepsis, and I suggest that Sir James Barr, in common with many others, dentists included, does not realize the less gross signs of inflammation in the mouth." There is here an assumption of superiority—a superiority probably correctly assumed—on

the part of Mr. Turner. He then infers that, "If this be so, one may well question his statement that 'there are many cases of the soldier's heart without any evidence of sepsis or septic absorption, and the symptoms continue after the dentist has worked his own sweet will.'" One might reasonably expect from a scientific man that he would exercise a little care in the establishment of his premisses before he jumped at a conclusion, but Mr. Turner quietly assumes, without any evidence, that my powers of observation are faulty, and that if I fail in the least of these things I am guilty of all. I would strongly advise Mr. Turner to curb his scientific imagination. A plain minded man like myself might naturally conclude that the inflammatory zone, which Mr. Turner never fails to find, would act as a barrier between the septic organisms in the mouth and the general systemic circulation, and that under such conditions it was merely a question, as a physiologist would say, of adsorption rather than absorption. In some of the worst cases of oral sepsis, associated with pernicious anaemia, no trace of inflammatory reaction can be found. In the eradication of oral sepsis I understand that the modern dentist, in place of breaking down the inflammatory and protective wall with sharp scraping instruments, now further strengthens it by the use of the electric current, chloride of zinc, etc.

"I may be allowed to suggest that even if hyperthyroidism be the immediate cause, this in turn may be due to bacterial causes, possibly originating in dental sepsis." What a wonderful advance we have got here! actually acknowledging the possibility of "the soldier's heart" being due to hyperthyroidism. None other of my antagonists have got so far. I always admire the honest man as the rarest work of God, and try to strive after such an ideal. I am old enough to know that I may make mistakes, I hope intelligent enough to know when I have done so, and I trust honest enough to acknowledge them. The causes of hyperthyroidism open up a grand vista for the scientific imagination, but, so far as any real progress in this direction has yet been made, we are still much in the same position as the Scotsman's cow which had very little to feed upon, but she had a grand view. Personally I have had the temerity, on more than one occasion, to mention the associated conditions, precursors, or causes of hyperthyroidism, but I shall not venture on the solution of the problem until I am able to bring it within Newton's dictum. Mr. Turner might start with the causes which lead to the evolution of the multiple functions of the thyroid gland and the necessity of their presence for the maintenance of the highest organizations. He may then possibly find that for such evolution bacterial toxins are unnecessary. The cretin is very prone to succumb to tuberculosis, but it does not necessarily follow that hyperthyroidism leads to immunity against that disease. If, in all seriousness, I asked Mr. Turner, What is gravity? I would not expect him to indulge in a rhodomontade about attraction of matter, but to honestly say that he did not know.

Mr. Turner is extremely unfortunate in his suggestion that "myocarditis, possibly dependent on the same source, may also be suggested as a possible cause." I presume, from the context, that he means here a possible cause of hyperthyroidism which in turn leads to "the soldier's heart." He has now evidently got beyond his last, *supra crepidam*, as although it is within the bounds of possibility that a patient affected with myocarditis may eventually show the signs of hyperthyroidism—from treatment or otherwise, yet the converse cannot be true, as the secretion of the thyroid gland is a protective agent against arterial degeneration. Moreover, the short clear sounds, the rapid muscular contraction, and the brisk propagation of the pulse wave in cases of "the soldier's heart" show that there is no myocarditis.

It requires no superhuman genius to infer that "the excessive fatigue to which the soldier is liable obviously opens the way to more serious results from an infection which the patient has hitherto carried about with him with apparent immunity." What necessary connexion is there between the fatigue, the infection, and "the soldier's heart," and why do not the symptoms of "the soldier's heart" disappear with the removal of the fatigue and the infection? Mr. Turner does not add much to my education when he says that "perhaps some degree of 'soldier's heart' is more common among civilians than Sir James knows," and he evinces a certain amount of ignorance on his own part, as I have been among those who have long pointed out minor degrees of hyperthyroidism which could scarcely be designated Graves's disease. I am sorry to occupy so much space, and in conclusion wish to draw the attention of Mr. Turner to the teaching of Kelvin, "that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science."—I am, etc.,

Liverpool, July 8th. JAMES BARR.

THE DISENFRANCHISEMENT OF FELLOWS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND RESIDENT ABROAD.

SIR,—I venture to write a few lines to endorse the protest of Mr. Fitzwilliams in your issue of May 20th against the practical disenfranchisement of all the Fellows of the College resident in India and the colonies through the voting papers for the election of members of Council being systematically sent out too late to enable those abroad to record their votes in time. I find from a recent Indian Army List that there are no fewer than forty-five Fellows of the College in the Indian Medical Service alone, most of whom have a very large surgical experience, but under the present system they lose their votes during the greater part of their active life, as I have done for the past twenty-three years. Surely now that unity of all parts of the British Empire is being so wonderfully demonstrated to the whole world, it is high time that the College sent out its voting papers at least three months before the election in order to allow all the Fellows to vote. I think few, even of the most conservative, would venture to assert that the Council would be any the worse for enfranchising those Fellows who at least gain a wide outlook while serving the empire in voluntary exile from the mother country.—I am, etc.,

LEONARD ROGERS, F.R.C.S.,
Calcutta, June 14th. Indian Medical Service.

Public Health AND POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

DR. NAPPER, in the absence of the President on military duty, took the chair at the annual general meeting of the Poor Law Medical Officers' Association on July 7th. The officers and members of council who had held office during the last year were re-elected.

The following resolution was adopted unanimously:

> That this meeting of the Poor Law medical officers of England and Wales strongly condemns the recent action of the Government in reducing the fees for the notification of infectious diseases; that, considering the loyalty of the profession, and the great assistance rendered by it during the war, the said reduction is excessively mean, and it is earnestly hoped that as soon as the war is over, those bodies representing the medical profession will take all steps in their power to obtain redress for such inequitable treatment.

THE twenty-fifth annual report of the Nurses' Co-operation (22, Langham Street, Portland Place, W.) states that there are 472 fully-trained nurses on the general staff, 34 asylum-trained nurses for mental patients, and 23 nurses eligible for election, working on probation for six months. Each nurse receives the whole of the fees earned by her, subject to a reduction of 7½ per cent. for working expenses; the reduction in the case of those who joined before the end of 1908 is only 5 per cent. Since the outbreak of war many nurses have been engaged by the War Office and Admiralty and have been sent abroad. The Co-operation provides a policy of insurance against accident, and another against sickness and disease, under which for a small annual contribution, supplemented from the funds of the Co-operation, a nurse becomes entitled to a weekly allowance whilst temporarily incapacitated. The Army and Navy Male Nurses Co-operation (11a, Welbeck Street, London, W.), which before the war had become self-supporting, has been very adversely affected, because the men have been recalled to military duty. It appeals for donations to keep the institution going.

Obituary.

ELIAS METCHNIKOFF.

The whole scientific world will mourn the death of Elias Metchnikoff, whose researches may truly be said to have changed the face of pathology. He had been in failing health for some months, and passed away at the Pasteur Institute in Paris on July 15th.

Elias Mecznokow, to give him his Russian name, was born on May 16th, 1845, in a village of the government of Kharkoff (Little Russia). His father was an officer of the Imperial Guard, who retired with the rank of Major-General; his mother was a Jewess, from whom he doubtless inherited his love of music. His elder brother was the provincial functionary whose death in the prime of life forms the subject of Tolstoi's pathetic story, *The Death of Ivan Ilyitch*. From an early age Metchnikoff showed a strong bent towards the study of natural science. He was educated at the gymnasium and University of Kharkoff. In 1864 he went to Heligoland to work at marine biology. In 1865 he proceeded to Germany, where he studied zoology at Giessen, Göttingen, and Munich under Leuckart, Henle, and von Siebold. After a further period of study at Naples he returned to Russia in 1867, and was "docent" in zoology first at Odessa, and afterwards at Petrograd. In 1870 he was appointed professor of zoology and comparative anatomy at Odessa. In the pursuit of his zoological researches he visited Madeira, Teneriffe, and the Kalmuck Steppes. In 1882, when the political atmosphere of the University became disturbed after the assassination of Alexander II, he resigned his professorship and became director of the municipal bacteriological laboratory. Afterwards he left Russia and spent some time at Messina. In 1888 he went to Paris on the invitation of Pasteur, who gave him a laboratory in the new institute, of which he afterwards became subdirector. There Metchnikoff continued to work almost to the end; since the outbreak of the war, even when struggling against the illness which proved fatal, he made investigations on the health of armies.

In 1882 he published a memoir on intracellular digestion in which he enunciated the doctrine of phagocytosis. His observations of wandering cells in certain water-fleas led him to recognize the part played in the human economy by the white blood corpuscles. Briefly stated, the fundamental concept of the doctrine is that when a morbid process sets up disturbance in the body, or when there is an invasion by microbes, leucocytes are drawn to the point attacked and engulf the intruders or destroy them by pressure. In his *Comparative Pathology of Inflammation*, published in 1892, he showed the part played by phagocytes in resistance to the effects of disease and injury. The essence of the doctrine as formulated by himself is contained in an address delivered by him at the Pasteur Institute on December 29th, 1890, where he says:

> The broad fact that the invasion of the organism by microbes most often induces, on the one hand, an inflammatory reaction with its associated emigration of leucocytes, and that, on the other hand, the phagocytes are capable of including and destroying the invaders, leads us to admit that the afflux of phagocytes to the invaded region and their bactericidal properties are mechanisms which serve to ward off bacterial attack and to maintain the integrity of the organism.

In 1901 appeared his great work, *L'Immunité dans les maladies infectieuses*, an English translation of which was published in 1905. In that book Metchnikoff propounded the view, founded on long and laborious experimental work, that the mechanism of immunity is to be found in the action of phagocytes on the poisons of pathogenic bacteria converting toxins into antitoxins. We feel gratification in recalling the fact that Metchnikoff's teaching on phagocytosis and immunity was first formally presented to the medical profession of this country in a lecture translated by Dr. J. G. Adami, which was published in the British Medical Journal of January 31st, 1891.

Metchnikoff's name was best known to the public by his views on the prevention of old age. His researches on the bacterial flora of the alimentary canal led him to the conclusion that ill health is largely the result of the absorption of the products of decomposition set up by microbes in the colon, and that these poisons are the chief agents in the production of the changes characteristic of old age. In an essay, published in 1899 in the *Archives Russes de la Pathologie*, he said that physiological as well as pathological atrophy is the result of the perpetual struggle between the normal cells of the tissues on the one hand, and the macrophages on the other. Senile decay consists essentially in atrophy of the "noble," that is to say, specific, elements of the tissues, and the replacement of them by hypertrophied connective tissue. This leads to arterio-sclerosis, with disturbances of nutrition, difficulty in the purification of the blood, and weakening of the intelligence; these changes help to bring about unduly early death. For the prevention of intestinal putrefaction he advised the use of milk soured by an association of lactic bacteria, or the ingestion of pure cultures of the *B. bulgaricus*, together with sugar of milk or saccharose. A full exposition of his teaching on these subjects may be found in his *Etudes sur la Nature Humaine: Essai de Philosophie Optimiste*, published in 1903, an English translation of which appeared in the same year. Another work in which his doctrines on the prolongation of life are set forth in popular style is *Essais Optimistes*, published in 1907. By one of those ironies of fate, which one might almost think are contrived by a Mephistopheles in derision of the strivings of man after the betterment of his unhappy lot, Metchnikoff, who taught that by following his teaching human life should be prolonged beyond a century, and that only exceptionally should its duration fall below that limit, died at the age of 71.

Metchnikoff gave much attention to the prevention of syphilis; in 1905 and 1906 he, together with Roux, presented to the Académie de Médecine communications embodying the results of experimental work on the inoculation of the virus in monkeys and the possibility of its transmission from these animals to man. In the Harben Lecture, delivered at the Royal Institute of Public Health in 1911, he stated that even if a vaccine against syphilis were discovered it could only be used exceptionally, as the attenuated virus might cause distressing complications. In 1901 the Manchester Literary and Philosophical Society awarded him its gold medal. On that occasion he delivered a lecture on the bacterial flora of the intestine, which was published in the British Medical Journal of April 22nd, 1901. In the same year he read a paper before the Académie de Médecine on the connexion between nematodes and appendicitis, in which he uttered a word of warning against the use of raw vegetables and fruit and uncooked meat.

Metchnikoff received many honours in recognition of his work. The University of Cambridge conferred on him the honorary degree of D.Sc. He was a Member of the Institute of France, of the Petrograd Academy of Science, and of many other learned bodies. He was also a foreign member of the Royal Society, which in 1906 bestowed on him the Copley Medal for his work in zoology and pathology. In 1908 he divided with Ehrlich the Nobel medal and prize in medicine.

Metchnikoff was a man of large mind stored with the most varied knowledge. His wide training in zoology and embryology equipped him in an unusual manner for the study of pathology. But he was much more than a scientific investigator; his interests extended to everything human. His books have a peculiar charm owing to the illustrations from literature with which his vast reading enabled him to light up his pages. His hope for the future is expressed in the closing words of *The Nature of Man*: "If there can be formed an ideal able to unite men in a kind of religion of the future, this ideal must be founded on scientific principles. And if it be true, as has been asserted so often, that man can live by faith alone, the faith must be in the power of science."

Metchnikoff was twice married. His second wife, who had been his pupil, gave him valuable assistance in his work.

Colonel J. G. Adami, F.R.S., writes:

As (I believe) the first British student in pathology to place himself under Metchnikoff in his new laboratory at the Institut Pasteur, I have a vivid memory of the fight to gain medical recognition for his views. And certainly it was not by any means, as has been suggested, only the "older and more ignorant members" of our profession who fought against accepting his abundant and brilliant observations and his deductions therefrom. To-day it is timely to recall that, just as Koch and the German bacteriologists, as a part of the pan-Germanic programme,

consistently endeavoured to minimize Pasteur's great work, so when Metchnikoff associated himself with the Institut Pasteur, German bacteriologists as a body damned his doctrine with faint praise where they did not actively oppose it. There will be some who can recall the memorable debate upon immunity at the International Congress of Hygiene in London in the summer of 1891, which threw this opposition into high relief. On the one side were ranged Roux and Metchnikoff —Arloing, the other French pathologist, took an independent line—on the other, Buchner, Hueppe, Emmerich, and Ehrlich, one and all supporting the humoral doctrine. Obviously they were playing a losing game. If, as they claimed, bacteria were destroyed by the bactericidal substances present in the fluids of the body, those substances must have been secreted or discharged there as the results of cell activities or cell destruction, and by that period Metchnikoff had expanded his doctrine to admit both intracellular and extracellular activities on the part of his phagocytes. But the team play was striking; the humoral was the German theory, and was to be supported through thick and thin; to seek out the truth and to ensue it was of secondary importance. Saying this, it must, I think, be admitted that the great Russian, while admitting the extracellular activities of endothelia and wandering cells, did so somewhat grudgingly. He never studied the functions of the lymphocytes (which are not phagocytic in the strict sense) with the same enthusiasm as he did that of the polymorphonuclears (which are). But it was he who established the part played by phagocytosis in the arrest of infectious disease. That was his life's work.

So assured was he of the importance of the process that it was both natural and pardonable that he should see in it the be-all and end-all of inflammation, and should conclude, in his most fascinating volume upon this latter subject, that inflammation is but phagocytosis writ large. It is not a little interesting that from Burdon-Sanderson's article in *Quain's Dictionary* in the Eighties down to Sir Almroth Wright in this year of grace British pathologists have taken the broader biological view, regarding inflammation as the reaction to injury, and holding that the organism employs every means at her disposal, and not one alone, to neutralize or remove the irritant.

In Metchnikoff was that rare alliance of the capacity for taking infinite pains with a most active scientific imagination, so active, in fact, that at times it carried him beyond his goal. But, saying this, we must acknowledge with whole-hearted appreciation that through him Russia, with the friendly support of France, has given us a new and greater science of medicine. He rather than Virchow has been the creator of a live cellular pathology, a pathology based upon the reactions manifested by the cell under well-determined conditions of experiment, instead of upon the appearances of the cell, which may have suffered numerous unknown insults, as found in the *post-mortem* room. This is not the same as saying that we do not owe a heavy debt to Virchow, only that the method of Metchnikoff is of the higher scientific value, and therefore likely to lead further and accomplish more.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on June 21st. Sir Alfred Pearce Gould, K.C.V.O., was re-elected Vice-Chancellor.

Examiners.—The following were appointed to act as examiners: *Anatomy:* F. G. Parsons and R. W. Reid. *Pharmacology:* F. Ransom and R. B. Wild. *Physiology:* Miss W. C. Cullis and D. N. Paton. (The second name in each case is that of the external examiner.)

Brown Animal Sanatory Institution.—The annual report of the acting superintendent, Dr. Mellanby, for 1915 stated that 4,680 animals had been brought to the institution, of which 50 were in-patients at the hospitals; the animals under treatment included 3,058 dogs, 1,191 cats, and 255 horses. Five lectures on recent work on alimentary toxaemias had been delivered in the Royal College of Surgeons in December by the acting superintendent in accordance with the will of the late Mr. Brown. The report also recorded the investigations which had been carried out in the laboratory.

University Medal.—The university medal at the M.B., B.S. examination, May, 1916, has been awarded to Stanley Ritson, B.Sc., of King's College Hospital.

UNIVERSITY COLLEGE.

The following awards have been made in the Faculty of Medical Sciences:—*Bucknill Scholarship:* J. P. Padshah; *Epsom Scholarship:* D. C. Corry; *Medical Entrance Exhibitions:* H. L. Heimann, A. B. Saunders.

The Provost reports that the number of students during the last academic year was 1,132 (including 51 refugees), as compared with an average of 2,200. The number of women students was 596, and of men students 536, but of the men only 222 have been in attendance throughout the session; of these, 80 were under military age, and 19 specially reserved to continue their work. The roll of members of the College serving contained 1,476 names. The number who had lost their lives was 73. The chief domestic event of the session was the occupation of the new chemistry laboratories. They are not yet completely equipped, and for this purpose a sum of £20,000 is now required, towards which Sir Ralph Forster has promised £5,000.

UNIVERSITY OF MANCHESTER.

THE diploma of public health has been awarded to the following: E. R. Cooper, H. N. Crossley, S. W. MacLean, W. H. Tattersall.

UNIVERSITY OF EDINBURGH.

THE following degrees were conferred at the graduation ceremonial on July 11th:

M.D.—A. S. Boyd, R. Govan, W. D. S. Johnston, J. Lindsay, G. J. Lnyt, R. M. Mackay, A. W. Mather, ‡A. N. Robertson, §Chung Ching Wang, §Chung Yik Wong, §W. Q. Wood.
D.Sc.—Dr. J. W. Dawson.
M.B., CH.M.—G. Holiday.
M.B., CH.B.—C. B. C. Anderson, G. H. Barry, †J. Bennet, R. D. Cameron, J. E. Chow, Ando Huan Chu, D. Colombos, W. J. F. Craig, T. Crisp, A. L. V. Davin, D. G. Duff, *J. J. B. Edmond, A. M'L. Ferrie, M. Foster, A. K. Gibson, †W. N. Greer, F. J. Hamtfleisch, C. S. van Heerden, N. K. Henderson, Wilhelmina W. Hendry, S. N. Kaul, Marjorie I. S. M'Gregor, I. MacKenzie, J. A. Mackenzie, Isobel M. MacLullich, J. O Marais, J. de V. Meiring, R. W. H. Miller, E. A. Mills, C. Milne, J. Milne, H. S. Moore, *J. L. Owen, A. M'M. Paterson, C. P. Penberthy, A. Prentice, J. C. Preston, W. Richards, *B. J. Ryrie, Eng Siang Seah, E. O. A. Singer, J. M. Smellie, E. D. Söderström, M. Stewart, R. B. Stewart, D. G. Stoute, M. D. Thakore, D. R. Thapar, W. G. Thomson, J. I. de Villiers, W. Waddell, R. R. S. Weatherson, Gladys R. M. V. Williamson, R. M. Wishart, C. W. Ng Yow.

The following scholarships, prizes, etc., have been awarded: Ettles Scholarship: B. J. Ryrie. Beaney Prize in Anatomy and Surgery: A. V. Dill. Mouat Scholarship in the Practice of Physic: A. J. Caird. Conan Doyle Prize: C. T. I. Clarke. Buchanan Scholarship in Gynaecology: B. J. Ryrie. James Scott Scholarship in Midwifery: J. Bennet. Dorothy Gilfillan Memorial Prize: Gladys Ward. Pattison Prize in Clinical Surgery: J. C. Burns. Cunningham Memorial Medal and Prize in Anatomy: M. Goldberg. Whiteside Bruce Bursary: J. R. M'Donald. Crum Brown Medal in Chemistry: G. F. Davidson.

* First class honours. † Second class honours.
‡ Gold medal for thesis. § Highly commended for thesis.

QUEEN'S UNIVERSITY OF BELFAST.

THE following candidates have been approved at the examinations indicated:

M.B., B.CH., AND B.A.O. EXAMINATION—W. F. Algeo, †J. Boyd, W. Bryars, A. G. P. Campbell, G. Chesney, A. C. Dickey, *Grace M. English, †F. Ewart, H. E. Hall, J. A. Harbison, Arabella C. Kirker, N. McCullough, *J. P. McGinley, †B. W. McKinney, M. McMenamin, F. McSorley, J. J. Marner, T. J. Marner, †D. Mitchell, Elizabeth M. Moore, *Margaret S. Purce, C. A. W. Ramsay, R. J. Rea, W. Saunderson, T. R. S. Thompson, N. C. L. B. Tweedie, J. H. Vance.
* First class. † Second class.
M.D.—W. W. D. Thomson (gold medal), J. M. Warnock.
D.P.H.—Dr. A. E. Knight, Dr. W. J. MacKeown, Dr. C. J. Milligan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A MEETING of the Council was held on July 13th, when Sir Watson Cheyne, Bt., President, was in the chair.

The Improper Use of Medical Certificates.

The attention of the Council having been called to a complaint regarding the manner in which medical certificates are sometimes obtained by men who have failed to join, or have deserted from, His Majesty's transports, it was decided to warn Fellows and Members of the College of the need for care in granting medical certificates, and the penalties to which they may become liable for granting them improperly. It is alleged that these certificates can be obtained for the small fee of 6d. or 1s., and that they are often given without an examination of the patient, and merely on the man's statement as to the nature of his alleged illness.

Removal of a Member.

The name of a member was removed, he having been already removed from the *Medical Register*.

Conjoint Board of Scientific Societies.

The President and Sir John Bland-Sutton were appointed representatives of the College on the above Board.

Election of President and Vice-Presidents.

Sir Watson Cheyne, Bt., was re-elected President for the ensuing year, and Mr. Harrison Cripps and Mr. Charters Symonds Vice-Presidents.

Executive Committee of the Imperial Cancer Research Fund.
Mr. D'Arcy Power was elected a member of the above committee.

Issue of Diplomas.
Diplomas in Public Health were granted jointly with the Royal College of Physicians to three candidates found qualified at the recent examination.

CONJOINT BOARD IN SCOTLAND.
THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—T. D. Renwick, S. D. Vania, F. B. Macaskie, M. A. White, A. L. Giblin, Elfrida H. B. Coghill, J. Ross, J. E. Kitchen, Ethel M. Dukes.

The Services.

EXCHANGES.
LIEUTENANT R.A.M.C. (temporary), attached to Casualty Clearing Station (B.E.F.), desires to exchange with M.O. attached to Home Station unit—Address No. 2800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.
Medical Officer, Captain Field Ambulance (T.F.), B.E.F., desires exchange with officer same rank, Hospital, England.—Address No. 2799, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

DR. E. N. BURNETT has been appointed a Justice of the Peace for Newcastle.

THE house of the Royal Society of Medicine will be closed for cleaning and library stock-taking during the whole of August.

DURING the three months April–June, 174 cases of cerebro-spinal meningitis were notified in London, with 85 deaths, as compared with 294 cases and 167 deaths during the corresponding quarter of last year.

THE Liverpool School of Tropical Medicine has informed the Belgian Ambassador in London that Belgian doctors at present in this country desirous of taking out a course of instruction in tropical medicine will be admitted free of charge at the opening of the new term on September 11th.

THE correspondent of the *Times* with the Russian centre army, in a letter dated July 11th, states that "the ambulances, first aid, and field hospital work of the Russians is beyond all praise. The Army Medical Service, not less than the Red Cross and private organizations, have done splendid work."

THE seventeenth annual general meeting of the National Association for the Prevention of Consumption and other Forms of Tuberculosis will be held at 20, Hanover Square, on Wednesday next, at 4 p.m. A discussion on war and tuberculosis will be opened by Sir William Osler and Mr. H. J. Tennant, M.P.

IT is reported that on July 15th, when about to pay a professional visit to a farmer residing in a remote part of Carmarthenshire, Dr. D. T. Glyn Jones, of Llansawel, near Llandilo, was shot by the farmer's son, and died without recovering consciousness. The inquest was opened on July 18th and adjourned. Dr. Jones, who was 47 years of age, received his medical education at the Middlesex Hospital, and took the diploma of L.S.A. in 1901.

A REPORT on the plague in Egypt during 1915 has recently been issued by the Department of Public Health. The total number of known cases was 235; in 1914 it was 219, and in 1913 it was 654. The deaths numbered 120, 111, and 304 in the respective years; from one-third to two-fifths of them occurred in hospital. Last year about three-fourths of the cases admitted to hospital occurred during the four months April–July. In 1914 the maximum was a little later, in 1913 a little earlier.

THE Mary Murdoch Memorial Loan Fund has been raised to perpetuate the memory of Dr. Mary Murdoch, of Hull, her high professional standard and the inspiration and encouragement she was to her colleagues and friends. The committee which has been formed to administer the fund is prepared to grant loans of £100 or less, free of interest, so as to give women doctors some financial help at a time when they may specially need it. Such special need might be during their early years of establishment in practice, to enable them to study some special subject or purchase some particular apparatus, etc. This fund will be open to all medical women, but preference will be given to those who have been trained at the London School of Medicine for Women, which was Dr. Murdoch's own school. All applications will be regarded as confidential and should be made to the honorary secretary and treasurer, the Hon. Mrs. Franklin, 50, Porchester Terrace, London, W.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

INCOME TAX.

VIATOR, in making his "Income tax return, Schedule D, for 1914–15" (*sic*) put down his net income, but attached a statement giving particulars of the gross amount, and the expenses deducted therefrom. He was charged income tax on the exact amount of the gross income, and on that basis paid tax in January last. He has now received a further application for tax on the same basis, and has been told by the surveyor that the assessment must stand, as no appeal was made last year.

*** Although our correspondent's letter quotes the year in in question as "1914–15," we assume that he refers to the year 1915–16, for which the tax is payable in two instalments, one in January, 1916, and one in July, 1916. The 1914–15 tax would not be payable in two sums. It is presumed that due notice of the assessment was given to "Viator" in the autumn or late summer of 1915, in which case he should have given notice of objection to the assessment within twenty-one days (Taxes Management Act, 1880, Sec. 57 (3)). As this was not done he has now no right of claiming an adjustment of the assessment *by process of appeal*, but if his practice has suffered owing to the war he can still lodge an application under Sec. 13 of the Finance Act, 1914 (Session 2), for an adjustment of the assessment to the amount of the profits of the year 1915–16, or of the average profits for the years 1913, 1914, 1915. By such an "application" "Viator" would effectively get round the legal difficulty that he is statute-barred from "appealing." If he is unable to come to an equitable arrangement with the surveyor of taxes on these lines, he might find it advisable to ask the Board of Inland Revenue to give the matter special consideration, on the ground that unreasonable hardship would otherwise be inflicted. We may perhaps add that the second instalment of the 1915–16 tax is governed by the original assessment for that year—Finance (No. 2) Act, 1915, Sec. 20 (a). An alternative method, not depending on the condition that the practice has suffered owing to the war, would be for "Viator" to prove that his "actual income from all sources is less by more than 10 per cent. than the income on which he has been assessed or charged," in which case a portion—and if the deficiency amounted to 20 per cent., the whole—of the additional tax arising from the increase in the rate of duty would be returnable, or might perhaps be discharged without payment of the amount being required—Finance (No. 2) Act, 1915, Sec. 20 (2).

LETTERS, NOTES, ETC.

PARAFFIN FOR LOUSINESS.

DR. HENRY WALDO (Clifton, Bristol) writes: In reply to "Naval Medical Officer's" letter (JOURNAL, June 17th, p. 872), who thinks that paraffin might prove decidedly dangerous owing to its inflammability, may I say that the ordinary medicinal paraffins are non-inflammable? But after Allan Jamieson's warning that workers in these substances are more liable to cancer than other people, it would be at least injudicious to use them externally, and still more so to give them internally, as has been much the fashion for constipation. Sprinkling powdered sulphur over the under garments and well rubbing it into the seams will be found a safe and efficient treatment for lousiness.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	5	0
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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A Clinical Lecture

ON

TWO HUNDRED CONSECUTIVE HYSTERECTOMIES FOR FIBROIDS ATTENDED WITH RECOVERY.

DELIVERED AT THE MIDDLESEX HOSPITAL ON JULY 4TH, 1916.

BY

SIR JOHN BLAND-SUTTON, F.R.C.S.,

SURGEON TO THE HOSPITAL.

UTERINE fibroids are common tumours; so common and troublesome that I have removed the uterus for this disease in more than 2,000 women. I will show a few uncommon examples, and epitomize my experience. I prefer the name fibroids for these tumours, using it in a generic sense. No one doubts that in the beginning uterine fibroids consist almost entirely of unstriped muscle; some retain this kind of tissue throughout life, but the majority undergo great changes. Some fibroids are indistinguishable, even with the aid of a microscope, from the common species of sarcoma; and a few contain transversely striated spindles, like young striped muscle cells. These myosarcomas, though rare, are intensely malignant. Some innocent fibroids are soft, gelatinous, and as structureless as the jelly of the umbilical cord.

Much of the uncertainty that often besets the diagnosis of pelvic tumours depends on the tissue changes so liable to occur in fibroids, whereby some are transformed from lumps as hard as gristle into stuff as soft as jelly, and others into stone. These remarkable changes are the consequence of the exiguousness of the blood supply and the peculiar nature of the organ in which fibroids grow. Indeed, the natural history of such tumours is that of the uterus, and the fate of a fibroid depends on its position in the uterus. Observation teaches that the conduct of subserous fibroids differs from those that are submucous; and a fibroid in the cervix runs a different course from one growing in the body of the uterus.



FIG. 1.—Subserous fibroid and uterus in section, to show the vascularity of the pedicle. The tumour weighed 6 lb. The uterus is of normal size. Removed from a spinster aged 40.

SUBSEROUS FIBROIDS.

The fate of a subserous fibroid is intimately bound up with the age changes of the uterus.

Until the girl becomes pubic the uterus is functionless, and after the establishment of menstruation it increases in size and remains very vascular for thirty years. After the menopause the function of the uterus ceases, the blood supply declines, the coats of its arteries thicken, and the vessels become impervious, like the obliterated hypogastric arteries after the detachment of the placenta. This local arterial change is associated with the atrophy of the uterus. If the uterus contains fibroids, they shrink, atrophy, mummify, or calcify. A mummified submucous or an intramural fibroid is tough, structureless, and resembles chamois leather.

The influence of interference in the blood supply on the texture of fibroids may be easily studied in subserous tumours with narrow stalks. A fibroid the size of a ripe plum with a narrow stalk may be as mobile as a cherry on a tree. If the stalk be tightly twisted by the movement of the tumour the blood supply is arrested, the fibroid dies, and sometimes drops from the uterus into the pelvis. Small detached dead fibroids are not novelties in the dead-house. Subserous fibroids sometimes become big tumours. A solitary subserous fibroid does not cause enlargement of the uterus. I have removed a tumour weighing 36 lb., attached by a pedicle 3 cm. in diameter to a uterus of normal size. A flexible stalk confers great mobility on a big tumour, and the blood vessels supplying it pass through this narrow isthmus; on section it often resembles a cavernous naevus. (Fig. 1.) When the tumour twists, or drags its pedicle, the circulation of blood through it is stopped. Partial twists hinder the escape of venous blood and the tumour becomes engorged. Complete twists obstruct the arteries and the fibroid becomes ischaemic from deprivation of arterial blood; this leads to degenerative change. Big subserous tumours are often converted into sacs filled with gelatinous material. Circulatory disturbances in the tumour lead to adhesions between the periphery of the tumour and adjacent intestines and omentum; or the gall bladder, liver, and stomach, when it reaches into the epigastrium. Large stalked fibroids attached to the fundus of the uterus do not hinder conception nor obstruct delivery. A fibroid with a long stalk attached to the back of the uterus may slip into the pelvis and become incarcerated. If under such conditions the uterus becomes gravid, a fibroid of this kind will seriously obstruct delivery. Although, as a rule, a sessile subserous fibroid neither hinders pregnancy nor obstructs delivery, the latter is inimical to the fibroid. It is established that the diminution in size of the uterus and the movement of this organ as it sinks into the pelvis after extrusion of the fetus, imparts a rotatory motion to an ovarian tumour when it complicates pregnancy. A similar motion can be imparted to a stalked subserous fibroid under like conditions. A sessile subserous fibroid, especially a fundal fibroid, will be involved in the septic process when the endometrium becomes infected in the course of delivery. This will lead to serious changes and subsequent complications imperilling life.

SUBMUCOUS FIBROIDS.

The changes in submucous fibroids are chiefly influenced by the functions of the uterus; indeed, the natural history of these tumours is like that of a uterine pregnancy, and these two conditions sometimes simulate each other so closely as to make clinical differentiation difficult.

A submucous fibroid grows insidiously: its presence is often unsuspected until the slowly, but persistently, enlarging uterus rises high in the hypogastrium and attention is attracted to the abnormal size of the belly. The contour of the uterus may be uniform and smooth; often a murmur is audible on auscultation. On several occasions I have removed a uterus containing a large soft subserous fibroid, and placed it before my assistants to

decide, from physical signs, whether the uterus was gravid or occupied by a fibroid. They found difficulty in making a choice.

A large submucous fibroid, like pregnancy, leads to an enormous increase in size of the veins and lymph vessels of the pampiniform plexus. In some cases there is a large corpus luteum, and, rarely, mucoid fluid can be squeezed from the nipples. If the fibroid be enucleated, the uterine tissue will contract as rapidly as after the expulsion of a fetus, although the fibroid may have occupied the uterus many years. In some cases the correspondence to pregnancy is further exemplified when the uterus succeeds in expelling the fibroid into the vagina; this act is accompanied by the pains of labour and free bleeding. Such an event has been mistaken for a miscarriage, the extruded fibroid for the head of the fetus, and forceps have been applied to facilitate its delivery! The result to the mother was disastrous. The likeness to delivery, or miscarriage, is more marked with a submucous fibroid softened by red degeneration. Sometimes softened tissue is discharged in shreds. These red shreds have been mistaken for retained secundines before, and since, practitioners of midwifery became familiar with red degeneration. The common colour of a uterine fibroid is white or pale yellow; when a uterus containing a submucous or an intramural fibroid becomes gravid the tissue of the fibroid reddens in streaks and softens. As the pregnancy advances the tumour assumes the colour of beefsteak, and the fibroid sometimes liquefies and becomes a cyst filled with chocolate-coloured fluid, the capsule forming the cyst wall. This change is not due to bacterial action nor thrombosis. Micro-organisms are occasionally found in these disorganized fibroids; their presence is an epiphenomenon—a sequence not a cause. This metamorphosis of fibroids is described as autolysis, and is probably a local exaggeration of the process that leads to involution of the puerperal uterus. The unpleasant odour emitted by red fibroids is due to amines produced by decomposition of the muscle tissue. Autolysis is the term applied to the transformation of insoluble tissue into soluble nitrogenous extractives. The change occurs without the aid of bacteria. Red fibroids occur in spinsters near the menopause, but are more common in pregnant women.

When the uterus persistently endeavours to extrude a submucous fibroid, the unavailing labour leads to the dilatation of the cervical canal; this facilitates the ingress of pathogenic bacteria. Hence chronic salpingitis and hydrosalpinx are common associations of submucous fibroids. These complications are due to the same cause as tubal and pelvic infections ensuing on miscarriage, labour at term, or curetting, and run like courses, with similar endings. Infection of a partially extruded fibroid is due to the same cause, and runs the same course as puerperal sepsis.

Cervical Fibroids.

A large fibroid in the neck of the uterus is an insidious tumour, especially in spinsters. Its natural history corresponds to the part of the uterus in which it grows. The cervical endometrium takes no part in the menstrual process; therefore a large tumour growing in the neck of the uterus does not interfere with menstruation. In married women such tumours sometimes interfere with coitus, and I have removed them on this account. If a cervical fibroid gets infected or extruded into the vagina, alarming bleeding leads to its discovery, but the tumour is more likely to be detected when it leads to retention of urine. A tumour in the neck of the uterus hinders but does not prevent conception, but it is a formidable obstruction to delivery, and liable to red degeneration when associated with pregnancy.



FIG. 2.—Ovarian fibroid cut to show the whorled disposition of its fibres. Removed from a woman aged 70, in whom it caused retention of urine by becoming incarcerated in the pelvis.



FIG. 3.—Uterus in section containing fibroids, and the ovary, also shown in section, is partially occupied by a fibroid. The ovary contains a corpus luteum. From a barren woman aged 43.

Ovarian Fibroids.

In consistence and shape ovarian resemble uterine fibroids, and the likeness extends to minute structural details, even to the whorled disposition of the fibres. The capsule of an ovarian fibroid is pearl-white and intensely hard, harder than the common forms of uterine fibroids. This hardness is a valuable diagnostic sign and enables the nature of the tumour to be anticipated. Fibroids of the ovary arise at any period of life after puberty. I removed one from a girl aged 19; also from a septuagenarian spinster.

In elderly women ovarian fibroids are sometimes accompanied by hydroperitoneum; this often arouses a groundless suspicion of malignancy. Ovarian fibroids, as a rule, have a smooth contour and are occasionally bilateral and sometimes co-exist with uterine fibroids (Fig. 3). They

may become cystic and some calcify. These tumours do not influence pregnancy nor undergo red degeneration, but an incarcerated ovarian fibroid usually offers an impassable barrier to the fetus. An incarcerated ovarian fibroid may lead to retention of urine (Fig. 2).

DIAGNOSIS.

The various changes in the consistence of fibroids have a remarkable effect on diagnosis. Until surgeons displayed great activity in removing them the diagnosis of uterine fibroids was regarded as a simple clinical exercise. It is often difficult to differentiate clinically between cystic fibroids and big cyst-adenomas of the ovary; or between ovarian fibroids and subserous uterine fibroids. Occasionally it is impossible to decide between a soft submucous fibroid and pregnancy on physical signs alone. Time alone enables a decision to be made. Gynaecologists have operated under the expectation of removing a fibroid but have found a calcified fetus (lithopaedion). A dead fetus in the rudimentary horn of a so-called unicorn uterus has been removed in belief that it was a fibroid; the error was discovered when, from sheer curiosity, the operator or his assistant cut into the mass. Olshausen had an odd experience in 1902. He removed a gravid uterus from a woman aged 38, under the impression that it contained a cystic fibroid. The mass proved to be a large sacral tumour growing from the buttocks of an intrauterine fetus. A pelvic spleen has been mistaken for a subserous fibroid; a freely movable fibroid lying high in the belly has been diagnosed as an enlarged spleen; and some, with long stalks, as movable kidneys. Such errors are rarely serious. A cancerous mass in the pelvic colon, lying behind the uterus, is often mistaken for a subserous fibroid. This is always an unfortunate error, because operative interference, undertaken on the idea that the mass is a benign fibroid, causes chagrin to the surgeon when it ends in colostomy; and especially when a gynaecologist, with overweening confidence, has assured the patient and her relatives that the tumour is a fibroid, and its removal simple and safe.

As the protean manifestations and combinations of pelvic tumours are ofttimes puzzling, I have ventured to frame a few aphorisms, in the manner of Agur the sceptic (150 B.C.), which may be useful to you, not as examination tricks, but for stern practice.

Two things disquieting in diagnosis:

1. To distinguish between solid ovarian tumours and large subserous fibroids.
2. And between tubal swelling and uterine fibroids.

Three foolish things:

3. To give opinions on pelvic swellings without making a vaginal examination.
4. Or on hypogastric swellings without passing a catheter.
5. To remove fibroids without examining the woman's urine for sugar until she is comatose two or three days after the operation.

Four things useful to know:

6. When a barren woman between 35 and 45 has retention of urine, it is almost certain that she has a fibroid in her womb.
7. A fibroid that suddenly becomes painful during pregnancy is probably in a state of red degeneration. The clinical signs simulate tubal pregnancy, axial rotation of an ovarian tumour, and acute infection of the appendix.
8. Errors in the differential diagnosis of fibroids and pregnancy are usually made before the beating of the fetal heart is audible.
9. A cancerous mass in the pelvic colon, in contact with the uterus, imitates the signs of a subserous fibroid.

Four things that are wise:

10. When in doubt whether a big uterus in a young woman contains a child or a fibroid, wait for a month and re-examine the patient.
11. To remember that ovarian tumours give much trouble to pregnant and lying-in women, but fibroids are more deadly, for they are liable to become septic.
12. After the removal of a fibroid in the procreative period of life a woman is more liable to grow more fibroids than to conceive successfully.
13. To remember that uterine bleeding after the menopause, in a barren woman with a fibroid, often signifies the existence of cancer within the uterus.

"As the churning of milk bringeth forth butter, and the wringing of the nose bringeth forth blood," so the diagnosis of fibroids will continue to perplex surgeons. In the past women often endured unnecessary suffering from the blind belief that fibroids are tumours capable of easy recognition.

TREATMENT.

In this hospital during 1892 three women had the uterus removed for troublesome fibroids. Two died in consequence of the operation. In 1912 there were seventy-one abdominal hysterectomies performed in the hospital for fibroids and all recovered. This was a great improvement in twenty years. Of the last 200 cases of hysterectomy for this disease that I have performed in the hospital all the patients recovered. Time has amply vindicated the surgical treatment of uterine fibroids by proving that no physiological evil attends the loss of the uterus. Coincident with this improvement in the mortality-rate there has been a marked diminution in the sequelae. Among the 200 hysterectomies 188 were subtotal. The merits of this operation are now so well known that there is no need for me to recapitulate them. Hysterectomy has been performed in my ward for adenomyoma, fibrosis uteri, cancer, and septic infection, during the period covered by the 200 cases of fibroids the subject of this lecture. All the patients recovered. Also three with ovarian fibroids and four abdominal myomectomies. Mr. C. H. S. Webb, late surgical registrar, allows me to state that he has examined the registers and endorses the accuracy of my statement. (The series continues unbroken.)

Methods.

These results have been obtained with a minimum use of antiseptics. The skin of the abdomen is painted with tincture of iodine an hour before operation. The cut surface of the cervical stump is swabbed with the tincture. Sterilized silk is exclusively used for ligatures and sutures. The surgeon, assistants, and nurses wear sterilized rubber gloves. After the closure of the cervical stump, the gloved hands are thoroughly rinsed with a solution of mercury perchloride (1 in 5,000). The abdominal incision is then secured with sutures, and the line of the incision, as well as the adjacent skin, lightly painted with tincture of iodine. No dressings are used. It is my custom in selecting house-surgeons to choose officers who have filled a resident appointment to a physician. The house-surgeon submits all patients set down for operation to a systematic examination. Women with uterine fibroids who show signs of diabetes, exophthalmic goitre, cardiac disease, arterial sclerosis, and albuminuria are rarely submitted to hysterectomy.

In conclusion, let me recommend you to eschew textbook descriptions of hysterectomy. Learn the technique by assisting a surgeon of experience.

SIR CHARLES BENT BALL, Honorary Surgeon to the King in Ireland, left personal property in the United Kingdom valued at £19,397.

IN a communication made to the Académie des Sciences of Paris (*Photo-Revue*, Paris, June, 1916) Dr. Marage has described the use of the cinematograph in the treatment of nervous stuttering. He first photographed on the one film a normal and a stuttering subject during the utterance of the same phrase, and then each separately. The person affected with the complaint is thus able to study the movements at his leisure and to note his fault. At a demonstration the phrase chosen was "Bonjour, papa," and the difference between the two renderings was shown to relate, not only to the rapidity of the enunciation, which was three times as great in the case of the abnormal subject as in the other, but also to the much greater force, in the former case, of the explosives *b* and *p*. Once having recognized his fault, the patient went on to certain respiratory exercises. It is claimed that this method, owing to the vividness of the impression it makes on the patient, is superior to the use of the gramophone record.

SOME NOTES ON TRENCH FEVER.

BY

CAPTAIN T. STRETHILL WRIGHT, M.B., R.A.M.C.

THE following notes were begun during the winter, 1915-16, and are compiled from clinical observations made on cases admitted to the medical wards of a stationary hospital from the middle of November to the end of March.

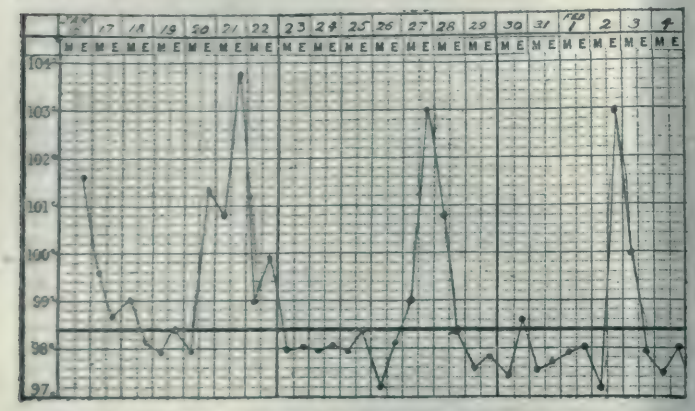


CHART 1.—Sudden onset on evening of January 14th. Temperature had fallen almost to normal within seventy-two hours of appearance of first symptoms. Temperature after February 4th did not rise above normal.

Among the very large numbers of cases that came down to us from the front labelled "influenza" and "P.U.O." there were some thirty cases of a new type; the curious character of the temperature charts, which showed a series of "spikes" occurring at more or less regular intervals, and separated by afebrile periods, attracted attention. These cases were carefully observed, and a remarkable similarity was noticed in the symptoms they presented and in the course they ran. This was before Captain McNee, Lieutenant Renshaw, and Captain Brunt had published in the BRITISH MEDICAL JOURNAL (February 12th, 1916) their exhaustive description of trench fever, but the new disease had already been much talked of.

Our cases presented a definite clinical picture unlike that of any known disease; the character of the pyrexia and the symptoms conformed to the type that we had come to associate with trench fever, and before the end of November we had begun to employ this term in diagnosing them.

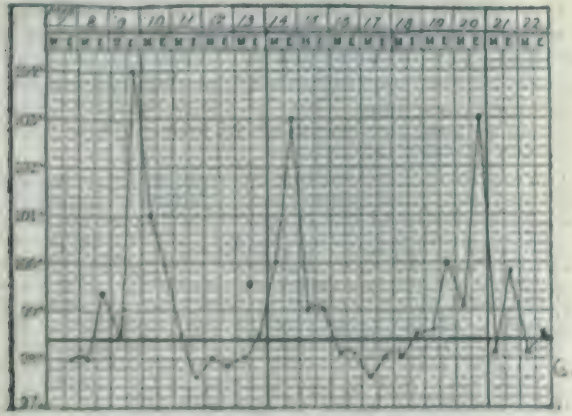


CHART 2.—Onset two or three days before admission. No fever before March 1st. Sent down as case of "rheumatism." Temperature after March 22nd did not rise above 99°.

Incidence.

The cases were all young men, or men in the prime of life, and the great majority were infantrymen who contracted the disease while in the trenches; there were two or three artillerymen who had been living in dug-outs, one A.S.C. man attached to a field ambulance, and a couple of R.A.M.C. orderlies also attached to field ambulances.

In one or two instances it was suspected that patients contracted the disease while in the ward—for example, cases sent down from the front labelled "rheumatism" or "myalgia," who had normal or subnormal temperatures for a week before the first "spike" appeared on the chart; but since Captain McNee has stated that the incubation period may be as long as twenty-two days we are not in a position to confirm the suspicion.

Etiology.

The ultimate cause of the disease is as yet a matter of speculation. Permission to perform inoculation experiments here could not be obtained, but the infectivity of the disease has been proved by Captain McNee by its ready transmission from one person to another by the blood, and his experiments also seem to have demonstrated that the virus is contained within the blood corpuscles themselves, whether leucocytes or red cells. As regards its transmission, he suggests that

> the disease is either contagious from man to man or, what seems much more likely, is carried by one of the common flies or parasites found in the trenches. During the past summer lice, mosquitos, midges, and flies of other kinds have all been common in the Flanders war zone.

The fact that we have been getting cases of trench fever throughout the winter suggests that the infection can hardly be conveyed by mosquitos, midges, or flies.

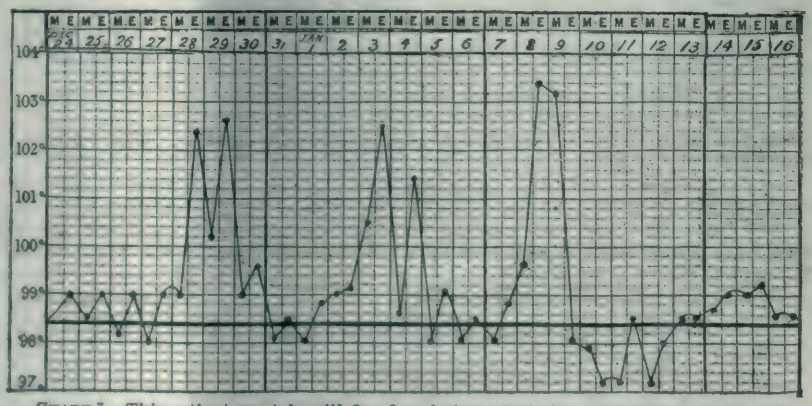


CHART 3.—This patient was taken ill five days before admission. No information could be obtained as to duration or intensity of any pyrexia there may have been during this period. In this case headache and pain and tenderness in abdominal muscles attached to costal margins were the predominant symptoms. Temperature after January 16th did not rise above normal.

Lice, however, thrive all the year round; further, there has been a plague of rats and mice not only in the trenches, but also in the artillery dug-outs and in the barns and stables that serve as billets for the troops, and

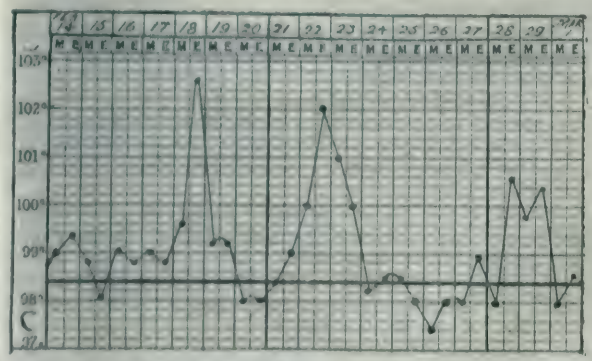


CHART 4.—First symptoms appeared on day before admission—headache, pain in small of back and calves. Temperature after March 1st did not rise above normal.

these vermin, infested as they are by fleas, lice, and other parasites, may be the agents that transmit the infection.

Clinical Features.

The onset is generally sudden, according to the accounts given by the men. The majority complained of severe headache and pain in the legs and small of the back. The headache was not uncommonly associated with dizziness, and these symptoms sometimes came on so suddenly and with such violence that the patient was unable to stand and had to be carried to the dressing station.

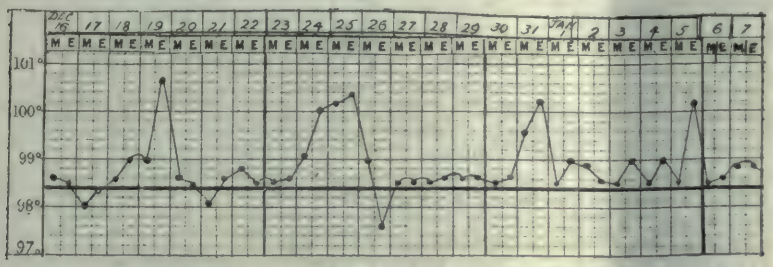


CHART 5.—This patient was taken ill suddenly in the trenches eleven days before admission with shivering, fever and pain in head, back and legs. This is one of the two cases in which it was not possible to establish the length of the initial fever. All the "spikes" are comparatively short; the first one recorded occurred a fortnight after the onset of the disease, and may have been the second relapse. Temperature after January 7th did not rise above 99°.

The pain in our cases, as far as we could determine, was invariably muscular. Several patients said they had pain in the shins, but on examination there was no tenderness upon pressure on the tibia, while pressure on the muscles along the outer and inner borders of the bone caused acute pain.

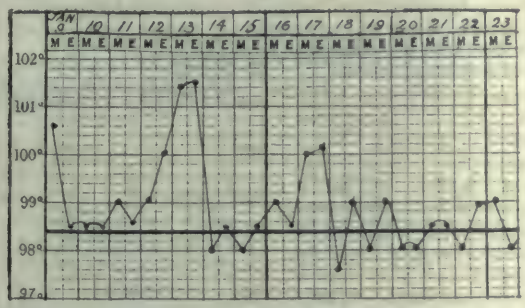


CHART 6.—Sudden onset, with fever on the day before admission. Temperature after January 23rd did not rise above normal.

This was in marked contrast to the symptoms presented by another febrile affection, very common in our wards at this time, to which for convenience we gave the name of "shin fever." The chief characteristics of shin fever were persistent pain and tenderness in the tibiae, a low irregular pyrexia generally lasting two to three weeks, "fluffiness" of the tibial periosteum—shown by x rays—and marked leucocytosis.

There was a certain amount of variation in different cases of trench fever in the muscles affected, but the infection was invariably bilateral. In some cases the pain in the lower limbs was limited to the anterior muscles of the legs, in others to the muscles of the calves. Pain was frequently felt at the back of the knees and in the muscles of the thighs.

In two cases there was no pain at all in the lower limbs, but pain and tenderness in the muscles attached to the costal margins, and this pain was much increased by contracting the abdominal muscles, as for example, in the effort to sit up.

During the febrile paroxysms which characterize the disease the pain in the muscles and the headache were always worse, and there was general malaise, but during the intervening afebrile periods it frequently happened that all symptoms disappeared, the patient felt perfectly well, and was allowed to get up and take ordinary diet. The pain in some instances was continuous throughout the course of the illness, and in these cases it was sometimes so severe during the febrile periods as to require the administration of morphine.

The fever was always associated with loss of appetite and the tongue was generally coated; sweating was a common accompaniment of the sharp falls in temperature. The only other common symptom noted was a tendency to constipation.

The Fever.

In the great majority of cases the illness begins with a sharp rise of temperature, but occasionally there is no fever until the third or fourth day after the appearance of the symptoms.

Some of our cases reached us within twenty-four hours of reporting sick, and quite a large number within three days. In certain cases it was impossible to determine the length of the initial period of pyrexia, as they were sent down from the front without any notes. However, in the majority of cases it was possible, by starting from the last day on which the patient felt perfectly well and was able to do his work, to fix an outside limit for the duration of the initial fever.

A careful study of the history of each case led to the conclusion that the average length of the initial period of pyrexia was two to three days.

Captain McNee divided his cases into two classes:

In Class A there was an initial period of fever lasting about a week, generally followed by a single relapse.

In Class B the initial fever was shorter and was followed by a series of relapses.

We of course saw far fewer cases than he, but we found it impossible to classify them in this way. We have a number of instances in which the initial fever lasted only two days, and yet was only followed by a single relapse; in others an initial pyrexial period of two or three days was followed by several relapses, like Captain McNee's Class B. We have no unequivocal examples of his Class A, which in his experience was the more common type.

The accompanying charts illustrate these points. The first seven show a series of two or more relapses following the initial rise of temperature, the remainder show only a single relapse; in all except two (Charts 3 and 5) there was evidence to show that the initial fever was short.

After reviewing all the cases in which the duration of the initial fever is recorded or can be calculated (comprising the majority of our series), we have come to the conclusion that these all belong to a single type, the characteristics of which are a sudden onset with a short bout of fever lasting two or three days, followed by one or more relapses.

As a general rule the severity of the symptoms is proportional to the height of the temperature, but it seems impossible to predict from the intensity of the fever of onset whether the disease will run a long or a short course—that is, whether there will be one or several relapses.

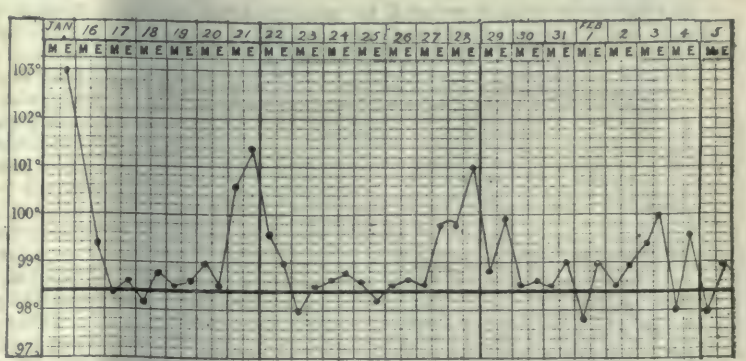


CHART 7.—This patient was taken ill suddenly two days before admission; his field medical card recorded his temperature (103°) on the evening of January 15th. Temperature after February 5th did not rise above 99°.

The relapses recorded on our charts vary from one to three in number; they may occur every fifth, sixth, seventh, or eighth day, but it is uncommon for the spacing to be exactly regular throughout the illness in each case. The most characteristic thing about them is the sharpness of the rise and fall of the temperature, which gives the

chart a peculiarly "spiky" appearance. The temperature may settle down immediately after the last "spike," or there may be a mild, irregular pyrexia lasting a week or so before convalescence is finally established.

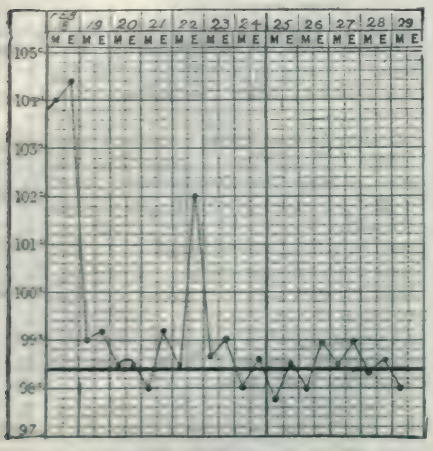


CHART 8.—This case was perfectly well until the evening of the day before admission; he was suddenly seized with violent headache and acute pain in muscles of legs and small of back.

In most of the cases the pulse during the febrile paroxysms was comparatively slow; it did not often go above 100. After the last relapse a tendency to tachycardia and irregularity of the heart's action was noticed in several cases.

Treatment.

The treatment adopted here was mainly symptomatic, the cause of the disease being still unknown.

Various drugs, including potassium iodide and arsenic

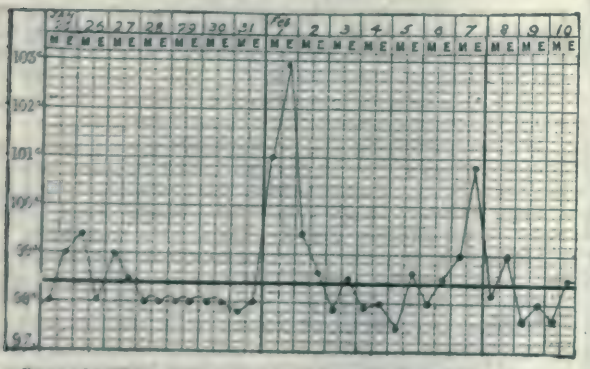


CHART 9.—This patient was sent down suffering from nervous debility and depression, and developed the signs and symptoms of trench fever in the ward. Temperature after February 10th did not rise above normal.

were employed, but none were found to have any specific action on the disease.

In some cases aspirin seemed to produce some alleviation of the headache; it did not appear to have any effect

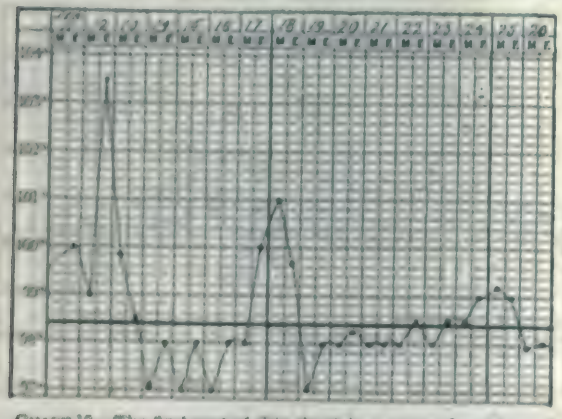


CHART 10.—The first part of this chart is a copy of one brought by patient from the casualty clearing station; the attack began suddenly on February 11th, while he was undergoing treatment for scabies.

on the fever or on the pain in the back and lower limbs. In the severest cases occasional doses of morphine were administered.

The patients were kept in bed and put on a fluid diet during the febrile paroxysms; in the intervals most of them were well enough to get up and take ordinary food. The treatment of the tachycardia and debility that were often present during convalescence calls for no special comment.

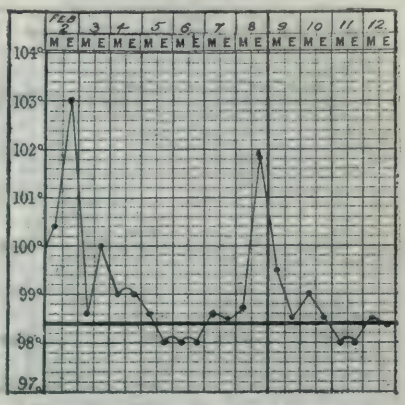


CHART 11.—This case was sent down with history of inflamed foot; this had been opened and the wound had healed on his arrival here. The first "spike" of trench fever appeared on the evening of the day of admission.

Diagnosis.

A few words may be added as regards the differential diagnosis.

Examinations of the blood, faeces, and urine of a large number of the cases were made by Major Hume and Captain Greenfield, R.A.M.C., with the object (*a*) of discovering, if possible, some clue to the causation of the disease, and (*b*) of excluding the enteric group.

(*a*) Attempts to discover the presence of an organism to which the infection may be attributed have not yet been rewarded with any success. It seems superfluous, therefore, to give an account of the various investigations undertaken with this object. It may be noted in passing that a moderate leucocytosis was found to be a common but not a constant feature. Punctate basophilia was also observed in the blood films examined, but this phenomenon was also encountered in cases not suffering from trench fever.

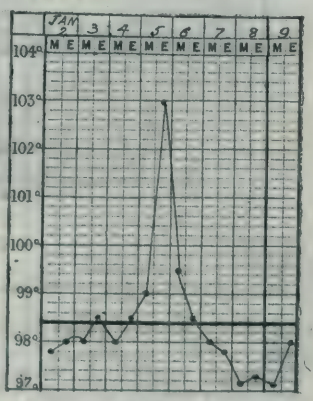


CHART 12.—Sudden onset two days before admission, with high temperature; the height was not recorded on the field medical card. The chart shows a single typical relapse.

(*b*) It had been suggested that the disease was perhaps an atypical form of enteric—"typhoid fever in the inoculated." The clinical picture presented was all against this hypothesis—for example, to mention only two points, none of the patients ever had any rash, and in no case was the spleen enlarged or tender. However, the question was finally settled in the laboratory.

All our cases without exception had previously been inoculated against typhoid, and this fact had to be taken into consideration in interpreting the Widal reaction. Blood was taken at various times in the course of the disease, at the height of the fever and during the afebrile periods, but in all cases examined the evidence of typhoid or paratyphoid infection was negative, cultures from the blood all proved sterile, and cultures from the stools also gave negative results.

It may be confidently affirmed, therefore, that these were not atypical cases of enteric but genuine cases of "trench fever," and, though it would be imprudent to dogmatize while the cause of the infection remains undiscovered, we can at least say that the disease has every appearance of being a definite clinical entity.

In conclusion, I should like to express my grateful acknowledgements to Colonel Butler, D.S.O., for many helpful suggestions, and to Major Hume and Captain Greenfield for their kindness and patience in carrying out investigations in the laboratory.

DR. A. B. MACALLUM, professor of physiology in the University of Toronto, has been elected president of the Royal Society of Canada.

THE PATHOGENICITY OF GIARDIA (LAMBLIA) INTESTINALIS TO MEN AND TO EXPERIMENTAL ANIMALS.

BY

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INTRODUCTION.

WHILE British troops were in Gallipoli, a number of men contracted various forms of dysentery or diarrhoea, and severe cases occurred. Among the men invalided to England a number were found to be infected with *Giardia* (*Lamblia*) *intestinalis*, and some harboured no other dysentery-producing organism. We personally found 187 cases of pure lambliasis among 1,305 patients. Similar cases of pure lambliasis have occurred on the western front, while from the various war zones patients with mixed infections have been common. The pathogenicity of *Giardia* (*Lamblia*) *intestinalis* has been disputed in certain quarters. We have always believed that the organism was pathogenic, and published the same in 1915 and 1916. We here give our personal evidence, based on our observations of pure cases of lambliasis in man and of some experiments with human Lamblia on animals. We may say at once that in both human and animal lambliasis stools, as well as at *post-mortem* examinations, erosion and distortion of the intestinal epithelial cells occurred, owing to the direct suctorial action of the flagellate Lamblia.

HUMAN CASES.

Recently an account was published by one of us of a numerical study of a series of seven cases of soldiers in whom diarrhoea or dysentery had been reported, and in whom no protozoön other than Lamblia nor dysentery bacillus was found, after repeated examinations, to account for the symptoms produced. These cases were of men who contracted violent diarrhoea or dysentery in Flanders or in Gallipoli, so that two strains have been under constant observation. Experiments have been conducted with these two strains, which we term the "Flanders" and the "Gallipoli" strains. Some variations in virulence between the two strains occurred, the Flanders strain being the more virulent both in man and in subinoculated animals, but the Flanders case was a somewhat more recent infection.

The full history of the men will be found in the paper already mentioned, and need not be given in detail here. As a general statement, all the patients were weak, especially after a little exertion, and one case from Flanders was weak when admitted to hospital, and has been weak ever since. At times most of the men were somewhat constipated. Occasionally the temperature was slightly subnormal, but the charts showed little that was noticeable. There was a distinct increase in the number of mononuclear leucocytes and lymphocytes in the blood.

The stools were sometimes of peculiar colours and consistencies; many were sulphur yellow in colour, but in some cases the colour was hardly different from that of normal stools. In the case of one patient who contracted lambliasis in Flanders, the stools were almost always bulky and diarrhoeic in character, and were compared at different times with khaki, mud, putty and whipped cream. At times, blood was voided with the stools.

It has been assumed by some workers that human lambliasis is confined to the tropics. This is not so. *Giardia* (*Lamblia*) *intestinalis* is well known in Italy, and lambliasis seems to be endemic there, children being more severely affected than adults. It also occurs in Russia and Germany. Again, lambliasis has been contracted in Flanders by a man who had never left England until he went to Flanders two months before his illness. The assumption as to the tropical localization of lambliasis, therefore, is not really accurate.

A second hypothesis set forward is that in cool countries the virulence of lamblial infections is reduced. This, again, does not seem to be borne out by some of our cases. The most virulent infection with Lamblia in man and in subinoculated animals that we have encountered came from Flanders, and the patient, prior to proceeding there, had never left this country. The virulence of the lamblial infection was not reduced in his case. Lamblial diarrhoea in children has been described by Mello Leitao in Rio de Janeiro. Virulence does not seem to be dependent on geographical distribution, and in our present state of knowledge it is unwise to make generalizations.

ANIMAL EXPERIMENTS.

Our experiments were made with kittens and with mice. Lamblia is only rarely encountered in carnivores, but is more common in rodents. Before our animals were actually used for experiment we examined their faeces daily for periods up to a month and at times aperients were administered, but no Lamblia was seen. These precautions were very necessary in the case of mice, as lambliasis occurs naturally in them, being described as producing "chronic enteritis." We believe that all our experimental animals were quite free from natural lamblial infections before experimentation. The experimental animals were given food contaminated with human faeces containing Lamblia cysts or with emulsions of faeces likewise parasitized. By repeated decantation and centrifuging of emulsions of faeces, Lamblia cysts free from débris were obtained. Control animals were given food contaminated with similar quantities of normal human faeces or with faecal emulsions free from débris.

Daily examinations of the faeces of each of the experimental animals and of the controls were made, as well as full examinations at death. Preparations of the parasites in the fresh state or fixed and stained smears, and sections of the gut were used, the results obtained in each series corroborating those obtained by other methods used. Details of the experiments may now be set forth.

Experiment I. (H. B. F.)

A male kitten, weight 725 grams, was fed with milk containing Lamblia cysts (Gallipoli strain) that had been separated from débris by washing and decantation, followed by centrifuging. On the second day a very few Lamblia cysts were found in the faeces, and as these might merely have passed through the alimentary tract unchanged, a second feed of contaminated milk was given. On the third day the faeces of the kitten were markedly diarrhoeic, of a yellowish-green colour, and contained a few young Lamblia cysts. A similar condition was found on the fourth and fifth days. No parasites were found on the sixth and seventh days, but on the eighth day a few young Lamblia cysts occurred in the faeces, which were very fluid. On the twelfth day after the first feed the faeces of the animal were very foul-smelling, and the anus showed signs of inflammation. The kitten did not feed well this day. On the fifteenth day two empty Lamblia cysts were observed in a preparation of the faeces, but no more cysts were found in the faeces until the twenty-fourth day. They disappeared again until the twenty-seventh day, when one cyst was found, but no more parasites were seen until the twenty-ninth day, when a few motile flagellates and a very few cysts were present. No more Lamblia were observed until the thirty-second day, when a few cysts were passed. The same occurred on the thirty-third day. From then till the forty-fourth day the faeces were negative. On the forty-fourth day the faeces were loose and diarrhoeic, and Lamblia cysts and flagellates appeared in them. The kitten showed signs of distress, howled, and refused food. Its coat became rough, and the animal shivered. On the forty-fifth, forty-seventh, and forty-eighth days some Lamblia cysts were present in the faeces. The kitten seemed ill, vomited, sent up piteous cries, and the condition of the coat was bad. Violent diarrhoea set in on the forty-eighth day, and the kitten died on the forty-ninth day after the first infective feed. At death it weighed 638 grams, its control weighing 997 grams.

At autopsy, the blood vessels of the stomach and intestine were engorged, and the mucous membrane showed signs of erosion. Flagellate Lamblia, and some rounding, encysting forms were present in the duodenum, and a few flagellates were seen in the jejunum and ileum. The caecal contents were hard and whitish, but no Lamblia were found in them. Fluid faeces oozed from the anus at death, and a few Lamblia cysts were found in this discharge. The body was thin, but otherwise the remaining organs were normal.

Experiment II. (H. B. F.)

A female kitten, weight 712 grams, was fed with milk containing Lamblia cysts (Gallipoli strain), freed from débris. On the third and fourth days after the infective feed the faeces were diarrhoeic, and a few Lamblia cysts occurred therein. The faeces were also foul-smelling. The kitten did not feed well from the twelfth to the seventeenth day, when it ate greedily, but became violently diarrhoeic. Lamblia cysts were not found until the twenty-seventh day, when a recurrence took place, a few cysts being voided. On the twenty-ninth day active flagellates were passed in the faeces, and for the next five days a few cysts were found. They were then absent till the fortieth day, when they reappeared, but no more were seen

till the forty-fourth day. The kitten now became much more diarrhoeic, howled a great deal, vomited much, and was restless. The diarrhoea continued, cysts and flagellates being passed in the excrement on the fiftieth, fifty-first, and fifty-second days. The animal then became drowsy, and died on the fifty-third day after the infective feed. At death it weighed 793 grams; the control weighed 965 grams, its weight at the commencement of the experiment being 710 grams.

At autopsy, the spleen was large and the blood vessels of the stomach and intestines engorged. The mucous membrane of the duodenum was stripped in parts, whole villi being found in the contents. The caecum was slightly enlarged, and there was much cell débris in the colon. Some flagellates and a few cysts were found in the duodenum and the jejunum. Cysts were also present in the colon. The contents of the rectum contained no parasites. The relative fewness of the Lamblia probably resulted from the constant voiding of them in the diarrhoeic faeces.

Experiment III. (H. B. F.)

A male kitten, weight 307 grams, was fed on milk containing Lamblia cysts of the Gallipoli strain. On the second and third day the faeces were negative; on the fourth, fifth, and seventh days Lamblia cysts and a few flagellates were seen. The kitten seemed to weaken a good deal on the sixth day and died on the eighth day. It then weighed 290 grams, the control kitten belonging to the same litter weighing 330 grams.

At autopsy, general inflammatory conditions of the intestine were observed with much injection of the blood vessels. Flagellate Lamblia were present in the proximal loop of the duodenum, and were more sparsely distributed down the rest of the small intestine. There were some cysts both in the duodenum and the caecum, while a few were present in the faecal pellets. The control kitten was found to be free from parasites when killed.

Experiment IV. (H. B. F.)

A female kitten, weight 325 grams, was fed with cysts of Lamblia (Gallipoli strain) in milk. A control of the same litter and of equal weight was given milk containing normal human faeces. The excrement of the experimental kitten contained Lamblia cysts on the fourth, fifth, and sixth days after feeding. On the third day the kitten became diarrhoeic, and continued so until it died on the sixth day, its weight then being 305 grams. The control remained healthy, and when killed on the sixth day weighed 339 grams. At autopsy a similar condition prevailed in the experimental kitten to that shown by the kitten of Experiment III, but there were rather more parasites.

Experiment V. (H. B. F.)

A male kitten was fed with food contaminated with Lamblia cysts, Gallipoli strain. It weighed 425 grams. The faeces were examined daily, but no Lamblia were found in them. The animal was killed after two months and was found normal at autopsy.

Experiment VI. (A. P.)

The strain of Lamblia used in this and in Experiment VII was derived from a patient who contracted lambliasis in Flanders and who had never left England before going to Flanders. Samples of his stools had been kept for some time, and the one used for these experiments had been passed seventy-four days before it was used. Some light is thus shed on the duration of vitality of the cysts of *Giardia* (*Lamblia*) *intestinalis*.

A female kitten, weight 400 grams, was fed with food contaminated with Lamblia cysts from the Flanders strain. Its faeces were examined daily. On the second, third, fifth, and seventh days they were negative, but a few Lamblia cysts were seen on the ninth and eleventh days. After the infective feed, the kitten soon became thinner and showed signs of diarrhoea and general discomfort. The diarrhoea became more marked and the animal was noisy, giving forth piercing howls. It died after eleven days. At death the body was somewhat emaciated, the blood vessels of the stomach, intestine, and mesentery were injected, and the walls of the duodenum were thin. The duodenal mucosa was disintegrated, some of the villi being stripped off. Lamblia, both free and attached to epithelial cells, were present in the proximal loop of the duodenum, a fair number occurred in the distal loop and a few were present in the jejunum. In the caecum a few flagellates occurred together with some encysted Lamblia, and cysts were found in the rectal contents. The control kitten never showed any sign of infection, remained healthy, and weighed 620 grams at the time of death of the experimental animal, which then weighed 375 grams.

Experiment VII. (A. P.)

A female kitten, weight 410 grams, was fed with milk containing Lamblia cysts of the same strain and age as those used in Experiment VI. The symptoms produced were like those described for the previous subject. On the ninth and eleventh days after the infective feed Lamblia cysts were present in the faeces of the kitten and the faeces were very diarrhoeic. At death, which occurred on the twelfth day after the infective feed, the kitten weighed 375 grams, the loss of weight being thus greater than in the preceding case. At autopsy similar results were obtained to those in the preceding case, but the parasites appeared to be rather less numerous. The control kitten, which weighed 530 grams, though of equal weight at the commencement of the experiment, was found to be quite normal when killed on the day of the death of the experimental animal.

Experiment VIII. (A. P.)

A male kitten was fed with food containing cysts of Lamblia from a patient from Gallipoli. The animal was under observation for ten weeks, but showed no parasites, nor were any found when the animal was killed.

Experiment IX. (H. B. F.)

An adult female mouse was fed on food contaminated with cysts of *Giardia* (*Lamblia*) *intestinalis*, Gallipoli strain, which had been separated from débris. A control mouse, which was of equal weight to the experimental one, was given food to which normal faeces had been added. On the second day after feeding, a few empty Lamblia cysts were found in the faeces of the experimental mouse, the control being negative, both on this date and onwards. On the sixth day the faeces were negative. On the eighth day the faeces showed a blood streak along their length, and several Giardia, like those in man, were found in active movement. Flagellates and cysts in scanty numbers were observed on the ninth day. Until the fifteenth day no parasites were seen, but it was noticed that the mouse was growing thinner, and on the fifteenth day fairly numerous Lamblia cysts were voided in the faeces. On the sixteenth day the mouse was constipated, and the faecal pellets, voided with difficulty, contained a few cysts. On the eighteenth day the mouse was diarrhoeic and shivered considerably. Its coat was staring and eyes protruding. On the nineteenth day after the infective feed it was found dead.

Post mortem the blood vessels of the mesentery were found to be engorged, and a general inflammatory condition of the intestine was present. Numerous flagellate Lamblia were present in the duodenum. No parasites were found in the caecum or in the large intestine. The mouse weighed 10.6 grams at death, having lost 4.2 grams in weight. The control weighed 20.4 grams.

Experiment X. (A. P.)

An adult female mouse, weight 12.5 grams, was given food contaminated with cysts of *Giardia* (*Lamblia*) *intestinalis* of the Gallipoli strain, its control being provided with food contaminated with normal faeces. On the second day after the infective feed, a number of empty Lamblia cysts were found in the excrement of the experimental animal. No more cysts were seen in the faeces until the eighth day. On the ninth day no parasites were present, and none were seen until the fifteenth day, when a few cysts were voided. The mouse showed some signs of distress, and was noticed to be getting thinner. On the sixteenth and seventeenth days cysts were found in the faeces, the mouse being alternately constipated and somewhat diarrhoeic. On the eighteenth day the mouse was ill, the coat was staring, and there was constipation. Shivering occurred, and also on the nineteenth day. On the twentieth day the animal was killed *in extremis*. At autopsy the blood vessels of the stomach, mesentery, and intestine were engorged or injected, and the gut showed obvious inflammation. Shed epithelial cells were present in the gut contents, and active flagellate Giardia were attached to them. Duodenal ulcers were present, and the cells of the mucosa to which parasites had attached themselves showed distinct erosion. A few cysts were present. Flagellates were also found in the jejunum, where the number of young cysts was somewhat larger. No parasites were found in the ileum. In the caecum a few flagellate Lamblia occurred, together with a large number of mature cysts. The colon contained a few flagellates about to encyst and numerous cysts. The rectum contained no flagellates as such, but a few forms in process of rounding subsequent to cyst formation were seen, as well as some fully formed cysts. The mouse weighed 9.4 grams when killed.

Experiment XI. (A. P.)

A male mouse, weight 14.4 grams, was given cysts of Lamblia, Gallipoli strain, in milk. The faeces were observed daily for seventy days, but no Lamblia was seen. The mouse was then killed, but was found to be uninfected. It had increased in weight to 20 grams.

Experiment XII. (A. P.)

A male mouse, weight 14.8 grams, was given food containing Lamblia cysts of the Gallipoli strain. A few normal and several empty cysts were observed in the faeces on the second day after feeding. No more parasites were seen in the faeces until the eighth day, when the faeces contained mucous streaks in which a few flagellate and encysted Lamblia were present. On the ninth day the faeces were normal in appearance, and no parasites were found. The mouse had been getting somewhat thinner, but not much difference in its condition was obvious. From the sixteenth to the twenty-first day the faeces of the mouse were negative, the animal increased in weight and improved in general condition. On the twenty-first to twenty-sixth days a few Lamblia cysts were present. On the thirtieth day some flagellate Lamblia were found, together with young cysts. On the thirty-first day no cysts were seen but rare flagellates occurred. From the thirty-second to the thirty-sixth day the faeces were negative. Very few flagellates and cysts were present on the thirty-seventh and thirty-eighth days, and none were present on the thirty-ninth day. A single cyst was found in a preparation of the fresh faeces on the fortieth day, but until the forty-third day no more were seen. On the forty-third day a recurrence took place, a very few young flagellates being shed in the faeces. No more parasites were observed until the fifty-sixth day, when some cysts were passed. A negative period followed till the sixty-second day, when the

faeces were diarrhoeic and some flagellate forms were seen. From the sixty-second to the seventieth day the mouse grew thinner rapidly, passed diarrhoeic faeces, and shivered; it died on the seventieth day. At *post-mortem* examination, injection of the blood vessels of the stomach, intestines, and mesentery was found; the duodenum contained numerous Lamblia, and there were some parasites sparsely scattered throughout the intestine. This case may be regarded as one of chronic infection.

Experiment XIII. (A. P.)

A male adult mouse, weighing 22.6 grams, was given food containing cysts of Lamblia of the Flanders strain. The patient from whom the strain was derived had never been abroad except with the Expeditionary Force in Flanders, and then only for a few weeks. The man had chronic diarrhoea, but on no occasion could any bacterial or protozoal infection other than Lamblia be demonstrated in him. This strain proved highly virulent to mice to which it was administered. In the present mouse no Lamblia were found until the third day, when the mouse passed loose faeces containing a few flagellate Lamblia. On the fourth day mucus and shed epithelial cells occurred in the faeces, and a few Lamblia cysts were found. The mucus in the faeces increased in amount on the fifth day, and a few more cysts appeared. The mouse showed distress from the fifth day. It shivered constantly, its coat was staring, and it showed incontinence of urine. On the seventh day the animal died.

At autopsy the body showed emaciation, the weight being 18.9 grams. The blood vessels of the stomach, intestine, and mesentery were engorged. The intestinal wall was thin, and a general inflammatory condition was present. Numerous flagellate Lamblia were present in the duodenum, but no cysts were found there. A similar condition prevailed in the jejunum. The caecum was thin-walled, gas was present in the proximal portion, but the appendix contained solid matter. Flagellate Lamblia were present in both the caecum and the colon. A few flagellates and some rounding forms, with a very few cysts, occurred in the rectum, which was thin-walled and inflamed. It is of interest to note that flagellate forms were predominant in this acute, rapidly fatal case, and that relatively few cysts were seen. Also, some of the flagellates were found still living and active in the duodenum two days after the death of the host.

Experiment XIV. (A. P.)

A male mouse, weight 19.6 grams, was given cysts of Lamblia with its food, the Flanders strain being employed. The faeces containing the cysts had been kept for some time prior to being used. The faeces of the mouse were examined daily for two months, but were negative. The mouse was then killed, and no parasites were found at *post-mortem* examination.

Experiment XV. (H. B. F.)

A female mouse, weight 25 grams, was fed with food containing Lamblia cysts of the Flanders strain. On the day following the infective feed an empty Lamblia cyst was found in a preparation of the faeces. On the third day two dying flagellate Lamblia were observed, and on the fourth and fifth days a single flagellate form was seen in each of the samples examined. The mouse voided diarrhoeic faeces on the ninth day. The anus was inflamed and the mouse began to shiver. A very few cysts and flagellate forms of Lamblia were present in the faeces. On the tenth day the shivering was more pronounced, the coat staring, and the anus inflamed. The animal was constipated. A few cysts and flagellates were seen. A similar condition prevailed on the eleventh day, while on the twelfth day the mouse was worse. On the fifteenth day the faeces were blood-streaked and contained Lamblia cysts. Dark-red, blood-streaked faeces were passed on the sixteenth and seventeenth days, and Lamblia cysts were fairly numerous. The shivering and trembling increased for a time, and then the mouse became almost moribund. It died on the eighteenth day after the infective feed. The mouse weighed 20 grams at death. The body was thin. No fat occurred anywhere. The blood vessels of the stomach, intestine, and mesentery were injected and the intestine was thin and inflamed. The caecum was collapsed at the appendix, but dilated at the ileo-caecal junction. No Lamblia were found in the oesophagus, and the cardiac end of the stomach was also free from parasites. However, a few Lamblia cysts, with very thin walls, were found at the pyloric end of the stomach. The proximal loop of the duodenum contained strings of mucus in which were shed epithelial cells and many flagellate Lamblia. Rather fewer motile parasites occurred in the distal loop. The jejunum contained numerous flagellates, and Lamblia in various stages of encystment were present in the ileum. At the dilated end of the caecum, near the ileo-caecal junction, a few cysts were found, and still fewer were present in the appendix. The rectum was almost empty, and very few cysts were present either in the rectum or in the faeces. Again, in this almost acute case, the flagellate form of the parasite was dominant.

Experiment XVI. (H. B. F.)

A large female mouse, weight 24.5 grams, was given food containing cysts from the mouse used in the previous experiment. On the fifth, seventh, eighth, and ninth days after feeding, the faeces contained a very few Lamblia cysts. Then no more cysts were voided, and no parasites were found in the diarrhoeic faeces produced by the administration of an aperient on the fifteenth day. A similar result was obtained on the twentieth day. When the mouse was killed, on the twenty-eighth day, no parasites were found and all the organs were normal. It had increased in weight by 3.6 grams.

Experiment XVII. (A. P.)

A male mouse, weight 18.4 grams, was fed on a piece of the intestine of the mouse infected in Experiment XIII. This material contained many active flagellates and only a few young cysts of Lamblia. On the third, fourth, fifth, and sixth days after the infective feed a very few Lamblia cysts were found in the faeces of the mouse. A few young flagellates were present on the tenth day, and also some cysts. From the twelfth to the sixteenth days no parasites were found in the faeces, but on the seventeenth day one flagellate and one cyst were present in a preparation. On the eighteenth and nineteenth days no Lamblia was found, and on the twentieth day one cyst only was found in the preparations of the faeces. On the twenty-third day a very few young flagellate Lamblia were recorded, but none were found in the faeces for some time after. The mouse was killed on the fortieth day after the infective feed, and then seemed normal. No parasites were found in it, so that a spontaneous cure of the weak infection may have occurred.

From our experiments it will be seen that *Giardia (Lamblia) intestinalis* of human origin has been shown to be pathogenic to rodents and to carnivores (kittens). It is, then, possible for such animals to serve as reservoirs of lambliasis, and by contaminating the food of man with their excrement to propagate lambliasis. We are of the opinion that sufficient notice has hardly been taken of the possibility or probability of rodents, such as rats and mice, acting as reservoirs of infection to man, and of carrying lamblial cysts to his food and abodes in the trenches in the fighting area. Mathis (1914) reported cases of lambliasis in Tonkin, wherein the houses of the patients were infested with rats and mice. Noc has reported similar cases. In the war zones where trenches are infested with these rodents it should be remembered that lambliasis may be thus spread, as was pointed out by us in 1915 and 1916. Kittens as pets should not be encouraged, as they may serve as carriers of infection.

CONCLUSIONS.

From our experiments and observations we conclude that:

1. *Giardia (Lamblia) intestinalis* is pathogenic to man and is capable of producing diarrhoea, which may be persistent or recurrent.

2. The virulence of the parasite varies, and lambliasis occurs in tropical and non-tropical countries. The Lamblia cysts can remain infective for some time.

3. Lambliasis occurs in rodents, especially rats and mice, and can be of human origin. The influence of rats and mice in the spread of lambliasis has been noted recently by Noc and by Mathis. Lambliasis may also be produced in cats. Lambliasis may be conveyed to man from these mammals.

4. As a result, rodents may be reservoirs of lambliasis, and on the western front this should be remembered, as we have already published.

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THROUGH the efforts of the American Hay Fever Prevention Association, supported by the Municipal Board of Health, the city of New Orleans recently passed an ordinance enjoining that the tenant or occupier of any leased or occupied premises, or the owner of vacant premises shall not allow weeds or grass over 2 ft. in height to grow on such premises, or weeds or grass over 1 ft. in height to grow on the sidewalk abutting on them, under a penalty of a fine not exceeding £5 or imprisonment up to thirty days, or both. A similar ordinance was made by the New York Board of Health last year.

BACILLARY DYSENTERY (SHIGA) CONTRACTED IN ENGLAND.

BY

P. L. SUTHERLAND, M.B., CH.B., D.Sc.,

BACTERIOLOGIST TO THE WEST RIDING COUNTY COUNCIL.

DYSENTERY in this country before the war, with the exception of a few isolated outbreaks, occurred in the form of asylum dysentery, and in those cases in which bacteriological examinations revealed the presence of dysentery bacilli the organisms were almost invariably of the mannite-fermenting (Flexner) type. References to the occurrence of cases caused by the Shiga bacillus are few. In 1904 Eyre[1] isolated the bacillus from six out of nine cases of acute asylum dysentery, and since then two sporadic cases have been described, one by Saundby and Hewetson in 1906,[2] and one by Saundby and Wynn in 1908.[3]

The following are the particulars of a case of dysentery caused by the Shiga bacillus, which was traced to contact with a convalescent soldier who was found to be excreting large numbers of the organism in his faeces.

Mother.

The patient, a woman aged 50, under the charge of Dr. May of Wakefield, to whom I am indebted for the particulars, was in her usual health up to February 11th, 1916, when she was attacked by symptoms of acute dysentery. The motions, which consisted chiefly of mucus and blood, were very frequent, sometimes numbering fourteen in the course of the night during the earlier stages of the illness, and were accompanied by marked tenesmus. There was a considerable degree of fever, and the patient showed a good deal of prostration. Previous to the onset of her illness the patient is said to have been liable to attacks of diarrhoea. At the time of the onset of the illness the patient's son, who had contracted dysentery at the Dardanelles, had been six days residing in the house, which is a small one, consisting of two living rooms and two bedrooms, with an outside closet, used, of course, in common by all members of the family.

A specimen of faeces from the patient was obtained by Dr. May on February 18th, and was examined on the same day. It was found to be very fluid, of a reddish colour due to admixture with blood, and contained a large quantity of slimy mucus and a few very small yellowish granules. On standing it separated into two layers, the upper being clear and watery and the lower containing the mucus. On microscopic examination the material was found to be composed almost entirely of pus and red blood corpuscles so far as cellular elements were concerned. No amoebae or flagellates could be found. Organisms were very scanty, and were seen mostly within the pus cells, some of which contained three or four Gram-negative bacilli.

Plate cultures were made on MacConkey's medium modified by the addition of crystal violet; after incubation for twenty-four hours numerous non-lactose fermenting colonies of a non-motile, Gram-negative bacillus, varying somewhat in length, but generally shorter and thicker than *B. typhosus*, developed. The organism produced acid but no gas in glucose, laevulose, galactose, and mannose, and no change in lactose, saccharose, dulcite, mannite, adonite, inulin, salacin, sorbite, raffinose, maltose, or glycerine. In litmus milk it produced a slightly acid reaction but no clot, and the acidity remained permanent, though it was slightly less marked at the end of seven days. It did not form indol in peptone water in seven days (Ehrlich's test), and did not liquefy gelatine. With dysentery (Shiga) serum it was distinctly agglutinated, but the limit of agglutination fell far short of the titre of the serum tested with a standard strain.

Son.

The patient's son, aged 22, was seen on February 19th by Dr. Gibson, M.O.H. Wakefield, who kindly furnished me with the following history: He was sent to the Dardanelles in September, 1915, where he was attacked with dysentery about the end of November. He was then removed to a hospital on one of the islands of the Eastern Mediterranean, and was afterwards sent home to England. He was admitted to hospital on January 8th, and discharged on February 5th, and returned to his home; six days after his arrival there his mother's illness commenced. He remained at home until February 14th, when he proceeded to a military rest camp. When seen by Dr. Gibson the man was not free from symptoms of dysentery, as he was still having frequent slimy motions, often containing blood, and there was a certain amount of tenesmus. His condition varied, but at times he had as many as three to four motions in quick succession, and observed that this was most liable to occur directly after meals.

A specimen of faeces was obtained by Dr. Gibson on February 20th, and was examined by me the same day. The specimen consisted partly of dark solid material and partly of thick blood-stained mucus, some of which was of a distinctly yellowish colour, and resembled thick tenacious pus. Microscopically, the mucous portion of the stool showed the same characters as in the case of the mother, except that organisms were present in very large numbers. Cultures were made from the mucus, and large numbers of organisms developed which gave the same cultural and agglutinating characters as the organism isolated from the mother.

Comparison of Strains.

The strains from both mother and son were compared as to their cultural characters, virulence, and agglutination with a standard strain of *B. dysenteriae* (Shiga) obtained from the Lister Institute, and also with a strain (*B. dysenteriae*, Shiga, M.) which I previously isolated from the faeces of an officer who had been in charge of cases of sickness on a transport returning from the Dardanelles, and who developed symptoms of dysentery just after his arrival in England. All four strains gave the same reactions in the carbohydrates already mentioned, produced no indol, and gave an acid reaction but no clotting in litmus milk. The only cultural difference noticed was that *B. dysenteriae* (Shiga, Lister Institute) did not grow so profusely on agar as the other strains.

The organisms were tested for virulence by the intraperitoneal inoculation of guinea-pigs of 350 grams weight with 1 c.cm. of a twenty-four hours broth culture of each bacillus. The organisms isolated from the patient and from her son caused death within twenty-four hours, *B. dysenteriae* (Shiga, M.) caused death in forty-eight hours, while *B. dysenteriae* (Shiga, Lister Institute) did not cause death in three days.

The agglutination reactions were tested with three dysentery (Shiga) serums: (1) Lister Institute serum; (2) a serum prepared by immunizing a guinea-pig with *B. dysenteriae* (Shiga, Lister Institute); and (3) Burroughs, Wellcome and Co.'s serum. The tests were performed macroscopically, and the results noted after two hours' incubation at 37° C. Controls were made in each case, and in most of the tests the tubes were again examined after standing twenty-four hours at room temperature to exclude the possibility of spontaneous agglutination. In the three recently isolated strains the agglutination limit was never higher than 1 in 200, and even with the standard strain the titre was only 1 in 800 to 1 in 1,600. It was noticed that in all cases the clumps were small and deposited slowly, in marked contrast to the large flocculent clumps characteristic of agglutination of the motile organisms of the typhoid-paratyphoid group with their corresponding serums. Ledingham, Penfold, and Woodcock[4] found that the strains isolated by them were all agglutinated in high dilutions (1 in 1,500 to 1 in 4,000) by the specific Shiga serum used, so that sharper results might have been obtained by more powerful serums. On the other hand, it may be remarked that the serum of Burroughs, Wellcome and Co. was stated to have a titre of 1 in 2,000 to 1 in 4,000 tested with five strains of living Shiga. Unless the serum had deteriorated to some extent since being tested, the results rather suggest that there is a certain specificity among Shiga strains.

The case is of considerable interest as it shows that the disease can be readily contracted under ordinary circumstances in England, although it is possible that in this instance the patient was rendered more susceptible owing to the fact that she was subject to attacks of diarrhoea prior to the onset of the dysentery.

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ON THE CURVE OF THE EPIDEMIC.

SUPPLEMENTARY NOTE.

BY JOHN BROWNLEE, M.D., D.Sc.

IN the issue of the BRITISH MEDICAL JOURNAL of May 8th, 1915, I published a short note on possible epidemic forms. These were calculated on various hypotheses, but the only form which could be said to describe the course of an epidemic (Pearson's Type IV) was left completely unexplained. As this curve gives a fairly close fit to the majority of epidemics, no theory which does not account for its origin can be said to be of much practical importance. The form, however, immediately arises, if it be assumed that as the number of infecting centres increases there is more than an equivalent increase in the combined infecting power.

Curiously, though this idea was considered from time to time it was always rejected, why I cannot say. It seems, however, highly probable that such a phenomenon exists. Suppose an individual receive an amount of infection slightly smaller than is necessary to induce the disease. Suppose, also, a second infection is received within a certain time afterwards. There is probably a minimum interval within which two such infections can act together and produce the disease. Outside this interval escape will follow on both occasions. If such a condition exists it is obvious that in the presence of a large number of centres

of infection the chance of becoming infected must be larger in proportion to the number of centres than when the centres are more sparsely distributed. No direct measure of this is possible, but it may be assumed that as the death-rate in a population increases in proportion to a power of the density (Farr's law) a similar law will hold in this case. If, in other words, y be the number of infecting centres at any moment, the intensive power due to the increase in y may be represented by y^n, the number n being determined from the observations.

On the theory that the power of infectivity on the part of the organism decreases with time in a geometrical progression, or, in physico-chemical language, that the substance necessary to produce infection decreases in amount according to the law of the mono-molecular reaction, the infecting power at any moment is represented by the form

$$e^{a-bt}$$

Introducing the intensive factor by analogy with the corresponding equations of physical chemistry, of which a typical example is furnished by the influence of temperature on the rate at which a chemical reaction takes place, the infectivity at any moment is evidently

$$y^n(a-bt)$$

which by the process described in my previous note gives the epidemic equation:

$$\frac{1}{y}\frac{dy}{dt} = y^n(a-bt)$$

The solution of this takes the form:

$$y = \frac{m^m}{(c-at+\frac{1}{2}bt^2)^m}$$

where $m = \frac{1}{n}$ and c is a constant.

This is Pearson's Type IV.

Comparing this form with the observations, n is found to vary in value from 0.07 to 0.25, the commonest values being in the region of 0.14.

This form does not allow for asymmetry, but as very nearly symmetrical epidemics are most commonly found, the theory, so far, is in accordance with the facts. Asymmetry may, however, be introduced if it is assumed that the increase of concentration does not act exactly as just described, but rather in the manner represented by the expression $e^{a+y^n(a-bt)}$ which gives the epidemic form:

$$y = \frac{a^{2m}}{\left(ca^2e^{-\frac{a}{m}t} + abt - bm - aa\right)^m}$$

This curve closely approaches the symmetric Type IV, as a becomes equal to zero.

An explanation of the epidemic form from the theory of physical chemistry is thus furnished. I do not for a moment think that the lack of susceptible persons may not in many cases tend to bring an epidemic to a more rapid close, nor that the form of the epidemic may not to a large extent be explained on the latter hypothesis, but I still adhere to my previously expressed opinion that the decline of an epidemic is much more likely due to the loss of infectivity on the part of the infecting agent.

The introduction of the idea that the power of infectivity is enhanced by concentration also explains the distribution of disease in space. When such a chart as that issued in the report of the Metropolitan Asylums Board for the year 1902 regarding the distribution of small-pox in London in the great epidemic of 1901 is examined it is found that instead of the cases being distributed according to a normal surface, as seems *a priori* probable, the distribution is again that of Type IV. The same distribution in space has been found for many other epidemics, and is now for the first time explained.

WITH the opening of the September term a fund of £200,000 from various donations will be available for use by the Washington University Medical School. This will enable the school to create full-time appointments for teaching and research work in medicine and paediatrics.

ON THE IMPORTANCE OF TECHNICAL DETAILS IN THE PREPARATION OF A TRANSPARENT BLOOD-AGAR FOR THE CULTIVATION OF THE MENINGOCOCCUS.

BY DOROTHY JORDAN LLOYD,
"N" FELLOW OF NEWNHAM COLLEGE.

(Report to the Medical Research Committee from the Biochemical Laboratory, Cambridge.)

THE meningococcus needs for its metabolism (*a*) some digested protein, and (*b*) a comparatively high concentration of the vitamines or accessory growth hormones whose importance in metabolism is beginning to receive general recognition. The former may be supplied by a tryptic digest of bullock's heart; the latter may be supplied, as has long been known, by the addition of a small quantity of blood to the medium.

The tryptic heart digest is made according to the method of Douglas.[1] To use it as a medium for the meningococcus, powdered agar is added to 2 per cent. of the digest, and the mixture is steamed and filtered. After the final filtration, the reaction of the medium is adjusted, and defibrinated bullock's blood is added to 5 per cent. The medium is now cloudy. The method of clearing is important.

1. The melted tryptic blood-agar is placed in the steamer for from thirty minutes to one hour in order to coagulate proteins of the blood. These are thrown down as a spongy dark-brown clot.
2. The melted agar is cleared by centrifuging for ten minutes at a speed of 3,000 revolutions a minute. The vessels of the centrifuge should be made hot before use, to prevent the setting of the agar.
3. The clear fluid is poured off, and should be tubed and sterilized at 100° C. for three successive days according to the usual routine method.

Should the centrifuging of large quantities be difficult, the clear medium can be obtained by the use of a siphon. In this method the fluid should be transferred to an Erlenmeyer flask. It should be steamed for an hour, and then allowed to settle, and this process can be repeated a second or third time if necessary, in order to render the clot sufficiently compact to permit the use of the siphon in drawing off the clear supernatant fluid.

It is important to add the blood after the agar, and the medium must on no account be filtered after the blood has been added. This fact is the essential point of the present communication. Filtration either through a Chardin filter paper, or through paper pulp on a Buchner funnel removes the essential vitamines at the same time as it removes the undesirable sediment. This is probably an adsorption phenomenon.

Tryptic blood-agar made transparent by the above method has been found to be highly satisfactory for obtaining both primary and secondary cultures of the meningococcus. It is equally effective for both spinal fluid and throat strains. Moreover, the viability of cultures grown on it is good, three weeks being about a minimum duration if the inoculated slopes are kept in a moist incubator.

Table showing the Difference obtained according to whether a Dilute Emulsion of the Meningococcus in Ringer Solution is Sown on the Centrifuged or on the Filtered Media.

Medium.	Meningococcus Strain:			
	H. Spinal fluid used.)	P.	G.	Bl.
Tryptic heart-agar (Douglas)	0	0	0	0
Ditto + blood cleared by centrifuging	+	+	+	+
Ditto + blood cleared by passing through Chardin filter	0	0	0	0
Ditto + blood cleared by filtering through paper pulp on Buchner funnel	0	0	0	0

This medium does not lose its properties after sterilization at 100° C. When tubed, it remains unaltered for a considerable time.

The full account of the researches on which the fore-

going statements are based will be published shortly. It is hoped to test the efficiency of the medium for other pathogenic organisms.

REFERENCE.
[1] *Lancet*, October 10th, 1914.

THE DURATION OF BILHARZIOSIS IN SOUTH AFRICA.

BY F. G. CAWSTON, M.B., B.C.CANTAB.,
PIETERMARITZBURG, NATAL.

JUDGING from the number of men who were infected with bilharziosis during the South African war, and the number of these who are still receiving compensation from the army authorities, the study of the duration of the South African form of bilharziosis is of great importance. The disease, as met with in German East Africa, is as persistent as in Natal. At one time bilharziosis was very prevalent amongst the natives there, and in some parts of the country two out of every three of the male population were infected. The disease attacked the female population to a lesser degree.

The vast majority of persons in Natal who suffered from the affection some twenty or thirty years ago have by this time entirely grown out of the symptoms and, in a large number of these cases, microscopic examination of the urine shows no evidence of the past affection. On these grounds a life insurance society can be recommended to accept an otherwise suitable applicant at the usual rates, even though he has a past record of bilharziosis, provided the urine has shown no sign of blood or mucus for one year and has not contained any of the eggs for six months, so far as can be judged from occasional microscopic examination of the urine.

A number of those who contracted the disease some twenty or thirty years ago have suffered continually from its symptoms ever since, though they have not been sufficiently severe for them to undergo continuous medical treatment. Recently I met a gentleman who has suffered from this form of haematuria for the past thirty years; occasional treatment had improved his condition, but it has never cured him. Three children of his—two boys and a girl—suffer from the same symptoms. The relation of puberty to this complaint is a fanciful view of the past. It should be placed in the same category as that of urethral infection. Some patients have attributed their cure to various medicinal remedies, and have great faith in their efficacy; but it would seem that diuretics and urinary antiseptics are the only drugs on which much reliance can be placed.

It is probable that, from time to time, the worms produce an exceptionally large number of eggs, which would account for the occasional aggravation of the symptoms, and that, sooner or later, they die out in the blood stream. Even after the worms themselves are dead, there are numerous eggs still present in a badly infected case, and it is uncertain whether these eggs ever entirely disappear from the human body. The remains of dead ova have been found in the kidney substance, in the bladder walls, and in minute calcified nodules in the lungs. Such objects would presumably never quit the body.

The following instructive case, for the details of which I am indebted to Dr. James Petrie, of Zululand, subsequently proved fatal:

CASE I.

Some years ago in Natal a European boy was infected with bilharziosis, but did not suffer much inconvenience from it. Then he went to study in Sweden and, after two or three years in that country, began to suffer so much that he was compelled to undergo treatment. Finally, he was taken to hospital, where he died from the effects of the disease. He was about 20 years of age when he died. Two adult worms were found at the *post-mortem* examination, one was alive and the other dead.

CASE II.

On August 9th, 1915, I examined for life insurance an applicant whose case I was obliged to postpone on account of slight albuminuria. A further examination of the urine in September indicated some bladder or kidney abnormality. Early in October he was mentioned to me as one of many in this part of Natal who had suffered severely from bilharziosis; it was attributed to swimming in the Umsindusi River, and had troubled him for a long time. On March 28th, 1916, he came up again for a fresh medical examination. On this occasion he told me that he had suffered from haematuria in the past; but that, as he had not noticed it for ten years, he considered that he was cured. Occasionally, however, he complained of pains in the back, which could only be relieved by hot baths and rest. Presumably these were attacks of renal colic, which is a fairly common sequela, even where there is no renal calculus. Examination of the cloudy urine which he passed on this occasion revealed the presence of shreds of bladder mucous membrane and a number of ova containing miracidia.

It would be of service if practitioners would submit to microscopic examination the urine of persons who are said to have been cured of this affection before placing too much reliance on the remedies that have been recommended. Even if some be effective in destroying the parasites in the blood stream and in diminishing the haematuria, the escape of the spine-pointed eggs which continues is too frequently associated with bacilluria and damage to the bladder wall to enable one to pronounce such a case as cured, even though it is most exceptional to hear of cases which have died or whose lives have been shortened by bilharziosis in South Africa.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CLINICAL RESULTS OBTAINED WITH THE TUNGSTEN LAMP.

THE bactericidal powers of ultra-violet rays are well known, and those emitted by the quartz mercury vapour lamp have been used for the sterilization of water. Though the penetrative power of the rays is very low, their action is rapid, so that by causing them to act on a thin film of quickly flowing water even large water supplies can be dealt with. Ultra-violet rays have also been used a good deal recently in therapeutics, but the manner in which the improvement, which undoubtedly in some cases follows their employment, is brought about has not yet been fully explained. The quartz mercury vapour lamp has commonly been used for the purpose, but it has recently been pointed out that tungsten electrodes give out a very large quantity of ultra-violet rays. The physics of the matter was discussed by Dr. Sidney Russ, physicist to the Middlesex Hospital, in this JOURNAL in a paper illustrated by some instructive spectrograms (January 22nd, 1916, p. 124).

Tungsten is at the present time difficult to procure, and in the lamp I used (Simpson's) for the past five months was replaced by its ore, wolfram. I am indebted to Lieutenant-Colonel Bruce-Porter, R.A.M.C.(T.), Officer Commanding No. 3 General Hospital, Wandsworth, for permitting me to instal an apparatus in that hospital, and to Captain Humphris, R.A.M.C.(T.), in charge of the *x* ray department, for much valuable assistance.

The apparatus consists of a lamp mounted on a portable stand, adjusted so that the light can be directed where desired, a switchboard with switch, ampère-meter, fuses and resistances for lowering the voltage and ampèrage of the main to a suitable value—about 5 ampères at a voltage of 40 to 60. The electrodes, consisting chiefly of wolfram (tungsten of iron and magnesia) are fixed in clip-holders and are easily adjusted by a hand-screw.

The light is supplied at a distance of 10 to 15 in. either as "open arc" or "focussed arc," the former when treating large surfaces, the latter for smaller areas, or where more intense treatment is considered necessary. The first exposure should be one minute, as the reaction differs considerably in different cases, and can be afterwards increased to two or even five minutes. It varies from slight irritation to considerable erythema and desquamation, and is not usually seen until four or five hours after exposure. The treatment should not be repeated until the reaction of the previous exposure has passed off. If the reaction is sufficiently severe it can be treated with boracic powder or olive oil, and soon disappears. The light is not only very rich in ultra-violet rays, but contains also rays of shorter wave length than the light from a carbon arc. As the light is very dazzling, the patient's eyes should always be protected by a dark bandage, and the operator should wear lead blue glasses, as the light may cause conjunctivitis.

I especially desired to try the curative effects of the light on sinuses and the indolent ulcers left after "frost-bite"

or other severe injury to the tissues which have defied most methods of treatment. These have invariably improved, and rapidly in many cases. Stiffness, oedema, and pain have also disappeared. I have given as many as twenty sittings to some of the patients before getting the result desired.

Cases of lupus and tuberculous ulceration also healed. I treated several cases of chancre; one phagedenic ulcer which threatened to destroy the glans not only ceased to extend, but the gap already existing in the glans filled up completely. An old severe injury to the hand and fingers which resulted in stiffness, loss of movement, pain, and wasting, has improved greatly after twelve treatments. In addition to the above I have treated two cases of hay asthma, both of which obtained immediate relief.

I feel satisfied that most of the wounds I have treated would have yielded to other methods; some of them I am equally sure would not have healed as rapidly, and in no case would the resulting scar tissue have resembled normal skin so closely. For these reasons I consider the tungsten lamp a valuable addition to our methods of treatment; the short time necessary for a treatment—two minutes—is also a great advantage in these days of pressure.

A. B. COTTELL,
Lieutenant-Colonel R.A.M.C. (ret.).

London, W.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

THE NORTH RIDING INFIRMARY, MIDDLESBROUGH.

SYMPATHETIC OPHTHALMIA UNSUCCESSFULLY TREATED WITH ORGANIC ARSENIC COMPOUNDS.

(By G. VICTOR MILLER, M.D., Honorary Ophthalmic and Aural Surgeon, Middlesbrough and Stockton Hospitals.)

M. W. R., 49, a steel roller, on December 10th, 1915, fell in the street and struck his right eye on the kerb. His doctor put drops in the eye. At the beginning of February, 1916, he came to the out-patient department of the North Riding Infirmary. The eye was washed with mercury perchloride lotion, and he was given boric lotion to use frequently at home. On February 5th he was seen by me, and on February 6th was admitted to the institution.

Condition on Admission.—The sclerotic of the right eye was ruptured in the usual site, above and to the inner side of the cornea. These ruptures are usually subconjunctival, but over one part of the rupture in this case the conjunctiva seemed to have been torn across, and on the inner side of the cornea the root of the iris and the ciliary body were exposed. The left eye showed a good deal of circumcorneal injection and photophobia, and there appeared to be definite iritis, though the pupil dilated fairly readily to atropine. I diagnosed commencing sympathetic ophthalmia, and on February 8th the injured eye was enucleated. The patient was put to bed between blankets, atropine drops were instilled four times daily, and 1 grain of grey powder given internally thrice daily. The condition of the eye got worse and the mydriatic instillations were increased in frequency.

As salvarsan has been highly recommended for sympathetic inflammation, an injection of Allen and Hanburys' hyposol was given on February 18th. This is an oily emulsion of kharsivan and is injected into the muscles of the buttock. The patient received 0.6 gram kharsivan. This was followed up with grey powder and half-drachm doses of sodium salicylate at night, with fairly frequent hot baths. On March 7th the hyposol injection was repeated, and again on April 4th. During this time the amount of redness varied; occasionally the eye seemed distinctly improved. One noticeable feature was that the iris never seemed to lose its gloss, though it was observed there was increasing difficulty in keeping the pupil dilated. The administration of grey powder was continued and 2 drops of atropine and 2 drops of cocaine instilled every two hours and sometimes every hour during the day. In spite of this, the pupil got smaller, and there was a suspicion of commencing adhesions, with exudation into the pupil.

On the morning of April 28th an intravenous injection of galyl (0.3 gram) was given into the right median basilic vein. The patient had a sudden attack of syncope, and was apparently dying; the temperature was 101°, the pulse 124 and very feeble, the respirations 24. Later in the day he was semi-delirious, very noisy, and restless. By the next day he was much better and on April 30th practically normal. It was noted that the galyl did not seem to dissolve very readily. He was also allowed to have his dinner soon after the injection. On May 10th he was given intravenously 0.4 gram of galyl and was allowed no solid food for nearly four hours. No improvement in the eye condition ensued; the pupil margin was adherent, and there was distinct exudation into the pupil. Medicines and mydriatics seemed to have no effect. He was given grey powder gr. j three, and cocaine drops four, times daily. He was discharged from the institution on May 16th.

The result in this case does not appear to confirm the optimistic views as to the results of the use of arsenic compounds in the treatment of sympathetic ophthalmia, but it may be that the treatment was commenced too late, and perhaps the injection of hyposol is not so efficient as an intravenous injection. After the second intravenous injection the patient was allowed no solid food for nearly four hours.

He was seen on June 17th. The eye was very injected, the iris much infiltrated with inflammatory products and altered in colour; the pupil was occluded and excluded; iris bombé. Vision amounted to distinguishing light from darkness.

Reports of Societies.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

THE seventh annual meeting of the Oxford Ophthalmological Congress was held on July 13th and 14th. The Deputy Master, Captain P. H. ADAMS, R.A.M.C.(T.), who presided, in the address of welcome expressed the deepest regret at the absence of the Master, and telegrams of regret were dispatched to him and to the Past Master, Mr. Robert W. Doyne. The discussion on "The relationship of ophthalmology to general medicine" was opened in the morning by Sir WILLIAM OSLER, who dealt with the subject clinically, and in the afternoon by Sir ANDERSON CRITCHETT, who treated it from a general reminiscent point of view. On the morning of the second day Lieutenant-Colonel ELLIOT read a paper on the treatment of ophthalmic diseases by indigenous methods in India. Mr. STEPHEN MAYOU showed slides of orbital tumours, and Mr. HARRISON BUTLER spoke on spring catarrh, illustrating his remarks by lantern pictures, and on results of squint operations. The address by the Master on "The diagnostic value of tubercle of the choroid" was read in his absence. A resolution to the effect that the Congress was of opinion that "all workers exposed to danger from flying particles, with especial reference to those engaged in munition factories, should be provided with and encouraged to wear suitable protective goggles" was passed unanimously. The afternoon was spent at the Eye Hospital, where interesting cases were shown. The scientific proceedings concluded with a demonstration at the Ratcliffe Infirmary by Major TURRELL, R.A.M.C.(T.), on the electrical treatment of warts and naevi. The scientific museum, which was open throughout the meeting, included a valuable collection of paintings illustrative of tubercle of the choroid by Mr. Sydney Stephenson, and of fundus conditions in various diseases by Mr. A. J. Ballantyne. The commercial museum afforded good opportunity to examine new apparatus and instruments.

TREATMENT OF VENEREAL DISEASE.

AT a meeting of the Association of Registered Medical Women on July 11th, when Dr. HELEN BOYLE was in the chair, a discussion on the report of the Royal Commission on Venereal Diseases was resumed. Dr. ETHEL BENTHAM said that the recommendation to throw treatment into the

hands of a limited number of specialists was a mistake. The establishment of special centres open in the evenings where every ailment could be treated would be useful and would remove notoriety from venereal cases. Dr. Mary Scharlieb agreed that the disease was too widespread to be treated only by specialists. The idea of offering free treatment at hospitals and approved centres was not only to cure the sick but to afford experience to practitioners. Dr. Letitia Fairfield suggested that salvarsan might be administered by practitioners recognized by the Local Government Board. In New Zealand it had been found that if treatment were given free the patients attended very irregularly. The disability for sickness benefit under the Insurance Act must be removed, and as this would be financially impossible, treatment would have to be given at hospitals. Lady Barrett said that evening clinics for venereal disease alone would defeat their own end. In general clinics it would not be so difficult to make patients attend; the patients would be treated all alike, no questions need be asked, and treatment would be free for all diseases. Dr. Morna Rawlins said that at the Lock Hospital the in-patients used to run away, but the out-patients were very regular in attendance. Dr. Mary Scharlieb suggested that the discussion should be continued in November after the publication of Dr. Newsholme's report.

Rebiews.

TUBERCULOSIS.

After many years devoted to the study of tuberculosis of the lungs and pleura, Professor Letulle,[1] of the Paris Faculty of Medicine, has recently published a massive and magnificently illustrated manual of their pathological anatomy and histology. His book, he claims, is in reality an atlas of tuberculosis, containing 107 plates with photographs taken by the Lumière three-colour process. The plates are autochromes, and Professor Letulle is justified in stating that such reproductions are more faithful to nature than the coloured paintings produced by the best pathological artists can ever hope to be. The book contains seven chapters. The first deals with miliary tubercle, or follicular tuberculosis; the miliary tubercle being actually built up of confluent primary tuberculous follicles surrounding a more or less central area of caseation. The second chapter gives an account of nodular tuberculosis of the lungs, where the infection is by way of the bronchi rather than the blood stream; these nodules are very much larger than miliary tubercles, and further tend to become encysted. The third chapter contains a full account of the macroscopic and microscopic changes found in tuberculous pneumonia and bronchopneumonia, with the caseous lesions that may either become encysted or break down into cavities; a special account of the "tuberculous splenization" of the lung that may follow this bronchopneumonia is given. The splenization is preceded by a "vitrifying necrosis" in the pulmonary alveoli, decribed by Laënnec as a "gelatiniform infiltration." The fourth chapter is devoted to a description of tuberculous cavities in the lungs; the fifth chapter, with the last twenty-eight of the plates, contains an account of the pleurisy that is so common, in one form or another, in phthisis. Two brief chapters at the end of the volume are occupied with an account of the sequelae of pleural and pulmonary tuberculosis, and a general discussion of the pathogenesis of the disease. The general arrangement of the book is excellent. Each of the first five chapters is followed by a series of illustrative coloured plates. Each plate is preceded by a page or so of discussion and explanation of the points it is designed to illuminate, and has superposed on it a lettered sheet of tissue paper with lines to indicate the particular histological details in the underlying plate to which attention is specially directed. Many of the plates are life-sized photographic reproductions in natural colours; others are photomicrographs of stained sections, with magnifications up to 900 diameters, the stains used being haematin, eosin, and orcein for the most part. All but one of the plates in the copy now before us are accurately registered, so far as the three colours (red, yellow, and blue) employed are concerned. The author, the photographer and the printer are all to be congratulated upon the success with which they have contributed their share towards the production of this handsome volume. It should be in the hands of all pathologists, and will be read and consulted with great interest by all medical men who are interested in the pathogenesis of phthisis. In addition to its other merits, it possesses a good alphabetical index of its contents—a virtue still, alas! too rare in French scientific works.

Dr. William Barr, district tuberculosis officer for the West Riding of Yorkshire, has written an excellent account of his use of Spengler's I.K. tuberculin in the treatment of pulmonary consumption.[2] There are very many forms of tuberculin on the market, and I.K. is one of those that has not received much attention from medical men in this country. Dr. Barr has obtained excellent results from its use; he does not place absolute reliance upon it, and in his own work he uses tuberculin (variety not mentioned) almost as extensively. His work, as he says, has been purely clinical, and he gives a tabulated account of his use of I.K. in 47 cases treated since October, 1913. He is satisfied with the results obtained, and he notes that the patients appreciate the treatment. Full details of the way in which it is carried out are given, and its contra-indications and the troubles to which it may give rise are considered in detail. The book is one that should be read by all medical men who have to do with the treatment of tuberculosis of the lungs.

GRANULOMA VENEREUM.

Venereal granuloma is a chronic infection of the skin about the genital organs occurring in tropical and sub-tropical countries. An excellent account of its occurrence in Brazil, Uruguay, and Argentina has recently been published by Dr. H. C. de Souza Araujo in the form of an inaugural thesis presented to the Rio de Janeiro Faculty of Medicine.[3] This author attributes the disease to the *Calymmatobacterium granulomatis*, a specific bacterium found both inside and outside the granulomatous cells of the affected part, in sections coloured with Giemsa's stain. The incubation period of the disease is unknown. The onset is insidious, a local papule appearing and spreading slowly with itching, pustulation, and ulceration in the cutaneous tissues; the general health is unaffected at first. Later, when the diseased area is larger and the ulceration has become extensive, the patient becomes cachectic; this is a matter of years, and death follows from wasting or from intercurrent disease if the condition is left untreated. It is only in exceptional instances that any area of skin except that in the neighbourhood of the genital organs is affected. It is characteristic of the lesions that their edges should thicken and tend to cicatrize in places while spreading in others; the cicatrices so formed often break down again spontaneously. The causative organism does not invade either the subcutaneous connective tissue or the lymphatic system unless syphilitic infection also is present. The hypertrophic papules and condylomas to which it gives rise in the skin are red or crimson in colour, bleed readily, and under the microscope show neither giant cells nor degenerative changes. When ulcerated the granulomatous surface secretes a highly offensive clear fluid of characteristic odour. The initial lesion is either a vesicle, a papule, or a nodule, an ulcer forming within a month. The infection spreads by continuity or by contact to the adjoining parts in the course of years. One of Dr. de Souza Araujo's patients dying of the cachexia produced by very extensive ulceration gave a history of fourteen years. The disease is habitually transmitted by coitus, a fact indicating the localities most often affected by the initial lesion. Secondary infection of the ulcerated surface may give rise to lymphangitis and elephantiasis on the one hand, and on the other to deep excavation of the

[1] *La Tuberculose pleuro-pulmonaire.* Par M. Letulle de l'Académie de Médecine, Professeur à la Faculté de Médecine de Paris. Paris: A. Maloine et Fils. 1916. (Imp. 8vo, pp. 376; 107 plates.)

[2] *I.K. Therapy (Immunkörper, Immune Substances) in Pulmonary Tuberculosis.* By W. Barr, M.D., D.Sc.Glas., D.P.H.Camb. Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916. (Demy 8vo, pp. 82; 42 charts. 3s. 6d. net.)

[3] *Estudo clinico do granuloma venéreo.* Trabalho do Instituto Oswaldo Cruz. These apresentada á Faculdade de Medicina do Rio de Janeiro por H. C. de Souza Araujo, natural do estado do Paraná, filho legitimo de J. C. de Souza Araujo e de D. Manoela A. d'Araujo. Rio de Janeiro: Typ. do Jornal do Commercio, de Rodrigues and Co., 1915. (Imp. 8vo, pp. 173; 12 figures.)

tissues and the formation of rectal, vesical, or urethral fistulas, or even to perforation into the peritoneal cavity. Cases have been recorded in which the infection has been transmitted by the use of unsterilized surgical instruments.

The author makes numerous quotations from the literature of the subject to illustrate the views that have been held as to its etiology. From the clinical point of view he groups his cases into two main classes, the ulcerating and the hypertrophic, with subdivisions according as the lesions are serpiginous, fungating, or papillomatous. The clinical diagnosis rests on the presence of the chronic indolent hypertrophic or ulcerated granuloma, with elevated margins, characteristic secretion, and readiness to bleed on injury. The diagnosis can easily be confirmed by the microscope. Part of the granuloma is curetted off, fixed in alcohol or by heat, and coloured with Giemsa's stain, when it will show the specific bacterium. This test serves to distinguish granuloma venereum, or ulcerating granuloma of the pudenda, from such affections as syphilis, soft sore, framboesia, leprosy, and such diseases as actinomycosis, blastomycosis, sporotrichosis, mycetoma, and the like. It is to be regretted that the author gives no account of the appearance or cultural characteristics of the specific organism *Calymmatobacterium granulomatis* in his thesis; this microbe, discovered in 1912 by Aragao and Vianna at Rio de Janeiro, appears to be unknown to many recent standard textbooks of bacteriology.

The prognosis is good if the case comes under treatment early; the infection can be cured in all but the most advanced cases, but if there has been much ulceration and loss of tissue, it is natural that a great deal of scarring and deformity should be left behind. Treatments by local applications, surgery, salvarsan, and vaccines, have always proved disappointing. But, arguing from the success obtained by intravenous injections of tartar emetic in leishmaniosis of the skin, Vianna and Aragao employed it in venereal granuloma, and met with striking success. From 5 to 12 c.cm. of a sterile one per cent. solution of tartar emetic are given intravenously on alternate days; after about twenty injections have been administered the treatment is suspended for a week or two, and then repeated. Dr. de Souza Araujo or his colleagues have used this method in 25 cases, with 3 relapses; two patients, old and grave cases, died. He adds that some good results have also been obtained by *x*-ray treatment. Details of 34 cases of the disease are given in the thesis, and there is a bibliography of the subject.

A DESK DICTIONARY.

THE third edition of Gould's *Practitioner's Medical Dictionary*, revised and enlarged by Dr. R. J. E. SCOTT,[4] contains about twice as many definitions as Gould's *Pocket Medical Dictionary*, but though very full it is compact, and the text, which has been brought well up to date, provides explanations of almost all the strange terms the sorely tried reader of modern medical literature is likely to meet. It contains, in addition to the many obscure and superfluous terms invented by physicians, surgeons, pathologists, and bacteriologists to darken knowledge, many of the trade names applied to numerous drugs, chemical products, and the like, that are in common usage. There are a few misprints or errors in the spelling, derivations, and chemical formulae given, but not many. The only word for which we have looked in vain in this dictionary is Professor Crile's new portmanteau word "anociation," with which he now replaces the more familiar term "anoci-association." The book is well printed, and may be warmly recommended to the attention of medical students and medical men in search of a good dictionary of modern medical terms.

NOTES ON BOOKS.

VOLUME III of the *British Journal of Surgery*,[5] covering the period from July, 1915, to April, 1916, has recently been issued. This journal has been remarkable for the excellence of its illustrations, and those in the present volume form no exception. Some of them are in colours, others are in half-tones, and others are from drawings. Every one will have his own opinion of the relative merits of the two last named, but to show certain conditions coloured plates are a great advantage, as is well exemplified by those with which the report on cases of gas poisoning among British troops, by Colonel Sir John Rose Bradford and Captain T. R. Elliott, are illustrated. Though many of the papers in the volume are concerned with military surgery a large proportion deal with general subjects. In addition to the technical pictures to which we have referred, each number contains a portrait; those in this volume are of Guthrie, Cheselden, Wiseman, and John Moyle, a sea-chirurgeon of the eighteenth century. We may take this opportunity of mentioning that the new number of this journal—that for July—contains excellent portraits of Sir Charles Ball and Professor A. E. J. Barker, accompanied by sympathetic memorial notices.

[4] *The Practitioner's Medical Dictionary.* By G. M. Gould, A.M., M.D. Third edition, revised and enlarged by R. J. E. Scott, M.A., B.C.L., M.D., Fellow of the New York Academy of Medicine. London: H. K. Lewis and Co., Limited. 1916. (Demy 8vo, pp. 970; illustrated. 17s. net.)

[5] Bristol: John Wright and Sons. (30s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

A New Intestinal Antiseptic.

FIVE months ago we published a note on a new intestinal antiseptic, "trimethol" by name, recommended to the members of a Connecticut medical society by Dr. J. T. Ainslie Walker. Trimethol is a benzene derivative, $C_6H(CH_3)_3(OCH_3)OH$, a trimethylmethoxyphenol, put up in the form of a 50 per cent. gelatine emulsion. It is stated to have a Rideal-Walker coefficient of 20, and to pass unchanged through the intestine; hence it is recommended in such conditions as offensive diarrhoea, enteritis, ulcerative enteritis, mucous colitis, and the like. It may be obtained, we hear, from Messrs. John Bell and Croyden, Ltd., 50, Wigmore Street, W.

Chlorinated Dusting Powders.

The object with which the chlorinated powder eupad was introduced was to secure the necessary antiseptic effect with a minimum of local irritation. Professor Lorrain Smith and his colleagues, in their original communication (BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 129), acknowledged that pain and irritation might be caused by eupad, which consists of equal parts of chlorinated lime and boric acid. Major Don (BRITISH MEDICAL JOURNAL, 1916, vol. i, p. 643) also mentioned that pain might be caused by the employment of eupad. There are two methods of using a powder of this kind: (1) as a dusting powder to septic sores; (2) by placing a suitable quantity between folds of muslin or lint moistened with water as a dressing. So far as the first method is concerned, it would appear probable that by the use of a diluted powder results as useful would be obtained as with a more potent application, for example, one containing 50 per cent. of chloride of lime, while the risk of causing pain would be diminished. With regard to the second method, which relies on the gases emitted by such mixtures, chlorine is so active a bactericide that a milder preparation, while less caustic, might probably be equally efficacious. Moved by these considerations the firm of W. Martindale (10, New Cavendish Street, London, W.) has produced under the name "kepad," a light flocculent chlorinated dusting powder, composed of chlorinated lime, boric acid and kieselguhr, the latter sterilized by heat. The strength which it is believed will be most generally useful contains 0.5 per cent. of available chlorine, which is equivalent to 1.5 per cent. chlorinated lime or 0.75 per cent. of hypochlorous acid. Kepad containing 5 and 10 per cent. or more of chlorinated lime can be prepared when stronger preparations are required.

Sterile Catgut.

Attention was called a short time ago (JOURNAL, June 3rd, p. 800) to a discussion raised at the Académie de Médecine by M. Quénu, when a series of resolutions containing instructions for the manufacture of catgut and its sterilization were adopted. Messrs. G. F. Merson (Meuse Lane, South St. Andrew Street, Edinburgh) have prepared a surgical catgut in a manner which, we understand, fulfils the required conditions. We believe the result of independent bacteriological examination has been very favourable, and hope to publish a note upon this aspect of the subject in a subsequent issue.

THE remains of Metchnikoff were cremated at Père-la-Chaise, and the ashes have been deposited in the Pasteur Institute.

DR. HERMANN M. BIGGS, Health Commissioner of New York, has organized a systematic effort to combat the epidemic of infantile paralysis now prevalent in that city and outlying districts. Up to July 5th 600 cases had been reported with a mortality of 25 per cent. Letters are being sent to all practitioners in the State, and local health officers are instructed to report by telegraph every suspected case, and to enforce the strictest quarantine. The department of health has enlisted the aid of two large insurance offices in the distribution of warning leaflets. The department of licences has notified all moving picture theatres in the city not to admit children under 16 until such time as the Board of Health declares that the menace is at an end.

THE WORK OF THE NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION.

THE seventeenth annual general meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was held at 20, Hanover Square, London, on July 26th. The council was able to report that although checked in its onward progress the association has not been less vigorous in its efforts to spread knowledge of the disease and the means whereby it is hoped it may be stamped out. One important step taken during the year was the publication of the *Handbook of Tuberculosis Schemes*, of which we gave some account in the JOURNAL of April 29th, p. 626. It was very carefully compiled, and it contains the latest information as to existing institutions and of the work they are doing. It will doubtless serve a double purpose as an index of work in progress and as a stimulus to the prosecution of similar work elsewhere. Incidentally it may be said to point to a great need for further extension of the campaign. In the northern counties of England the local associations that have been formed would appear to be making vigorous progress by way of the establishment of tuberculosis dispensaries, the provision of sanatorium accommodation, and by home visitation and after-care. In the southern counties this vigour is by no means so clearly evident, and a few only of the Scottish counties are able to record activity, but since the care of the consumptive has become more and more a matter for local or municipal authority, the aid of the association has been less in demand. The prime object in the preliminary stages of the campaign is to educate the public and so to smooth the way for ultimate legislation. The assistance of friendly societies and insurance committees and companies—notably the Prudential Assurance Company—has been freely invoked, and a vast amount of literature has been circulated through the channels they provide.

The annual report contained an interesting account of the results achieved by the caravan tours through various districts and towns, both in the north and the south. Real interest has been aroused, especially among school children, due no doubt to the convincing way in which the plain facts have been put before them in language that they could understand. The National Association has been active in the interests of the tuberculous soldier, to secure fair treatment for him on or before discharge. Much has been done to provide appropriate treatment for such cases, but, in spite of official denials, their number is said far to exceed the available resources. A strong representation has been made to the War Office authorities with a view to postponing discharge from the army on account of tuberculosis until after a period of treatment has been tried. Immediate discharge involves loss of the separation allowance just at the time when it is most wanted, but there is reason to believe that the proposition for postponement will be favourably entertained. With a view to the prevention of enlistment of persons suffering from latent tuberculosis, a system of notification by medical officers of health of all persons of military age has been started, and should have the result of greatly reducing the number of actual or potential consumptives in the army.

Thus it will be seen that the steady perseverance in its chosen line of action is enabling the National Association to penetrate with each succeeding year deeper and deeper into the recesses of ordinary life and to force into prominence the knowledge of the disease in its less obvious forms, and to bring the public mind into touch with commonsense methods of dealing with it in all its stages. For this work, as for so many other phases of philanthropic effort, there is constant need for money. The national importance of the crusade against tuberculosis must be still more widely recognized, and far more liberally supported, if a real annihilating victory is to be achieved.

After the adoption of the annual report, Sir WILLIAM OSLER read a paper on the tuberculous soldier. He suggested (1) that searching examination should be made of recruits, doubtful cases being referred to the tuberculosis expert of the district; (2) that army experts should decide on doubtful cases before discharge; and (3) that a national organization should look after the welfare of the tuberculous soldier, with subsidiary branches in each county, and that this work should be done in co-operation with societies for the after-care of soldiers and sailors. Mr. H. J. TENNANT said that the War Office had now decided that men who had joined the army and were discovered to be tuberculous were to be given part of the pension, not the full pension, if it could be proved that the disease had been aggravated by military service.

Medical Notes in Parliament.

Tuberculosis Treatment in Ireland.—On July 20th Mr. Meehan asked two questions as to the treatment of tuberculosis in Ireland. The first had reference to provision for patients in advanced infectious stages. The Home Secretary said that the importance of securing the isolation of patients in such stages had been recognized by the Irish Local Government Board, which had brought the subject to the attention of county councils. The matter was complicated by the necessity of affording accommodation for such patients in reasonable proximity to their homes, as well as by difficulties of finance and management which would result from the establishment of numerous specialized institutions. The Board had advised county councils to transfer union isolation hospitals from the boards of guardians to the sanitary authorities, and to adapt them for the reception of advanced tuberculous patients. In reply to the other question, which referred to domiciliary treatment of tuberculous patients, Mr. Samuel said that it was being carried out under the schemes of a number of county councils, but the Irish Local Government Board had advised those bodies to proceed tentatively pending the complete organization of their dispensary arrangements. In a few instances the Board, in accordance with instructions from the Treasury, by whom half the net cost of approved schemes was recouped, had taken exception to a monetary allowance for the purchase of ordinary subsistence for a tuberculous patient under domiciliary treatment.

The Insurance Commissions.—On the report of supply (July 25th) the following votes, including in each case sundry grants in aid, were agreed to:

	£
Joint Committee	148,709
Insurance Commission (England)	3,167,239
" " (Wales)	204,923
" " (Scotland)	426,902
" " (Ireland)	273,475

War.

Promotions R.A.M.C.—In reply to Mr. Joynson-Hicks the Financial Secretary to the War Office stated, on July 19th, that 155 captains (R.A.M.C.) had been promoted since the beginning of the war. Asked whether the number of medical promotions bore any proportion to that of combatant promotions of similar rank, Mr. Forster said that the number of promotions in the R.A.M.C. had not been fixed so as to bear a definite proportion to combatant promotions of similar rank.

Medical Treatment of Discharged Wounded Soldiers.—On July 19th Mr. Forster informed Mr. Hume-Williams that soldiers discharged from the army on account of wounds could, whatever their place of residence, on application to the Secretary of the Royal Hospital, Chelsea, obtain treatment in a military hospital provided there was a reasonable probability that their disability would be cured or materially improved thereby. While in hospital their pension was raised to the full amount allowed for total disablement, and any allowance for children born before discharge to which they were entitled. A stoppage of 1s. a day was made for maintenance while they were in hospital.

Neurasthenia and Acute Mental Cases.—In a written reply to Commander Bellairs, the Parliamentary Secretary to the Admiralty stated that cases of neurasthenia were treated in general medical wards with excellent results. Acute mental cases were treated in the special mental wards provided in the three large naval hospitals, unless it was considered that the patient was more likely to recover at the special hospital at Yarmouth. The increase in the percentage of acute mental cases in the navy since the war began had not been very great.

Prisoners of War, German and British.—The Financial Secretary to the War Office, on July 25th, gave statistics of British and German prisoners, which are set out in the following table. Those repatriated or transferred to Switzerland have been deducted.

	Officers.	Men.	Totals.
German Army	401	19,799	20,200
German Navy	121	1,346	1,467
			21,667
Recently captured ...	—	—	4,000
			25,667
British Army	721	24,629	25,350

British Medical Journal.

SATURDAY, JULY 29TH, 1916.

MEDICAL HISTORY OF THE WAR.

DURING the last four or five months a good many medical men engaged in clinical work in the military hospitals in the United Kingdom have occasionally found among the papers brought by their patients from France a buff envelope containing a stamped and addressed post-card and a printed leaflet. The former supplies information regarding the patient's previous history, and the latter conveys a request that certain blanks on the post-card shall be filled in by the medical officer receiving the envelope and the card itself then consigned through the post to the Secretary of the Medical Research Committee.

The leaflet also affords certain other information, but since this is not very full and these envelopes and their contents are arriving with increasing frequency, it may be well to consider their purpose in some detail.

They are part of a system which has been evolved in France with the approval and co-operation of the Director-General of Medical Services, Sir Arthur Sloggett, by which it is hoped to attain two definite objects.

The first of these is to promote steady improvement of current practice so far as this can be achieved by informing men as to the previous history of cases that come into their hands and as to the results which *aut post aut propter hoc* ensue on the treatment they apply. The second is to secure the data that will be necessary if the clinical lessons of this war are ever to be assessed on something approaching scientific lines in a future medical history of the war.

These are the general and final aims; those which are particular and contributory require rather fuller description. Among the medical peculiarities of this war are three which call for consideration in this connexion. The first is the number of differently situated institutions through which any given patient is likely to pass before his treatment is complete; the second the fact that the clinical branch of the Royal Army Medical Corps is now an immense conglomerate body whose members as a whole have little experience in common beyond their passage through medical schools; and the third that the number of cases treated runs into hundreds of thousands.

These peculiarities have a number of sequences, some of which have an immediate bearing on the question of providing data of the kind required.

An outcome of the first peculiarity is that only in exceptional instances does any practitioner, whether surgical or medical, witness more than a bit of the story of any given case. The stage at which he sees it, the picture that it presents to him, and the views he will be disposed to form as to the underlying injury or morbid entity, will vary as a rule with the situation of the unit to which he is attached. This may be either just behind the firing line, at some nominal base such as the hospital areas in France, or at a true base such as those in the United Kingdom; the stage of the majority of cases seen at each of these three times will tend to vary correspondingly.

Consequently, a part of the scheme evolved in France is to endeavour to secure for the benefit of the future writers of the medical history of the war not only accounts of the diseases and injuries as seen at each of these three stages, but, as it were, composite pictures relatively free from subjective errors of observation, whether negative or positive. Provided with these composite pictures, or the materials for drawing them in the shape of a sufficient number of painstaking studies all covering precisely the same points, they will be able to give a consecutive account of many of the injuries and diseases seen in the war, and, with the help of certain other data, will be in a position to point out with some approach to scientific accuracy what medical and surgical lessons should be based on its events.

The cognate sequences of the other two peculiarities mentioned may be considered together. At first sight the best ore to provide for the furnace of the writers of the clinical section of a medical history of the war would seem to be the case sheets of hospitals, but it results from the peculiarities in question that this appearance is deceptive. The majority of patients enter, as has been said, at least three institutions, and even if full case sheets were invariably kept, their preliminary classification would be a serious task, and that of minutely analysing hundreds of thousands of them would occupy years. The case sheets are being classified and indexed in the statistical department of the Medical Research Committee, but the classified case sheets, even if all were complete, will not always present comparable data.

This is because the mental attitude of all practitioners to their cases is so affected by their previous experience and specific training that if any ten were asked to record each according to his own lights one and the same case, there would be considerable lack of uniformity in the resulting reports. Even if all were equally competent each in his own line, and all were equally versed in the art of note-taking, the report of A. would dwell in detail on some point which B. hardly noticed, and C. would supply information on a point not mentioned at all in that of D., and so on *vice versa* and right through the series.

As a result of these circumstances, it is part of the scheme evolved in France to render the history writers independent of case sheets in respect of detail, but at the same time secure for them such assistance as may be obtained from mass statistics relating to broad results. In the few months that have elapsed since it came into operation in all its parts ample evidence of its suitability to the circumstances has been secured. It depends for its success, however, very largely on the character and amount of the assistance rendered by workers in home hospitals, and for this reason we appeal to all those into whose hands fall the buff envelopes mentioned to co-operate fully and faithfully by filling in the schedules forwarded to them on dispatch of the post-cards enclosed.

Should they do so it is certain that the data necessary for the formation of sound conclusions will be provided, and the medical profession will not have to reproach itself with having neglected its opportunities. In other words, it will have placed itself in a position to say what lessons shall be based on the experiences of this war instead of having to accept the judgement of individual writers, the experience of no one of whom can be sufficiently varied and comprehensive.

In regard to questions other than those of clinical medicine and surgery the presages are equally satisfactory. In all areas in France arrangements are in operation by which specimens illustrative of the

pathology of the injuries and diseases seen at the front are transmitted to the museum of the Royal College of Surgeons of England, whence they are sometimes, if desired, redistributed to local museums and institutions.

So, too, in regard to questions connected with epidemiology and general hygiene. What is in effect, though not in name, a species of collective investigation of these has been in progress from a very early stage of the war, and the resulting data are being admirably handled by the advisers in pathology and sanitation respectively attached to the staff of the Director-General in France.

PRIMITIVE TREPHINING.

THE practice of trephining by prehistoric man is a subject which has long attracted the attention of anthropologists and to it valuable contributions have been made in recent years by the late M. J. Lucas-Championnière and Sir Victor Horsley and by other eminent surgeons.

Attempts have been made to account for the holes found in prehistoric skulls as the relics of some religious rite, but Dr. Sören Hansen,[1] while admitting that amulets and other charms may have been carved out of the skulls of the dead, regards this view as less plausible than the explanation that the skulls were opened during life to relieve pain. In Sweden, a grave was found in 1900 containing ten skulls, of which three had been trephined, and in every case the patient had evidently survived the operation. In Teneriffe von Luschan collected 210 skulls, ten of which had been trephined. He found several others in which the outer table only had been scraped away, the operator evidently having decided not to expose the brain. Luschan, on the basis of his own material and that collected by others, estimates the mortality from primitive trephining at about 4 per cent. As the operation must often have been performed in hopeless cases, the patient dying in spite of, rather than because of, the operation, this estimate is one of which our ancestors may justifiably have been proud. They often repeated the trephining till the patient's skull was honeycombed, and we may assume that the repetition was tolerated because it gave relief, temporarily at any rate.

The technique of the operation does not seem to have been uniform, but the most common procedure evidently consisted of scraping away the bone with a sharp stone or other simple tool. This process is not as slow as might be supposed, and it entails but little risk to the brain. Holes with a diameter of 14 centimetres have thus been formed without killing the patient. The conditions which indicated the use of the trephine probably included epilepsy. Another common condition was no doubt trauma, and in the anatomical museum in Copenhagen there is a skull from the early iron age showing a large triangular opening, the lower side of which, measuring about two inches, had evidently been cut by a sword. The two upper sides of the triangle had been cut with a saw in an attempt to remove depressed fragments of bone. As the edges of the triangle show no signs of repair, it may be assumed that the operation was unsuccessful. Dr. Hansen draws an interesting comparison between the art of trephining in the stone age and in the nineteenth century. While the stone age surgeon would seem to have been confident in his technique, the surgeons of the middle of the nineteenth century were at loggerheads. But it is a curious fact that, while surgeons less than a century ago were picking holes in each other's arguments for and against picking holes in the skull of man, the uneducated layman and shepherd in many places regarded this operation as an everyday performance. Prunières has described the operation of trephining sheep skulls by shepherds in the province of Lozère. The sheep's head was secured between the shepherd's knees, while a hole was bored in the skull with a pointed, round-handled knife, rotated between the palms of the hands; as the custom was well established, the operation must probably have been successful in a certain proportion of cases.

Two forms of trephining are recognized by the modern Arab. *Mounheila* is the operation by which only the outer table of bone is removed, and *Ahachema* is the operation by which the inner table also is removed. The former is employed in diseases of the brain, the latter in fractures of the skull. No anaesthetic or antiseptic is used, yet all the writers who have described this operation agree as to its safety. The wound is dressed with an ointment containing several ingredients. In Daghestan, in the Caucasus, Russian army surgeons have found that the natives trephine not merely for headache and injury, but also to extort pecuniary compensation from an enemy, who has to pay for the operation, whether it be necessary or not; for the sake of cash, the recipient of a mere knock on the head gladly allows the surgeon to ventilate his brain. The operation is performed with a narrow gouge after the scalp has been divided. Great care is taken to round the corners of the hole in the skull, and the edges of the bone are neatly bevelled. The recovery is usually uneventful. A somewhat similar procedure was adopted by the Montenegrins in the nineteenth century, but their technique was less primitive.

In the Fiji and in several other groups of islands in the Pacific trephining was now and then practised. In 1831 William Ellis described an operation performed in the island Bora-Bora of the Society group. When the skull was fractured the scalp was incised and loose fragments of bone were removed. A piece of cocoa-nut shell was carefully carved so as to fill exactly the hole in the skull, and it was then covered with the scalp. This operation was often successful. In 1874 Ella described an operation performed on the island Uvea in the Loyalty group. Here it was assumed that headache, neuralgia, vertigo, and other cerebral affections proceed from a crack in the head or from pressure of the skull on the brain. The scalp was divided by a cross or T-incision, and the skull scraped gently till the dura mater was exposed through a hole the size of a crown piece. When the pia mater was also exposed owing to the rashness of the surgeon or the impatience of the friends, the operation was fatal. Even with the greatest care the mortality was about 50 per cent. Formerly the trephine was a shark's tooth; but this was later replaced by a piece of broken glass. The site of the operation was usually at the junction of the coronal and sagittal sutures, or a little higher, on the supposition that this is the most common position of a fracture.

Dr. Hansen also refers to the practice of trephining among the Cornish miners, whose familiarity with the operation dates more than a century back. It was a handicraft rather than a science, and was handed down from father to son. During the middle of the eighteenth century no local surgeon hesitated to trephine for injuries to the skull, but the credit

[1] Primitiv Trepanation. *Medicinsk-Historiske Smaaskrifter*. Edited by Vilhelm Maar. Vilhelm Trydes Forlag. Copenhagen, 1913.

for the restoration to popularity of an operation at one time considered totally inadmissible appears to be due to Percivall Pott and his pupils. The operation, as taught by Pott, was usually performed with success provided it was not undertaken in the overcrowded, insanitary hospitals of the day.

DURATION OF SERVICE OF TEMPORARY OFFICERS R.A.M.C.

WE are informed that officers serving in the R.A.M.C. with temporary commissions have been notified that the clause in their contract giving them the option of resigning their commission at the end of the year has been, or will be, annulled. So far as we are aware, no official notification to this effect has been published. The official statement as to the terms and conditions of service of civilian practitioners joining the R.A.M.C. with temporary commissions contained the following clause: "They must engage for a period of twelve calendar months, or until their services are no longer required, whichever shall first happen." In the Memorandum on the National Organization of the Medical Profession in Relation to the Needs of H.M. Forces, and of the Civil Population and to the Military Service Acts, issued with a covering letter from the Director-General A.M.S. on June 7th, 1916, and published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL on June 17th, 1916, it was said that "in recognition of the voluntary character of the service thus offered, the Army Council have undertaken that a man thus offering himself shall have always at least a month's notice before being taken; that he should not be called on to fulfil his obligation of commissioned service for more than twelve months consecutively, and that he should have a certain stated rate of remuneration during the present war." We do not believe that many officers now serving with temporary commissions will desire to resign them; in fact, experience has already shown that those who so desire form a small minority. But circumstances may arise in particular cases in which a man may wish to take advantage of this condition of the voluntary contract into which he entered. The Memorandum pointed out that in virtue of the compulsory provisions of the Military Service Acts doctors up to the age of 41, whether married or single, are under the same statutory obligation as other citizens to serve in His Majesty's Forces for the duration of the war. But the Memorandum went on to recognize that the medical man is in a very special position, first, because he is needed in the navy and army to render there the same kind of services that he fulfils in civil life, and secondly, because arrangements can be made in a large number of cases for carrying on his work in a manner to conserve his private interests and also the interests of the civil population, the necessary element in determining the last point being a decision as to which of the men in a given place can most wisely be selected for the Army Medical Service. The second Military Service Act gave to medical men the right to make use of a special procedure for the determination of questions of exemption. The Act directed that Professional Tribunals should be set up to deal with claims for exemption made by duly qualified medical practitioners, and the Order in Council of June 1st was issued accordingly. We have no doubt that if the War Office has felt compelled to notify officers of the R.A.M.C. who hold temporary commissions which expire shortly that they will not be allowed to return home, it is only a temporary measure to meet the urgent exigencies of the moment, and that the Army Council will, at the earliest possible moment, fulfil the terms of the contract made with the holders of temporary commissions. It must be evident at the present time, looking to the conditions in France, Egypt, and Mesopotamia, that the needs of the army are very great, and while there may be some cases of hardship amongst those who have so patriotically answered the country's call during the past year, yet we think that such members of the profession who very rightly may at first feel some resentment at being retained beyond the period contracted for, may rely upon the good faith of the Government to release them at the earliest possible moment, and upon their professional brethren in this country to do everything in their power to see that their interests are safeguarded in every possible respect. We believe we are justified in stating that any officer who took a temporary commission R.A.M.C. on the understanding that his period of service would be for one year only, will, if he is under 41 and enrolled, not be compelled, when the present strain has passed, to undertake further service until, in the opinion of the statutory professional committee, the necessity arises for him to do so, and that full opportunity will be afforded him to put his circumstances before this committee in the event of a further call being made upon him.

SIR WILLIAM RAMSAY'S WORK.

SINCE Sir William Ramsay's career as a scientific investigator extended over a period of about forty-five years, and during the whole of that time he was almost continuously engaged in research, it is not possible to give here more than the merest outline of the work which he accomplished, or to convey a really inadequate idea of the extent of the debt which science owes to him. Although a small proportion of the papers he published dealt with subjects belonging to organic chemistry, he showed, very early in his career, a decided preference for investigations belonging to the physical and inorganic departments of chemistry, and the greater portion of his work is therefore concerned with the physical and chemical properties of inorganic substances. During the period of his life extending from 1872—when he returned from Germany—to 1893 he published a very large number of papers dealing chiefly with a somewhat wide range of subjects in the two branches of chemistry mentioned above, some of the more important being those on the atomic and molecular volumes of elements and compounds at their boiling points, the vapour pressures of certain liquids, and the preparation and properties of nitrous oxide and nitrogen peroxide. At the end of this time, however, while he was well known in the scientific world, he had not yet made any discovery of supreme importance, and had therefore not attained prominence in the public eye. In the year 1894, working, to some extent, in conjunction with Lord Rayleigh, he discovered that the atmosphere contains a small amount of a gas which differs from nitrogen chiefly by possessing a greater density and a much greater degree of chemical inertness, and at the annual meeting of the British Association the discovery was announced as a joint one, the name given to the new gas being argon; the full details, however, were not published until a little later. During the course of the next year, in collaboration with Professor Norman Collie and others, he published a paper dealing with the discovery of helium in a number of minerals consisting of the salts of uranium, yttrium, and thorium; the element was already known, by spectroscopic evidence, to exist in the sun, but it had not been previously discovered upon the earth. A number of papers followed, dealing with the chemical and physical properties of argon and helium, and in 1898 and 1899, by the fractional distillation of liquid argon and liquid air, Ramsay discovered that the argon already obtained really consisted of a mixture of four gases—pure argon, neon, krypton, and zenon—in addition to small amounts of helium; the latter gas, however, had been discovered to exist in the atmosphere, just previously, by another observer. In 1903, working in conjunction with Professor Soddy, he showed conclusively that helium is produced by

the breaking up of radium, and thus proved that the transmutation of elements is a scientific fact. After this extremely important discovery he carried out a considerable amount of work on the properties of radium emanation and the changes produced in substances exposed to its action, and in 1907 he published a communication in which he stated that he had succeeded in obtaining lithium by the action of radium emanation on certain salts of copper, while in similar circumstances an acid solution of thorium nitrate had yielded carbon dioxide. Details of further experiments affording similar results were given in 1909 and 1910. Sir William Ramsay will always be chiefly remembered for his work on the rare gases of the atmosphere, and on the production of helium from radium, but, as shown above, this forms only a small part of his total contributions to scientific knowledge. His death is a great loss to science, for, though in his 64th year, he was full of energy and planning new researches, until struck down some months ago by the illness which proved fatal on July 23rd.

THE DYE INDUSTRY AND SYNTHETIC DRUGS.

IT is well known that in the past an intimate connexion has existed between the German dye industry and the manufacture of synthetic drugs, and that a very large proportion of the latter in common use have been discovered and produced in German works established in the first place for the production of artificial colouring matters. This fact renders the future progress of the British coal-tar industry of considerable importance from the medical point of view, since it is to be hoped and expected that, in the future, British dye makers will copy their German rivals and undertake to supply, at least partly, the demand for the more important synthetic drugs. Unfortunately, however, for the moment there is no prospect of any immediate movement in this direction, since dye manufacturers in this country are now working under very considerable difficulties. Several of the raw materials and other indispensable chemicals required—such as benzol, toluol, nitric and sulphuric acids, etc.—are also used in the manufacture of explosives, and are therefore available in limited quantities only. Moreover, the production of finished dyes occupies a number of stages, and necessitates the preparation of a large number of intermediate chemical products which cannot at present be obtained in quantity from outside sources, and which must consequently be manufactured by the dyeworks themselves. On the other hand, once the industry is firmly established on a large scale, the very fact that such large numbers of organic chemicals are produced during the manufacture of dyes should enable British dye manufacturers to compete more readily with the German producers of medicinal chemicals, since among the intermediate substances required in dye-making are such compounds as benzaldehyde, beta-naphthol, acetanilide, phenol, resorcinol, salicylic and benzoic acids, etc., and many other chemicals which may be readily converted into well-known drugs. Another point of importance is that by-products of dye manufacture which would otherwise be of practically no value can in some cases be converted into substances of considerable medicinal importance. We may therefore reasonably expect that when dyes are produced in large quantities in this country, we shall also become less dependent upon other countries for our supplies of synthetic drugs, and that the monopoly which Germany has possessed up to the present in this branch of chemical manufacture will be broken.

BRITISH PRISONERS IN GERMANY.

ON July 13th Lord Robert Cecil stated in the House of Commons that Germany categorically repudiated the charge that it did not recognize its obligations in the matter of the supply of food to British prisoners of war, and also the assertion that less food was supplied to civilian than to military prisoners, the rations furnished to all prisoners of war being identical. The Imperial German Government had sanctioned the dispatch of collective consignments of food for those prisoners who received no direct parcels on condition that they should not contain a predominance of such commodities as were only obtainable to a limited extent by the German people themselves in consequence of the British blockade. If, on grounds of reprisal, the rations now supplied to German prisoners of war in this country were in any way reduced Germany would not only withdraw permission for collective parcels, but also prohibit the receipt of individual parcels. On July 17th the United States Ambassador in London forwarded to the Foreign Office a copy of a letter from the United States Ambassador at Berlin regarding the housing of British civilians interned at Ruhleben. Mr. Gerard, who writes with considerable warmth, reports that practically no improvement has been made in the housing, although the German authorities, after two years of war, have certainly had ample time to provide accommodation. It is intolerable, he says, that people of education should be herded six together in a horse's stall. The light for reading is very bad. In the haylofts above the stables conditions are even worse; the beds touch each other. Mr. Gerard is satisfied that the camp authorities do all in their power to better conditions, but they have no power to make the needed improvements. Sir E. Grey has asked Mr. Gerard to urge on the German Government the necessity of taking immediate steps for the provision of better accommodation. The *Times* of July 26th publishes a statement by Sir Timothy Eden of Windlestone Hall, Ferryhill, Durham, who has recently been released after an internment of a year and a half, first at Rasdadt and afterwards at Ruhleben. At Rasdadt the quarters were those allotted in normal times to the worst kind of criminal, and the warders treated the prisoners as convicts. They had the ordinary prison diet, most of it very distinctly unpalatable or not fit for human food. On arrival at Ruhleben, Sir Timothy was sent with five others into a stable loft 6 or 8 yards in length and 6 ft. wide. Three months later they were given better quarters, but their straw beds went with them. The confinement, he states, is beginning seriously to affect the prisoners, especially their mental condition. After the recent stir in England, the prisoners were told they would get "margarine one day and jam the next." The margarine, on analysis, was found to contain 46 per cent. of water. This was all that was done to improve the food. Those who were lucky got 10 oz. of meat and four potatoes a day, and 5 oz. of fish (including bones) a week. They had a mysterious drink described as coffee or tea. The hospital conditions were shocking, but latterly had been somewhat improved. A doctor was never allowed to attend a patient at night. An inspection of the camp for prisoners of war at Giessen was made on July 3rd by Dr. D. J. McCarthy, accompanied by Mr. Gerard. The report states that the housing accommodation is adequate, the provision for medical care satisfactory, and other conditions good.

THE PROTRYPTIC PROPERTY OF BLOOD FLUIDS.

A PAPER by Captain S. R. Douglas, R.A.M.C., on the blood fluids in intraleucocytic digestion has been communicated to the Royal Society by Sir A. E. Wright. It had been noticed, particularly when making estimations of the opsonic index, that the degree of digestion undergone by bacteria ingested by the leucocytes varied markedly when different serums were employed. The author points out that Rosenow had already worked at this problem, and had come to the conclusion that the variation in the degree of digestion undergone by the micro-organisms after their ingestion by the leucocytes was due to a property of the serum which was quite independent of the opsonic power. Further, he concluded that the serum

influenced the digestion of the ingested bacteria by acting directly on the leucocytes—not on the bacteria—stimulating them so that they had greater digestive powers. Captain Douglas's experiments confirmed Rosenow's results as regards the blood fluids possessing the power of favourably influencing the digestion of bacteria ingested by the leucocytes, and his opinion that this property was quite independent of the opsonic power; but, contrary to his conclusions, they definitely proved that the blood fluids act directly on the bacteria or on the red blood cells, preparing them for digestion by the leucocytic ferments. In addition, they showed that heating normal serum to 60° C. for a few minutes completely destroyed this property. It is proposed to call this property the protryptic property of the blood fluids.

PARAFFIN MASK FOR BURNS.

ATTENTION was called recently by Mr. Albert Gray, C.B., K.C., chairman of the French Wounded Emergency Fund, in a letter to the *Times*, to a method of treating burns by paraffin adopted at the St. Nicholas Hospital, Rue Ernest Renan, Issy-les-Moulineux, Paris, by Dr. Barthe de Sandfort, who described[1] it to the Académie de Médecine rather more than two years ago. He was led by his experience of the mud baths of Dax to employ the method in rheumatism and arthritis in 1902; in 1903 he began using it as an application, after cleansing the parts, to ulcers and burns, spraying it on at a temperature of 80°, and even as high as 100° C., without inconvenience. He considered that one chief advantage of the method was that after the paraffin had solidified it exercised a slight but long-lasting pressure upon the part. To increase its toughness and suppleness he added a certain proportion of resins, by preference oil of amber (oleum succini). He does not mention the proportion, but as an external remedy for rheumatism oil of amber has been used in the proportion of 1 part to 3 of olive oil or more, up to equal parts. It is to be noted incidentally that oil of amber is seldom found pure in commerce, and that much of it is made not by the distillation of amber, but by the destructive distillation of resins such as copal and dammar, and Dr. de Sandfort's reference to resins suggests that he may be using the commercial product. He stated in his paper at the Académie that under the paraffin shell intense lymphocytosis occurs, followed by the appearance of islets of epithelium, which gradually extend, and asserted that cicatrization finally took place without contraction. Solid paraffin made fluid by heat has been used for preparing casts of limbs and various other parts of the body, including the head and face. The idea seems to have occurred independently to several people, for when Professor Peters of Toronto described in this JOURNAL in 1898 a method in which a spray was used, Mr. Lawson Tait wrote to say that he had used melted paraffin, put on with a rough painter's brush, with the help of a sponge and some iced water, in 1864, and Dr. MacDowel Cosgrave of Dublin said that he had used a similar method devised by Mr. Lewis of Dublin. Professor Peters described and figured an apparatus with a special ejector. With it he rapidly put on a thin layer over the whole surface to be treated, and gradually strengthened it until it was about one-sixteenth of an inch thick; he then sprayed with iced water, which caused rapid solidification. With his ejector it was possible, when the first layer had reached its right thickness, to turn on the cold water, so that the two sprays acted together. "The instant a particle of paraffin," he says, "touches a particle of cold water the former becomes solid. The result is that a sort of spongy tissue is formed with startling rapidity, in the cancellous spaces of which droplets of the cold water become imprisoned." The method in use in Paris seems to depend on getting a fairly thick solid mask which is spoken of as a "carapace." How long it should be left on is not stated, but it is said not to adhere strongly and to be easily removed, and this would no doubt be the case except in hairy parts, where special precautions would have to be taken.

[1] *Bulletin de l'Académie de Médecine*, April 14th, 1914.

THE SUPPLY OF PETROL.

ON and after August 1st next no motor spirit will be purchasable except on production of a licence from the Petrol Control Committee of the Board of Trade. Before the licence is issued the amount of the duty must be paid. It is, in the case of medical men, 3d. a gallon, and the amount of petrol permitted to be bought is based on a six months' supply, so that practically the licence is for a period of six months. In the case of commercial vehicles it is for four months, and of private motor cars for three months. The committee appears to recognize that the quantity allowed will fall short of individual expectations, and if the ratio of supplies for military requirements changes within the next few months it will be possible to revise the allotment made by it when the time comes for the renewal of licences. The position with regard to the supply of motor spirit to medical practitioners in the immediate future is not very clear. The statement in the original memorandum issued by the Petrol Control Committee in June was to the effect that it was not anticipated that there need be any curtailment at present of reasonable demands in the first two classes ("A" and "B") of the three classes into which motor users were divided. Medical practitioners are in Class A. As the result of the so-called petrol census, licences for the purchase of a stated amount of petrol during the six months beginning August 1st are being issued to medical practitioners. The issue of such licences does not appear to have been completed, but in very many cases the amount of motor spirit which the licence authorizes the holder to buy is considerably less—in some cases very much less—than the medical practitioner has been in the habit of using. The British Medical Association has been in communication with the Petrol Control Committee, and is informed that the supply companies will deliver motor spirit to retailers up to August 1st on condition that no motor spirit is to be resold except to priority buyers in Classes "A" and "B"; such priority buyers must hand a written order to the company. It would seem, therefore, that a medical practitioner should have no difficulty in obtaining petrol down to August 1st, but as things at present stand after that date he will be limited during the ensuing six months to the total shown on the licence he holds. It will probably be necessary to make further representations to the committee on behalf of the medical profession, and practitioners who anticipate difficulty in getting through their work on the amount shown on their licence should communicate with the Medical Secretary, British Medical Association, 429, Strand, W.C.

SENIOR STUDENTS AS VACATION RESIDENTS.

THE managers of many civil hospitals have given it to be understood that they have been in straits for resident officers, and that the work to be done was a great strain upon those doing it. The strain might perhaps be to some extent temporarily relieved if the services of senior students could be utilized during the long vacation of the next two months. The Dean of the Medical Faculty of the University of Edinburgh informs us that many fifth-year students have expressed to him their desire to give their services during the vacation to civil hospitals in need of junior resident officers. He is prepared to receive applications from civil hospitals, and to recommend senior students known to him who would be competent to fill such offices.

A GENERAL meeting of the Auxiliary R.A.M.C. Benevolent Fund will be held in the lecture theatre of the Royal Army Medical College, Grosvenor Road, S.W., at 2.45 p.m. on Monday, August 7th. The Director-General will preside, and he hopes that as many officers as possible will attend.

THE WAR.

"THE ENTERICA GROUP."

A DISCUSSION on the Enterica Group took place at a recent meeting of the Anzac Medical Society at Cairo.

Lieut.-Colonel WALTER SUMMONS made a report on the cases of enterica at the 1st Australian General Hospital at Heliopolis. Patients suffering from long-continued fevers were, he said, being met with in the medical wards from August, 1915, onwards. The agglutination blood tests did not give a positive Widal reaction to the typhoid bacillus, yet the clinical picture was similar to that of an infection with this organism. Arrangements were then made with the Laboratory of the Institute of Hygiene, Cairo, for the examination of the blood of these febrile cases. The staff of the laboratory had recently been augmented by Captain Hutchens and Lieutenant Myat, two English bacteriologists. All the cases were Australians, and one can assume that all had been inoculated twice with antityphoid vaccine within the twelve months prior to infection, and also that the patients had not been inoculated with paratyphoid vaccine. For the blood tests five cubic centimetres of blood were withdrawn into a syringe from a vein at the bend of the elbow as soon as the clinical picture was one of suspected enteric. The blood culture was only of value in the first ten days of the illness except in the occasional case when the organisms persisted, and in these the symptoms were severe.

Blood Examinations at the Central Laboratory.

Blood cultures:		Agglutination tests:	
+ Paratyphoid A	40	+ Paratyphoid A	77
+ Paratyphoid B	13	+ Paratyphoid B	18
+ Typhoid	6	+ Paratyphoid A and B ...	2
Total	57	+ Typhoid (strong)	28
Negative results	128	+ Typhoid (weak)	37
		Negative results	63
Total cultures ...	185	Total performed ...	225

Not a few returns came back thus: Weak typhoid and + paratyphoid A or paratyphoid B. These are counted as paratyphoid A or paratyphoid B respectively. In view of the rarity of + typhoid in the blood cultures, it is evident that the agglutination test of *B. typhosus* is not an index of actual infection with this bacillus. The value of the agglutination test in previously inoculated patients is open to discussion. Nevertheless, in this epidemic it seems a fair inference to assume that a + paratyphoid A or B is diagnostic of disease. After a universal prior inoculation it will have to be regarded that the only proof of an enterica infection is the finding of the actual organism in the blood or in the excreta. As the hospital served the double purpose of being the hospital for the troops training in Egypt and of receiving patients from the Mediterranean force at Gallipoli, further analysis of the positive results was made. Combining the blood cultures and the agglutination tests, the totals are:

	M.E.F.	Garrison.
Paratyphoid A	51	34
Paratyphoid B	7	23

The proportion in the M.E.F. cases is 23 to 2, and in the Garrison Force 3 to 2 of paratyphoid A to paratyphoid B. These infections seem to be clinically identical. From observations of a single epidemic it has not been possible to differentiate the various infections except by means of the laboratory tests. The clinical aspect of the paratyphoid patient differs from the well known typhoid picture. The patient does not look so ill, in spite of the temperature running on for weeks between 103° and 104° F. The rash is decidedly more marked, and may be so distributed that at first glance one thinks of measles, but the spots are only on the trunk and limbs as far as the elbows and knees; they are pinkish, not confluent, and vary in size, but usually are larger than the spots seen in typhoid. Again, the spots often appear late in the disease, during the third week, and when the fever is deforvescing. Many of the attacks came while the men were in hospital for surgical ailments, and thus the first signs could be observed. The mode of onset in order of frequency was—

(*a*) Gradual with severe headache that persists for a week and an increasing daily rise of temperature.

(*b*) With rigors and high temperature from the start, that shows little remission.

(*c*) With a prodromal rise of temperature for three to five days, after which the temperature comes to normal for one to four days, and then the fever runs its prolonged course.

(*d*) Simulating acute appendicitis, with vomiting. Some ten or a dozen cases were operated on and the appendix removed. The inflammation of the appendix was part of a general inflammatory condition of the intestines.

(*e*) With symptoms of acute gastro-enteritis.

(*f*) With signs and symptoms of pneumonia.

The course of the fever in many cases was prolonged, and though the patient progressed favourably still the temperature ran into the sixth week before it came to normal. The type of fever was irregularly intermittent. Relapses were not uncommon, with a repetition of the signs and symptoms, but milder in degree. Headache at the onset was a distressing symptom, but this passed off in the first week, and after passing through a lethargic stage of varying duration the patient became bright and had few troublesome symptoms. As a rule the patients lost weight, but not to the extent of cases of true typhoid. From the rarity of serious complications and low mortality figures one was inclined to allow more food. Distension of the bowels and undigested food in the stools readily yielded to treatment. Apart from the occasional initial diarrhoea the bowels were constipated and relieved by enemata. One of the early patients died of haemorrhage, but this was before the nature of the fever had been recognized. Less than 1 per cent. of the cases had melaena; enlargement of the spleen was an almost constant sign. Of the sequelae the cardiac affections took a prominent place. Myocardial weakness was common, and demanded prolonged convalescence. The pulse not infrequently did not become rapid until the patient had been allowed up. Less frequently a gross arrhythmia was found, and these cases did not improve till after a prolonged rest in bed. A few cases of polyneuritis were seen, but more cases of limited neuritis came to us amongst the convalescent patients transferred from other hospitals. Phlebitis, cholecystitis, and nephritis were less common complications. Few soldiers, he thought, would suffer permanent damage as the direct result of the infection, and out of the 800 cases passed through the hospital there had been only five deaths. This, however, did not give a true idea of the mortality-rate. Half of the patients had reached the convalescent stage, and not a few were in bed for other reasons when the bowel infection developed. Moreover, the most severe cases from Anzac were not sent to Cairo. On the other hand, there was no greater fatality-rate amongst the cases that came from the Garrison Force. The European and Egyptian predominating organism was paratyphoid B; in the Gallipoli infection paratyphoid A largely predominated. As paratyphoid A was common in India, it might be that the Indian troops brought this organism. It remained to be seen which bacillus was prevalent amongst the Turks. The value of prophylactic injections with antityphoid vaccine was upheld. A number of typhoid cases had occurred, and doubtless from the nature of the position at Anzac the percentage would have been much greater had not some opposing influence been present. The troops had now to a large extent been inoculated against paratyphoid A and B, and this, combined with the removal of carriers, would, it was hoped, lessen the number of cases next season.

Colonel W. H. PARKER, C.M.G., D.D.M.S., New Zealand Forces, contributed, from the New Zealand General Hospital, Cairo, of which he was O.C., statistics of enteric cases examined between November 1st, 1915, and February 20th, 1916.

Incidence.—The typhoid figure was slightly below, the paratyphoid A much above, and the paratyphoid B much below, the figures given in the memorandum recently issued of results obtained in the laboratories of Cairo, Alexandria, and Madras:

	N.Z.	Memorandum.
Total cases examined	170	... —
Causative organism isolated in ...	34 per cent.	... —
Due to typhoid bacillus	10 "	... 11
Due to paratyphoid A	73 "	... 44
Due to paratyphoid B	17 "	... 45

Place of Origin.—The cases classed in the following table under the head Gallipoli includes those developing

enteric shortly after their return to Egypt; but the large number of cases direct from Gallipoli may account for many failures to isolate the causative organism owing to the period of disease on examination:

	Gallipoli.	Egypt.
Total enterics	89	81
Of which there were due to typhoid ...	5	1
Paratyphoid A	24	18
Paratyphoid B	1	9

The majority of the typhoid cases were from Gallipoli, but 9 out of 10 of the paratyphoid B were local cases.

Inoculation.—Of the 170 cases of enteric:

54 per cent. had been inoculated with New Zealand vaccine only.
40 per cent. were inoculated with New Zealand vaccine and reinoculated with R.A.M.C. vaccine.
6 per cent. had no record of any inoculation at all.

Of the typhoid cases:

2 had been inoculated with New Zealand vaccine.
1 had received only the initial dose of New Zealand vaccine.
1 was a British soldier who had never been inoculated.
2 were inoculated with New Zealand vaccine and reinoculated with R.A.M.C. vaccine.

These figures indicate that, whatever may have been the protection afforded by the New Zealand vaccine, the R.A.M.C. vaccine gave no appreciably better result.

Mortality.—Of the 170 cases, 3 died, two from typhoid and one from a clinical type of typhoid from which the causative organism was never isolated. The mortality from enteric was therefore under 2 per cent.

The bacteriological examinations of the blood, faeces, and urine, and the agglutination tests, were carried out at the Central Laboratory, Cairo. The percentage of positive results is satisfactory, considering that so many of the cases had been ill for some considerable time before admission, and also that 19 were convalescents examined for evidence of being carriers, with negative result in all instances. Many Widal reactions were made without much information of diagnostic value being obtained. This I attribute to the method adopted of requiring a specimen of blood for agglutination tests at the same time as the blood culture, as early in the disease as possible, and attempting to draw conclusions from the one examination as to the nature of the infection. Such a system was bound to give unsatisfactory and misleading results, particularly in patients inoculated against typhoid, first, because agglutinations are usually only formed in the second and third week of the disease, and secondly, because results of real diagnostic value could be obtained only by several tests made at intervals of about a week, so as to obtain material for working out the curve showing the alteration in agglutinating power of the patient's blood. Such a curve worked out on one of our cases showed that on the second day of the illness, when a blood culture gave paratyphoid A, the patient's serum agglutinated typhoid in a dilution of 1 in 500, but failed to agglutinate paratyphoid A or paratyphoid B in any dilutions. On the ninth day the serum agglutinated typhoid in a dilution of 1 in 1,000, but was still quite negative to both paratyphoids. By the twenty-first day, however, the patient's serum agglutinated both typhoid and paratyphoid A in a dilution of 1 in 125, and was still negative to paratyphoid B. The obvious conclusion was, then, that the patient developed an immunity to the infecting organism—namely, paratyphoid A. Had any opinion been given on the tests of the second and ninth days it would have been quite misleading. The patient developed symptoms just after arrival in Egypt from Gallipoli. Owing, no doubt, to the system adopted, the agglutination tests on our cases disagreed with the results of the cultural tests in 50 per cent. of the cases. They are, of course, no longer being carried out.

Invaliding of Enteric Cases.—The principle adopted now with New Zealand troops is that the cases which have given negative results after blood cultures, and also examinations of urine and faeces, are returned to duty and only carriers are invalided.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN JOHN HENRY DYKE ACLAND, R.A.M.C., was reported as killed in action, in the casualty list published on July 24th. He was born in 1880, the son of the late Rev. H. Dyke Acland, vicar of Luscombe, Somersetshire. He received his medical education at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1905. He was house-surgeon to the East London Hospital for Children, Shadwell, and house-physician to the West London Hospital; afterwards he went to South Africa, and after serving as medical officer of the Beira railways, began to practise at Buluwayo, the chief town of Southern Rhodesia, where he was medical officer of the Buluwayo Government schools. He took a temporary commission as Lieutenant in the R.A.M.C. on October 17th, 1914, was promoted to captain after a year's service, and was attached to the Somerset Light Infantry.

Captain Geoffrey Richard Heard, R.A.M.C., was reported as killed in action, in the casualty list published on July 22nd. He was educated at the London Hospital, qualified as M.R.C.S. and L.R.C.P.Lond. in 1909, joined the R.A.M.C. as a temporary lieutenant on December 18th, 1914, and became captain after a year. He was attached to the Royal Warwickshire Regiment.

Captain H. G. Morris, R.A.M.C. (temporary).

Captain Douglas Wilberforce Smith is, we understand, the officer reported in the casualty list published on July 15th under the initials D. W. Smith, which led us into the error of reporting last week the death of Captain David Wallace Smith, who is, we understand, at present serving on the hospital ship *Salta*. Dr. Douglas Wilberforce Smith graduated as M.B., B.S.Lond. in 1901, and took the diploma of F.R.C.S.Eng. in 1911. He was a civil surgeon with the South African Field Force, and had been assistant house-surgeon to Guy's Hospital, at which school he received his medical education. He was for a time Emden scholar in the Cancer Research Laboratory of the Middlesex Hospital, and wrote two reports on squamous cell carcinoma in respect of Altmann's granules in the *Archives of the Middlesex Hospital Cancer Reports*. He had also held the office of registrar of the Samaritan Free Hospital for Women.

Lieutenant Raymond Jones, R.A.M.C., attached Royal Welsh Fusiliers, was killed in action in July. He was the son of the late R. Bettes Jones, of Llanrhaiadr, and was educated at Oswestry High School and at University College, Liverpool, graduating as M.B. and Ch.B. of Victoria University in 1901. After serving as casualty surgeon of the Southern Hospital, Liverpool, and acting as assistant to Dr. Owen, of Brymbo, Denbighshire, he went into practice at Cardiff, till he recently took a temporary commission as lieutenant in the R.A.M.C. He was 39 years of age, and unmarried.

Died of Wounds.

Lieutenant Walton Ronald Wilson, R.A.M.C., died on July 12th of wounds received the previous day, aged 25. He was the only son of Dr. Wilson of Forest Hill, S.E., and was educated at Epsom College, where he gained an entrance scholarship, and also the Haviland leaving exhibition, with which he proceeded to Emmanuel College, Cambridge. After graduating as B.A. in the Natural Science Tripos, he completed his medical course at Bart.'s, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in October, 1915. After qualifying he took a temporary commission as lieutenant in the R.A.M.C., and at the time of his death was attached to the Seaforth Highlanders. He was married only last April.

Captain Frank Lee Cleland, R.A.M.C., died of wounds in July. He was the elder son of Mrs. Cleland of Breda House, Newtownbreda, co. Down, and was educated at the Methodist College and at Queen's University, Belfast, where he graduated as M.B., B.Ch. and B.A.O. in January, 1915, immediately afterwards entering the R.A.M.C. as a temporary lieutenant on February 1st, 1915. He was promoted to captain on completion of a year's service.

Captain Robert Williams Michell, R.A.M.C., died on July 20th, aged 56, of wounds received on July 3rd, while bringing in wounded men from "No man's land." He was the eldest son of Richard Ferris Michell, of Truro, was educated at Caius College, Cambridge, and at Bart.'s, and graduated as M.A.Camb. in 1889, M.B. and B.C. in 1894, and M.D. in 1899; he took the F.R.C.S.Eng. in 1895. After filling the posts of senior clinical assistant in the throat department and of house-physician at Bart.'s, and house-physician of the General Lying-in Hospital in York Road, he went into practice at Cambridge. He served in

the South African war and held the Queen's medal with three clasps. On October 25th, 1914, he took a temporary commission as lieutenant in the R.A.M.C., and was promoted to captain after a year's service. He served for some time on the hospital ship *Asturias*, and was on board her when a German submarine tried to torpedo her, but since May, 1915, had been attached to the Royal Garrison Artillery at the front.

We are indebted to Sir Clifford Allbutt for the following note:

May I on my own part, on the part of my college of Gonville and Caius, of this University, and of a still wider circle, address to you a few words in memory of our colleague and friend Robert Michell, whose death, almost on the field of battle, we are deploring. How he met his death while leading a volunteer party to bring in wounded men lying then two days out between the forces, I need not narrate. It is sufficient to say that his glorious deeds are in everyone's mouth.

Michell's medical practice was chiefly among the undergraduates and younger graduates of the University; over the young men he had an ascendancy almost unquestioned and most beneficent. Besides his medical abilities, he was manly, courageous, almost fiercely straightforward; and he ruled the young men with a decision and good sense which they fully understood and respected. In former years a good oarsman, and up to his departure for the war still active as a coach on the river, he was justly regarded as an authority on the hygienic aspects of athletics, and generally acted as referee on behalf of the captain of the University boat. As every now and then Michell was good enough to invite me to the discussion of some of the health problems arising out of the various kinds of athletics, I had opportunities of extending my own experience in this department of medicine, especially in cardiac cases and in the phenomena of adolescent albuminuria. Some little of Michell's work on heart stresses is published, but, had he been spared to us, there was much more to come. On the question of adolescent albuminuria unhappily he had published nothing, but his notes and experience in this difficult subject would have been very valuable. One case I remember caused him much anxiety. In the urine of a fine oarsman, a mainstay of the University boat of the year, Michell found albumin in abundance—so much that, on heating, it turned almost solid. The race was about a month away; what was to be done? We thought that, for his own sake as well as for that of the boat, the man had better retire; that he would probably break down in training. However, after much consideration, the captain decided that for so good an oar he would take the risk. This man, always with his urine full of albumin, went through training without turning a hair, rowed in the race doing his full work, and has, I believe, continued in good health ever since. This is but an instance of the kind of work Michell did here, and of the services he gave to the athletic sports.

But he did far more than this: Michell was an example of a man in busy general practice who transacted it all in the spirit, method, and assiduity of science. With some skill as a mechanic, he worked out all his cardiac cases with close precision and ingenuity. His inner consulting-room was like a joiner's shop: tools and materials scattered about, piles of notes on the tables, endless strips of graphic curves—polygraphic, electrographic, curves of blood pressures, chest diagrams, and so forth. And his patients were so accustomed to his ways that they let him do anything with them he liked; he had free access to their rooms at any hour, and thus under a variety of conditions obtained records which are perhaps unique. For instance, he would get morning blood pressure records from men who had slept all night, and were hardly awake. The cuff had been adjusted over night, and at 7 a.m. the patient, seeing that it was "only Michell" would have his pressures taken before any effort, and almost without knowing it.

Michell was so impressed by the complexity and obscurity of cardiac problems that it was difficult to persuade him to publish any of his researches, and I fear for the same reason that we shall find little left ready for publication. For Allbutt and Rolleston's *System of Medicine* Michell had contributed a few short paragraphs, and I know he had collected some further notes for a separate edition of my article in that *System* which probably now will not see the light. Nevertheless, in one way or another, Michell's researches on cardiac disorders became well known both to the profession and to the public, so that his opinion was sought in many responsible cases. Sometimes he attended scientific discussions on cardiac questions, but the loose general statements which too often find their way into such conversations made him angry. Likewise he was liable to be moved to wrath if on one of his cases another opinion were given on half the consideration and often on less experience than he had given to it. On such occasions, like Laurence Boythorne, he would express himself with as much vigour and point and with as little malice.

This independent and warm temper stood him and the British army in good stead in the South African war, through which he served with distinction. His combats with red tapists were Homeric, and in those days the R.A.M.C. had scarcely entered upon its present splendid career. As on the historic breaking open of the cupboard of Miss Nightingale, so on one occasion Michell signalled that if certain supplies were not granted immediately, he, being a volunteer, would leave for England at once and report the circumstances to the War Office. The threat was effectual.

Thus a man, who to his intellectual endowments added a rare strength, courage, and independence of character, has made a glorious end; for our own loss we may grieve, but for him we cannot repine. It is reported that when he was struck he said, "Never mind me, it is well worth it; we have brought in seven of the men."

Died on Service.

Temporary Colonel Sir Victor Horsley, A.M.S., died of heatstroke at Amara, in Mesopotamia, on July 16th, aged 59. A full obituary appears at p. 162.

Lieutenant-Colonel Pulteney Charles Gabbett, Indian Medical Service (ret.), died in Mesopotamia on July 11th, aged 47. He was born on October 19th, 1868, the son of the late Lieutenant-Colonel Joseph Gabbett, C.B., of the 95th Regiment, was educated at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1891. Entering the I.M.S. as surgeon-lieutenant on July 27th, 1892, he became surgeon-captain on July 27th, 1895; major on July 27th, 1904; and lieutenant-colonel on July 27th, 1912, retiring a month later, on August 26th, 1912. After leaving India he took up practice at Ottery St. Mary, in Devonshire, but was recalled to duty for the war. He had previously served on the North-West Frontier of India, in the Tirah campaign of 1897–98, and held the frontier medal with two clasps; but for several years before his retirement had held the posts of professor of surgery in Madras Medical College, and first surgeon to the Madras Hospital. He was the author of two small books—*Four Common Surgical Operations in India*, and *A Manual for Women's Voluntary Aid Detachments*.

Lieutenant S. W. Burrell, R.A.M.C. (temporary).

Wounded.

Captain C. A. Bernard, R.A.M.C. (temporary).
Captain W. A. Coats, R.A.M.C. (temporary).
Captain H. N. Goode, R.A.M.C. (temporary).
Captain Andrew Grant, R.A.M.C. (temporary), attached to the Royal Fusiliers.
Captain A. Hamilton, R.A.M.C.(T.F.).
Captain R. M. Miller, R.A.M.C. (temporary).
Captain J. W. N. Roberts, R.A.M.C. (temporary).
Captain F. Sanders, R.A.M.C. (S.R.).
Captain L. D. Shaw, R.A.M.C. (temporary).
Captain H. P. Thomasson, R.A.M.C.(T.F.).
Captain H. P. Whitworth, R.A.M.C. (S.R.).
Lieutenant C. B. Davies, R.A.M.C. (temporary).
Lieutenant G. J. Fraser, R.A.M.C. (temporary).
Lieutenant M. G. Pettigrew, R.A.M.C. (temporary).
Lieutenant C. M. Rowlette, R.A.M.C. (temporary).
Lieutenant A. J. R. Taylor, R.A.M.C.

Captain Hamilton had previously been reported as wounded, a fortnight ago, and Captain Roberts as missing last week.

Prisoner of War.

Captain W. R. W. Haight, Canadian Army Medical Corps, reported as missing in the beginning of June, has now been reported to be a prisoner of war.

DEATHS AMONG SONS OF MEDICAL MEN.

Bidwell, Leonard John, Midshipman, R.N., eldest son of the late Leonard A. Bidwell, F.R.C.S., accidentally killed on July 17th. He was born in 1897, joined Osborne at Easter, 1910, and served in H.M.S. *Cumberland*, being wounded in the Cameroons in October, 1914.

Eminson, R. A. F., Second Lieutenant, B.A.Camb., who fell in action on July 20th, aged 24, was the son of Dr. T. B. F. Eminson, of Scotter, Gainsborough. His education began at Terra Nova School, Birkdale, whence he obtained an entrance scholarship at Epsom College, and, after three years, passed on to Downing College, Cambridge, obtaining the B.A. in the natural science tripos, with a special diploma in agriculture. When war broke out he was in Northern Rhodesia, investigating the life-history of the tsetse fly for the British South Africa Company, but obtained leave, and returning to England, went through an officer's training course at Cambridge, and then passed into the King's Royal Rifles, and afterwards into the Machine Gun Corps. He received commendation for the handling of his gun at the Crassier at Loos on the explosion of a German mine on the night of April 5th–6th; and was expected home on short leave when extended hostilities intervened.

Fountain, John Alfred Arnott, Second Lieutenant King's Own Yorkshire Light Infantry, second son of Dr. E. Osborne Fountain, of Crossley House, Ruislip, Middlesex, killed on July 1st, aged 23. He got his commission on February 23rd, 1915.

Head, Leslie Dymoke, Captain King's Own Yorkshire Light Infantry, younger son of Dr. Percy Head, of the Gables, Staines, killed July 2nd, aged 28. He became lieutenant on October 30th, 1914.

Macnamara, Carroll Charles, eldest son of N. C. Macnamara, F.R.C.S., of Chorley Wood, Herts, at one time Treasurer of the British Medical Association, died of wounds received on July 1st. He was educated at Winchester, and got his first commission in 1896. He served in the South African war, and was afterwards appointed A.D.C. to Lord Milner, the High Commissioner. In 1904-05 he served in India, and in 1905-06 with the Chinese regiment at Wei-hai-Wei. He joined the Egyptian army on June 20th, 1906, commanded the Equatorial battalion, and received the Order of the Nile. He became major on December 20th, 1914. From Egypt he went to Gallipoli, where he was wounded. In May last he rejoined the Royal Irish Rifles as commanding officer of a battalion.

Macqueen, Thomas Malcolm, Lieutenant East Lancashire Regiment, second son of Dr. T. Macqueen of Bolton House, Eastbourne, killed on July 15th, aged 29. He was educated at Eastbourne College, went to China in 1912 in the service of the Yangtze Insurance Association, and left Shanghai in December, 1914, to join the army. He got his first commission on February 6th, 1915, and had been at the front since last July.

Marshall, J. Woodall, Lieutenant Northumberland Fusiliers, son of Dr. Marshall of South Shields, killed in July. He was educated at Prior Park, Bath; Ratcliffe College, Leicester, and Oakham; also studied at Hanover and Bruges, after which he became a student of law in Newcastle. He had served in the Northumberland Yeomanry, but failed to pass the sight test for active service. After doing ambulance work in Belgium, he joined the Foreign Legion in France. In February, 1915, all British *légionnaires* were transferred to the British army. On March 3rd, 1915, he got his commission, went to the front early in 1916, and had gained the Military Cross for the rescue of a wounded man under heavy fire.

Mason, Alan E. G., Second Lieutenant Leicestershire Regiment, second son of Dr. H. Mason of Leicester, died on June 30th of wounds received the day before, aged 20.

Meade, Horace W., Captain Royal Sussex Regiment, youngest son of the late Dr. Warren Meade, of Alverstoke, Hants, killed on July 13th, aged 31. He became lieutenant on November 2nd, 1914, and got his company on December 30th, 1914.

Parr-Dudley, John Huskisson, Second Lieutenant Royal Fusiliers (City of London Regiment), eldest son of Dr. Parr-Dudley, of East Malling, killed on July 1st, aged 20. He was educated at Cranbrook School, Kent, where he was head of the school, and captain of cricket and football. He then studied engineering at Faraday House, where he gained a silver medal. He got his commission on January 25th, 1915, and went to the front in July, 1915.

Phillips, Christian Gibson, Major King's Own Royal Lancaster Regiment, younger son of the late Dr. Robert Phillips, of Bromley, Kent, killed on July 10th. He served with the mounted infantry in the South African war, and was wounded. His regiment was in India when the war began, and reached France in January, 1915. He was wounded on March 23rd, 1915, rejoined, was again invalided in September, and went to the front again last month. Three of his four great-grandfathers served at Waterloo.

Spencer, Arthur Egerton, Lieutenant Sherwood Foresters (Notts and Derby Regiment), son of Dr. Macready Spencer, of Builth Wells, killed in the battle of the Somme, aged 20. His first commission was dated March 13th, 1915.

MEDICAL STUDENTS.

Dunn, W. J., Second Lieutenant King's Own Scottish Borderers, killed, was the only son of Captain Peter Dunn, second master at the Laurieknowe School, Dumfries, who is at present serving with the Royal Scots at Cyprus. He was studying medicine at Edinburgh University before the war, and had been at the front for six months.

Kennedy, Robert, Second Lieutenant Royal Scots Fusiliers, aged 20, who has been killed, was the elder son of Captain Ross Kennedy of Ayr. After being educated at the Ayr Academy he proceeded to the University of Glasgow, and had just completed the first year of his medical course when he received his commission in June, 1915.

Laidlaw, J. Leslie, Second Lieutenant Argyll and Sutherland Highlanders, who died of wounds, was the only son of the Rev. John Laidlaw of St. John's Manse, Kelso. He received his commission in October, 1914, and went to France in February last. He had completed the second year of his medical course at the University of Edinburgh.

Mullally, Desmond, Captain Northumberland Fusiliers, youngest son of Mr. William Mullally, of 441, Sauchiehall Street, Glasgow, died of wounds received on July 1st. Before the war he was a medical student at Glasgow University, where he was in the O.T.C. He was slightly wounded on June 26th, but remained on duty, and received a fatal wound five days later.

Stewart, James Fleming, Corporal Royal Engineers, aged 22, killed in action on June 28th, was the son of the late Rev. J. Stewart of Prenmay, Aberdeenshire, and was a medical student at the University of Edinburgh.

NOTES.

TRANSPORT OF WOUNDED BY AEROPLANE.

THE possibility of using aeroplanes for the discovery and transport of wounded men was a great deal canvassed for some years before the war, and some experimental flights were made in this country. In May, 1912, the Association des Dames Françaises submitted to the French War Minister a suggestion that ten biplane ambulances should be attached to each army corps. During the French manœuvres of the same year Dr. Emile Reymond, who was killed early in the war, was instructed to make experiments; he reported that the aeroplane would be useful in the discovery of the wounded, in carrying dressings, and as a means of communication between medical stations, but said nothing as to the transport of wounded, with regard to which he had not been instructed to inquire. The French Air League thereupon took steps to call an international conference of Red Cross societies for the purpose of securing the neutralization of "sanitary aviators," but the War Minister formed the opinion that the transport of wounded by aeroplane was not practicable, and the matter dropped. According to Professor R. Blanchard (*Paris Médical*, July 15th), aeroplanes were used for the transport of wounded on a small scale when the Serbian army, retreating through the snow of the Albanian mountains, was hotly pressed by the Bulgarians at Prizend. In all thirteen sick or wounded men were carried to Scutari and Vallona, the distances varying from 150 to 250 kilometres. In one case a journey of 330 kilometres was made in two stages. The machines, which had seen much service, were in bad condition, and the dangers encountered by the pilots were very great.

England and Wales.

UNIVERSITY OF WALES.

AT the court of the University of Wales, held at Aberystwyth last week, a resolution was adopted on the motion of the Principal of the University College of North Wales expressing the opinion "that adequate teaching freedom for the staffs of the three constituent colleges can be secured without the disruption of the existing federal university." In supporting it the Principal of the University College of South Wales said that the present charter was unworkable. The system did not give the young people of Wales the same chances as the young people of England. The student's only aim in life seemed to be to pass examinations. Greater freedom should be given to teachers, and the court ought to be ready for the changes which were surely coming. Before this a resolution had been adopted, on the motion of Mr. William George, expressing the opinion that the Royal Commission on higher education in Wales should visit Wales for the purpose of taking evidence of a non-official character. In the course of the discussion Welsh members of Parliament came in for a good deal of criticism on the ground of their alleged indifference to the matter, but it was stated that at the request of the chairman of the Royal Commission they had formed a committee to deal with it.

MATERNITY REST HOME AT LIVERPOOL.

A maternity rest home was opened in Liverpool last week, designed to furnish expectant mothers with the necessary rest and medical attention that may be required. Patients suffering from the diseases of pregnancy, endangering either the life of the mother or of the child, will have the first claim on the home. It contains twelve beds, and owes its origin to the staff of the Liverpool Lying-in Hospital, who have had the sad experience at times of the results of want of care, nursing, and nutrition

during the later months of pregnancy. These results have seriously mitigated the usefulness of such lying-in institutions throughout the country. It is greatly to the credit of Liverpool to have been a pioneer in this work, and the scheme will be watched with interest throughout the country. The nurses are those training to be midwives, and it is considered that as midwives they should have some practical knowledge of the disorders of pregnancy which such a home will afford. The guiding principle is to do everything possible to stem the falling birth-rate by antenatal care and assuring healthy life from the very outset. There is no doubt that the pregnant state among the industrial classes is one that is often overstrained and rendered burdensome by the inability of the mother to secure that rest and quietude which those more fortunately placed in the social scale are able to have. Like the crêche system, it is a tacit admission that civilization has not yet risen to the high ideal that the home should be the best place for, and have the first claim on, the mother.

LIVERPOOL PORT SANITATION.

The port sanitary authority of Liverpool, in its annual report for 1915, states that during the year no fewer than 72,156 rats were caught on the quays, vessels, warehouses, sewers, and other places. None of the rats caught showed any evidence of plague, and the same holds good for those rats that were found dead in ships' holds. Where these are found in undue numbers, thorough disinfection of the ship is carried out by sulphur fumigation.

Of imported foodstuffs, 247½ tons of beef, mutton, and pork were condemned as food but utilized for industrial purposes; 3,015 tons of fruit and vegetables were condemned. The number of infectious cases landed from vessels in 1915 was 204; the average of the ten years preceding 1914 was 114.7. With regard to emigration, in 1915 the number of emigrants that left the port was 75,387, being a decrease of 157,567 on the previous year.

Scotland.

THE Scottish Red Cross has voted £5,000 towards the cost of an annexe to be built at the Scottish National Red Cross Hospital at Bellahouston, to provide 200 beds for orthopaedic cases. It is expected that the annexe will be able to deal with 300 or 400 patients a day. The equipment will include radiant heat baths, hot and cold douches, a pool bath, and a whirlpool bath, as well as an electrical installation. Similar treatment is being provided at Bangour Hospital near Edinburgh, at Oldmill, Aberdeen, as well as at Glasgow.

At the annual meeting of the Glasgow Dental Hospital the Chairman said that the managers had under consideration a scheme for bringing the work of the hospital prominently before employers with a view to their having prospective employees medically and dentally examined before employment. There were certain trades, he said, such as those concerned with the preparation of food, where such a scheme would be very beneficial to the employees and also to the public interest.

TUBERCULOSIS AND HOUSING.

At a meeting of the Insurance Committee of the County of Lanark on June 28th a resolution was unanimously adopted expressing the view that no scheme for the prevention of tuberculosis could be considered complete if it failed to take into account the unsatisfactory state of housing of the county and the great decrease in the number of new houses erected within recent years. Statistics were quoted showing the decrease in housing accommodation in the Middle Ward of Lanarkshire due to increased population, the decline in building, and the closing of old and bad properties by the public health authority.

DR. FRANKLIN C. MCLEAN, assistant resident physician in the Hospital of the Rockefeller Institute for Medical Research, New York, has been appointed professor of medicine and head of the Union Medical School, Peking, one of the institutions of the China Medical Board of the Rockefeller Foundation.

Correspondence.

THE NEED FOR MEDICAL SUPERVISION IN THE CARE OF THE PREGNANT WOMAN.

SIR,—In his valuable paper on this subject in your issue of July 8th Dr. Archibald Donald draws attention to the fact that antenatal *treatment* of mother and child may easily be overdone, and that in such cases the results would not be commensurate with the effort made, but this does not justify his conclusion, on p. 34, "that the supervision of all pregnant women would mean a great deal of unnecessary trouble, as in the majority of cases in which danger threatens during pregnancy the patient will voluntarily apply for help." Is this so? When does a woman with a contracted pelvis or a pelvic tumour apply for help? When in labour. When does a pregnant woman who has unsuspected and serious heart mischief seek advice? When heart failure is established. When does a woman with toxic albuminuria consult a doctor? Perhaps when puerperal eclampsia supervenes. When does a woman with retroversion of the gravid uterus seek relief? Often not till impaction and retention of urine have occurred. Much, of course, depends upon what is meant by "medical supervision."

No doubt Dr. Donald asks all his patients who are primigravidae to allow him to ascertain by a sufficient investigation that no organic disease is present and that there is no physical condition likely to obstruct or unduly prolong labour. He also, even in multigravidae, makes no exception to his stated ideal that "routine examination of the urine is most important and would reveal many of the cases of toxaemia which require treatment" (p. 35).

If this is so, all Dr. Donald's patients come under his medical supervision during their pregnancies, and I am sure he does not consider such supervision to be a "great deal of unnecessary trouble," for he knows what disasters may thereby be averted. Other varieties of supervision in the case of poor women by health authorities, schools for mothers, health visitors, etc., may lead to improved environment, diet, clothing, etc., and hygienic education can be advanced by the same agencies.

Knowledge of the causes and means of prevention of abortion and stillbirths has to be obtained, not only by statistics and clinical observation, but by steady and laborious research, as I have tried to show in lectures[1] published in the JOURNAL in 1914.

In future, perhaps, physiological chemistry may detect the origin and nature of the toxins formed in labour, and may explain the circumstances in which the toxins attack special organs, such as kidneys, liver, intestinal or ductless glands. Possibly, too, antidotes may be discovered and rendered available so that the treatment of these toxaemias by rest in bed, milk diet, and purgatives will be usefully and scientifically extended.

Research is also required to ascertain the frequency and extent of syphilis as a cause of antenatal disease and death. In women who are known or suspected to have been infected, and who have had alternating abortions and stillbirths, pointing, as Dr. F. W. Mott[2] has shown, to syphilis, spirochaetes are found in most of the stillbirths, but rarely in the abortions. Why is this? It is not rational to declare that this proves that the abortions in such cases are not due to syphilis whilst the stillbirths are. Now that the Local Government Board is prepared to give the local health authorities 75 per cent. of the cost of diagnosis and treatment of syphilis, medical supervision of such cases will be especially valuable.

It is a difficult thing to get pregnant women to place themselves under medical supervision. It is satisfactory to know that Dr. Donald and Dr. A. Newsholme disapprove of compulsory notification of pregnancy. It is obvious that many pregnant women would oppose notification if compulsory, and the result would be that they would delay engaging their accoucheur or consulting him when ill.

Education will in time prove to women the advantages of coming under medical supervision, and this would necessarily constitute a *voluntary* notification of pregnancy to their own doctor without any publicity.

[1] BRITISH MEDICAL JOURNAL, February 14th, 1914, p. 356, and April 25th, 1914, p. 902.
[2] *Proc. Roy. Soc. Med., Obstet. Section*, 1914, pp. 283–290.

Dr. Donald's pithy concluding sentence, singled out in your convincing leading article in the same issue, is appropriate as far as it goes. "The solution of the matter," he says, "is not in statistics and notification but in education and research." The sentence would have been ideal if he had interpolated "medical supervision" between "education" and "research," for "medical supervision" is the result of the "education" of all classes, and affords the opportunity for "research," and is therefore the pivot of the whole matter.

The discussion on this subject, to be held on November 2nd in the Obstetric Section of the Royal Society of Medicine, will be a fit opportunity to have "medical supervision" considered in all its bearings.—I am, etc.,

London, W., July 18th. AMAND ROUTH, M.D., F.R.C.P.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—A committee, consisting of distinguished medical gentlemen, is being set up to confer on the subject of the extension to Ireland of the Midwives Act, with a view of bringing "under the direction of a registered medical practitioner" all unregistered handy women, and establishing those who register by obtaining a certificate of character—apart, of course, from one of competence—in an impregnable position to compete with a trained nurse of the area within which they ply their trade, acting under cover of the dispensary medical officer whom they may summon on a red ticket.

As this might be considered an exaggeration I append Section 2 of the Scottish Act, which is as follows:

> From and after January 1st, 1922, no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a registered medical practitioner unless she be certified under this Act, and women so acting without being certified under this Act shall be liable on summary conviction to a fine not exceeding £10.
>
> Provided this subsection shall not apply to registered medical practitioners, or to any one rendering assistance in a case of emergency.
>
> Any woman who within two years from the date of this Act coming into operation claims to be certified under the Act shall be so certified provided she produces the necessary certificates of training from certain recognized hospitals, or produces evidence satisfactory to the Central Midwives Board that at the passing of this Act she has been for at least one year in bona-fide practice as a midwife, and that she bears a good character.

In industrial areas, where close observation is possible, there is money for some in the legalization of this system; but let not medical men in rural Ireland believe there is anything for them but worry and trouble, and a higher death-rate amongst parturient women. This is a sad prospect, but the following amendment proposed to 22 (4) gives convincing proof of its accuracy:

> Clause 22 (4): Add after words "such fee," "or unless the medical practitioner summoned by the midwife be summoned under the Poor Law Regulations (under provisions of the Medical Charities Acts)."

Let me say through your journal to the gentleman who suggests this amendment that I believe its insertion is immaterial, as the result, under any circumstances, would necessarily be the same; but I will add that I did expect from him a protection rather than the legalization of a penal clause. That he appreciates the position is evident from the following extract from the supplement of the *Medical Press and Circular*:

> The object of the Midwives Act was that every woman should have skilled attendance by a registered medical practitioner or by a certified midwife. An uncertified nurse could only attend under the personal supervision of the medical practitioner, and thus get rid of the handy-woman as quietly as possible. But at whose expense?

I believe the giving of countenance to handy, infection-carrying, ignorant women in districts where trained nurses are provided under Poor Law regulations is a retrograde step, prejudicial to the public welfare and the lives of mothers and children, which are now recognized as the greatest asset of the State; and I would propose to those gentlemen who are now considering the question to drop their amendments penalizing the medical officers and insert one of an exactly opposite nature, the insistence on which will awaken the public bodies and the central authority to the necessity for their co-operation in the extinction of a system fraught with danger to the ignorant public.

Much good has been done by those bodies, both central and local, and what remains to be effected could be easily accomplished within a reasonable time by proper co-operation involving a due recognition of its necessity, which the committee of inquiry might take steps to render evident between those in charge of the public health and the medical profession.

In conclusion, I would suggest, in the event of the Act being extended to Ireland, an amendment exempting dispensary medical officers who have trained midwives employed under the Medical Charities Acts in their districts from the obligation of attending maternity cases on red tickets with registered or unregistered handy women where the service of the trained midwife is available.—I am, etc.,

Ardfinnan, July 19th. J. POWER, M.B.

THE TREATMENT OF CHLORINE GAS POISONING BY VENESECTION.

SIR,—Captain Stuart Hebblethwaite's article[1] reminds me that many years ago I was asked to see a man suffering from the effects of inhaling the fumes given off when a large receptacle containing nitric acid was broken. The symptoms closely resembled those seen in soldiers suffering from poisoning by chlorine gas. The patient was bled to nearly a pint, and at once his lividity passed away, his breathing, previously very distressed, became more easy, his pulse greatly improved, he felt better in every way, and ultimately recovered completely. The impression we formed at the time was that the venesection saved his life. Because of this case, and because of the symptoms produced by inhaling chlorine gas, I, more than a year ago, suggested in conversation with a member of the R.A.M.C. in France that many men afflicted with poisoning by chlorine gas would be benefited by venesection, and it is a pleasure to learn from Captain Hebblethwaite that this is correct.—I am, etc.,

W. HALE WHITE,

London, W., July 22nd. Lieut.-Colonel R.A.M.C.(T.)

*** Dr. William Bramwell (Liverpool) writes with reference to a sentence in Captain Hebblethwaite's paper on the treatment of chlorine gas poisoning by venesection as "a new line of treatment" to point out that he (Dr. Bramwell), in a letter published in this JOURNAL on September 18th, 1915, proposed resort to venesection in gas poisoning. The idea had occurred to him after reading the articles of Sir E. A. Schäfer and Dr. Walter Broadbent on chlorine gas poisoning.

DEATH AFTER NITROUS OXIDE-OXYGEN AND LOCAL ANAESTHESIA.

SIR,—Dr. McCardie's case (p. 109) is one of great interest. Although reported with the care which is habitual with the narrator, some points are left doubtful. I assume negatives, and if I am wrong in so doing my theory of the mechanism of the death is rendered less terrible. We know from recorded cases that the myocardium does undergo acute dilatation when nitrous oxide and oxygen are being administered. This condition may be remediable in very brief operations, the chances of its being so are fewer when the administration is prolonged. The condition of the heart muscle plays a dominating part in determining the result. When its resiliency is good or fair the heart contracts; when it is feeble, ex-sanguine or pathologically thin, the heart remains dilated and its systole weakened almost to extinction. As a result, the peripheral circulation tends to be insufficient, and the two areas most damaged are the central nervous system and the heart muscle itself. I place them in order of importance, not in the order of physiological occurrence. These things being so, it seems plausible to assume that the medulla oblongata in this patient became spanaemic if not exsanguine and the nerve controls ceased to functionate. A relatively exsanguine brain becomes more affected by any narcotic, so that the dose of morphine and scopolamine, especially as they were not guarded by atropine—a respiratory excitant—would cause persistent unconsciousness. The contracted pupils point to this condition. The oxygen introduced would, in the absence of normal circulation and respiration, be powerless to segregate to the tissues, and so would be inert.

[1] BRITISH MEDICAL JOURNAL, July 22nd, p. 107.

The fluid given intravenously, even if it reached the heart, would only increase that organ's disabilities by adding to its labour, since we are told that little or no haemorrhage occurred.

The points one would like to learn are: Was the cardiac area percussed before the administration and after the initial difficulties revealed themselves? Was any attempt made to massage the heart from the abdominal route? The return of the pulse "very good in volume" does not, I think, invalidate the theory advanced; it was the inevitable result of closing the abdominal wound, which restored the normal haemo-dynamics of the circulation, but the heart remained dilated, and, as greater claims were made upon it, it ultimately failed to respond to them. Probably the increased pulse volume actually assisted in bringing about the collapse.

The old lady who was similarly treated without mishap probably possessed a more resistant heart muscle, and so survived. We are not told but may assume that semi-inversion was practised; was the Trendelenburg position in use during the operation? I have not referred to the possible effect of surgical shock, since it is assumed that the analgesia practised blocked centripetal stimuli. In this connexion it may be remarked that some observers—notably Tyrrell Gray—believe that it is impossible to completely block the traumatic effects of abdominal operations.—I am, etc.,

London, W., July 24th. DUDLEY W. BUXTON.

STATE PROVISION FOR THE TREATMENT OF VENEREAL DISEASE.

SIR,—In your leading article criticizing the Regulations issued by the Local Government Board for the State provision for the diagnosis and treatment of venereal disease you rightly take exception to the use of the term "salvarsan and its substitutes," and remark, advisedly, that it is quite possible that "a better drug, not less effective and safer in use, than salvarsan may be discovered." Salvarsan was introduced at a time when the medical profession was still under the hypnotic influence of German *Kultur*, and it is probable that, had its appearance been delayed till after the war—when it is to be hoped this hypnotic influence will have become considerably modified—its reception would have been less enthusiastic. There is too great an air of finality about the term "salvarsan and its substitutes," which is calculated to mislead the public into the belief that these drugs represent the whole science and art of the treatment of syphilis. The truth is that salvarsan, and all the other complex organic compounds, arsenical or otherwise, which have been used of late in the treatment of syphilis, are still on their trial, and their ultimate effect on the disease and on the patient still remains to be determined. Indeed, more than one syphilologist has drawn attention to the apparent increase of nervous affections since salvarsan came into general use, and one observer even states that the onset of degenerative myelitis and encephalitis (tabes and general paralysis) may be precipitated by its use.

The practical advantages of salvarsan and the other arsenical compounds are rapidity of action and convenience in administration. Whether their action is more rapid than that of mercurial inunction combined with potassium iodide and sulphur is open to question, but the administration of a few injections is no doubt more convenient and less impressive to the patient than the tedious performance of inunction, especially when dealing with large batches of men, as in the army and navy. In these services the immediate results have been good with salvarsan, kharsivan, and galyl, but it must be borne in mind that all these patients are picked lives, and therefore more able to withstand their effects. The routine administration of these drugs to all and sundry of the civil population, on the other hand, is not so free from danger. I venture to suggest, therefore, that the term "approved methods of treatment" would be better than "salvarsan and its substitutes," since it would include the older methods, which have been proved of value, as well as the newer methods, which are still in the experimental stage. The treatment of syphilis should be eclectic, not routine.

Another point open to criticism concerns the regulation providing facilities for the laboratory examination of specimens sent by the medical practitioner. This is excellent if used in the right way, but is open to the danger of leading the practitioner to depend upon the laboratory report for his diagnosis. Thus, the diagnosis is made by one who has not seen the patient. Laboratory tests are valuable when taken in conjunction with clinical evidence, but should never supplant it.

If more attention was given to this point and greater opportunities afforded to medical practitioners and students for the clinical study of venereal diseases the campaign against these diseases would be more likely to succeed.—I am, etc.,

London, W., July 23rd. C. F. MARSHALL.

THE FASTING TREATMENT OF DIABETES.

SIR,—Since the publication of my article on the treatment of diabetes, in the JOURNAL of April 22nd, p. 587, I have received many inquiries, and I trust you will allow me a little space in order to emphasize the important points in the treatment.

For several years I have carried out the treatment described, and find it beneficial in all cases, but more especially in those in which there is evidence of toxic absorption from the bowel. In alimentary toxic absorption the indol and skatol formed in the alimentary canal appear in the urine in part as compounds of glycuronic acid. It is a clinical advantage, therefore, to distinguish between glycuronic acid and sugar. They both respond to Fehling's solution, but glycuronic acid does not answer the fermentation test, which is done as follows:

Place a small piece of mercury in a test tube and fill up with urine to which a small piece of yeast has been added. Cork and invert the test tube; keep it at blood heat for several hours, and if sugar is present, CO_2 will collect at the upper part of test tube. If glycuronic acid is present, it shows contamination from the bowel, and though the excretion of sugar has been controlled, there still remains this contributory cause of the diabetes which ought to be got rid of.

The essential point in the treatment I recommend is the cleansing and disinfection of the bowel. Fasting is necessary to enable this to be done more quickly, for if the bowel is loaded with food, how can it be cleansed? Castor oil is very suitable, but good results can be obtained with other opening medicines. When castor oil is administered, there are no complaints of irritation at the anus, as is sometimes the case when magnesium sulphate is taken. The second dose of opening medicine is given at the conclusion of the fast so as to remove the alimentary residue as quickly as possible.

It is necessary that the fast be absolute, as ingestion of even small quantities of nourishment would keep up putrefactive processes in the bowel, and render the condition more difficult to combat. The maximum period for a fast does not need to exceed twenty-four hours; the duration of the fast should be rather longer than would suffice for a thorough emptying of the bowel with the double laxative. Eighteen hours is a very suitable period, and one which patients readily take to. I find no advantage in subjecting the patient to longer periods.

With regard to meals, I limit the intake of starch, but get no advantage from cutting it off entirely. Faulty starch digestion is a symptom and not a cause of diabetes. Between the fasts I allow a fairly generous diet. Repeated observations have forced me to the conclusion that it is unnecessary to tie the patient down to too rigid a diet, especially if the bowel is periodically cleansed.

The results obtained by cleansing the bowel and judicious fasting are far superior to those obtained by other methods of treatment. The treatment can be practised with the same beneficial results by the physician in a busy working-class practice as well as by the specialist in a well-organized hospital.—I am, etc.,

Perth, June 19th. JOHN HUME, M.D. and D.P.H.

SIR,—I think that all who have had practical experience of Allen's treatment for diabetes will agree with Dr. Spriggs that it gives satisfactory results in the majority of cases, but that as yet it is too early to speak of its being a cure. One of the most striking effects of the treatment is the way in which both the acidosis and glycosuria can be controlled in most instances, especially if care is exercised in adding protein and fat, as well as carbohydrate, to the diet. I have previously pointed out the important influence that the protein intake

in the diet has on the excretion of sugar in diabetes, and advised that it should be regulated by the effect on the total nitrogen output in the urine.[1] The adoption of an empirical standard for the protein intake seems to me to be one of the weak points of Allen's plan, and I think that better results are obtained if the method referred to is adopted. I can confirm what Dr. Spriggs says with regard to the need for close supervision, but I do not find that there is any difficulty in increasing the food after the initial fast, provided that the increase is made very gradually, properly prepared food tables are used, and the effects on other constituents of the urine beside the sugar are carefully watched. The chief trouble I have encountered has been the difficulty of advancing slowly enough in face of the complaints of increasing hunger many patients make when feeding is resumed, for the pangs of hunger are often felt more keenly when a little food is being taken than when none is allowed. I also find that Joslin's tables do not agree with my own observations; I have therefore prepared a chart for the use of my patients, which may be useful to others who wish to try the method.

Average Servings, showing the Carbohydrate (Sugar) Content.

	Oz	Sugar. Grams.
GROUP I.		
Raw Vegetables:		
Lettuce	2	1.5
Endive	2	1.5
Sorrel	2	1.7
Cucumber	2	1.8
Watercress	1	1.9
Boiled Vegetables:		
Vegetable marrow	7	0.4
Seakale	5	0.5
Cabbage	6	0.7
Cauliflower	6	0.7
Lettuce	5	0.8
Turnip	5	1.0
Celery	4	1.0
GROUP II.		
Raw Vegetables:		
Radishes	1	2.0
Celery	4	3.5
Onion	1	3.5
Boiled Vegetables:		
Spinach	3	2.5
French beans	3½	3.0
Parsnip	6	3.0
Onion	2½	3.5
Asparagus	4	3.6
Leeks	4½	3.8
GROUP III.		
Raw Vegetables:		
Tomato	3½	4.0
Mushroom	2	4.0
Boiled Vegetables:		
Greens	7	4.0
Brussels sprouts	4	4.0
Carrots	4	4.0
Salsify	1½	4.0
Beetroot	2	5.0
Fruit (Raw):		
Rhubarb	4	4.0
Lemon	2½	4.0
Lemon juice	1½	4.0
Strawberries	2	4.3
Green olives	1¾	5.0
Peach	3	6.0
Raspberries	2	7.0
Nuts (Edible Part):		
Brazils	1	2.5
Filberts (fresh)	1	3.3
,, (dry)	1	3.7
GROUP III (*continued*).		
Walnuts (fresh)	1½	4.0
,, (dry)	1	4.2
Almonds	1	5.0
GROUP IV.		
Boiled Vegetables:		
Fr. artichoke	6	8.0
Green peas	3	13.0
Fruit (Raw):		
Fresh pine	3	9.0
Blackberries	3	9.4
Fresh currants	3	11.0
Gooseberries	3	11.0
Apricot	2	14.0
Cherries	3	14.0
Nuts (Edible Part):		
Cocoanut	1	8.0
Chestnut	1	12.0
GROUP V.		
Fruit (Raw):		
Grapes, av.	4	17.0
Water melon	10½	20.0
Orange	6	20.0
Apple	5	20.0
Plums	4	22.0
Pear	5	22.0
Grape fruit	10	30.0
Banana	7	44.0
Starchy Foods:		
Bread, av.	1	15.0
Hominy, boiled	3	15.3
Oat porridge	4⅔	15.6
Macaroni, boiled	3½	15.8
Rice, boiled	2½	15.8
Potato, chips	2	27.0
,, boiled	5¼	31.0
,, baked	4½	32.0
MISCELLANEOUS.		
Lobster (edible part)	3½	0.6
Crab (edible part)	3½	0.8
Cream, av.	⅔	1.0
Pickles, mixed	1	1.0
Milk	1	1.4
Caviare	1	2.3
Cheddar cheese	2½	3.0
Liver, av.	3	4.3
Oysters (edible part)	1	4.4

Before commencing the treatment it is desirable that it should be clearly explained to the patient so that he may thoroughly understand the reasons for what he will have to undergo, for considerable will power on his part and some firmness on the part of the physician are frequently necessary to carry it to a successful issue. Since the misplaced sympathy of relatives and friends often has a disturbing influence, the treatment usually answers best when carried out in a nursing home or institution away from such influences. Finally, I should like to insist that an essential factor in Allen's method is the education of the patient, so that he can carry on his diet with intelligence when it is finally worked out.—I am, etc.,

London, W., June 17th. P. J. CAMMIDGE.

[1] *Lancet*, November 27th, 1915, p. 1187.

Universities and Colleges.

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL MEDICAL, PART I.—*Materia Medica, Pathology, Medical Jurisprudence and Hygiene:* *W. R. Fearon, *E. D'A. McCrea, *T. S. McDonald, J. A. W. Cullen, T. M. Bentley, C. G. Ambrose, E. F. Wilson, P. H. S. Smith, W. J. Hamilton, M. G. Jackson, T. Tabuteau, P. Casey, H. J. Wright, P. C. Parr, J. E. Hill, †F. W. P. Sullivan, †C. C. Mecredy, §Margaret Wolfe, ‡A. L. Gregg, ‡B. A. McSwiney, ‡D. S. Prentice.

PART II.—*Surgery (B.Ch.):* *T. P. Chapman, A. A. L. Albertyn, C. H. Comerford, J. A. C. Kidd, P. A. Hall, E. O. Marks, R. M. B. Gordon, A. H. Price, C. C. Mecredy, H. S. Collins, T. Stanton, Violet M. Deale, S. V. Furlong, R. W. Pritchard, C. O. J. Young, Marie A Hadden, E. Lipman, C. Weir, Esther V. Adderley, H. J. Wright. *Medicine (M.B.):* *C. H. Comerford, D. R. Hennessy, C. L. McDonogh, P. A. Hall, T. J. Lane, A. A. L. Albertyn, E. O. Marks, L. Blumberg, T. Stanton, T. G. Roche, C. Weir, C. O. J. Young, A. H. Price. *Midwifery (B.A.O.):* T. J. Lane, F. J. Murphy, J. C. Ogilvie, W. F. Wicht, A. A. L. Albertyn, J. P. Macnamara, A. H. Price, C. O. J. Young, E. O. Marks, R. W. Pritchard.

* High marks.
† Medical Jurisprudence and Hygiene completing examination.
§ Materia Medica and Pathology.
‡ Materia Medica, Medical Jurisprudence and Hygiene.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—F. Gamm, Lydia M. Henry, F. G. E. Hill, G. K. E. Inman, Florence Millard, R. H. Rae, W. Sharrard.

UNIVERSITY OF GLASGOW.

THE following degrees were conferred on July 19th:

M.B., CH.B.—*E. M'M. Dunlop, *D. Campbell, †A. F. M'Millan, †A. C. Hepburn, †G. C. Swanson, †K. J. T. Wilson, †S. J. Henderson, T. Blackwood, J. P. Broom, A. C. Brown, J. A. Buchanan, Winnifred J. Crawford, J. W. Dalglish, J. F. Duthie, J. Ewing, T. Gray, E. G. Hall-Sánchez, J. L. Hamilton, R. Isbister, O. Johnston, R. W. MacDonald, D. B. M'Intosh, J. W. Maclean, Mary A. MacL. MacLean, Margaret K. Mitchell, R. Rodger, Mary Scott, J. Steele, A. R. Steven, J. B. Stevén.

* With honours. † With commendation.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following have been admitted Fellows: I. W. Dickson, G. H. R. Hamilton, W. H. Thomas, H. R. Hodgkinson, W. J. Jenner, B. Mitra, C. W. Sharp.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—R. L. Jones, W. B. Lawson, M. Campbell, Keki Sorabji Bhiwandiwalla, Maniketh Vythi Menon, W. C. Berrie, J. A. Murray, J. A. Smith, J. Y. M'Lean, P. Hayes, J. Bygott.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have been approved at the examination held at the termination of the fifty-first session:

*†H. D. Cumming †K. T. Jungalwalla, J. B. Flamer-Caldera, S. C. Biswas, J. T. Watt, G. T. Makhijani, Miss I. N. Clough.

* Awarded Duncan and Lalcaca medals for highest aggregate of marks for the session and for highest marks for academic year respectively.

† With distinction.

SOCIETY OF APOTHECARIES OF LONDON.

THE diploma of the society has been granted to Messrs. G. A. Crowe, H. T. Lamb, and A. L. Malabre.

CORRECTION.—In the footnote to the list of degrees conferred at the University of Edinburgh published last week the symbols signifying "Gold medal for thesis" and that for "Highly commended for thesis" were accidentally transposed.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C.(T.), Yeomanry regiment, desires exchange into field ambulance, base hospital or regiment at front or abroad.—Address No. 2899, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. small camp, healthy, pleasant country place, Egypt, wishes exchange hospital, England, vicinity London.—Particulars address No. 2900, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

SIR VICTOR HORSLEY, C.B., F.R.S., M.B., F.R.C.S.,

CONSULTING SURGEON, UNIVERSITY COLLEGE HOSPITAL, AND THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN SQUARE; COLONEL A.M.S.

(With Portrait on Special Plate.)

WE had with regret to announce last week the death of Sir Victor Horsley, at Amara, on the Tigris, where he was serving as consulting surgeon with the Mesopotamian Expeditionary Force. On the establishment of the Territorial general hospitals, he became a member of the surgical staff, "available on mobilization," of the 3rd London General Hospital, with the rank of captain. It was not quite his first experience of soldiering, as he had been as a student an ardent member of the Artists' Volunteers, in which he attained to non-commissioned rank. When the Territorial general hospitals were mobilized in August, 1914, he took an active part in the organization and equipment of the hospital to which he was then attached; in May, 1915, his desire for active service was gratified by his appointment to the charge of the surgical division of No. 21 General Hospital, with the temporary rank of major. This hospital embarked for Egypt in May, 1915, and he served with it at Alexandria. In July, 1915, he was appointed surgical consultant with the Mediterranean Expeditionary Force, with the rank and pay of Colonel A.M.S. He made use of the wide powers which that commission confers to report upon and remedy as far as possible any conditions which, in his judgement, affected the welfare of the sick and wounded. In the course of the discharge of these duties he visited all the beaches of Gallipoli and the island of Mudros. During the Senussi rising he was called to Messa Matruh, and was constantly employed in heavy consulting work for the army in Alexandria and the neighbourhood, until, on the conclusion of the Gallipoli campaign, a general redistribution of the medical appointments in Egypt became advisable. Hearing from an officer who had returned from Mesopotamia of the difficulties and needs of our medical service on the Tigris, he immediately volunteered, and proceeded to Mesopotamia in March, 1916. There he continued doing very admirable work against the burden of defective transport, involving shortness of food and all supplies, under climatic conditions of the most trying kind. In a letter, written as recently as June 7th from Amara, he said: "When I was going through the cholera camps I discovered that the Indian Field Ambulances had no anticholera outfits (Leonard Rogers's infusion apparatus, etc.). . . . I found a medical officer infusing a patient by pouring the saline into the patient's vein out of his (the M.O.'s) own teapot. . . . All due to financial terrorism in times of peace." He seems to have been taken ill at Amara on the afternoon of July 15th. He was admitted to hospital with a temperature of 104°, which fell slightly under treatment. An examination of the blood for malaria gave a negative result, as did culture tests for the enteric group of organisms. In the course of the following day (at 11 a.m.) the temperature rose to 108°, and he became unconscious; he never regained consciousness, and died at 8.30 p.m. on July 16th. His death, it would seem, was due to heat-stroke.

Victor Alexander Haden Horsley was born in 1857. He was the son of John Callcott Horsley, R.A., and grandson of William Horsley the composer. He was grand-nephew of Sir Augustus Callcott, R.A., the landscape painter. His mother's branch of the family had contributed members to the medical profession for several generations. His maternal uncle, Sir Seymour Haden, was not only a successful medical man but attained distinction as an etcher and as the inventor of a new process of etching.

Horsley was educated at Cranbrook School and University College and Hospital. During the period of his studentship he was deeply impressed by the teachings of Mr. Marcus Beck and Professor Burdon-Sanderson; indeed, he attended the latter's lectures on physiology for three successive sessions. It was during this period that Lister came to London, and Horsley took up the study of Lister's methods with great enthusiasm.

He graduated M.B., B.S.Lond. in 1881, being Scholar in Surgery and Gold Medallist, and took the F.R.C.S.Eng. in 1883. In 1885 he was appointed to the surgical staff of University College Hospital, and in 1887 became professor of pathology in the college. He retained the chair until 1896. He was appointed professor of clinical surgery in 1899.

From 1884 to 1890 he was Professor Superintendent of the Brown Institution, where he carried out investigations into the localization of function of the brain and of the thyroid gland, which latter afforded the proof that myxoedema was caused by the loss of this organ. In 1885 he was appointed secretary to the Royal Commission on Hydrophobia, and conducted researches into hydrophobia and Pasteur's treatment for it. In 1886 he was elected Fellow of the Royal Society. In the same year he was appointed surgeon to the National Hospital for the Paralysed and Epileptic, Queen Square, and there performed his first operation on a tumour of the brain, which he successfully removed. In 1890 he suggested the use of the thyroid gland in the treatment of myxoedema, the method proposed being that of grafting the gland into the bodies of patients suffering from the disease. In 1891 he contributed a critical and historical review of the subject to Virchow's *Festschrift*.

In the same year he gave with Professor Gotch the Croonian Lecture of the Royal Society on an electrical method of determining the functions of the mammalian nervous system and their localization. From 1891 to 1893 he was Fullerian Professor at the Royal Institution.

In 1893 he was awarded the Cameron Prize for therapeutics by the University of Edinburgh, and at the request of the Senate delivered an address on his work during the previous ten years on brain surgery and the thyroid gland. At the fourth annual meeting of the German Society of Neurologists in Berlin in October, 1910, he gave an address on the Surgical *versus* the Expectant Treatment of Intracranial Tumour.

In 1894 he was awarded the Royal Medal of the Royal Society, and in 1896 the Fothergillian Medal of the Medical Society for his papers on the functions of the thyroid gland and its applications to treatment.

Throughout all these years he was constantly engaged in research, mainly on the nervous system, and in the publication of papers alone or in conjunction with others. This work only ceased when he gave up his laboratory at University College in 1913.

He received the honour of knighthood in 1902, and the C.B. in connexion with his services with the Mediterranean Expeditionary Force. The recognition of his eminence by foreign men of science was shown by the many honorary degrees and diplomas from European and American learned societies and universities.

His relations with our ally France were always of the friendliest character; he was a foreign Associate of the Académie de Médecine, and was chosen by an international committee to be the first recipient of the Lannelongue Prize for originating the greatest advance in surgery during the preceding years. He was deputed to represent France at the funeral of Lord Lister.

Sir Victor Horsley married in 1887 the daughter of Sir Frederick Bramwell, by whom and by two sons and a daughter he is survived. Both sons received commissions from the Artists to the Gordon Highlanders in an early part of the war.

SURGICAL WORK.

Mr. WILFRED TROTTER, Surgeon to University College Hospital, has been good enough to contribute the following estimate of Sir Victor Horsley as a surgeon:

It was Horsley's surgical work which first impressed his personality upon the notice of the world; it is to his surgical work that we must still turn to find the most characteristic illustration of the richness and amplitude of his powers.

In the early years of the last quarter of the nineteenth century the physiology of the central nervous system had begun to yield substantial successes to the method of experimental study. Among the group of remarkable men to whom this rapid extension of knowledge was due it fortunately happened that there was one who, while his qualities as a scientific investigator were of the first rank, was also, by inclination, by natural aptitude, and by training, a practical surgeon of altogether exceptional capacity. It was this happy combination of interests and



Photo A. Tear] [*Ipswich*, 1901.

SIR VICTOR HORSLEY, C.B., F.R.S.,

COLONEL A.M.S.

endowments that enabled Horsley to enlarge the scope of surgical neurology so quickly, and yet with such stability, as to give him at once a European reputation and, while he was yet a young man, a position of classical authority.

In the Eighties he was able to demonstrate the curability by surgical means of tumours within the spinal canal and within the skull. These successes were the result of precise scientific diagnosis and a fully developed surgical technique, which has been the basis of all later developments in the same field. In recalling the first successful laminectomy for tumour—the case published in conjunction with Gowers in 1887—it is interesting to remember that throughout his work the operation of laminectomy was perhaps that which of all others displayed his powers as an operator at their best. In no surgical procedure were his almost magical ease and precision more characteristically shown.

The conception with which he began his career—that experimental research is a necessary condition for the progressive study of surgery—remained with him always, and he was steadfastly loyal to it in spite of all the demands of his other activities. It is not intended here to discuss the value of, or even to enumerate, the great series of studies he contributed to experimental physiology and pathology. It is desired rather to lay emphasis upon the fact that the mind by which they were planned and carried out was endowed also with exceptional clinical insight and a thorough knowledge of the needs and limitations of practical surgery.

In his unique clinical work in the field of neurology his minute familiarity with the experimental physiology of the nervous system, reacting upon and illuminated by his unequalled experience of pathological states, gave to his conclusions their peculiar and universally-recognized value. His contributions to the surgery of cerebral tumour, of head injuries, of spinal injuries and diseases are all of them characteristic examples of his method.

He very early concerned himself with the development of the surgery of the thyroid; here again in close and fruitful association with experimental studies in which he was an early and successful pioneer. It was inevitable that he should concern himself with that most difficult and still, to a great extent, unsolved problem, the treatment of trigeminal neuralgia. No less than twenty-five years ago he proposed and carried out the intradural division of the nerve, an extremely formidable operation which he occasionally practised in after-years with success, when removal of the ganglion had failed to give relief. When the Hartley-Krause operation was introduced, his operative dexterity enabled him to practise it with unequalled success and to give it a currency it could scarcely have attained without his encouragement.

Horsley's eminence in a special field has perhaps tended to obscure the fact that his interest in general surgery underwent no diminution. Specialism with him was an addition to the general equipment of the surgeon and led to no narrowing of his sympathies or restriction of his mental field. Upon those who were brought into contact with him in professional matters the effect of his breadth of outlook was healthy and profound. His influence was always cast in favour of a courageous optimism and a recognition of broad principles (as more important than multitudinous details of technique) and a confident expectation of progress in the science and art of surgery. He was extraordinarily free from the slightest affectation of superiority or the reserve which his great position and prestige might possibly have justified. From his house-surgeons and students his easy simplicity, his charming sense of fun, his assumption of complete equality, won a devotion that was too deep to be disturbed by the passing agitations of the operating theatre.

In dealing with his patients Horsley consistently showed a deep and tender humanity very much at variance with the picture of him which it is to be supposed the public allowed itself sometimes to draw. He had a horror of inflicting pain, and would never undertake any procedure, however insignificant, that might be painful without insisting upon an anaesthetic. Again, he was extraordinarily ingenious and patient in devising means for minimizing discomfort after operations, during dressings, and in the course of convalescence. No one could be associated with him in work for long without learning how essential a trait in his character this mercifulness was. The operative skill of eminent surgeons is sometimes perhaps a little legendary. There was no such element in Horsley's reputation. He had dexterity, gentleness, precision; he could be inexhaustibly patient in extirpating a Gasserian ganglion and almost incredibly quick in exposing a spinal cord. He would take any risk that he was satisfied was necessary, he would take none that he could avoid. And his operations were apt to look very easy.

There can be no doubt he was one of the greatest operators of his generation.

Personal Characteristics.

A personal friend writes:

He was both a collectivist and an individualist, believing in collective rule by individual vote. In all his strivings with the Council of the College of Surgeons on behalf of the Members, with the opposers of an extended franchise, with those who refused to trained nurses the right of State registration, with those who denied to women the degrees to which their examinations entitled them, or against our present diplomatic system which places the lives and fortunes of the many at the absolute disposal of the few, he was governed by the one principle of justice to the individual, whatever his or her position in the social scale.

On the same ground, therefore, he was an advocate for radical reforms in our system of education, for universal teaching of scientific method and for the extension to each individual of the opportunities for training and for knowledge, that each and all should be able competently to fulfil their duties to themselves and to the State.

He occupied so prominent a place in regard to controversies of many and widely different kinds, that perhaps no man was more generally discussed and criticized than he by different groups of men, but those who only knew him from the controversial side on public questions and thought of him and described him as a fighter, failed entirely to appreciate his real personality. This could only be gauged by those who lived and worked with him, either in his laboratory, his practice, or his home, and thus came under the influence of a wonderfully bright and optimistic temperament, and a mind stored with knowledge to which quite inexhaustible industry added day by day. Outside his scientific reading, he read besides with extreme rapidity and extraordinary memory, all sorts of books and pamphlets on housing, education, land reform, history, biography, travels, archaeology (which was a passion) and antiquarian records. Everything was of interest, old world phraseology and quaint expression having a special fascination for him. With a mind so fed, with his vividness of thought, his visualizing power and the energy which took delight in expression, his society had a charm entirely its own.

He wrote scientific papers, scathing polemics, addresses to Brotherhoods (whose work he welcomed and helped as one of the greatest revivifying forces of the times), all in the drawing-room of his house, not disturbed, but helped and pleased with the talk or the music of young people round him, whose companionship was as necessary to his inner life as sunshine and air. No sketch of Victor Horsley, however slight, which fails to give these aspects of his many-sided personality can ever present even a shadow of himself, and it is only the realization that his soul was full not alone of indignation and scorn for evil and evil-doing, but far more of affections, generous sympathies, and ardent love for beauty, righteousness, and truth, which gives the true key to his work and his battles that these great things might be the possession and the rule of life for all the world.

His uncompromising attitude towards the use of alcohol is well known, and brought on him the charge of fanaticism and prejudice. But his prejudice (in the strict sense of the word) lay rather in the opposite direction, being himself, in his early days, accustomed to the use of alcohol in a very moderate degree. It was only on the discovery that it hampered, instead of aiding, his reading for an examination that he perceived the possible full significance of the alcohol question in the national life. From thenceforth he never ceased his study of the subject in all its aspects, scientific and social, nor desisted from persuasion against its use.

It was as a part of his life-work on this great subject that he accepted the suggestion of Dr. Mary Sturge to prepare in collaboration with her a book of scientific evidence on the question, to be placed at the service of all

interested in the well-being of the nation. Much of the material was furnished and written by him, and even during his work in Egypt he was continually collecting further evidence which should be added when again a fresh edition of the book should become necessary.

The war, with all that it revealed, only served to confirm his convictions, and his last letters were filled with almost despairing regrets for the national habits which, in his belief, in council and in action were paralysing the national work.

PUBLIC WORK.

In 1897 he gave evidence of his growing interest in medico-political work by becoming a member of the General Medical Council, on which he sat as a direct representative of the profession for two terms (to 1907).

Sir Victor (then Mr. Victor) Horsley was elected president of the Medical Defence Union in 1891. His election was consequent upon certain troubles into which the union had fallen through the action of "Denholm *v.* Tait," and it was considered necessary, in the interests of the union, that the vacancy should be created. His direction and leadership gave a great impetus to the work of medical defence in all its branches. He, as with all other work he did, never spared himself, and no time was too great to give in the interests of any member who was assailed and required defence. His presidentship was most successful, and he steered the union through many difficulties which its very success had made for it. He attended every meeting, and in addition gave many valuable hours to the work when necessary, often working until the late hours of the night in its interest. He remained president until 1897, his resignation being then necessary owing to his election as one of the direct representatives on the General Medical Council. The union undoubtedly owed to Sir Victor Horsley a deep debt of gratitude for his strenuous support at a time of great difficulty, and his six years of office will ever be remembered by his late colleagues as having contributed greatly to the success to which the union has attained.

Work for the British Medical Association.

DR. ALFRED COX, Medical Secretary of the British Medical Association, writes:

Sir Victor Horsley took extraordinary interest in the work of the British Medical Association, and left a deep mark on its history and constitution. For the last twenty-five years the Association was one of the main interests of a man who was intensely interested in many things; and though he was probably one of the busiest men in London, he could always find time for Association work.

More than any other man he made the demand for the reconstitution of the Association on democratic lines, for he was the chief inspiration as well as the leader of those who called together the Manchester Conference in 1900, and afterwards approached the Council of the Association at Ipswich with the proposals which led it to set up the Constitution Committee. Those who like myself were members of that committee will unhesitatingly concede that Horsley and Mr. Smith Whitaker were the two outstanding figures in that committee, and very largely influenced the nature of its report which was adopted at Cheltenham in 1901.

It was natural that Horsley should become the first Chairman of Representative Meetings. He held office from 1903 to 1906, and I believe he was as proud of that office and all that it meant in providing opportunities for moulding the organization of the profession as of any honour that was ever conferred on him, for he had a great idea of the dignity and importance of the Association, and of the great responsibility of its chief executive officers. He continued to be a member of the Representative Meeting until 1912, and was as able and helpful as a member as he had been as Chairman. The mark that Horsley made on both the constitution of the Association and the character of the Representative Meeting is indelible.

He filled nearly every post in the Association except that of President and Chairman of Council. He was a member of Council from 1900 to 1912, and was chairman of many committees. His chief Association work was done in connexion with the Organization Committee, where he took a very active and prominent part in drafting the Articles and By-laws, and in the application for a Royal Charter, and on the Medico-Political Committee. On the latter he took the leading part in forming the policy of the Association in regard to reform of Coroners' Law and Death Registration, Medical Inspection and Treatment of School Children, Amendment of Medical Acts, the constitution of a Ministry of Public Health, State Registration of Nurses, and suppression of unqualified practice and quack advertisements.

He did not take any specially prominent part as a member of the Association in the Insurance Act fight. He was not a member of the State Sickness Insurance Committee which formulated the policy that was submitted to and adopted by the profession. He took his usual active part in the discussions in Council and Representative Meeting, but it was a profound disappointment to him when he found that his honest difference of opinion on this subject from many members of the profession was regarded by some as a betrayal of the interests of those for whom he had been fighting nearly all his professional life. For a time he retired from active participation in the work of the Association, though he always remained a member of the Medical Inspection of School Children Subcommittee, and as soon as he was asked to help in connexion with some of the subjects he had made peculiarly his own he accepted without hesitation. He was too big a man to think it necessary to defend himself against a charge which he, and those who knew him best, felt to be absurd, but though he was the last man to keep his heart on his sleeve, the defection of many of his old supporters was a great blow to him. Just after he had relinquished his candidature at Market Harborough, because he was too independent for ordinary party purposes, he remarked to me in a quizzical way that such a wilful throwing away of a safe seat must have seemed strange to people who professed to believe that he had betrayed his profession for party purposes.

Many of his staunchest friends and admirers were uneasy to find that he grew less tolerant as he grew older, and less inclined to allow that people who disagreed with him might be right and might be perfectly sincere. But this was a small price to pay for the devoted services of a man who always put his profession first, and was not content with academic expressions of regard for it, but worked hard for it all his life.

No note of Horsley's work for the British Medical Association would be complete without mention of the part taken by Lady Horsley. In everything he did she co-operated with a zeal and a knowledge which explained, to those who knew of it, the enormous amount of work he was capable of getting through.

It will help some readers to realize the kind of man he was to recall his action in regard to a presentation the Representatives proposed to make to him when he left the chair. A considerable sum of money was collected by Dr. W. Douglas and a handsome piece of plate bought before Horsley heard of it. He at once informed Dr. Douglas that he would rather the presentation were not made, much as he valued the feeling that inspired it. His reasons were very characteristic. First, he said, he had already been thanked very generously for his work in the chair, and secondly, he had all his life held the view that personal presentations should not be made for public service, except by the State. He went on to say, "Work, whether political or scientific, if done in the interests of the profession, brings with it not only the ample satisfaction of having contributed to social progress, but also earns constantly recurring grateful acknowledgement from those who happen to more directly benefit by what has been attained."

His death means to me and many other men of about my age the loss of a unique and irreplaceable personality in medical politics. Workers in this field are not too common, and to secure the co-operation of a man of his scientific position and great personality meant more to the ardent spirits of the Nineties than I can express. He, a consultant of the consultants, was able to understand and sympathize with the difficulties of the general practitioner in a way that was all the more effective because taken from a detached point of view, and his labours on the Contract Practice Subcommittee left him with a deep conviction of the need to improve the economic position of the general practitioner, particularly in the poorer districts. It has been one of the great privileges of my life to know him well and work with him, and I have never known any man who so thoroughly realized and tried to put into practice Bacon's saying, "Every man is a debtor to his

profession." His last letter to me was dated May 15th, and was addressed from somewhere "300 miles up the Tigris on a burning mud flat in the midst of cholera, dysentery, diarrhoea, etc., etc." The letter was full of anxious inquiries as to what was happening about nurses' registration and what the British Medical Association was doing. He ends by saying how impatient he felt at being unable to help. Peace to his ardent spirit! Few men ever gave of themselves more freely or more unselfishly, and his death at the post of duty and danger seems to me to be a fitting end to a strenuous life devoted to the service of his fellows, and particularly to the profession of which he was such a brilliant ornament.

Dr. T. JENNER VERRALL, who was associated with Sir Victor Horsley in the institution of the new constitution and its working afterwards, adds the following personal tribute:

I have no doubt that the obituary notice of Sir Victor Horsley will give a full and just account of his manifold activities on behalf of the profession, and especially of his devotion to the interests of the Association. Will you let me add a few words of admiration and regret? The world knows his scientific work and the surgical successes which were built on that foundation. The Association generally will recall with gratitude that in the very midst of his busiest life he found willingly the time for medical politics. As I was the Chairman of Representative Meetings at a time of great stress and difficulty, I know well how greatly the profession is indebted to him for the constitutional machinery, the necessity for which he was one of the first to see, and for the construction of which he was so greatly responsible. Those who have been privileged to share his work in the British Medical Association will have recognized and admired his clear judgement in selecting the principles to be maintained and his stern adherence to the smallest details which he thought necessary to such maintenance. It is certainly possible (and I believe it to be true) that readiness for compromise on occasion and a larger realization of the part which sentiment takes in moulding the affairs of men would have helped him in his great and unselfish efforts for the general good, but steadfast vision of the goal and determination that nothing shall shake the will nor turn the course are gifts sufficiently rare that we can well be grateful for all they enabled Horsley to achieve. His was a great soul devoted to worthy ends.

SOME PERSONAL APPRECIATIONS.

Sir WILLIAM OSLER writes:

Better than any man of his generation Victor Horsley upheld a great British tradition, for he combined the experimental physiologist and the practical surgeon in a degree unequalled since John Hunter. In his deft hands experiment reached a perfection not before known in the laboratory. To have recharted (with his friends Beevor, Schäfer, Mott, Gotch, and Semon) the cerebral cortex was a brilliant achievement. A technique of such perfection was reached that the surgery of the laboratory was a decade ahead of the clinic. There was a mind, too, behind the hands—resolute, keen, and fertile in suggestion. He had the true scientific spirit, open and free, without secrets or seclusion, and a fraternal kindliness that often gave to others the lion's share of credit. What a pity that twenty-five years ago the fragmented medical organization of London had no abiding home in the shape of a great physiological institute for a man of Horsley's genius!

He took over to a hospital career qualities which enabled him to give us within a few years three of the greatest sensations of our time. His paper on Brain Surgery at the Brighton meeting (1886) of the Association electrified the profession, and with Macewen's contemporaneous work put British surgery in the van in this field. Less dramatic, but perhaps more profound, was the impression made in the following year by the successful removal of a tumour of the spinal cord. It was truly an epoch-making case, and one is at a loss which to admire more—the brilliant diagnosis of Gowers or the matchless technique of Horsley. In this great war scores of lives have been saved by the application of his surgical lessons. A direct result of his experimental work on the thyroid gland was the successful treatment of myxoedema, which for the first time placed organo-therapy on a scientific basis. Year by year an increasing output of researches gave him a unique position in the surgical world. In spite of the incessant demands of practice he managed to keep in daily touch with laboratory work, and was rarely without a special research student. From personal experience I know how freely his time was at the disposal of the innumerable visitors who sought his clinics.

What demon drove a man of this type into the muddy pool of politics? A born reformer, he could not resist. Fearless, dogmatic, and assertive, once in a contest no manna-dropping words came from his tongue. A hard hitter, and always with a fanatical conviction of the justice of his cause, what wonder that the world's coarse thumb and finger could not always plumb the sincerity of his motives! Let us, as dear old Fuller says of Caius, "leave the heat of his faith to God's sole judgement, and the light of his good works to men's imitation."

One summer evening in 1878, at the house of my much-loved friend Daniel Hack Tuke, I met two young students (of University College) whose bright eyes held the light of high promise. One, Willie Tuke, was cut down at the outset of a brilliant career. The upward path of the other I followed from afar with an affectionate interest, and it was with no small measure of gratification that I saw Victor Horsley become the greatest Hunterian surgeon of his day.

Sir R. HAVELOCK CHARLES, G.C.V.O., Sergeant-Surgeon to the King, formerly Professor of Surgery, Calcutta, has written the following appreciation from the point of view of a surgeon whose practice for many years lay at the other side of the world:

Sir Victor Horsley is dead. He died helping his country, and his departure is a loss to the British school of surgery. It is many years since I first met him at University College Hospital. With pleasure I recall his kindness. At that time I was working at certain points in brain surgery, and had seen the skill of many in foreign schools. Horsley was a master in his craft, combining true science and practice. He was a personality, helpful to the student and encouraging ever to any one engaged on post-graduate study. He was a man of ideas himself, and he had the power of raising them in others. After an hour with him I used to come away with food for reflection and thoughts engendered by his talk. Such a man is a great asset to any school of medicine.

Returning from India it was a habit of mine to vary my route of travel to England. In this way I was able at various times to visit the chief medical centres in the world in order to see how others did things. This is not a bad plan for any man engaged on work in far away countries, and absolutely dependent on himself for all the exigencies of surgery. It is one thing reading what another man writes; it is much better to see that man carry out what he has been writing about. The surgeon pilgrim gains confidence, and finds that it is good to meet the great men of the profession in various countries and schools, and study their personalities. This widens the mind and enables one to try and grasp what is best in all. The seeker should endeavour to find the good, and not be simply a travelling critic. Often by observing I have learnt how *not* to do a thing, but never with Victor Horsley. He was a man, a scientist, a surgeon, and a helper to anyone desiring a knowledge of the studies he had made peculiarly his own. I learnt from him directly and indirectly, and appreciated his sterling merit.

It was unwise for a man of his age, who had had no experience of tropical heat, usages, or habits, to have gone to work in the confines of the Persian Gulf. He should not have been there. His life has been thrown away. That is the sadness of his death.

Sir Victor Horsley was a man not afraid of expressing his opinions, and he had the courage of these. In medical politics, I believe, he had his friends and enemies. A man of strong convictions must ever have them. However, my relations with him never had anything to do with that side of his life, though, at the same time, I must say it is a pleasure in this world to meet one *not* of the milk and water kind—and that man was Victor Horsley. Doubtless he had his faults—but I now forget them, and only call to mind what has been written:

> They say the best men are moulded out of faults?
> And, for the most, become much more the better
> For being a little bad.

Dr. CHARLES BOLTON, Physician to the Hospital, and late Director of Pathological Studies and Research, and Lecturer on General Pathology, University College Hospital Medical School, writes:

In addition to the distinction which Sir Victor Horsley conferred upon the college and hospital by his scientific attainments, his influence upon them was profound both from the educational and research points of view, but more particularly the latter. Horsley was not only pre-eminent as a surgeon but had also the genius for experimental research. He had the rare gift of imagination developed to a high degree, and backed by a wonderful skill in carrying out the experiments involved in the solution of the problems he had set himself to solve. When he was appointed to the chair of pathology at University College experimental pathology was practically non-existent in Great Britain, and as a fact it can be truthfully stated that it is still at a very low ebb. Under Horsley's direction the pathological department at University College became a definite and well known centre for research in experimental pathology, which attracted workers from all over the world, and was one of the foremost in nervous pathology. An experimental atmosphere was established and a high standard of research set, and there is no doubt that this condition influenced the authorities, when the new medical school was established some years after Horsley ceased to be professor, to devote a part of the building to thoroughly equipped laboratories for the special study of experimental pathology. A great quantity of first-class work was turned out annually from Horsley's laboratory, because he was ever ready not only to give his ideas to those working under him, but also to assist them in carrying out their work, and to see that their experiments were properly conducted and that correct deductions were drawn from them. A man of great personality and energy, he imparted his enthusiasm to his workers, and his influence extended much wider than the limits of University College, because many of his research workers hold or have held prominent positions as pathologists elsewhere. A man with Horsley's breadth of mind could not fail to be interested in the other branches of pathology, in which he reorganized courses of instruction, but bacteriology in the College did not develop to any great extent until after his time. Horsley's lectures in general pathology were most interesting. He did not teach from the examination point of view in the very least, but his aim was to give an account of the processes of disease as ascertained by experimental inquiry, and he illustrated all his statements of fact by experiments on every possible occasion. He would take the greatest trouble in the preparation of class experiments, many of them often of great complexity; no one with less genius for experimental work than Horsley could have succeeded in performing these experiments so evidently proving what he intended to a class of students. In this way Horsley fired the enthusiasm of his students for the experimental method, and taught them to believe theories which were founded upon facts only. Horsley was not fond of clinical teaching, and, in fact, his time was so fully occupied with a large consulting practice and many interests outside the hospital altogether that his visits were short and irregular, and he retired from the hospital staff some years before his death. He was, however, an able clinical teacher, and his wards usually contained an excellent selection of brain and spinal cord cases, on which he would lecture with great lucidity and interest. Horsley's operations on the nervous system attracted a large audience not only of university students but also of foreign post-graduates and surgeons.

Major R. MCCARRISON, I.M.S., writes:

During Sir Victor Horsley's period of service with the Mediterranean Expeditionary Force circumstances threw me into very intimate association with him. I count it one of the highest privileges of my life to have enjoyed his friendship and to have been admitted into the perfectly harmonious circle of his private life.

He was a man whose professional skill, whose diversity of knowledge, whose depth of patriotism, whose greatness of soul, whose sincerity of purpose, whose religion of truth, and withal whose simplicity of character endeared him to all who knew him intimately. Ever ready to place his masterly knowledge of medical science, and especially of brain surgery, at the service of the soldier, he subordinated every consideration of personal comfort to this end. He visited the furthest outposts of our fighting front at Gallipoli—Mudros, Anzac, Suvla—returning to Alexandria brimful of eager enthusiasm in the cause of the sick and wounded. He visited the western frontier of Egypt during the height of our operations against the Sennoussi, conveying to each dressing-station the fundamental truths of brain surgery which his genius had evolved, and the knowledge of which has resulted in the saving of so many lives. He was an apostle of scientific truth, and he did not fear to carry his gospel into the most far-flung of our battle lines.

How he came to volunteer for Mesopotamia is characteristic of him. He had come through a period of intense family anxiety when he met at dinner one evening in February a man who related stories of the horrors of the Tigris campaign and of the sufferings of our sick and wounded there. The cause of the weak and suffering was ever the clarion call for him who was above all things the knight of distress. So he volunteered without consulting his friends or relatives, and announced his departure in a few days for Mesopotamia as though he were undertaking a week end trip to Cairo. His letters to me from the Tigris front have always been filled with high-souled enthusiasm, with plans for the mitigation of the sufferings of the sick and wounded, but with never a word of his own discomforts. Who amongst us will grudge to the tortured thousands of this expedition the comfort of his presence? He was for them the cup of cold water in the sweltering hell of their suffering.

His accessibility was one of his most lovable traits, and for man or beast he was ever ready to exert his skill to the utmost. I remember my surprise when he told me that one of his patients in Alexandria was a Persian cat which he visited twice a day. Like all great experimenters who are compelled to use animals for the furtherance of scientific medicine, he loved them deeply; cruelty was as foreign to his nature as was dishonesty.

A great Englishman has given his life for his country and for his fellows. His friends and his opponents alike will voice the sentiment when I say:

> He was a gentleman in whom
> I built an absolute trust.

Sir THOMAS BARLOW writes:

His great scientific and surgical achievements speak for themselves, and his courage and fearlessness are fully recognized, but his personal example of absolute fidelity to principle, of readiness to accept obloquy even, for the sake of what he thought right, is not, and probably will not be realized, except by those who knew him and worked with him. His death means the loss of an unfailing stimulus and inspiration which nothing can replace but which I hope none of us will forget.

Dr. T. A. Ross (Ventnor) writes:

Singleness of purpose and unflagging energy in its pursuit were the dominating features in Sir Victor's public life. Whether or not a thing should be done depended on one thing only: Was it right that it should be done? never Was it expedient? If it ought to be done he did it with all his power and all his strength. There was no compromise with the accursed thing, none of the negotiating said to be dear to the English mind, nothing of the huckster spirit which makes the successful politician. He would roll no man's log in the immoral hope that his own would be rolled when the time came; and this was a thing that the politicians—ordinary or medical—could not understand. Never did he think of his career or what would happen to him when he took up a cause—the cause alone was what mattered. How many there were—the right to research, temperance, woman's suffrage, the bettering of the conditions of the people, the raising of education. In none was popularity sought, and a cause that was not prospering was championed even more eagerly than one that was going to win. *Victrix causa placuit deis, sed victa Catoni.* In private life his friends will not easily forget another side of the man. The smile of welcome was of a rare quality. The brilliant wit, the deep sympathy in trouble, the vast stores of knowledge on all sorts of subjects were at the disposal of those whom he admitted to his circle. His generosity and hospitality were unbounded. As one privileged to drop in at almost any time, I used to wonder whether the Horsleys

ever lunched or dined alone—there was always some one there. Surrounded by experts in subjects other than his own, he could talk to them all in their own language. To have the chance of visiting some old church or castle in his company was an education—and it mattered not in what part of England it was, that England that he loved so well and for which he has laid down his life. Of his scientific work others are more fit to speak. I knew the man; his work was largely beyond me.

OLD MEMBER B.M.A. writes:

It is over twenty-one years ago when, as a member of a committee appointed by the Medical Defence Union to try and find terms on which amalgamation could be arranged with the London and Counties Medical Protection Society, I first had the privilege of meeting Sir Victor, then president of the union. His ability impressed me, as well as the unsparing use he gave of his time to the object for which the committee was chosen. Later, when on the council of the Metropolitan Counties Branch of the British Medical Association, I again admired Sir Victor's precision, accuracy, and ability in debate. In the intervening years, chiefly by his influence, the constitution of our Association had been altered, so that in the decisions of the Representative Body we had the considered opinion of the members. But it is not only as the man of commanding genius and courage I remember him, but also as the one who gave graciously and willingly of his skill and time to operate upon and cure my wife when ill and in danger of death.

THOMAS JAMES WALKER, M.D., F.R.C.S., J.P.,

CONSULTING SURGEON, PETERBOROUGH INFIRMARY.

BY the death of Dr. T. J. Walker, which occurred on July 19th, the medical profession has lost a distinguished member and Peterborough one of its most respected citizens. He was the son of Dr. Thomas Walker, a native of Dumfriesshire, belonging to a family which could trace descent from John Knox. The younger Walker was born at Peterborough on August 18th, 1835; he was therefore within a month of completing his 81st year. He received his preliminary education at King's School, Peterborough, and entered the University of Edinburgh as a student of medicine in 1853. After a brilliant academic career he graduated M.B.Lond. in 1857 with honours, proceeding to the M.D. degree in 1861. He was admitted M.R.C.S. in 1857, and became F.R.C.S. by election in 1908. In 1858 he was appointed resident medical tutor and demonstrator of anatomy at Queen's College, Birmingham, and assistant physician and pathologist to Queen's Hospital. In 1860 he resigned these offices, and after spending six months in further study at Vienna joined his father in practice in his native city, where he spent the rest of his life. He soon gained a leading position as consulting surgeon in the Midlands. He was appointed surgeon to the Peterborough Infirmary in 1862, and continued on the active staff till the beginning of 1906, when he resigned and was elected consulting surgeon and a vice-president. He did much for the development of the infirmary not only by his activity in promoting reforms and collecting funds and his generosity as a benefactor, but by the high place in public confidence which he won for it through his professional skill.

Dr. Walker's reputation was far more than merely local. He was a pioneer of laryngology in this country, and the first surgeon in Great Britain who removed a growth of the larynx *per vias naturales*. The case was reported in the *Lancet* of November 9th, 1861. In 1863 he contributed to the BRITISH MEDICAL JOURNAL a series of papers on the laryngoscope and its clinical application. He was the author of articles on diseases of the larynx and trachea in *Quain's Dictionary of Medicine* (1882). In conjunction with Sir Felix Semon and Dr. de Havilland Hall he was Secretary to the Subsection of Diseases of the Throat at the International Medical Congress held in London in 1881. He was a Vice-President of the Laryngological Society of London. Among his contributions to medical literature are papers on the treatment of syphilis by hypodermic injection of salts of mercury, and on the treatment of angular curvature of the spine by a plaster jacket applied in the recumbent posture, which also appeared in this JOURNAL (1869 and 1879); on the significance of colourless stools without jaundice, and their connexion with disease of the pancreas, published in vol. lxxii of the *Transactions* of the Royal Medical and Chirurgical Society (1889); on acute ascending paralysis in cases of chronic cystitis, published in the *Transactions* of the Clinical Society of London (1905), and a description of a simple method of estimating the amount of sugar in glycosuric urine, published in the *Lancet* (1909). He was one of the earliest among provincial surgeons to perform ovariotomy, and in 1894 he did his first gastro-enterostomy.

In the midst of his numerous professional engagements Dr. Walker found time for much public work. He joined the Rifle Volunteer Corps in 1860 and served in it for thirty-six years, rising in that period from private to lieutenant-colonel; his patriotic work was recognized by the award of the Volunteer Decoration.

In 1875 he was made a Justice of the Peace for the Liberty of Peterborough. Dr. Walker, in his earlier days, was a thoroughgoing Whig, but when the great disruption came he threw in his lot with the Liberal Unionists, and at the time of his death was president of the Unionist Association, of which he had for many years been the chief energizing force. Though interested in municipal politics, he declined, owing to pressure of professional work, many invitations to become a member of the Town Council; for the same reason he felt unable to accept the honour of the mayoralty, which was more than once offered to him. He took the chief part in the establishment of the Public Library of Peterborough, and was a member of its committee from the first. On his eightieth birthday, August 18th, 1915, the freedom of the city was conferred upon him "in recognition of his long and distinguished service to his native city." He was the second honorary freeman of Peterborough, the first to receive that distinction having been Mr. Andrew Carnegie. Another tribute to the "dear old doctor," as he was often called, was the presentation made on December 22nd, 1915, of his portrait in oils, painted by Mr. Fiddes-Watt, A.R.S.A.; the fact that there were seven hundred subscribers bears eloquent witness to Dr. Walker's popularity among his fellow citizens.

Dr. Walker gave much time to historical and archaeological research. He was the author of a book entitled *The Dépôt for French Prisoners at Norman Cross, 1796–1816*, which was published in 1913 and reviewed in the BRITISH MEDICAL JOURNAL of April 11th, 1914. A second edition was quickly called for, and the work is recognized as the standard authority on a little known subject. Dr. Walker was an acknowledged authority on the Roman, Saxon, and later occupants of Peterborough. His collections of remains found there and of Roman relics found at Castor and elsewhere are very valuable. He became a member of the Peterborough Natural History and Archaeological Society in 1880 and was a vice-president from 1894 to 1911. He was president in 1892–93 and again in 1911. In 1912 he became a patron and was also a trustee of the museum, to which he was a liberal donor. In 1862, when the British Archaeological Association held its congress at Peterborough, Dr. Walker was the local secretary.

He was a strong Churchman, and was liberal in help for the restoration and preservation of the cathedral of his native city. He was a Freemason, and served as W.M. of the St. Peter's Lodge. In his early days he occasionally hunted with the Fitzwilliam hounds; he also achieved considerable success in amateur theatricals. He was a man of the largest charity, and no appeal for a worthy public purpose or a deserving private case was ever made to him in vain.

In 1865 Dr. Walker married his cousin, a daughter of the Rev. Josiah Walker, Vicar of Wood Ditton, Cambridgeshire. Among thirteen children born to him there are six sons now serving in the royal navy and army. In the early part of last year he lost his wife when they were preparing to celebrate their golden wedding. When he was presented with the freedom of the city he spoke of her with deep feeling as one whose influence over his life for good could not be exaggerated.

DR. FERNAND DUBIEF, deputy for the Saône et Loire, formerly Minister of Commerce, Industry, Posts and Telegraphs, has died at the age of 66. Among the legislative measures due to him was a special tariff of medical fees for accidents to workmen, which became law on October 8th, 1905.

Medical News.

The Home Office is about to issue new regulations intended to put a stop to the illegitimate traffic in cocaine.

The President of the Local Government Board has stated that the question whether it is desirable to make leprosy notifiable is under consideration, although the number of cases in this country is extremely small.

Dr. Simson C. Fowler, Juniper Green, Midlothian, has been presented by his patients with a gold watch and a cheque, on the occasion of his semi-jubilee, in token of their regard. Mrs. Fowler at the same time received an amethyst and pearl pendant.

The Paris Academy of Medicine, following the precedents of 1914 and 1915, has decided not to suspend its sittings this year. It will continue to meet during the months of August and September for the discussion of questions relating to public health and national defence.

The Royal Sanitary Institute has arranged to issue a certificate, after examination, for maternity and child welfare workers. The first examination will be held in London in December. Full particulars can be obtained on application to the Secretary of the Institute, 90, Buckingham Palace Road, London, S.W. Candidates must have obtained a certificate as health visitor, or as inspector of nuisances, granted by the Institute or some other recognized body; must hold an approved midwives certificate, and have had six months' training in a hospital or maternity centre, or have been for a year a health visitor or sanitary inspector.

The museum of the French army medical service installed at the Val-de-Grâce military hospital under the direction of Professor Jacob, was recently formally opened by M. Justin Godard, Under Secretary of State of the Sanitary Service. On the ground floor are a library, an archives room, and others for specimens, mouldings and apparatus. The first floor is given up to a collection of the instruments of destruction—bullets, shells (incendiary, shrapnel, asphyxiating and explosive gases), aërial torpedoes, Zeppelin and aëroplane bombs—used by the Germans; alongside these are specimens of protective apparatus (helmets and masks). Then comes a miniature exposition of sanitary cantonments, special beds, and other hygienic inventions for use at the front. A laboratory of antityphoid vaccination displays the apparatus, the preparations used, and graphic records. Painted sculptures by M. Jean Larrivé illustrate the working of the sanitary service. A series of reliefs shows first aid in the trenches, the transport of a badly wounded man, the arrival at the first line dressing station, and the interior of the station. A room is set apart for surgical instruments and sterilizing apparatus, with models showing the disinfection of wounds by the Dakin method.

Letters, Notes, and Answers.

The telegraphic addresses of the British Medical Association and Journal are: To EDITOR of the British Medical Journal, Articulate, Westrand, London; telephone, 2631, Gerrard. To FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements and Accounts), Articulate, Westrand, London; telephone, 2630, Gerrard. To MEDICAL SECRETARY, Meliorem, Westrand, London; telephone, 2631, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Dr. X. would be grateful for information as to a suitable high-class home where a young unmarried lady with a persistent sinus leading to the back of sacrum could have a few weeks' [illegible].

LETTERS, NOTES, ETC.

L. P. H. Love writes to recommend lecithin in the treatment of shell shock and nervous exhaustion. It is, he states, most successfully administered in capsules containing 5 grains.

Officers R.A.M.C. and the "Medical Directory."

The editor of the *Medical Directory* writes: Medical practitioners now serving in the R.A.M.C. are wondering what address to give for the next issue of the *Medical Directory*. Owing to the fact that their military address is liable to change, and that they may return to civil practice sooner than can at present be expected, we recommend the insertion of the home address only.

Fees of Locumtenents.

Dr. Wm. A. S. Royds (Sidcup) writes: In support of the suggestion of Dr. H. Downes (Journal, June 17th, p. 868) to make use of one's fellow practitioners, may I quote a paragraph from an address which I gave when, as long ago as 1879, I had the privilege of being President of the Branch of the Association to which I then belonged?

"Having had the honour of being chosen your representative for the past year on the General Council of the Association, I felt it my duty so far to justify your choice as to make a point of attending the meetings to which I was thus accredited, and owe cordial thanks to many of my professional brethren for assistance kindly offered and willingly given during my absence last year at Bath and this year at a most successful gathering in the South of Ireland."

At that time I seldom took holiday, and distributed a fairly long list amongst the practitioners of the town in which I then worked. As would appear from my appreciation, I had reason to be more than satisfied with the result.

Intravenous Injections of Organic Arsenic Compounds.

Dr. G. A. H. Barton (London) writes: The needle for intravenous injection described by Mr. W. F. Cholmeley in the Journal of July 8th, p. 44, is similar to one made to my design in 1912 by Messrs. Allen and Hanburys, and described by me in the discussion on intravenous ether at the meeting of the Association held in Liverpool in that year. Like Mr. Cholmeley, I borrowed the idea from the late Mr. Barker.

Garlic in Whooping-Cough.

Mr. B. B. Gadgil, M.B., Ch.B.Edin. (Edinburgh) writes: After seeing the interesting communications on the use of garlic in whooping-cough in the British Medical Journal of July 1st and 15th I feel that I should record my experience of the drug. Having had to go home to India while still a fourth year student I had the opportunity of noting the usefulness of this remedy. One of the children in the house was attacked by the disease, and three other children soon got infected. There was no want of fresh air and amongst the drugs tried were belladonna, antipyrin, dilute hydrocyanic acid, and adrenalin. None of these seemed to do any good, and garlic was suggested. Having failed with the drugs that are usually recommended it was felt that it ought to be given a trial. After three doses had been given the children improved marvellously. The attacks became less frequent and they lasted for a shorter time. In one of the cases—the worst—vomiting used to occur and the sphincters relaxed during the attack. Both these symptoms disappeared after four doses had been administered. The little patients enjoyed undisturbed sleep and all made uneventful recoveries within from one to two weeks. The garlic is peeled and given to the patients boiled in milk. Half an ounce to three-quarters of an ounce was the dose given to a child of 4 years.

Treatment of Pneumonia.

Dr. Arthur J. Mathison (Hornsey, N.) writes: Dr. J. Watkin Edwards, in your issue of July 22nd, p. 97, gave an arresting picture of the ravages of industrial diseases in Middlesbrough, and, in dealing with the treatment of pneumonia, related that in alcoholic cases he had obtained good results from a mixture of potassium iodide and creosote, without stating the proportions of these drugs in the mixture and the dose of the resulting combination. If the mixture is identical with that I have been recommending with some success for a considerable time, may I point out that the heavy mortality from pneumonia in the male population of Middlesbrough might vanish, or almost vanish, if the mixture were used in all cases of the disease? In cases secondary to Bright's disease the mixture should be discontinued as soon as possible, and the primary disease again treated.

Inflammable Stomach Gas.

Dr. W. F. A. Clowes (Colchester) sends a note on the case of a man, aged 42, who stated he had for years suffered from indigestion accompanied by flatulence. On the morning of the day he consulted Dr. Clowes the patient had eaten an egg and bread-and-butter for breakfast. He was about to light his pipe, as was his custom after meals, when he belched up a large quantity of gas, which caught fire, giving a bluish flame, and burning his lips and one side of his moustache. The lip was quite blistered and a great part of the moustache burnt off. The occurrence was witnessed by his assistant. The patient said that this was the third time this "accident" had happened.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

VI. DISABILITIES OF THE KNEE-JOINT.

BY

Lieutenant-Colonel ROBERT JONES, Ch.M., F.R.C.S.I. (Hon.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

Every kind of disability of the knee-joint may occur in military practice, from a simple sprain to the results of a severe wound.

An attempt will be made in this article to give a broad classification of these derangements and disabilities, with their diagnostic signs, and to indicate appropriate lines of treatment.

There are three common conditions which are not always as clearly distinguished by practitioners as they might be. They are, (1) simple sprain of the lateral ligament, usually the internal, (2) slipping of the semilunar cartilage, and (3) nipping of the infrapatellar pad of fat. All these injuries may be produced by a twist or fall, which at first does not seem serious; all are associated with effusion of fluid in the joint, and in all the patient complains of more or less recurring disability after the lesion, unless it has been recognized and treated in the first instance.

Sprain of Internal Lateral Ligament.

Sprain of the internal lateral ligament is distinguished by definite pain and tenderness on pressure over the attachments of the internal lateral ligament; the patient himself localizes the pain of which he complains to the inner side of the knee; definite pain and tenderness is not found anywhere else about the knee, and the movement of eversion and external rotation of the leg stretches the injured ligament and retards recovery.

The treatment indicated, therefore, is firm strapping round the knee in order to steady it, and a raising of the inner side of the heel to divert body weight to the outer side of the foot, and thus relieve the ligament from tension. It is hardly necessary to say this treatment is preceded by rest in bed, usually with the aid of a straight posterior splint. This is the initial treatment, but neglect of the after-treatment just mentioned renders the patient liable to recurring injuries of the ligament.

Internal Derangements of the Knee.

A regular gradation of injuries is met with, from a slight strain of the attachments of the internal semilunar cartilage of varying degrees of gravity to fractures of the spines of the tibia with rupture of the crucial ligaments. The former is a condition scarcely distinguishable at first sight from a simple sprain; the latter is at once obvious as a grave disability. It has become very important in military surgery to be able to distinguish these conditions clearly from signs which can be determined by the surgeon rather than by symptoms described by the patient; as, in my experience, a considerable number of men who wish to avoid service have found that they can puzzle the medical officer by complaining of obscure pain and disability in the knee.

There are very many cases in which military surgeons have been led to operate upon a normal joint, expecting to find some abnormality of the semilunar cartilage. The cartilage is very frequently torn in its posterior portion, and before deciding at operation that it is not damaged it is necessary to dislodge it outwards. Hence the necessity for careful consideration of symptoms before deciding to operate; it must be realized that exploration, in the case of a cartilage, really involves its removal, otherwise a damage at the posterior part of the cartilage may be overlooked.

Mechanism of Certain Injuries.

Probably the best way in which to get a clear idea of the injuries which lead to error is to consider the mechanism of the various injuries, beginning with simple sprain and going on to real rupture or tear of the semilunar cartilage, and to compare them with bruising of the infrapatellar pad of fat, which is a lesion not always recognized or understood.

All these conditions may lead to a recurring chronic synovitis. Every case of recurring synovitis has a cause, and practically each is curable if the cause is recognized and receives appropriate treatment.

It has already been stated that simple sprain of the internal lateral ligament is marked by a specially tender spot over the attachments of the ligament and nowhere else.

Rupture of Internal Ligament and Damage of the Semilunar Cartilage.

If we remember the anatomical fact that the internal semilunar cartilage is closely connected round its convex margin with the deepest layers of the internal ligament and with the capsule of the knee-joint, we will understand why a severe twist of the knee, with the leg abducted, may rupture the ligament and drag the semilunar cartilage with it, straining or tearing the attachments of the anterior horn. At this stage the inner side of the knee-joint is, so to speak, opened out, and everything depends upon what happens when it closes again as soon as the distorting force ceases to act.

If the cartilage is caught in displacement between the bones the knee "locks" in the manner familiar to us all. The cartilage may be split, fractured transversely, rolled up, or completely torn from its attachments. A perusal of the literature of the subject, indeed, shows that every conceivable injury to the semilunar cartilage may take place, and such cases have often been fully described. Sometimes the cartilage slips back into position without being crushed or caught between the bones; there is then no locking of the joint, but, in every respect, the etiology of the lesion is the same with the exception of the actual injury to the cartilage, and the patient generally states that he felt something "slip" or "click" in the knee, but could quite easily straighten it immediately after the accident.

The history suggests the usual cartilage injury of text-books but without locking; the knee becomes distended with fluid, and the patient refers his pain to the inner side. The physical signs are tenderness on pressure over the internal lateral ligament, and a specially tender spot to the inner side of the ligamentum patellae just over the border of the tibia, a symptom always strongly suggestive of an injury about the attachment of the anterior end of the internal semilunar cartilage.

The treatment of the condition when the knee cannot be fully extended without causing pain will be discussed later. If the knee can be fully extended without causing pain, the aim should be to ensure complete rest until the torn attachments have united. The knee should be kept absolutely straight on a back splint for at least ten days, the bandage being firmly applied over cotton-wool. After this the patient may begin to walk, and when he does so he should have a firm bandage over the knee to prevent effusion into it. Movements of the joint should be very limited the first day, and should gradually increase in range.

A common fault in treatment is to allow the patient up without a proper protective bandage on the knee, the result of which is effusion into the joint, and, what is more harmful, into the newly formed cicatrix about the anterior horn of the semilunar cartilage, thus stretching the newly formed scar and letting the end of the cartilage shift about. When this happens the patient is often put to bed for a week until the effusion has disappeared, but when he gets up again the effusion recurs, and so he goes on week after week, until finally the attachments of the anterior end of the cartilage become elongated and slack. The patient then complains that occasionally he feels a "give" in the knee, but it does not "lock." Some day a slight unusual twist may result in a real locking of the joint.

A joint such as this which has been the seat of a definite injury will generally fill up with synovial fluid when first used. Therefore the application of a pressure bandage should never be omitted. If the knee is carefully brought into use by graduated exercise, there should never be much effusion, and each day it should be less in amount; that is to say, there is no effusion in the morning, although by the end of the day it may have appeared, and each evening the amount is less than on the preceding one.

Thickened Cicatrix about the Semilunar Cartilage.

If the effusion does not become progressively less, either the patient is using the knee too much and moving it too roughly, or some injudicious masseur is moving it too roughly for him, or the surgeon has made a mistake in his diagnosis and there is some condition in the joint which requires further attention, and he should make a careful examination and reconsider his opinion of the case. When these cases have been the victims of defective after-treatment, repeated stretching and effusion about the anterior end of the semilunar cartilage gives rise to a thickened cicatrix, which is tender, and can sometimes even be felt by the surgeon moving under his finger as the knee is flexed and extended. This painful spot is situated at the diagnostic point, already described, on the front of the knee, well to the inner side of the ligamentum patellae. Sometimes this cicatricial thickening is so great that it is pinched between the bones when the knee is fully extended, and this causes sharp, well localized pain and tenderness.

Treatment in such cases depends upon the exact condition, and two types must be distinguished:

1. In cases in which the cicatrix is not pinched, but merely gives rise to a sense of insecurity as if something is moving or "clicking" inside the joint, a rigorous course of strict rest, followed by massage and carefully graduated exercises, may cure the condition in a month.

2. In cases in which the cicatricial mass gets definitely nipped, the condition has become similar to the type of displaced semilunar cartilage usually described, and if rest and careful exercise fail, an operation to remove the whole mass is indicated—the opportunity being taken to inspect the cartilage at the same time.

DISPLACED CARTILAGE WITH LOCKING.

It has long been recognized that definite "locking" of the knee-joint is a characteristic sign of displacement of the internal semilunar cartilage, as described in textbooks. This condition is a more severe variety of the injury just described; it differs from it in the fact that some portion of the cartilage is, for a time at least, caught between the bones and prevents full extension.

The treatment of this condition aims at the restoration of the power of extending the knee fully without pain.

If the displaced cartilage is fully reduced the knee can be fully extended, both actively and passively, without pain. If this cannot be done, the cartilage is not reduced. When the cartilage becomes disengaged the patient is aware of it—in fact, he is the most competent judge of the success or failure of the manipulation.

Treatment of the Initial Injury.

First complete reduction is necessary. This can usually be effected by manipulation without the use of force, and the routine I prefer involves the active assistance of the patient. The patient should lie on his back with the thigh flexed on the body and the leg on the thigh. When in this position the surgeon can manipulate the leg, and can sometimes feel a fullness over the site of the displaced cartilage.

The patient is then told that he will be given the word "*One, two, three, kick!*" On the word "kick" the patient extends the limb as suddenly as he can. At the same time the surgeon rotates the foot inwards and pulls, while pressure is placed upon the thigh. If the dislocated cartilage is reduced, the patient is almost certain to announce the fact, and the objective sign is that the knee can be completely extended without impediment. The knee, surrounded by wool, should be bandaged firmly, and fixed on a posterior knee splint. If the patient is not of a temperament likely to be helpful, an anaesthetic is advisable.

Our next effort is to secure the healing of the lesions in and about the cartilage, so that it may have a chance of adhering in its proper position. The patient should, therefore, wear the splint for about ten days, but can usually be allowed up in his room at the end of five days. After ten days he may walk with the knee bandaged, taking care not to bend the knee suddenly. Active flexion of the joint should be practised very gradually, and the quadriceps muscle should be massaged and exercised gently. If the progression is carefully made from gentle to stronger movements, the full range should be recovered without the recurrence of any effusion in the joint in about three weeks. The majority of these cases, carefully and efficiently treated in the first instance, do not give any further trouble.

Where a successful reduction is not accomplished, and, in consequence, the patient is not able to extend the knee fully, an operation will probably be required.

Cases of Imperfect Reduction.

I see many cases two or three weeks or more after the accident, in which it is obvious that attempts at reduction have either not been made or have failed. The surgeon in charge of the case may have thought that he had got the knee fully extended, but passive extension still caused pain, localized over the anterior end of the cartilage; the knee filled with fluid when the patient walked, and, though comparatively free from pain after rest, it became tender after exercise. It is often possible, even after weeks of displacement, to reduce the cartilage in these cases by manipulation similar in kind but more forcible than that necessary in dealing with the original injury. This manipulation forces the displaced cartilage from its abnormal to its normal position, where it may become firmly and accurately fixed. This late reduction so often succeeds that it is always worth trying. If, after an attempt at reduction under anaesthesia, the cartilage still remains in a position in which it gives trouble, or if it remains loose and frequently gets nipped, operation is the only sure treatment; for the case now has become one of recurring dislocation of the semilunar cartilage with "locking" of the joint.

A word of warning may here be given about cases in which reduction is apparently complete, and the patient can get about with tolerable comfort, but complains that the knee-joint does not feel quite secure, although there is no evidence of the intrusion of any structure between the bones. These symptoms are often due to some minute adhesion within the joint which does not produce sufficient limitation of movement to be detected by the surgeon, but leaves the patient with the sense that he cannot use the joint without a feeling of restraint. Full movement of the joint, particularly in rotation, under gas anaesthesia, will often remove these symptoms, although the surgeon cannot always feel any definite adhesion give way during the manipulation.

OPERATION ON THE INTERNAL SEMILUNAR CARTILAGE.

It is needless to say that the knee should never be opened except under the most scrupulously aseptic conditions, and never in a hospital in which there are a large number of septic cases. Operations on cartilages, even at base hospitals at the front, should be discouraged. It is not a practice which can be recommended, as the environment is a source of danger, no matter how experienced the surgeon.

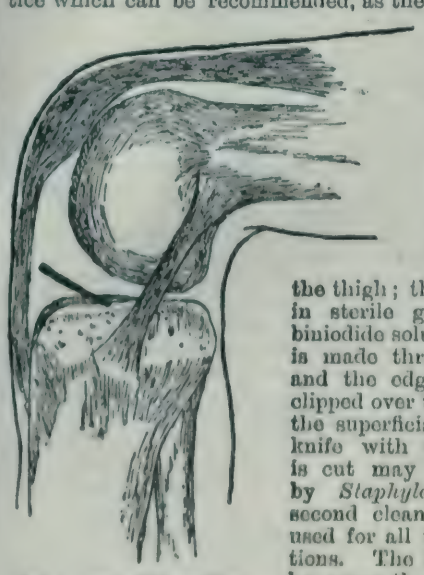


FIG. 1.—Showing position of incision.

The procedure which I prefer is the following: The leg is placed to hang over the end of a table at right angles to the thigh; the knee is wrapped in sterile gauze, soaked in biniodide solution; the incision is made through the gauze, and the edges of the gauze clipped over the skin edges to the superficial fascia. As the knife with which the skin is cut may become infected by *Staphylococcus albus*, a second clean knife should be used for all the deeper dissections. The incision need not be more than an inch or an inch and a half in length; it is made over the anterior end of the cartilage, sloping very slightly downwards and inwards—that is, nearly, but not quite, parallel to the upper edge of the tibia (Fig. 1). Great care should be taken never to allow

the incision to extend far enough to the inner side to cut any fibres of the internal lateral ligament; this is a fault which leads to weakness of the knee lasting for months or years, and is, unfortunately, still frequently to be met with in cases which have been operated on by the old large J-shaped incision described in textbooks. The joint being opened, a blunt hook can be slipped under the free margin of the cartilage, and by picking it up it can easily be seen whether the front part is intact, or torn, or has tags or projections producing disability. In removing the whole cartilage great care should be taken that no tags of cartilage are left projecting from the attachment to the coronary ligament, as these frequently give rise to continued symptoms, due to nipping or adhesions, and may necessitate a second operation. The condition of the fringes should be examined before closing the knee, and by retracting the patella the opposite front part of the cartilage can be inspected, if this be deemed necessary. No movement of the knee must be allowed after the incision has been made, as this may favour the entrance of air—a minute risk, but an avoidable one, and therefore one which the surgeon has no right to take. It is not until the stitching is complete and pads placed over the wound that the knee is straightened. Dressings are then applied, elastic pressure put on by bandaging over large pads of wool, and a simple posterior knee splint affixed to keep the knee straight. If the operation is performed with a tourniquet around the thigh—and this is advisable—no vessels need be tied; and if the elastic pressure is applied before the tourniquet is removed there need be no fear of bleeding into the joint. My experience of these operations now extends to over 2,000 cases, and I feel that I can speak with some authority.

After-Treatment.

In a straightforward case there is no reason why the patient should not get out of bed on to a couch on the third or fourth day. He should not, however, put his foot to the ground for the first week. The stitches are removed as usual about the tenth day and massage may be commenced, the patient being allowed gradually to bend his knee. Each day he exercises, bending and extending the knee more and more, until in about three weeks he should reach the full range of movement and walk with freedom. In my practice several professional footballers have resumed their game in six or eight weeks after the operation. There is no reason why in suitable cases men should not return to light duty about five weeks after the operation and, if properly exercised, be fit for full duty three weeks from that date. This, however, depends upon the patient being put through a course of carefully graduated movements and exercises through the whole period of his convalescence.

Surgeons who have been operating upon soldiers complain of the weakness in the knee which so often follows operation. This experience is common, but if the operation has been properly performed and the after-treatment by massage and exercise has been thorough, these disappointments will not occur. The surgeon should be assured that the thigh muscles are restored to their normal condition, and a patient should not be discharged from hospital until the thigh has attained its normal girth. We must also retain a critical attitude of mind, for some soldiers are keen to remain off duty, and the knee is often only an excuse.

Recurrent Effusion into the Knee-joint.

Recurrent effusions into the knee-joint are often very puzzling. It is possible, however, to lay down a few rules for guidance.

I. After injury of the knee, effusion of fluid into the joint is very liable to occur, and if the patient is kept resting and not using the limb, the effusion will probably recur the first time he uses it. The patient is again put to bed, but when he gets up effusion reappears. The rational treatment in such cases is to bandage the knee firmly and let him walk, and in the evening there will be some effusion, which will disappear by morning. The knee should again be bandaged and the patient allowed to walk. In the evening there will be still effusion, but not so much as before. By following this routine the joint will gradually become accustomed to the increasing exercise, with a diminishing amount of effusion on each day. This is the real test that a joint which has been injured is really recovering and is fit for gradually increasing exercise.

II. The second point is that recurring effusion which increases instead of diminishes under the above careful treatment is a sure indication that the joint is not fit for use, and localizing symptoms and signs should be searched for to find what the precise cause of disability is.

III. Recurring effusion, which is associated on each occasion with some slight mishap—a trifling strain, such as a twist of the knee, a feeling that something has slipped in the joint, or definitely localized pain—is rather an indication that there is some definite body loose in the joint which is occasionally getting nipped, though not retained long enough in one position to produce "locking." The surgeon should then decide whether it is an enlarged pad of fat, a loosened cartilage, or a loose "body," or a portion of the cartilage left after operation.

Dislocations of the External Semilunar Cartilage.

The symptoms associated with accidents to the external semilunar cartilage are much less clearly defined than those associated with injury of the internal cartilage. One reason for this is that the external cartilage is not attached to the external lateral ligament of the joint, and there is no definite mechanism by which it is pulled out of place. "Locking" may occur, the pain being referred to the front or back portion of the outer part of the knee according as the anterior or posterior end of the cartilage is torn from its attachment or crumpled up. Cases occur in which both cartilages are displaced by one injury, suggesting that it is only a rather more severe accident than that usually associated with the displacement of the internal cartilage which damages the external one also, probably the mechanism being a lateral sliding of the condyle on the top of the tibia, squeezing the cartilage out of place and tearing its attachment.

Rupture of Crucial Ligaments and Fracture of the Spine of the Tibia.

In more severe accidents to the knee the displacement of the tibia on the femur may be sufficiently great to cause rupture, not only of lateral ligaments, but of the intrinsic ligaments of the joint. This may or may not amount to what may be described as complete dislocation. Experience of cases of dislocation of the knee-joint, in which of necessity all the ligaments have been torn, proves that with appropriate rest in a correct position an astonishingly good result can be obtained. When called on to treat a serious accident such as this, the practitioner's instinct is to get the limb straight and to keep it fixed for a long time. It is when the accident has been less than a complete dislocation that one is liable to think that less strict treatment may suffice. Consequently, cases are met with in which the patient suffers from abnormal mobility of the knee-joint, clearly indicating that one or both of the crucial ligaments have been ruptured or stretched. Bearing in mind the mechanism of the crucial ligaments, it is not difficult to make a diagnosis.

1. The anterior crucial ligament is tense when the knee is fully extended, and prevents the tibia from being displaced forwards on the femur.

2. The posterior crucial ligament is tense in complete flexion, and prevents the tibia from being displaced backwards on the femur.

3. Both ligaments check inward rotation of the tibia. Hence, if the tibia cannot be displaced forwards in the extended position, it may be assumed that the anterior crucial ligament is not completely torn; and if the tibia cannot be displaced backwards in full flexion, the posterior crucial ligament is presumably not ruptured. Abnormal mobility indicates elongation or rupture of the corresponding ligament. The history of an injury helps the surgeon to exclude cases in which prolonged distension of the joint with fluid has caused elongation of all the ligaments, as well as the conditions associated with diseases, such as Charcot's disease or locomotor ataxia. The treatment, when any such condition is diagnosed, is prolonged rest with the knee in extension, or fixed in plaster, or a Thomas caliper splint, in which the patient can walk, the object being to keep the joint immobilized for a time long enough to allow union of the torn ligaments or adaptive shortening of stretched tissue. The operation of stitching

the ligaments is absolutely futile as a mechanical procedure. Natural cicatricial tissue, allowed to mature without being stretched, is the only reliable means of repair.

Fracture of the Spine of the Tibia.

The mechanism of this accident appears to be the following. The knee is subjected to violent torsion, such as might produce a dislocation or rupture of the crucial ligaments; at the time when the force is applied the condyle of the femur grinds across the surface of the tibia, and the sharp intercondylar margin shears off the spine. In some cases avulsion of the spine occurs instead of rupture of the crucial ligaments. The displaced fragment of bone may be lodged in the front part of the knee-joint, and so prevent its full extension. Diagnosis is verified by *x*-ray examination.

Symptoms.—The most constant symptom is a somewhat rigid block to full extension, usually accompanied by pain behind the patella.

Treatment.—If the knee can be fully extended the displaced fragment of bone being presumably pushed back somewhere between the condyles, the knee should be fixed in this position for a long period to allow the torn structures to reunite. On the other hand, if the displaced fragment blocks extension, and the surgeon cannot manipulate it back into a harmless position, or extend the knee even by moderate force, it is best to remove the obstructing fragment of bone, fixing the knee afterwards in a straight position, and leaving Nature to effect her own repair. The surgeon must use his own judgement as to the route he adopts: the freest access is obtained by splitting the patella longitudinally (Fig. 2), but if the *x* rays show that the offending fragment of bone could be reached by an incision at the side of the patella, this is a less severe method of procedure. As I am largely responsible for the split patellar route in dealing with unusual derangements, I am anxious to emphasize that it is only needed in exceptional cases.

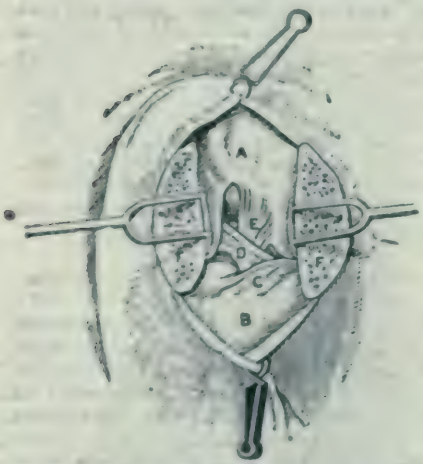


FIG. 2.—Showing patella split. A. Femur; B. tibia; C. transverse ligament; D. anterior crucial ligament; E. posterior crucial ligament; F. cut halves of patella.

Thickened Retro-patellar Pads of Fat.

Almost any injury of the knee which is associated with increased vascularity or bruising may give rise to swelling of the pad of fat situated behind the patellar ligament. Consequently this fat is liable to be nipped in full extension of the knee. In ordinary civil life, this forms one of the varieties of the initial stage of a local monarticular rheumatoid arthritis. The condition, however, is in no sense rheumatic. The patient complains of pain and tenderness in the knee after walking, and especially when going up and down stairs, or when getting up suddenly from a chair after sitting for any length of time. The condition is maintained by the repeated small injuries which occur every time the knee is fully extended. The treatment, therefore, is obviously to prevent the patient from inflicting small bruises on the tender fat and its investing of synovial membrane. This can easily be done by putting a cork pad, half an inch thick, inside the boot under the heel, to prevent the complete extension of the knee during walking, and by fitting the knee with a cage support (Fig. 3), which allows full flexion but limits extension by about 10 degrees. Wearing this boot and cage splint the patient cannot fully extend the joint and in this way it uses the post-patellar fat. The swelling gradually disappears, and after a few weeks full extension can be performed without pain. The diagnosis of this condition is easy. The patient complains of pain in the knee, or, more often, in the front of the knee, not at the inner side. Passive extension of the knee by the surgeon produces the pain, which is definitely localized just below and behind the patella. On palpation the thickening of the pad of fat may be felt; it is enlarged and tender, but there is no sensitiveness over the internal cartilage or the internal lateral ligament. In some instances the retropatellar pad of fat may be bruised in common with injury to the semilunar cartilage. The full tender point of the internal lateral ligament, cartilage, and fatty pad will be found in such a case.

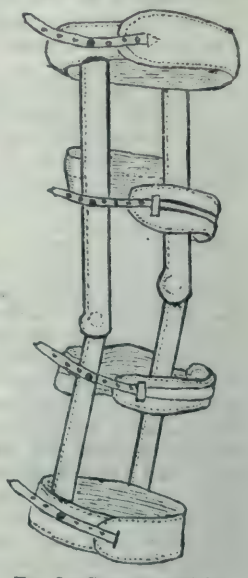


FIG. 3.—Cage support for knee.

In all the injuries of the knee which I have been discussing wasting and weakening of the quadriceps muscle is a characteristic feature, and no treatment can be regarded as sufficient which does not provide for the restoration of the efficiency of this muscle during the stage of convalescence. This is particularly to be noted in the condition which is now under discussion, for some of the deep short fibres of the subcrureus muscle are inserted into the synovial membrane of the joint, and when they contract they draw up the synovial membrane and help to pull the pad of fat out of danger when the knee is extended. Neglect, therefore, of the quadriceps muscle will leave the patient peculiarly liable to a recurrence of the injury.

If the reader has appreciated the regular gradation of disorders of the knee already described, he should have little difficulty in applying and adapting the method of diagnosis and treatment to unusual types which occur as a result of injuries in military service. Even bullet wounds through the joint, which sometimes chip off fragments of bone, can be dealt with on lines similar to those indicated for fractures of the spine of the tibia. The whole question of septic arthritis in and about the joints, with resulting ankylosis, is a larger subject, which cannot be dealt with in the present article.

FURTHER OBSERVATIONS ON THE TREATMENT OF GAS GANGRENE BY THE INTRAVENOUS INJECTION OF HYPOCHLOROUS ACID (EUSOL).

BY

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(Report to the Medical Research Committee.)

IN the BRITISH MEDICAL JOURNAL (1916, i, 83) we published a series of cases giving the results of treatment of the toxæmia of gas gangrene by the intravenous injection of hypochlorous acid. We have now had further experience of this method of treatment, and we submit the results which we have obtained.

CASE I.

Corpl. G. S. (Chart 1). Admitted January 28th, 1916, at 1.30 a.m., having received a bullet wound of the right forearm on the previous day. On being examined under chloroform at 9 a.m., the arm was found to be extensively infected with gas gangrene. This was spreading upwards along the brachial

artery to beyond the bend of the elbow. The wound was opened up and drained with a rubber tube, and a free incision was made over the brachial artery at the bend of the elbow; 50 c.cm. eusol were injected intravenously at 2 p.m.

The patient made an excellent recovery, there being no further evidence of the production of gas in the tissues.

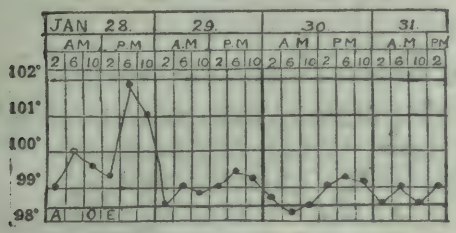


CHART 1.—A, Admission. O, Operation; gas found intravenously at 2 p.m. E, Eusol, 50 c.cm.

CASE II.

Pte. H. (Chart 2). Admitted January 27th, 1916. The patient suffered from a severe compound fracture of the left ankle, the bones being apparently badly damaged; the blood vessels, however, were not specially injured.

He was operated on immediately after admission, when it was necessary to remove a considerable amount of bone. The wound was partly closed with sutures. On the following day the patient's general condition was not good, there being restlessness and irritability, and a slight tendency to rise of temperature. On removing the dressing, the foot was found to be infiltrated with gas, the crepitation being especially marked round the malleoli and the blood vessels. Several sutures were removed and free incisions were made into the gas-infected areas; 25 c.cm. of eusol were given intravenously at 2 p.m.

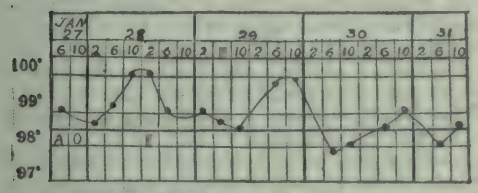


CHART 2.—A, On admission, 5 p.m. O, Operation, 5.30 p.m. E, Eusol intravenously, 20 c.cm.

The patient made a good recovery, there being no further sign of gas production.

CASE III.

Pte. C. (Chart 3). Admitted January 20th, 1916, having received extensive and severe wounds of both thighs two days previously. The condition of the right thigh was especially bad; the femur was probably fractured, and the soft tissues were distended with gas. In the left leg there was a wound of the soft tissues, and this was slightly infected with gas. The general condition of the patient was unsatisfactory, there being signs of commencing gas toxaemia.

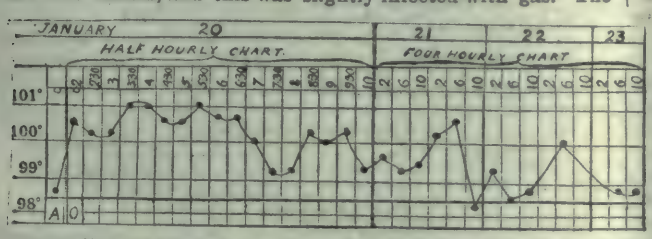


CHART 3.—A, On admission. O, Operation of eusol intravenously, 70 c.cm.

An operation was at once performed, the tissues being thoroughly opened up and drained; at the same time 70 c.cm. of eusol were given intravenously.

The patient made an excellent recovery, and there was no further evidence of gas production subsequent to the operation.

CASE IV.

Corpl. A. Admitted January 24th, 1916, suffering from a penetrating gunshot wound of the head. The temperature was 99.6° F., and an operation was performed at 6 p.m. The fragment of metal causing the condition was, however, not found. Within a few hours the temperature began to rise, until it reached 106.5° F., and the patient died at 4 o'clock the following morning. No eusol was given.

At *post-mortem* examination it was found that the brain was infected with a gas-producing organism. The gas was accumulating even in the space between the dura mater and the bone. This apparently was the cause of death.

CASE V.

Pte. C. Admitted January 24th, 1916. This man had been severely wounded in the right leg and thigh by a shell explosion, the soft tissues being extensively torn and infected with mud.

The case presented some difficulty, as, although no actual gas production was observed in the tissues, the patient's general condition on the second day resembled the toxaemia we have become familiar with in cases of gas infection. On the night of January 25th, when the patient was almost pulseless, he received, at our suggestion, 50 c.cm. of eusol in 200 c.cm. of saline. He, however, died about one hour later.

On considering this case we have arrived at the conclusion that it was not one of gas infection.

CASE VI.

Pte. D. (Chart 4). Admitted February 20th, 1916. There was a shrapnel wound behind the right knee, and the femoral artery was divided. The leg below the knee was, on admission, greatly swollen with gas. In addition there were wounds of the left leg and buttock, and also of the face and head. The general condition was bad, there being considerable toxaemia.

At 2 a.m. the right leg was amputated at the knee, and 60 c.cm. of eusol were given intravenously. Within six hours of the injection the pulse slowed to 112; at 3 p.m. it was 116. The temperature and pulse now, however, began to rise steadily, and at 10 p.m. the temperature was 103.8° F. and the pulse 140. On the following day the condition was much worse, and at 10 a.m. a second intravenous injection of 60 c.cm. of eusol was given. This was followed by a slight reaction. The temperature rose to 105° F., and the patient died at 6 p.m.

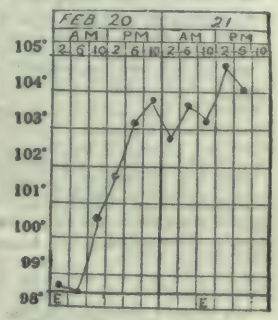


CHART 4.—E, Eusol, 60 c.cm. intravenously.

CASE VII.

Pte. E. (Chart 5). Admitted (under the care of Captain Bates) February 28th, 1916. On admission, there was found to be a bullet wound of the posterior part of the right thigh; this was associated with a compound fracture of the femur, but no large vessel was injured. Though the patient was admitted within four hours after being wounded, the development of gas had begun to be manifest in the wounds.

The wounds were opened up, douched with eusol, and drained. Fragments of loose bone were removed, and several counter openings were made to secure free drainage. The patient had an uncomfortable night, and at 6 a.m. on February 29th the pulse suddenly rose from 92 to 130. There was increasing restlessness and evidence of commencing toxaemia. At 10 a.m. the pulse was 136, and at 11 a.m. free incisions were made and an injection of 60 c.cm. of eusol in saline was given. There was very little reaction after this procedure; the pulse increased slightly, and in the afternoon the temperature was inclined to fall. Throughout the day saline was administered subcutaneously and by the rectum, and adrenalin was given in 10 and 15 m doses.

In the evening the patient was decidedly better, and though the pulse was scarcely perceptible he passed a comfortable night. On March 1st the temperature had fallen to normal, and it was thought that there was a distinct improvement in the general condition. The leg, however, was rapidly becoming gangrenous, and thus the question arose whether it was not advisable to take advantage of the improvement to remove the limb. It was decided to do this. The operation was performed at 11 a.m., and the patient stood it wonderfully well. Within half an hour of its conclusion he was sufficiently recovered to take some stimulant. In the afternoon, however, he collapsed somewhat suddenly, and died at 2.30 p.m.

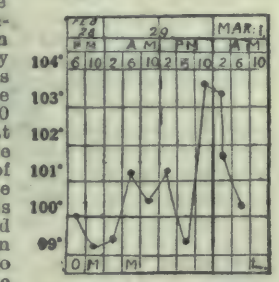


CHART 5.—O, Operation, 7.15 p.m. M, Hypodermic injection, morphine gr. ¼. L, Leg amputated. Saline ʒx, ♁ adrenalin mxv. Died at 2.30 p.m.

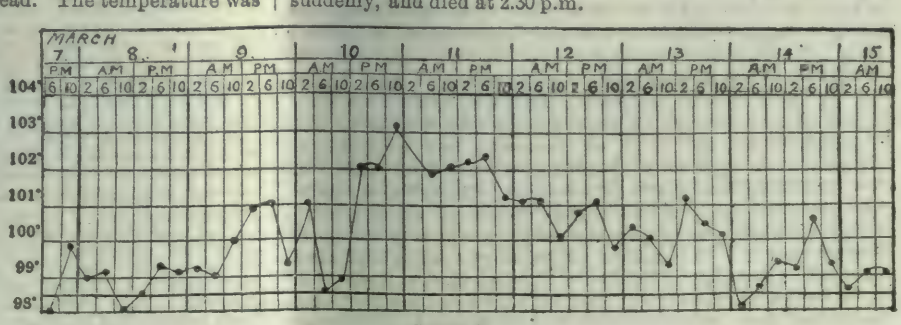


CHART 6.

CASE VIII.

Pte. J. F. (Chart 6). Admitted March 7th, 1916, having been wounded by a shell the same day. There was extensive

laceration on the outer side of the right thigh; the femur was fractured, but the large vessels were not involved. The whole wound was infected with gas, and the muscles were crackling with it. There was also already evidence of commencing gas toxaemia.

The patient was operated upon at 5 p.m. on March 7th. The wound was opened up, the bones were placed in apposition, drainage was secured, and the whole wound thoroughly washed out with eusol. Immediately after the operation 75 c.cm. of eusol were given intravenously. There was an immediate reaction; the pulse rising within the following three hours to 140.

On March 8th there was some evidence of gas on the inside of the leg, but no sign of a spreading condition. By 10 a.m. the pulse had fallen to 108, but in the evening it rose again to 140. The limb was dressed every four hours, day and night.

On March 9th the condition in the morning was somewhat better, but during the evening a relapse took place. Sickness came on, and there was suppression of urine. Two pints of saline were administered subcutaneously during the day, and a similar quantity during the following night. The patient received two ounces of champagne every four hours.

On March 10th the condition was much improved in the morning; the temperature fell to normal, but in the afternoon again reached 103° F. The general condition was, however, good. The patient complained of pain in the left axilla, at the site of the last saline injection. On March 11th and 12th the general improvement was maintained, the temperature falling steadily.

On March 13th an abscess in the left axilla was opened, and a quantity of thin, foul-smelling pus was evacuated. Unfortunately, however, by an oversight, it was not examined.

Thereafter the patient made an uninterrupted recovery.

Of these eight cases, three call for special comment. In Case IV, at the time of the operation evidence of the presence of gas gangrene was not present, and therefore treatment by hypochlorous acid was not applied. There is no doubt, however, as was shown by the results of the *post-mortem* examination, that during the ten hours succeeding the operation a gas-producing organism had been at work in the brain. The rapidity of the fatal issue may to some extent be explained by the origination by the bacterial products of mechanical effects such as so frequently play a part in ordinary infections of the brain and meninges. Case V also presents points of interest. Although from the clinical observations the patient's condition suggested a gas gangrene toxaemia, no evidence of infection with organisms of gas gangrene was available, and we are therefore of opinion that some other factor must have been at work in the patient. In Case VII, although death occurred, there was definite evidence that the treatment with hypochlorous acid had a beneficial effect; in fact, it was the improvement which occurred, and which we attributed to the treatment, that led us to undertake the amputation of the gangrenous limb. We are inclined to attribute the death to the shock of the operation which was performed. Looking at the series of cases as a whole, and excluding Case V, where evidence of the presence of gas gangrene was wanting, and Case IV, in which eusol was not given, we found that in four cases where evidence of serious toxaemia existed improvement and ultimate recovery followed the administration of hypochlorous acid. The other two cases resulted in death, but, as already stated, in one of these definite improvement followed on the treatment which was adopted. Thus there remains only one case in which the failure of the treatment has not been explained.

Our further experience of wounds which become infected with the organisms of gas gangrene confirms the view expressed in our previous paper that the absorption of toxic products from the gangrenous tissues constitutes a serious menace to life. The bacteriological data do not as yet justify the position that the earlier symptoms of a general effect on the body are due purely to the absorption of poisons from the original site of bacterial infection. There can be little doubt, however, that the organisms concerned in the disease do produce definite toxins, as has been shown by the work of Weinberg and Séguin and others. Our experience justifies us in saying that the effects of these toxins can be combated by the use of hypochlorous acid, and when neutralization of these effects occurs the patient's body is in a better position to throw off the infection. The recognition that a patient is suffering from the absorption of toxic products to a dangerous degree must obviously rest upon clinical observations, but we think that those who have had experience in the field will admit that the recognition of a danger point in a patient's condition is possible. The appreciation of an improvement in a patient's state must also rest upon clinical experience. Sometimes it is reflected in a slight rise in temperature, at other times in a rise in the pulse-rate; while in yet other cases an improvement in the general condition and appearance of the patient indicates that the danger from the toxaemia is passing off.

CONVALESCENT PARATYPHOIDAL AND DYSENTERIC CASES CONSIDERED FROM THE PREVENTIVE STANDPOINT.

BY

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LIEUTENANT D. C. ADAM, R.A.M.C., AND R. E. SAVAGE, A.R.C.S., D.I.C.

(Report to the Medical Research Committee.)

THE period of convalescence which follows acute infections presents many features of interest. It permits an insight into the severity of the infection, exhibits the results of the treatments adopted, and provides an opportunity for detecting the persistence of the infective organism and for the segregation of temporary or possible permanent carriers of the infection.

In this laboratory a number of typhoidal and dysenteric convalescents have been examined during the last eight months, and a record of some of the findings and failures may prove of value to other workers.

The cases grouped themselves roughly into three batches. The first extended from September to December, 1915, and contained some acute and subacute infections. The second covered the period from December, 1915, to February, 1916, and comprised cases of early convalescence; while from February to May the men forming the group were to all intents fit again for work.

The main features may be summarized as follows:

Paratyphoid Convalescents.

	No. of Cases.	Bacilli Present in Excreta.	*E. histolytica* Present in
Period I	297	3.7 per cent.	—
Period II	156	1.3 per cent.	10.06 per cent.
Period III	217	None	—

Dysentery Convalescents.

Number of cases	605
Bacilli present in excreta	1.1 per cent.
E. histolytica present in	9.68 per cent.

Methods.

The first investigation carried out in each convalescent case consisted of the (1) estimation of the agglutinin content of the blood, (2) the microscopical examination of the stools, and (3) cultural isolation from urine and faeces. In a number of instances blood films were obtained and counted; the results will form the subject of a further paper.

1. The agglutinin estimations furnished data for confirmatory diagnosis and indicated the method of enrichment which should be adopted in the examinations of the excreta. They were carried out to their end titre in each instance and included tests for *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, *B. dysenteriae* (Shiga and Flexner types). The macroscopic method and the Oxford standardized emulsions, supplied by the Medical Research Committee, were used throughout. Incubation at 52° C. in a moist atmosphere for two hours was followed by standing at room temperature for twenty hours. The results were then read off and checked by a second worker.

2. The microscopical examination of the stools was carried out on the lines recommended by Wenyon and a record kept of all the protozoal forms observed.

3. For the isolation of bacteria three comparative methods were used:

(*a*) *Enrichment Period*: September to November, 1915.—The stool was emulsified and added to brilliant-green peptone solutions after Browning and his co-workers, or to dulcite peptone when the agglutinations indicated a *paratyphosus* B infection. After twelve to twenty-four hours' growth, warmed bile-agar and endo plates were spread. Twelve to twenty-fours later suspicious colonies were picked off and transferred to tubes containing glucose, or mannite, lactose, dulcite, gelatine, milk. Those giving typical reactions twenty-four hours later were agglutinated with specific serums, and when the result

was positive were put through the fermentation reactions now deemed necessary for their identification. It was found and confirmed that when time pressed the agglutination could be carried out in the glucose growth, instead of waiting for a sub-culture in broth. Late in the day some of the agglutinations were carried out in hanging drops; the reaction, after fixation, was stained and preserved as a record of the test. The urine was centrifugalized, and the deposit was treated in a similar manner.

(*b*) *Non-enrichment Period:* November, 1915, to February, 1916.—The stool was emulsified in 1 c.cm. of urine and allowed to stand for about an hour. From the upper portions isolations were made on warmed bile-agar and endo plates. After twenty-four hours suspicious colonies were transferred to tubes of glucose, mannite, and lactose. Twenty-four hours later, agglutination was carried out on those yielding the necessary reactions, motility, etc.

(*c*) *Incubation of Urine Period:* February to May, 1916.—The urine was incubated at 37° C. for twelve hours. It was then isolated on one-third of a bile-agar and an endo plate. The faeces were emulsified in normal saline and cultures made from the upper layers on the remaining two-thirds of the plates used for the urine. After twelve to twenty-four hours' growth suspicious colonies were transferred to glucose, lactose, and mannite. Those giving typical results were subcultured on agar slopes. Twelve hours later atypical growths were discarded; possible positives were agglutinated.

While these methods were being tested many suggestions were put forward by various workers which were felt worthy of adoption. When, however, a laboratory is dealing with over a hundred stools each day, and working in sections upon varied processes, it is better to follow out a preconceived plan than to change familiar and well tried methods. This may perhaps be understood by those who have proposed modifications of existing methods as a reason for our lack of employment of their suggestions. At the same time we should like to acknowledge our indebtedness to the work of Henderson Smith, Ledingham, Penfold, Western, Dreyer and Ainley Walker, and many others.

The collection and disposal of the excreta occasioned many experiments in order to diminish the risk of infection to partly trained assistants. Finally, it was concluded that the stools should be obtained in wide-mouthed, covered jam jars or glass dishes, so that a considerable amount of the material could be inspected for selection of suitable portions for examination. After the laboratory work was concluded the faeces were transferred in bulk, by scraping the inside of the jars with flat pieces of wood, to buckets containing strong eusol solution, and allowed to stay in this for an hour before being poured down the drains. The partly cleaned jars were then boiled in a strong solution of soft soap for an hour, and finally rinsed in several changes of cold water. Throughout these processes the women workers wore oilskin aprons and rubber gloves. Both aprons and gloves were disinfected after use.

The results which have been obtained are as follows:

Brilliant Green and Dulcite.		No. of Cases.	Average Weeks of Disease.	Infective Bacteria Present.
	Positives.			Per cent.
A. Enrichment Period:		297		
B. paratyphosus A ...	4 cases		4th to 12th week	3.7
B. paratyphosus B ...	6 ,,			
B. typhosus	1 case			
B. Non-enrichment Period:		156		
B. paratyphosus A ...	1 case		5th to 20th week	1.3
B. paratyphosus B ...	1 ,,			
C. Incubation Urine Period:		217		
B. paratyphosus A ...	0		5th to 25th week	None
B. paratyphosus B ...	0			

The figures indicate the value of enrichment methods, but the enrichments must not be appraised too highly, as they were used in the early stages of the disease, when a larger percentage of positives would be expected. It has also to be remembered that they entail much extra work, and are difficult to arrange for in laboratories working at high pressure with depleted staffs and restricted apparatus. When a worker has employed the same non-enrichment method for long periods, he obtains results approximately equal to those of the enrichment methods, while the number of repeated examinations demanded by the current regulations protects from any gross omissions.

We may now consider in turn some of the findings we have recorded. First, it is convenient to state the results of some of the protozoal series of examinations.

Protozoa.

Although it was realized that the whole of the cases coming to hand with dysentery and other diseases were drawn from the Mediterranean area, I failed at first to appreciate that it would be necessary to examine for protozoa in conditions other than dysenteric. It was not until the middle of November that the excreta from paratyphoidal and other patients were subjected to more than bacteriological examinations. The following figures present roughly the findings in several series:

Dysentery cases	*E. histolytica* present in 9.68 per cent. (605 cases).
Paratyphoidal cases	*E. histolytica* present in 10.06 per cent. (581 cases).
Other conditions:	
Wounds, trench fever, etc. ...	*E. histolytica* present in 1 case (5 cases).
Dépôt paratyphoids	*E. histolytica* present in 5 cases, 21.7 per cent. (23 cases).

These results convey the fact that in convalescents from dysentery, paratyphoids, typhoids, and probably from other conditions, there was protozoal infection to an equal extent. An emphasis is lent to this appreciation from the examinations of men who had arrived at their dépôt for their final clearance examinations for enteric and paratyphoid fevers, and had to be detained because of the presence of *E. histolytica* in their stools.

The types and percentages of other protozoa are shown in Tables A and B, which represent two series of cases.

TABLE A.

Number and Percentages of Protozoal Parasites from January 19th to March 31st, 1916.

	Total Cases.	Percentage.
	311	100.0
Nil	164	52.7
E. histolytica cysts	11	3.6
E. histolytica cysts + *E. coli* cysts ...	13	4.3
E. histolytica cysts + *E. coli* + *Lamblia intestinalis* cysts	11	3.6
E. histolytica cysts + *E. coli* cysts + *Tetramitus mesnili*	1	0.3
E. histolytica cysts + *Lamblia* cysts	2	0.6
E. coli cysts alone	75	24.1
E. coli cysts + *Lamblia* cysts	9	2.9
Lamblia cysts alone	22	7.1
Total with *E. histolytica* cysts ...	41	13.2
,, ,, *E. coli* cysts	112	35.2
,, ,, *Lamblia* cysts	45	14.5
,, ,, *Tetramitus*	2	0.6

TABLE B.

Number and Percentages of Protozoal Parasites during April, 1916.

	Total Cases.	Percentage.
Paratyphoids ... ... 75 Dysenteries 2	77	100.0
Nil	42	54.5
E. histolytica cysts	1	1.3
E. histolytica cysts + *E. coli* cysts ...	6	7.8
E. histolytica cysts + *Lamblia intestinalis* cysts	1	1.3
E. coli cysts alone	20	26.0
Lamblia cysts alone	6	7.8
Trichomonas	1	1.3
Total with *E. histolytica* cysts ...	8	10.4
,, ,, *E. coli* cysts	26	33.9
,, ,, *Lamblia* cysts	7	9.1
,, ,, *Trichomonas*	1	1.3

Table A gives the total results of a series of mixed dysentery and paratyphoid cases, and Table B those obtained from a batch of paratyphoidal infections.

The comparison shows that in both the mixed and paratyphoid series of examinations made on convalescents for purposes of clearance about 53 per cent. were free from protozoal indications, while in both lots the percentage of *E. histolytica* and *coli* were similar.

The Disappearance of E. histolytica from Faeces.

The average time required for three consecutive negative findings was 22.9 days, but one case has yielded positive findings for 125 days already. The details of the results of treatment are purposely postponed for the present.

The question whether the number of negative results required before the patient is considered free from protozoa is sufficient from the standpoint of the patient and the prevention of transmission is one which can be settled only by the consideration of a mass of figures. In this connexion, however, we have been impressed by the fact that, in the application of the final dépôt or regimental tests, which are carried out prior to the return of the convalescent to active work, we found that no less than 21.7 per cent. passed stools containing *E. histolytica*, and that all of these occurred in men who had been sent to us as enterics. How far these were men who had escaped protozoal examination in manner like to our own defect, or were examples of the recurrence of the protozoon after three negatives had been obtained, we have no data to go upon.

Serology.

In another communication we have stated the evidence which permitted the statements:

1. That in 268 inoculated men free from enteric manifestations—

	Weeks since Inoculation.
Negative agglutination results were found in 2.4 per cent.	1 to 80
Up to 65 units (roughly 1 in 250) were found in 62.4 per cent.	1 to 80
Up to 150 units (roughly 1 in 500) were found in 19.5 per cent.	1 to 80
Up to 350 units (roughly 1 in 1,250) were found in 5.1 per cent.	1 to 80
Over 350 units (1 in 2,500 to 1 in 5,000) were found in 4.6 per cent.	1 to 80

2. That in the presence of paratyphoid agglutinins the typhoid inoculation agglutinin is raised, the rise being greater in the case of paratyphoid B than in that of paratyphoid A.

3. That a series of absorption determinations in 46 convalescent cases during the first to the nineteenth week of disease, and during consecutive weeks in acute and subacute cases show this rise to be distinct from any group or coagglutinin influences, and to be specific for each organism. That the inoculation agglutinin may prove to exhibit essential features of its own and to be free from the group agglutinative characters associated with infective agglutinins.

4. That absorption experiments confirm the statements of Harvey, Grattan and Wood and Dreyer that an agglutinin estimation carried out by the macroscopical method yielding a positive result for paratyphoid organisms as low as 1 in 25 may be taken as diagnostic of the disease.

5. That in paratyphoid A fever the agglutinin titre may in some instances be lower than 1 in 25, when absorption determinations may be called for.

6. That pyrexias or other diseases and conditions do not exert any inhibitory influence upon the inoculation agglutinins.

While there is every reason to be satisfied with the indications afforded by agglutinin estimations in paratyphoid fever, supported as they have been by blood cultures, bacterial isolations from excreta and absorption values, the same cannot be accepted for the agglutinins in dysentery conditions. Ledingham, Arkwright, and others, have shown that the serums of healthy men may agglutinate some strains of Shiga bacilli up to 1 in 50, and it is common knowledge that Flexner's bacilli may show clumping with the lower dilutions of the majority of serums examined. In our estimations, therefore, we have adopted 1 in 125 as the lowest titre which should be taken as a positive in Shiga dysentery, and 1 in 2,500 for the Flexner variety. The emulsions used for the dysentery estimations contained 3,000 millions of bacteria per c.cm., and were prepared from one to five strains of organisms, chiefly those isolated from the 1915 lot of cases. With those reservations, the results are as follows:

Enteric Cases.

	No. of Cases.	Positive Agglutinations. Per Cent.	Remarks.
A.—*B. typhosus*	7	1.21	6 not inoculated.
B. paratyphosus A	132	22.72	
B. paratyphosus B	249	42.85	
B paratyphosus A and B...	5	0 85	
B.—*B. paratyphosus* A + Shiga	7	1 21	
B. paratyphosus B + Shiga	10	1.72	
B. paratyphosus A + B + Shiga	1	0.17	
B. paratyphosus A + B + Flexner	1	0.17	
C.—No infective agglutinins ...	169	29.09	Inoculation agglutinins present in all.
	581	100.00	

The number of cases which failed to show the presence of agglutinins other than those due to inoculation is in excess of the average under ordinary conditions. In none of them, however, was a typhoidal organism isolated from the faeces or urine. From the agglutinin standpoint they were returned as non-enteric, after every known means had been exhausted for further differentiation. Bearing in mind that these cases had exhibited symptoms of enteric fever, they could not be dismissed lightly, although 10 per cent. of them showed heavy infection with *Entamoeba histolytica*, 22 per cent. with *Entamoeba coli*, and 9 per cent. with *Lamblia intestinalis*. It was felt, therefore, that from the standpoint of statistics their inclusion as cases of definite typhoid fever would detract from a general confidence in the final results, and that the placing of these and similar cases in a class by themselves would be called for, unless precise bacteriological evidence was forthcoming from some earlier examinations. We have noted elsewhere that differential leucocyte counts afford some indications of value in laboratory diagnosis in similar cases.

The findings in 630 cases of convalescent dysenteric cases are as follows:

Dysenterics.

	No. of Cases.	Positives. Per Cent.
A. Amoebic Type:		
E. histolytica	56	
E. histolytica + Shiga bacilli		9.68
E. coli	113	17.94
B. Bacillary Type (Agglutinins):		
B. dysenteriae Shiga...	137	21.75
B. dysenteriae Flexner	7	1.10
B. dysenteriae Shiga + Flexner	2	0.31
C. No protozoa or agglutinins...	310	49.22
	630	100.00

Bacteriology.

The object of this part of our work is the detection of carriers. Hence it was necessary to determine whether we had to deal with temporary or permanent carriers, and to discover whether the infective organism was passed in the urine or the faeces.

In the batches examined we have had to deal chiefly with the temporary type. Once we have found paratyphoid B in the urine; once the urine has contained *B. typhosus*. The following table shows the week of disease in which the bacteria were isolated and the date of disappearance from the onset of the attack. No special form of treatment was required.

TABLE C.

Positive Findings in Typhoid and Paratyphoid Convalescents.

Week of Disease.	Week Since Inoculation.	Agg'utinin Units.		Seat and Type of Bacilli.		Date of Disappearance from Onset of Attack.
		Typhoid.	Paratyphoid.	Faeces.	Urine.	
4th	39	1250	9260	+ B	—	8 weeks.
4th	30	29	120	+ A	—	8 weeks.
5th	12	625	920	+ B	—	6 weeks.
5th	34	580	200	—	+ B	8 weeks.
6th	39	125	460	+ B	—	—
6th	39	106	36	+ A	—	9 weeks.
6th	55	60	1852	+ B	—	9 weeks.
7th	16	60	185	+ B	—	8 weeks.
8th	48	106	19	+ A	—	10 weeks.
8th	52	12	60	+ T	+ T	12 weeks.
9th	43	125	925	+ B	—	13 weeks.
12th	18	8	143	+ A	—	15 weeks.
12th	16	20		+ B	—	15 weeks.

TABLE D.

Positive Findings in Bacillary Dysentery Convalescents.

Week of Disease	Date of Disappearance of Bacilli.	Type of Bacillus.	Week of Disease.	Date of Disappearance of Bacilli.	Type of Bacillus.
5th	8 weeks	Shiga	9th	11 weeks	Flexner
8th	10 weeks	Flexner	9th	12 weeks	Shiga
8th	11 weeks	Shiga	11th	13 weeks	Flexner
8th	11 weeks	Shiga	11th	14 weeks	Flexner

It is a pleasure to thank Lieutenant-Colonel Paul Bush and the staff of the 2nd Southern General Hospital for their assistance in the collection of specimens and their courtesies in placing much information at our disposal. We are also indebted to the Medical Research Committee for the provision of skilled assistance in the protozoological part of the work, and to the Colston Research Committee for the use of their special apparatus.

TREATMENT OF SCABIES BY SULPHUR VAPOUR.

BY

MAJOR JOHN BRUCE, R.A.M.C.(T.),

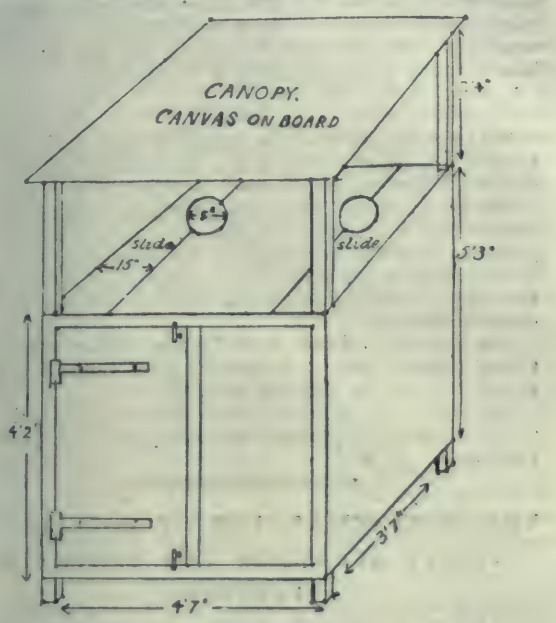
AND

CAPTAIN STANLEY HODGSON, R.A.M.C.

ABOUT twelve months ago, while our field ambulance was in charge of a reception hospital for a division, we were called upon to deal with a considerable number of cases of scabies. As ordinary treatment by sulphur inunction is slow, usually taking from seven to fourteen days, we endeavoured to find some method which would be simple, swift, and efficacious. We have given sulphur dioxide gas a trial for twelve months, and have found it meet our requirements. The method of treatment and the apparatus required are as follows:

1. *Cabinet.*

The cabinet is constructed on the lines of a "home Turkish bath," and is made of ½-in. tongued and grooved match-boarding on a framework of 2-in. timber. It is intended to accommodate two patients at once. The dimensions are: Front, 4 ft. 7 in. by 4 ft. 2 in.; sides, 3 ft. 7 in. by 4 ft. 2 in.; the back is 5 ft. 3 in. high. As it is necessary for the cabinet to be used out of doors, we provided a canopy over it 2 ft. high, covered with canvas so as to protect the patients from sun or rain. The apertures for the head must be small—about 5 in. in diameter. The outer portions of the roof are movable, and capable of being adjusted after the patients are placed in position. The inside of the cabinet is lined with thick brown paper, and the roof junction with felt to prevent escape of vapour. One door is sufficient—it must



fit closely. The seat provided for the patients consists of three narrow cross-bars placed 30 in. above the floor level. If made of one piece of wood the buttocks and nates would escape the action of the fumes. The cabinet must be placed near the bath-house.

2. *Method of Procedure.*

The patient is given a hot bath, allowed to soak for five minutes in the water, then well rubbed with soap—either soft or ordinary yellow bar—and the skin scrubbed to open the burrows. The patient is then transferred to the cabinet, placed on the seat with the head protruding through the aperture in the roof and the sliding board adjusted. A wet towel is applied round the neck to prevent escape of fumes, a sulphur candle placed in the corner of the box is lighted, and the door closed. An orderly must remain constantly in attendance so as to remove the patient at once should he show signs of faintness or develop any difficulty in breathing from escape of fumes. At the end of fifty minutes the lid is quickly removed, and the patient returns to the bath-house, where he puts on clean and warm clothing. Sufficient air to keep the candle burning will find its way through the cracks around the door.

3. *Clothes.*

It is necessary to send with the patient all his kit, every article of clothing that he possesses, his blankets, his palliasse and pillow. If a Thresh or steam disinfector be available, all suitable articles can be treated by steam. We used the portable disinfecting box with small boiler for several months, and found it very efficient. If none of the above is available it would not be difficult to construct a box or chamber and have steam let into it by a flexible metal pipe from a large kettle, boiler, or oil drum. When we had only one patient to deal with, his clothes were hung in the cabinet and treated there at the same time with the sulphur vapour. Boots and other leather articles can be treated with formalin spray.

The sulphur candle which we found most suitable was the Jeyes' sulphur candle (large). A quick-burning candle with a large wick gives off too irritating a vapour, and the patient is unable to stand the treatment for more than thirty minutes. There is a tendency under these circumstances to produce troublesome erythema.

No antiseptic should be added to the bath, as it may produce irritation of the scrotum, axilla, and other parts where the skin is tender. If properly administered with the above precautions there should be no feeling of discomfort—rather the reverse. We have had patients asking

for a second dose of the box because of the relief afforded. A slight general desquamation often follows the treatment. Freedom from itching is immediate. For example, we treated one man from the Expeditionary Force who had been suffering from the disease for two months, and the next day he told us that the luxury of a long night's sleep, without scratching, had been perfect bliss! In very cold weather we occasionally put a small paraffin stove in the box to warm it before putting in the patient.

Results.

We have treated over two hundred cases, and have had about 2 per cent. returns, and in these cases we think some article of clothing had escaped disinfection and thus reinfected the patient. The cases giving the best results were those which had not been under any other treatment. The great merit of the treatment is that cases can be returned to their unit on the same day as received and resume duty next day. We have treated in one box as many as twenty cases in one day.

The box we used was made by one of our non-commissioned officers, Quartermaster Sergeant Colecliffe, from a sketch supplied by Captain Hodgson.

Our thanks are due to Colonel Roocroft, V.D., A.D.M.S. of the Division, for permission to carry out the experimental treatment.

THE ECONOMICAL USE OF SOLUTIONS OF COSTLY ALKALOIDS FOR OPHTHALMIC PURPOSES.

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OPHTHALMIC SURGEON TO THE WEST LONDON HOSPITAL AND THE WEST END HOSPITAL FOR NERVOUS DISEASES.

SOLUTIONS of cocaine and homatropine are sufficiently costly at any time to render a method for their better preservation and economical use worthy of note. At the present time their cost is such that economy is more than desirable—it is a necessity.

For the past four years I have had in use, both in private and hospital practice, solutions of the various alkaloids required for eye work made up with minute quantities of antiseptic drugs, which in combination appear to have a more satisfactory effect in the preservation of the solutions than others in common use; these small quantities of drugs can be added to the solutions of the alkaloids without objectionable effect. The drugs are well known, easily obtained, and in the quantities used negligible so far as cost is concerned. A stock bottle of "ophthalmic solvent" is kept in the hospital dispensary, and as solutions of cocaine, etc., are required the stock bottle of solvent is drawn upon instead of the bottle of distilled water. The solvent is made up as follows:

Distilled water	1 pint
Methyl sal cylate	2 grains
Oil of gaultheria	2 minims
Tincture of iodine	2 minims

The mixture is well shaken, poured into a stoppered bottle, and left for forty-eight hours, when it is ready for use. Different quantities of the drugs have been tried; the above proportions are those which are sufficient for preserving the solutions from contamination without producing objectionable effects in the use of the solutions. The solvent smells like a chemist's shop, but it is not unpleasant. When solutions made up in this fashion, and those prepared with distilled water only, are used for the purpose of comparison on one's own eyes, or on those of a patient, the only difference that can be detected between the two lies in the slightly increased sting produced by the instillation of the antiseptic solution, but the difference is so little that it is no bar to its use in practice. When it is desirable to do away with this slight sting, as, for example, in anæsthetizing the eye of a nervous patient preparatory to an intraocular operation, a sufficient quantity of the antiseptic solution of cocaine may be poured into a test tube and heated in the sterilizer, the preservatives being volatile are driven off, the solution no longer smells, and the sting is reduced.

The advantage in economy presented by the use of this preservative is great. Solutions of cocaine are notorious for the readiness with which moulds grow in them, but since using these preservatives on no occasion have I found a bottle contaminated. Last month a bottle which had been in use in the out-patient department for three months was sent to the pathological laboratory for examination by cultures. The bottle was an ordinary wide-mouth, glass-stoppered bottle of half an ounce capacity, the mouth measured 1 in. in diameter. Some of its contents had been drawn off with a pipette for use on many occasions, and not infrequently the bottle had been left open during the course of an operation. The pathologist reported that all the cultures made from the solution were sterile.

Viscid Solutions.

Solutions that have such a consistency that they can be lifted on thin rods are much more economical than solutions of the consistency of water. A minimal quantity of the viscid fluid can be lifted and inserted within the pouch of the lower lid with certainty; the watery solution has to be dropped in with a pipette, and much of it may overflow the lids. Further, it is found that viscid solutions spread over the whole surface of the conjunctiva rapidly, and cling thereto, so that they are absorbed at all points and the effect is maximal. For this reason solutions of the pure alkaloids in castor oil have enjoyed a considerable popularity, particularly the solution of homatropine and cocaine, 2 per cent. of each, for the purpose of securing cycloplegia before retinoscopy. Recently the dearth of the pure alkaloids of homatropine made a return to the use of the homatropine hydrobromate necessary. The salt cannot be dissolved in oil, and the unsatisfactory nature of the watery solution in waste and uncertainty of operation was in marked contrast with experience of the oily solution of the pure alkaloid.

To get over the difficulty the dispenser was asked to prepare solutions of the salt with the stock preservative, and then thicken the solution by the addition of gum arabic until the fluid was so viscid that it would cling in a fair round drop on a small lacrymal probe. He found that the effect could be obtained by making the mucilage about eight times the normal strength. The solution formed is slightly turbid, but it is found to be quite as effective in use as the clear oily solution. Gummy solutions are very satisfactory media for the growth of moulds, but it has been found in practice that the preservative drugs used in the solvent are quite efficient in keeping the solutions free from growths. A bottle that had been in use for two months in the out-patient department was sent to the pathological laboratory at the end of an afternoon's work. The bottle was of half-ounce capacity, with a mouth one inch in diameter; of the original quantity very little remained—somewhat less than half a drachm. The bottle had stood open on the desk for three hours just before the cultures were made, and during that time a succession of patients had passed and repassed the desk, and received their doses therefrom. The pathologists reported that the cultures were sterile at the end of twenty-four hours, but that after forty-eight hours a growth of the hay bacillus was found. The test was severe. The bottle had been long in use; it had been open during the work of the clinic two or three times a week for six weeks, so that some of the preservative must have evaporated, and the innumerable dips into the bottle gave every chance for contamination.

It is found that cocaine, atropine, eserine, homatropine, and homatropine with cocaine are equally effective in this gummy solution, and the economy of their use is noteworthy.

DR. KENNETH DOWS, of New York, has given £19,000 to Johns Hopkins University, Baltimore, for the investigation of tuberculosis and the provision of better teaching in the recognition and management of the disease.

NOW that so many among us are learning Russian, a short list of the most important newspapers, periodicals, and trade journals published in that language which has recently been issued by Messrs. Neyroud and Sons, Limited (Regent House, Kingsway), may be useful. Eleven medical journals are included in the list; the weekly *Vratchebnaia Gazeta*, published at Petrograd, described as the leading Russian medical journal, is stated to have a circulation of 16,000 weekly.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

DORSET AND WEST HANTS BRANCH.

The summer meeting of the Branch was held at Weymouth on July 19th, when the President, Dr. W. H. L. Marriner, was in the chair.

The Treatment of Phthisis.

Dr. J. Miller, in opening a discussion on this subject, said he proposed to deal with it from the point of view of the working classes. The mortality from the disease was 1 in 10. He referred to the difficulties of treatment among the working classes owing to (1) overcrowded houses; (2) overcrowding in the house; (3) dirt; (4) want of intelligence; (5) difficulty in arranging for domestic matters if the husband, or worse still if the wife, were sent away; (6) limited accommodation available in sanatoriums; (7) financial difficulties. He advised that every early case should be sent to some sanatorium. He urged the value of sanatorium treatment for educational purposes, and outlined the treatment to be carried on at home after leaving the sanatorium. He was strongly in favour of patients wearing an inhaler constantly, and showed one of the pattern he used. For the inhalation he usually prescribed ac. carbol. pur. ʒ ij, creosote ʒ ij, chloroform ʒ ij, iodine ʒ j, sp. aeth. ʒ j. He had found that the use of the inhaler reduced the cough and temperature, and instanced two cases, one advanced, with a fairly large cavity, and the other early, in which its use had been followed by recovery and the patients' return to work. He had been disappointed with the results of tuberculin and thought it positively dangerous in cases of mixed infection or high temperature. He was strongly of opinion that phthisis should be treated by isolation in the same way as any other infectious disease. For this legislation was required, but would not be forthcoming until a united profession insisted upon it.

The President remarked on the value of graduated exercises in the treatment of phthisis.

Dr. Hyla Greves urged complete isolation as the only satisfactory way of dealing with the problem. He commented unfavourably on the use of tuberculin, which, he said, was now rarely employed at the Royal National Sanatorium at Bournemouth. He emphasized the importance of skiagraphy as a means of diagnosis, especially in the peribronchial form, which, he said, commences at the hilus, and might spread throughout two-thirds of the entire lung without giving rise to any objective signs. He warmly advocated treatment by artificial pneumothorax in cases that failed to respond to all other methods of treatment, provided that the other lung was sound, or, if affected, that the disease was not in an active stage. An *x*-ray photograph should be taken in all doubtful cases. The peribronchial cases were, he said, specially suitable for the performance of artificial pneumothorax, owing to the absence as a rule (unless the disease had advanced so far as to affect the pleura) of pleuritic adhesions. In the more ordinary cases of apical disease he advised the performance of artificial pneumothorax as soon as ulcerative processes developed, for the reason that, in these cases, the opposite apex was usually affected soon after, and the prognosis for any form of treatment was then much worse. As these cases developed rapidly they should be treated early. He instanced some very successful cases in his own practice treated on these lines. He also noticed favourably the treatment by nascent iodine, which, he said, often gave good results when other methods had failed.

Dr. Midelton advised treatment by tuberculin, and expressed the opinion that failures were due to faulty technique or to a too timid administration. He himself used a bovine tuberculin, and gave comparatively large doses twice weekly; he was satisfied with the results.

Dr. Johnson Smyth had not seen a single case that had done well under tuberculin. With regard to treatment by artificial pneumothorax he suggested that the nitrogen injected might have some beneficial effect, apart from the mechanical influence it exerted, on the tuberculous process, and proposed this as a possible fruitful field of inquiry. He quoted some cases that had done well on the uric acid treatment as supporting the clinical observation that gout and tubercle were rarely if ever coexistent in the same patient.

Enterostasis.

Dr. W. J. Midelton then read a paper on enterostasis, its causes and treatment. He called attention particularly to the neuro-muscular element of the intestine, and emphasized his belief that disease of this and other portions of the nervous system was a greater factor in the production of enterostasis than bands and kinks. He thought that disease of the brain, spinal cord, nerve branches and plexuses were often produced, and always seriously contributed to, by germs and toxins wandering from gross septic foci, such as teeth sockets, the appendix, etc., and also from thousands of small foci in fibrous tissue, minute terminal blood vessels, and elsewhere. He deprecated the blind use of drugs or other measures for the treatment of enterostasis and earnestly advocated thorough investigation of every case as far as possible by all available means, including bismuth meals and *x* rays. He had found continuous counter-irritation a valuable means of eliminating germs and toxins from the small foci and tissues generally. It was also efficacious in restoring the integrity of the brain, spinal cord, and all other parts of the nervous system. He had found thyroid extract a valuable adjunct, but warned against the use of large doses unless they were strongly indicated. He had found half a grain once a day a sufficient initial dose in some cases. Other useful remedies were liquid paraffin, agar-agar, and certain seeds such as flax seed.

Hey Groves's Splint.

Dr. Sanderson Wells gave a demonstration of the use of this splint in compound fractures of the lower limb. It was a modification of Hodgen's thigh splint, and allowed (1) free access to the wound and the application of *x*-ray photography without disturbing the patient, (2) easy application of extension, and (3) moving of the patient without pain or inconvenience.

Ruptured Spleen.

Dr. J. Miller read notes and showed a case of spontaneous rupture of the spleen in a syphilitic patient. The case had been most successfully treated by splenectomy.

Reports of Societies.

MENTAL DISABILITIES FOR WAR SERVICE.

At the seventy-fifth annual meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the rooms of the Medical Society of London on July 27th, when Lieutenant-Colonel David G. Thomson, M.D., President, was in the chair, Sir George Savage read a paper on this subject. He said that though he did not wish to protect shirkers, he desired to avoid sending into the army men who were almost certain to break down under training, or when they arrived at the front. He had met many doctors who acted on the idea of giving the men a chance. He granted that sometimes a complete change in mode of life might convert a hypochondriac into a useful worker, but in taking a risk one must see on whom the risk fell. He saw at one hospital numbers of men who ought never to have been accepted, men who involved much trouble and anxiety as well as cost to the nation. He had been consulted by many former patients and their relatives as to their fitness for military service. When men had had at least one attack of insanity hereditary predisposition must influence judgement. It was his practice to oppose the enlistment for active service of any young man with a direct insane inheritance who had had one marked attack of mental disorder within a few years if such disorder had needed detention. Some of these men were quite suitable for home or munition work. In these cases the previous breakdown was usually unknown to the man's employers or associates, who therefore dubbed him a shirker or a coward. He had seen several people who were becoming unstable because they had been made to feel the mistrust of other people. In some it seemed a lesser danger to allow them to enlist, on account of the fear, otherwise, of their developing delusions. In some the struggle to

decide as to what was their duty had led to various forms of functional mental disorder. One case formerly seen for adolescent mental weakness, with inability to concentrate in training for a profession, experienced a return of the old symptoms when the question of enlistment arose. There had also been a recurrence of symptoms of mental disorder in so-called shock cases, and his opinion was that none of these cases should be allowed to return to duty under six months. A class of case which he usually allowed to run the risk of enlisting was that in which the young man had shown, earlier in life, a great weakness for lying and pilfering, for which no treatment seemed to do good. It was possible such men might make good fighters. Cases of homosexuality, and of undue attachment to companions, sometimes with depression and suicidal tendencies, were very difficult. It was interesting to recognize a form of functional epilepsy which might follow shock or injury. He had seen men who, as the result of psychic strain or shock, lost consciousness for short periods, and though when removed from the strain they recovered, yet they relapsed when sent back to duty. He was confirmed in his opposition to the enlistment of inveterate somnambulists. His experience had included some peculiar cases of obsession. One case was that of a manufacturer who, since a railway accident in which he happened to be, had never travelled in a train and had a dread of doing so. His mother was in an asylum, and Sir George opposed his enlistment. A large and important class was the syphilitic, including the general paralytic, the ataxic, and some para-syphilitic cases. Very many cases of early general paralysis had occurred in the army, and the anxious life was well calculated to start the more active symptoms. No man with a clear history of nerve degenerative symptoms related to syphilis should be allowed to enter the army; but in some of the cases the symptoms were recent, and these, after suitable treatment, might be allowed to enter the service.

Dr. Percy Smith said that he had met with a number of cases similar to those spoken of by Sir George Savage. Patients with whom he had come into contact, perhaps years before, had come recently to know from him what was the right course for them to follow. In some, worry about the war and the new requirements had brought a return of their former symptoms, and in most of them he did not hesitate to say the men ought to be exempted. Medical officers of the army who did not know the history of the man, and might not have had any special knowledge of mental disorder, did not recognize that men who looked physically fit might yet be very unfit for the army, because they would soon break down. Certainly no case of epilepsy ought to be allowed to enter the army. Some had got in and had been made much worse. He related several cases in his own experience. One man, aged 45, though he had been neurotic always and more or less an invalid, joined the Anti-aircraft Corps. He was put on to search-light duty, with the result that he had acute insomnia, great depression, and a suicidal tendency. A young man, aged 23, whose father was insane, was given a commission, and only a week afterwards broke down and attempted suicide. Yet he had been refused permission to declare sick. His depression was followed by acute delirium. Homosexual cases had been made worse by being in the army. Some men had suffered severe strain by the feeling that they were not doing their share, yet they were mainly manifestly unfit.

Dr. G. E. Shuttleworth said that during the course of the war he had seen some men who were originally feeble-minded boys, who were brought to him recently with the view of being certified as unfit for military service. He did not so certify them straight away on that mere fact, because in the South African war some reputably feeble-minded boys made, when they grew up, very good soldiers. He was acquainted with the figures for the special schools in London and Birmingham, and in 1915 it was reported that 70 had joined from the London schools and 100 from Birmingham. There was something to be said in favour of institutional children, because they had had a good deal of drill and were prompt in carrying out commands; moreover, the army discipline was likely to do much to keep them straight if they had sufficient nerve force to stand the incident shocks and strains. Careful judgement was required, especially in regard to the more anxious parents in better social positions. Cases of moral imbecility were interesting, but very difficult to group. One boy developed, at puberty, a great leaning to lying and stealing, though he had been very straitly brought up. He enlisted, and in Flanders was constantly in trouble. Dr. Shuttleworth wrote to his officer, giving a history of the boy, and the result was that he was discharged. He had had his measure of punishments, but there was no benefit.

Dr. Seymour Tuke said that applicants who had a pronounced neurotic history should be treated with suspicion. One such man was in the South African war, and on his return developed such a ready speech that he was put on to recruiting. During this work he became increasingly excited, and was now the subject of subacute mania. There was an old history of tubercle, otherwise he was a strong man.

The President thought it difficult to lay down definite principles. Those in charge of war hospitals saw the results of admitting persons to the army who had suffered mentally, or who at least were potential lunatics. It was interesting to compare the attitude in early war days with that of the last few weeks. When volunteering in the earlier days it was the custom to suppress family and personal facts which seemed against the individual, and the results were seen in the hospitals to-day. To-day men wanted to be exempted because of insanity and all sorts of lesser ills. When asylums had to be vacated in order to make room for war cases there was difficulty in finding room for all the insane patients, and where there was any doubt they were set at liberty. Some of them joined the army, and a number had written asking how their old friends in the asylum were now.

Sir George Savage, in the course of a short reply, remarked that joining the army seemed to have done good to many, seeing that several magistrates had been presented with white gloves owing to the absence of criminal cases.

Other Business.

The President expressed the association's grief at the loss of the following officers: Surgeon George B. Moon, R.N., Second Lieutenant Godfrey Wiglesworth, R.F.C., and a son of Dr. MacBryan. Sympathy was expressed with the relatives of these gentlemen by members rising in their places. He also announced that Temporary Captain G. S. Blandy had been awarded the Military Cross, a fact which gave great satisfaction to the members of the association. At the conclusion of the association's internal business a cordial vote of thanks to the President for his able occupancy of that position for two years was moved by Sir George Savage, seconded by Dr. Percy Smith, carried by acclamation, and briefly acknowleged. The President announced that in the Divisional Prizes competition, for which some admirable papers had been sent in, the first prize had been awarded to Captain H. J. Norman for his essay on the cerebral lesions of Raynaud's disease. He presented that officer with the prize. The second prize was awarded to Dr. David K. Henderson for his essay on katatonia as a type of mental reaction.

Rebiews.

EPIDEMICS RESULTING FROM WARS.

The subject of epidemic disease in time of war is one of the greatest importance, especially at the present time. Any book dealing with this subject, whether from an historical or a practical standpoint, will therefore be read with interest. Dr. Prinzing's *Epidemics Resulting from Wars*[1] belongs chiefly to the historical category. It constitutes one of the volumes issued by the Commission on the Economic and Historical Causes and Effects of War, held in Berne in 1911 in connexion with the Carnegie Endowment for International Peace, the object of which is "to promote a thorough and scientific investigation of the causes and results of war." Hitherto writers on war epidemics have confined their attention to their effects on the armies themselves. The object of the present volume is to study their effect on the civil population. For this purpose the author has selected some of the most extensive

[1] *Epidemics Resulting from Wars.* By Dr. F. Prinzing; edited by H. Westergaard, Professor of Political Science in the University of Copenhagen. Oxford: The Clarendon Press; London: H. Milford. 1916. (Roy. 8vo. pp. 355. 7s. 6d. net.)

epidemics—those which occurred in the Thirty Years' War, the epidemic of typhus after Napoleon's Russian campaign, and the pandemic of small-pox after the Franco-German war of 1870—for the investigation of which the evidence was more abundant and more easily accessible. The epidemics occurring with other wars are dealt with in a more general way. While it might appear that the study of epidemics in former wars is chiefly of historical interest, owing to the great progress of modern medical organization, it must be remembered that a breakdown of this organization would probably be attended by a series of devastating epidemics. In the present war the only serious epidemic reported is that of typhus in Serbia.

As regards venereal disease, which appears to increase in prevalence during war, the only mention made by Dr. Prinzing is that of the historical outbreak of syphilis in the army of Charles VIII of France during his expedition to Naples in 1495, which, roughly coinciding in point of time with Columbus's discovery of America, gave rise to the view that syphilis was introduced into Europe from America. It may be noted that the author does not hold this view, and he points out that numerous instances are known in which infectious diseases, such as cholera, plague, diphtheria, small-pox, and influenza, remain sporadic for a long time and then suddenly become epidemic, irrespective of wars. An outstanding fact in the study of this subject is that until comparatively recent wars the cost in human lives has been greater among the civil population from the spread of epidemics than among the armies themselves, either from wounds or disease. Thus, after the Thirty Years' War it is estimated that Germany lost half its population.

Dr. Prinzing's book is an interesting, if incomplete, study of this important question; it is chiefly of value in showing the dire effects of war epidemics upon the civil population of the affected countries—effects which, at the present day, are only prevented by the progress of medical science and the perfection of military medical organization.

THE TUBERCULOUS PATIENT.

The unanimity of the medical profession as to the value of open air, good food, and cheerful surroundings, as the best means of combating the progress of incipient tuberculosis, is almost complete. The experience of sanatorium managers in all countries confirms it, and the lay mind accepts it—in theory. In practice, however, the hard and fast rules of charitable and friendly organizations and societies have not been modified to meet the demands of the new knowledge. Hence it happens that time, funds, and energy are wasted, and the good that is done on the one hand is systematically and with full knowledge rendered nugatory on the other for lack of the application of the common sense which calls for rational reform. In the form of an appeal to the friendly societies, Dr. P. C. Varrier-Jones[2] of Cambridge has placed the case of the working man with incipient tuberculosis into prominence, and has shown with considerable force how the value of treatment which is now lost may be saved by a more rational system of distributing sick pay. The cast-iron rule that payment to a member of a friendly society must be stopped if he undertakes any work, operates with special hardness in a chronic trouble such as tuberculosis. Sanatorium treatment may bring the progress of the disease to a halt. The patient is discharged and advised to endeavour to live a life as nearly as possible akin to that of which he has experienced the benefit. He requires fresh air, good food, and freedom from mental anxiety for a long time to come. To obtain them he must do a certain amount of open-air work, if he can get it, but, at any rate, work of some sort. But, if he does so, he loses at once the only means by which he can tide over the first few months, and, as a result, he too often falls back and becomes a charge upon others and of no economic value to the community. Dr. Varrier Jones shows that this economic value can be clearly assessed and that a change of method would be advantageous to the friendly societies as well as to their beneficiaries. An introduction by Professor Sims Woodhead gives strong support to the views expressed by the author. The war is gradually teaching us that many of our established rules and customs are quite capable of immediate change when a real need for such change can be shown. It is obvious that a more rational method of after-care of the incipient consumptive is urgently called for and that the teachings of common sense ought to prevail over hard and fast rules that were framed to deal with totally different conditions.

The campaign against tuberculosis is being carried on with great vigour in many countries, including America. In all these campaigns the nurse or health visitor plays a more or less important part, under the direction of the medical authority who lays out the plan of campaign. Miss La Motte has been engaged in combating tuberculosis in Baltimore for ten years, at first as a "field nurse," later as organizer and director of the local anti-tuberculosis battle. She has written a valuable and interesting account of her work in a volume entitled *The Tuberculosis Nurse*.[3] Her duties are defined, the way in which the patients must be reached and approached, the details of the prevention of spread of infection in all its branches, the work of tuberculosis dispensaries, the after-care of the patients, and kindred problems all find their place in the book. To sum up her conclusions in two sentences, it may be said firstly, that the fundamental agencies in the antituberculosis campaign are three—the hospital, the dispensary, and the public health nurse; and secondly, that the simplest and most direct method of controlling the disease is through the segregation—the voluntary segregation—of the tuberculous patient. The book will be valuable to tuberculosis officers and nurses and to all the health workers and visitors who have to deal with tuberculous patients.

Dr. Sylvan[4] holds that the sanatorium treatment of consumption has proved a failure, and that the disease is to be cured by gymnastic treatment and home exercises, ending up with running and swimming. When the phthisical patient is able to run and swim he may start some kind of manual work, such as gardening, for half an hour a day. If the temperature is above 103° F., no exercises should be prescribed, we are told. Dr. Sylvan's exercises appear to be of the usual Swedish type; given to suitable patients under adequate medical supervision, it is unlikely that they would do harm.

FOOD VALUES.

Now that economy is all the rage in every form of national and domestic expenditure, a readable account of *Food Values*,[5] written to satisfy the needs of the ordinary housewife, is a book that should be widely utilized. Here the reader will find set out the calorie values of all the ordinary articles of diet, raw or cooked. In addition, tables are provided showing the calorie values of the dishes that commonly appear on the tables of ordinary households—soups, fish, pies, meats roast and boiled, puddings, sauces, savouries, and the like. Early chapters give excellent summaries of modern and recent views on the amounts of food—protein, fat, and carbohydrate—required day by day for the sustenance of both ordinary people and special members of the community. Owing to the great rise and fluctuations in the prices of different foodstuffs at the present time, all questions and statements as to the prices of food have been omitted from the book, wisely enough, but we have recently been given the broad fact, on official authority, that necessaries which cost 15s. in March, 1914, cost 20s. in March, 1916. It is clearly written, and from the statistical point of view it is soundly based on the many analyses of foods made on the Continent and in America, as well as in this country; a rather misleading analysis, quoted on p. 89, is that of a marmalade containing 84.5 per cent. of carbohydrate and only 14.5 per

[2] *Tuberculosis and the Working Man: An Appeal to Friendly Societies.* By P. C. Varrier-Jones, M.A.Cantab., M.R.C.S., L.R.C.P. Lond.; with a preface by G. Sims Woodhead, M.A., M.D., LL.D. Cambridge: W. Heffer and Sons, Limited. 1916. (Demy 8vo, pp. 47. 6d. net.)

[3] *The Tuberculosis Nurse: Her Function and Qualifications.* A Handbook for Workers in the Tuberculosis Campaign. By Ellen N. La Motte, R.N. Introduction by L. Hamman, M.D. New York and London: G. P. Putnam's Sons. 1915. (Post 8vo, pp. 306. 1 50 dols. net.)

[4] *Consumption and Its Cure by Physical Exercises.* By Filip Sylvan, M.D. London: Kegan Paul, Trench, Trübner, and Co., Ltd. 1915. (Cr. 8vo, pp. 233; 27 figures. 3s 6d. net.)

[5] *Food Values: What they are, and How to Calculate them.* By Margaret McKillop, M.A.Dubl. London: G. Routledge and Sons, Limited. 1916. (Cr. 8vo, pp. 144. 1s. net.)

cent. of water—surely a very dry and drouthy confection! We can warmly recommend the book to the attention of intelligent housewives and housekeepers who are anxious to economize in the money spent on food and are unwilling to effect such economy at the expense of the consumers' nutrition, as is so commonly done.

NOTES ON BOOKS.

In the summer all our fancies lightly turn to thoughts of the holidays. Those who are able to take a holiday this year—*O si sic omnes!*—will be well advised to consult Mr. WALTER HILL'S guide *Where to Stay and What to See*,[6] the twenty-first edition of a book containing attractive and practical details of all the holiday resorts in the districts served by the half-dozen chief railway lines in England and Wales. The volume is abundantly illustrated, and contains a vast amount of useful information of all the sorts the holiday maker is likely to want.

Dr. CARRUTHERS'S little book on the examination of the urine[7] is excellent. It is designed for the use of nurses, and has reached its third edition. It is clearly written and printed so as to attract the reader's attention to the most important points discussed.

Dr. MEREDITH YOUNG was recently invited to give a series of short lectures to school teachers at Birmingham on the medical aspect of the mentally defective, and he has now amplified his lectures and published them in a volume entitled *The Mentally Defective Child*.[8] He distinctly states that the book is written specially for school teachers and others interested in the educational treatment and after-care of mentally defective children. He commences by pointing out to teachers how to proceed and the points to be noted in the examination of the child. A chapter is devoted to a description of the various types of mental deficiency, and illustrations have been given of some of them. Word-blindness and word-deafness are described and illustrated. The distinction between the feeble-minded, imbecile, idiot, and the moral imbecile child is stated, and a good description of the Binet-Simon tests for feeble-mindedness is given. In the chapter on the education of the feeble-minded suitable forms of manual instruction for defective and epileptic children and for blind children are fully stated. A history of some illustrative cases, the chief provision of the Defective and Epileptic Children Act, 1914, and the regulations of the Board of Education on special schools and special classes are given. There is a copious appendix in which the legislation on the subject of mental deficiency in school children is described and a suggested form of report on a child examined for mental deficiency is given. The book will, no doubt, prove useful to school teachers and others engaged in detecting and examining mentally defective children.

In his imaginative and highly technical work, or compilation, on *European and Other Race Origins*[9] Mr. H. B. HANNAY does his best to establish the thesis that the British race is derived from the houses of Isaac and Judah. The book is one for historians and ethnologists with a gift for pure speculation. In the preface we are told that more than a quarter of a century ago the author "sketched out the general plan and washed in the groundwork" of the volume. Much of the wash remains.

[6] *The Handbook [etc.]. Where to Stay and What to See.* London: W. Hill, 1916. (Demy 8vo, illustrated. 1s.; post free 1s. 6d.)

[7] *Urine Examination Made Easy.* By T. Carruthers, M.A., M.B., C.M. Third edition. London: J. and A. Churchill. 1916. (Foap. 8vo, pp. 96. 2s. net.)

[8] *The Mentally Defective Child.* By M. Young, M.D.Lond., D.P.H., D.Sc., of Lincoln's Inn, Barrister-at-Law. London: H. K. Lewis & Co. Ltd. 1916. (Cr. 8vo, pp. 152. 2 figures. 3s. 6d. net.)

[9] *European and Other Race Origins.* By H. B. Hannay, Esq., of the Middle Temple, Barrister-at-Law. London: Sweet & Law, Marston, and Co., Limited. 1916. (Demy 8vo, pp. 336. 10s. net.)

ROYAL MEDICAL BENEVOLENT FUND.

At the meeting of the Committee held on July 11th thirty-two cases were considered, and £761 granted to twenty-six of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 42, of M.R.C.S.Eng. who practised in London and died last month after a long illness, during which all his savings were exhausted and friends had to help towards the end. Applicant is now living at the expense of friends who cannot afford to keep her and her two children aged 13 and 8 years. Voted £5.

An M.R.C.S.Eng., aged 72, who practised in Northants, now completely incapacitated by paralysis. Only income 19s. 6d. a week allowed by children and a capital sum of £80. Three sons; all have joined the army in South Africa. Two are married, and are unable to help. Three daughters, two of whom live at home; the one working pays 13s. 6d. a week, the other looks after her father. Voted £18 in twelve instalments.

Daughter, aged 64, of registered practitioner who lived in London and died in 1869. Applicant has for a number of years lived in France and earned a living as a governess. When the war broke out she lost all her belongings. She sheltered and saved, at great risk to herself, ten English soldiers, and the Prime Minister made her a grant of £50 from the Royal Bounty Fund. She also received a letter of thanks from Lord Kitchener. Only able to earn a little now by giving occasional French lessons to soldiers at Rouen. Voted £12 in twelve instalments.

Widow, aged 70, of M.R.C.S.Eng. who practised at Heathfield. Left totally unprovided for and is a cripple and lives in a home for incurables. Only income £20, derived from a Post Office annuity, supplemented by a friend. Relieved eight times, £80. Voted £12 in twelve instalments.

M.D.Aberd., married, aged 63, who practised at Walsall, is suffering from incurable paralysis. Income £70 per annum from other charities. Has three children, aged 5 to 18 years. The eldest just commenced to earn a little. Relieved eight times, £73; last £12 in twelve instalments, June, 1915. Voted £12 in twelve instalments.

Widow, aged 53, of L.R.C.P.Edin. who practised at New Quay and died in 1893. At husband's death was left with two sons, now in the navy, and who allow her 10s. a week. Has very bad health and fractured her leg two years ago and still finds it difficult to get about. Relieved thirteen times, £125; last £12 in twelve instalments, June, 1915. Voted £12 in twelve instalments.

Daughters, aged 43 and 45, of M.R.C.S.Eng. who practised in London and died in 1892. Left entirely without means and tried to earn a living by taking in boarders at a seaside resort, but since the war have not been successful. Helped by the Fund and Guild four times, £37; last £10 in July, 1915. Voted £10.

Widow, aged 67, of M.D.Glas. who practised at Dennistoun and died in 1876. Was left unprovided for and tried to conduct a boarding house, but had to give up owing to ill health. Only income a pension from another society of £12. Is now living with a married daughter whose husband is a private in the army. Recommended by the Glasgow Branch of the Guild. Relieved nine times, £96; last £12 in twelve instalments July 12th, 1915. Voted £12 in twelve instalments.

Widow, aged 71, of M.D.St.And. who practised in London and died in 1915. Left unprovided for after husband's long illness. There are three children, but they are only able to help very little. Has recently received a pension of £40 from another society. Relieved twice, £14; last £12 in twelve instalments July 12th, 1915. Voted £12 in twelve instalments.

Widow, aged 51, of L.R.C.P. and S.Edin. who practised in Jamaica and died in 1893. Left without means and suffering from an incurable disease. Income £26 per annum from a society for helping incurables. Has one daughter aged 26 who is also an invalid. Relieved eight times, £96; last £12 in twelve instalments July 12th, 1915. Voted £12 in twelve instalments.

Widow, aged 82, of M.R.C.S.Eng. who practised at Leeds and died in 1909. Applicant is a chronic invalid; her daughter, who was ill for many years, recently died. Only income about £30 per annum. The Guild are much interested in this case, and would like the Fund to supplement their efforts a little so as to enable the old lady to be properly looked after. Relieved once, £12. Voted £12.

Daughter, aged 45, of M.D.Dub. who practised in the Isle of Man and died in 1882. Applicant is a chronic invalid, and is suffering from rheumatoid arthritis. Only income a little from friends. The Liverpool Branch of the Guild strongly support this case. Voted £5.

Widow, aged 65, of M.D.St.And. who practised at Stepney and died in 1903. Was left unprovided for with four children, all married, and none able to help. Has tried to earn a living by letting rooms, but, owing to ill health, unable to give proper attention to lodgers. Relieved thirteen times, £156. Voted £12 in twelve instalments.

At the meeting in the month of May the Committee had a balance of only £27 0s. 1d., in June a deficit of £16 3s. 5d., and in July a balance of £24 13s. Grants in relief were made in May of £197, in June of £190, and in July of £280 15s.—£667 15s. in all—the amount expended thus exceeding the receipts by no less than £632 5s. 4d. The need of liberal and immediate relief is obvious.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, AUGUST 5TH, 1916.

TWO YEARS.

WHEN the British people just two years ago entered, at the call of honour and of duty, into the tremendous war that then flamed up it was at once warned by the great military administrator who became War Minister that it had to face the immense task of recruiting and training an army ten times as large as it had ever before attempted to raise and equip, while at the same time doing as much as its land forces then made possible to help the allies to stem the torrent of barbarism which threatened to submerge Europe. Whether the military machine would prove capable of adapting itself to the great expansion necessary caused many searchings of heart. Every part of the machine would be strained, and for success every part must stand.

Among the parts to be thus tested was the medical branch of the army, but those who had watched the development of the Army Medical Services during the last decade and who knew the spirit of the civilian profession felt hopeful that the medical expansion would be successful. Events have proved that this hope was well grounded, and it is interesting to turn to an article on surgical organization in war which Sir Alfred Keogh has contributed to the current number of the *British Journal of Surgery*, for it is very largely concerned with the work of expansion. He takes up his parable once more to insist that the primary function of the Royal Army Medical Corps is the maintenance of the strength of armies in the field through prevention of disease. "No other consideration," he says, "is of equal magnitude or importance. Lord Herbert knew this. Parkes was the protagonist of the principle. Modern science by its discoveries has affirmed it over and over again." Yet it has only been in recent times that the study of technical problems of field sanitation has been seriously undertaken and that combatant officers and men have been made aware, through systematic courses of instruction, that practical measures for disease prevention rest on a sound basis.

The greater part of the article, however, as is proper in an address to surgeons, is devoted to the second great function of the medical service in war—namely, the collection, removal, distribution, and care of the sick and wounded. Since the conditions can never be precisely the same in any two campaigns or indeed in any two actions, the problem is one of great difficulty and complexity. That it has been met so well is due to the preparations made before the war by the medical branch of the army. In addition to the Royal Army Medical Corps and the Nursing Service of the regular army, and their reserves, there existed, this time two years ago, an efficient Territorial Medical Corps, consisting of members of the civil medical profession, and a Territorial Nursing Service, both prepared to supplement or replace those of the regular army, and capable of expansion to correspond with increases of the army; in addition, through the British Red Cross Society, the public had formed a supplementary organization, destined to render most important aid in war. By all these means, and in spite of some public indifference, a stage of organization had been reached in which the part played by the medical profession had been proclaimed and accepted, so that the public and the profession were prepared to assume their respective responsibilities for the care of the sick and wounded. The Royal Army Medical Corps was no longer isolated, for many members of the civil profession had gained experience in the Territorial units and hospitals; the administrative officers, matrons, and a sufficiency of men of the Territorial Force hospitals had been made aware, through annual courses of practical instruction in military hospitals, of the duties they would have to perform in time of war, so that on the outbreak of the war it was only necessary to assemble round them the staffs for technical, medical, surgical, and nursing duties. Owing to the sudden increase of the army, mobilization and expansion had to proceed together, and Sir Alfred Keogh says that "the services of the civil profession to the administration in this connexion must never be forgotten." He sets forth the magnitude of their task, for on the departure of the Expeditionary Force it was no longer a question of the Royal Army Medical Corps alone. "The internal organization of the medical units," he says, "the formation of the cadres for battalions, the establishment of hospitals at home and the formation of those for abroad; the provision of doctors, nurses, drugs, instruments, dressings; the equipment of ships and trains, and the innumerable details associated with work of this kind, need only to be mentioned to be understood as offering opportunities for errors and omissions of far-reaching importance. But if to these is added the mass of work connected with the supervision of recruiting for the new armies, their housing, and the sanitation of camps and barracks, some idea will be gained of the scope and relation of medicine to the art of war, and the part played by medical men will be realized."

The burden of responsibility thus placed upon the shoulders of the medical profession could not have been assumed but for the preparation made in peace, for the nucleus of trained officers in so large an Army Medical Corps as the country now possesses would have been too small had the old conditions prevailed. As it was, the country was able to take the field with a larger number of experts in administration than it had ever before possessed, but this meant that owing to the magnitude the war so quickly assumed nearly all the regular officers of the Medical Corps were required to give their attention and their energies to administration, leaving to specially selected experts the technical work which the care of the sick and wounded involves. While room was made in the establishments for medical officers from whom medical and surgical aid alone was required, it was recognized also that more than this was necessary—nothing less than the almost complete transference of the responsibility for the surgery of war to special officers. "Hence," says Sir Alfred Keogh, "the appointment of consulting surgeons, by whom all subsequent surgical developments can be determined. They set the scope and the standard of practical work and scientific investigation. The administration relies entirely upon them for the fixing of surgical policy. The responsibilities of these officers are great; their efficiency is proportional to their own appreciation of their powers. They determine whether the means at the disposal of the hospital surgeons are adequate or not. They supervise the operations and approve the operators, so that upon them depends whether or not all that is best in British surgery is available for the

soldier. No official can afford to treat lightly representations made by them, and no commander would hesitate to accept their carefully considered verdict on any question submitted to them. These are great powers, but they are no greater than the importance of the subject requires. It is therefore through the consultants, and through them alone, that the maximum of surgical efficiency can be attained. They, and they only, can ensure a high standard of clinical and scientific work. The staffs of the hospitals in this campaign are drawn from numerous schools. Differences of practice and of opinion have consequently existed, discussions have been frequent, and authoritative pronouncements necessary. The onlooker may derive from many incidents the consoling reflection that if debates have been at times almost acrimonious, the friction of mind against mind has been productive of the best results. . . . Each hospital is required and expected to establish its own standard of efficiency, and is subject only to the expert criticism of the professional advisers. In a word, the quality of the work rests with the consultants."

While admitting that the enthusiasm of the component parts of the great medical organization which has been evolved sometimes proved embarrassing, Sir Alfred Keogh courageously asserts that it has never been unreasonable. "In the last two years," he says, "free play has been given to the imagination of many who would make the future better than the present. Consequently new branches of work have been organized to meet special conditions, and there has been a division of labour." The war had hardly begun when it was realized that we were confronted with old problems of military surgery which required investigation in the light of newer knowledge. At this juncture the Medical Research Committee began to give to the army aid which proved invaluable; laboratory after laboratory was established at home and abroad, so that, in the sequel, all science was pressed into the service of the army. Never before has medicine in war benefited so fully from organized scientific researches; wherever a difficulty arose, whether connected with epidemic disease or relating to some surgical question, it was possible to fall back upon the workers in the laboratories and in the wards for guidance. In consequence none of the administrative measures were experiments. They were taken strictly in consonance with scientific suggestions.

After pointing out that medical arrangements in an army or armies are made up of the combined efforts of several branches while the organization as a whole is defined by the general staff, Sir Alfred Keogh goes on to say that the questions properly belonging to the medical profession may well tax all its resources. When it is said that the care of the wounded in hospitals has reflected the highest credit on the profession, it is not meant only to emphasize the skill of the operators, their careful selection, or the adequacy of the equipment, but that the whole story of the wounded man, whether destined to return to civil life or to the ranks, tells of a finished piece of procedure. The tendency has been more and more to classify the wounded in groups, demanding experts in special branches for each class. The educative value of the system is enormous, and it offers unique opportunities for research. As an instance Sir Alfred Keogh takes orthopaedics, in respect of which there has been a very conspicuous differentiation of surgical work in special institutions and command depôts, as well as, to a great extent, in the convalescent hospitals. The profession was at first unprepared to deal with the large class of cases which must be recognized as orthopaedic. Their proper management involves a duty not only to the soldier himself but to the State, and many surgeons are engaged in the settlement of the questions of great public importance which arise. Orthopaedics is taken as an illustration of the doctrine that only by specialization of hospital work can full efficiency be attained. "I am fully convinced," Sir Alfred Keogh says, "that the more the organization of hospitals into special departments is pursued, the greater will be the degree of efficiency reached. . . . Experience has shown, and continues to show, that in such departments research is encouraged, and knowledge acquired and diffused more readily than could otherwise have been the case. One cannot avoid an uncomfortable feeling that if hospitals in civil life had been organized on such a plan, a higher efficiency would have been manifest at the outset."

THE COLLECTIVE ABERRATION OF GERMANY.

It is probable that few of us have been able to form any clear conception of the state of mind that induced the Germans to force on war in 1914, and still permits them to wage it with all the savagery their highly trained barbarianism places at their disposal. Some writers have laid all the blame on the two allied Emperors. Others have held the leaders of the German war party mainly responsible. Others, again, have argued that it is the whole German nation that is guilty of the overweening ambition that let loose the dogs of war two years ago, and has abolished all the due decencies and restraints of battle and conquest that other nations have so painfully acquired during the last two thousand years through the progress of civilization and experience of warfare. The whole question was discussed with great thoroughness and lucidity by a distinguished Italian psychiatrist, Professor Lugaro, of Modena, last year,[1] and his essay has been translated into English by Dr. W. N. Robinson.[2] According to Professor Lugaro, the war is not to be regarded as an accidental and unexpected catastrophe, but as the result of many historical forces; it is not the effect of individual caprice, but emanates from the will of a nation, from a will somewhat obscure in the mass but very apparent in the ruling classes. Discussing the mentality of the two Emperors, Professor Lugaro dwells on the intellectual mediocrity and moral insensibility of the Austrian Emperor, to whom in the sixty-eighth year of his reign not even the most zealous courtier has been able to attribute a single generous act, a single happy phrase, a single flash of insight; this, however, is all in the region of anomalies of character, and does not enter that of true mental disease. The case of the German Emperor has already occupied the attention of a number of alienists. By Neipp it is diagnosed as one of maniaco-depressive psychosis; Finot describes the Emperor as a degenerate, and Bechterew as a degenerate of the Neronian type. Professor Lugaro sets these diagnoses aside as fanciful, and gives a careful discussion of his subject's physical infirmities; concluding that "unbounded vanity, levity, instability of purpose, violent obstinacy, and a vindictive and petulant temper are the endowments, neither rare nor

[1] *Rivista di patologia nervosa e mentale*, Rome, August, 1915.

[2] *An Emperor's Madness or National Aberration?* By E. Lugaro, Professor Extraordinary of Neuropathy and Psychiatry in the University of Modena. Translated by W. N. Robinson, M.D. London: G. Routledge and Sons, Limited; New York: E. P. Dutton and Co. 1916. (Fcap. 8vo, pp. 134. 2s. 6d. net.)

precious, which are unanimously attributed to him by relatives, courtiers, and by public report." These are, according to Lugaro, the generic qualities of the man; others which have been attributed to him —duplicity, cruelty, megalomanic mysticism—are dangerous because conjoined with the powers of an Emperor, but "the present war would not have happened if these defects had not been thoroughly in accord with the most intimate sentiments of the German mind." Analysing German policy, Professor Lugaro remarks that the Emperor's motto, *Oderint dum metuant*, is applicable here also; all Germany is nationalist and militarist, including even the working classes and the intellectuals, and throughout the nation runs a psychological disposition to intrigue and hypocrisy that finds its best expression, both at home and abroad, in the elaborate and odious German spy system that is now all-pervading: "The spirit of the informer is abroad; its malign influence overshadows the life of every German, the working man and the Chancellor of the Empire alike, paralyses the most circumspect with the incubus of obscure difficulties in life, and keeps a check on the more audacious with the threat of a process for *lèse majesté*." This espionage "stifles individual thought, inclines the German youth to habits of suspicion, hypocrisy, and dissimulation, gives rise to an exaggerated deference for constituted authority and every official title." Professor Lugaro absolves the German Emperor from any particular responsibility for the countless barbarous outrages committed by the German army; they follow, he holds, from the theory of "absolute war," developed last century by von Clausewitz and von Hartmann, and supported to-day by the whole German people, according to which "necessary cruelty" becomes a normal part of the "necessity of war." But the defect of the German theory of "absolute war" is this, that it postulates two conditions—violent action on the German side, defeat and terror on the other. Morality, chivalry, and honour it entirely neglects, and this neglect must, he thinks, bring the Central Powers to grief, quite apart from the probability of their defeat in battle.

Professor Lugaro enumerates a few of the grosser German outrages of civilization, adding that "as the culmination of cynicism, they are not ashamed to copy from the professional thieves a certain stercoraceous rite, which has left its filthy traces in all the villas and castles occupied even by the flower of the German staff." A threat of the repetition of this rite has since been used to deter certain Spanish owners of Belgian properties from signing the manifesto of the Spanish Roman Catholics. Lugaro comments on the moral poverty and obtuseness of the circulars addressed in the earlier days of the war to the civilized nations, especially the Italians, by the German intellectuals (first by the 87 elect, then by the 125 of less repute), and on the megalomania or mad pride of the German Emperor and his people, based on the enormous secret German preparations made in the decades preceding 1914 for a war to be forced on at the opportune moment. According to the German militarists and politicians, these preparations could not fail to make certain the speedy subjugation of Europe. Lugaro does not accept the attempts of clinical psychiatry to explain this megalomania; it is not a psychosis, either imperial or national; it is not a collective delirium of the German nation; it is not a paranoia. The real delinquent is not a man, but a nation—Germany. The Germans fail because they cannot understand that a people may possess a hundred universities, a thousand laboratories, innumerable perfect workshops, a flourishing commerce, and, notwithstanding all that, be barbarians. They cannot succeed in comprehending a truth which for other nations is elementary—namely, that civilization does not consist in knowing, but in the manner of acting. It is not a matter of science, technique, or mechanism—which may serve bad ends as well as good—but of sentiments which reveal themselves in conduct. The qualities of the German spirit are material strength and prodigious egotism; its history has no examples of generosity, of courtesy, or of sacrifice to a disinterested ideal; its heroes are tribal chiefs, brutal soldiery, and pedants. Such is Professor Lugaro's diagnosis; Germany is a dangerous nation, suffering from a collective aberration, and now shows the final psychological result—a true delirium. The necessary treatment must be dictated by the danger of this delirium to others. How great this danger is the whole world now knows. The first task of civilized Europe is to subdue Germany by force, without paying any attention to hypocritical clamours for peace, for as the final catastrophe approaches the German delirium of persecution is sure to become more and more accentuated.

Can Germany be cured? The prognosis is very doubtful, says Professor Lugaro, but not hopeless. Great disillusions are salutary even to paranoiacs, and collective deliriums are more easily dispelled than individual. Even grave moral defects, indelible in individuals, may be corrected in a whole people which has at its disposal ages in which to reform its character. Let us hope, but not delude ourselves that the reform can be rapid.

THE ANNUAL REPRESENTATIVE MEETING.

The importance attached to the recent circular of the Local Government Board on the prevention and treatment of venereal disease was fully recognized by the Annual Representative Meeting, which gave a large part of one of the two days for which it sat to consideration of the recommendations of the Council on the subject. Throughout the whole of the discussion, which was often very animated, not a single member questioned for a moment the grave character of the problem and the urgent necessity for dealing with it at the earliest possible moment and on an organized national scale. The differences of opinion that arose centred round the question how best could be obtained the hearty co-operation of general practitioners in the measures of prevention and treatment that are to be undertaken. Those who spoke from the standpoint of the general practitioner no less than those who had made venereal disease a special study, expressed their desire to do all that lay in their power to assist in the work, and the over-ruling consideration throughout was how best to organize the application of the most approved forms of treatment of venereal disease and how to induce patients suffering from them to accept treatment at the earliest possible moment. Whenever the great question arises, as it does in this case, of co-ordinating on a national scale the work of general practitioners with that of specialists and hospitals, differences of opinion as to how the services of every section of the profession can best be utilized are inevitable, but there was no disposition to allow the personal interests of any section of the profession to stand in the way of those of their patients or of the community. It is greatly to be regretted that the

recommendations of the Council could only be submitted to the Divisions about a fortnight before the Representative Meeting—a period inadequate at any time, but especially during war, for a proper consideration by the profession throughout the whole country of the vast issues involved. This was not due to any fault of the British Medical Association, but entirely to the fact that the circular of the Local Government Board on which the recommendations were based was only issued on July 13th. As a consequence the Chairman was bound to rule that any resolutions on this subject by the Representative Meeting could not be regarded as "decisions of the Association." Though the pressing importance that some scheme on a national scale for the prevention and treatment of venereal disease should be arranged as early as possible was generally recognized, it was felt that the success of any scheme would be in doubt if the profession allowed itself to be "rushed" in the matter; accordingly a proposal by the Representative of the Salford Division was accepted to the effect that the Council be instructed to refer the resolutions of the meeting on the subject of venereal disease to the Divisions for report as early as possible. To this was added a resolution instructing the Council, on receipt of the opinions of the Divisions, to present an explanatory memorandum to all the Government bodies and local authorities concerned, setting forth the terms and conditions under which the profession will be prepared to give its cordial co-operation. The profession will thus shortly have an opportunity of fully considering the measures proposed, and the discussion which took place in the Representative Meeting will help to focus attention on the parts of the scheme which directly affect the profession. The universal desire is to co-operate with the State in this matter, but, as the Chairman of Council said, a strong memorandum must be prepared, and the President of the Local Government Board informed that unless the Board is going to give fair play to the general practitioner throughout the country the scheme cannot be carried on.

Some regret was expressed that the Representative Meeting was unable to spend more time on that part of the agenda which related to National Insurance, but certain important resolutions were passed; chief among them was an instruction to the Council to collect evidence as to the effect which the war may have on the amount of work panel practitioners have to do, such evidence to be used when any revision of the terms on which insurance practitioners are employed is proposed. Another resolution stated the opinion of the Association that no insured person should be refused sickness benefit because he is suffering from venereal disease, and in this connexion a letter was read from the Prudential Society, stating that it had decided to grant sickness benefit in these cases. A resolution was also adopted at the instance of the Oldham Division protesting against the injustice done to panel practitioners by reason of lost contribution cards and delay on the part of approved societies in notifying that persons on panel lists have ceased to be entitled to medical benefit, and asking the Council to take such action as may seem possible.

Among numerous other matters which were discussed, as is related in the report of the meeting published in the Supplement, considerable interest centred round motions with regard to the action of the deputation which waited on the Local Government Board about the reduction of the notification fees. Some of these motions, if carried, would have had to be regarded as votes of censure on the members of the deputation. The reply of Mr. Turner (who left the chair for the time) showed that the deputation had suffered owing to inaccurate press accounts of what took place. The deputation had protested very strongly against any reduction of the notification fees, and the meeting felt that it would be altogether unfair and unjust to blame the deputation or the Association through them, because the President of the Local Government Board refused to alter what was evidently a prearranged decision. A strongly worded resolution expressing indignation at the action of the Government in reducing the fees, especially at the present juncture, was passed.

THE CONTROL OF VENEREAL DISEASE IN WESTERN AUSTRALIA.

By an Act placed on the statute book of Western Australia last December provision has been made for the free diagnosis and treatment of venereal diseases somewhat on the lines of the regulation issued recently in this country. But Western Australia has gone much further. For with the free diagnosis and treatment there are provisions for bringing these into effect, by force if necessary. The Act provides: That all affected persons shall at once place themselves under treatment by a medical practitioner. That the medical practitioner shall notify the age and sex of every affected person he attends, but not the name or address, though if for six weeks the patient fails to attend for treatment the doctor is to forward the name and address of the patient to the Commissioner of Public Health. The patient shall continue under treatment, attending at least once each month, until a certificate of freedom from venereal disease is obtained. If a patient change his doctor he must disclose who his previous doctor was. A person suspected on reasonable grounds to be suffering from venereal disease may be arrested and detained fourteen days for medical examination, and, on the order of the Governor, for such longer period as may be necessary. None but medical practitioners shall treat such cases. A clean sweep is made of every form of publication or advertisement of cures of any sort for venereal disease, impotency, or female irregularities. As will be seen from the abstract of the Act published at page 195, there are heavy penalties attached to law breakers, and in particular to any one who shall pander to depraved tastes by publishing in any newspaper any account of proceedings in court under the Act. The booklet issued by the public health authority is excellent in simplicity and in tone, and worthy of being an exemplar for such purposes. It will be seen that Western Australia has made a brave and novel effort to cope with the evil.

THE PROBLEM OF THE TUBERCULOUS SOLDIER.

The interesting paper contributed by Sir William Osler to the annual meeting of the National Association for the Prevention of Consumption on July 26th finds its counterpart in a communication made to the Académie de Médecine on July 11th by Drs. Sieur and Leon Bernard, in which they give an account of the system at present employed in France for dealing with the ever-increasing number of tuberculous soldiers. The need for their prompt elimination from the fighting lines, and for systematic treatment, has been fully recognized. Arrangements have been made for central consultations where all cases can be passed in review and proper selection made. Suspects are examined very closely, but many cases can be diagnosed quickly, others may be found to have been sent in error, while a certain number have already been under treatment. Early cases, still capable of military duty, are sent to hospital sanatoriums with a view to rational cure. Others, more advanced, which have given some evidence of curability, are sent to sanitary stations under the jurisdiction of the Ministry of the Interior and ultimately given lighter

employment in the service. Advanced cases, incapable of any future service, are drafted into country stations. Sixteen hundred beds are available for the various classes referred to, and by their means the needs of the patients are supplied and the spread of the disease checked. No details are given as to the actual number of cases that have to be dealt with, nor is any financial information supplied, but the importance of the work is obvious and especially worthy of note at the present time. The unrecognized subject of tubercle becomes a source of weakness and expense to the unit to which he may be attached, and special care must be exercised to detect his presence before his inevitable breakdown occurs. In the House of Commons, on August 1st, the Financial Secretary to the War Office said that recruiting medical boards in this country had now been instructed to ask each recruit whether he had been under treatment in a sanatorium or whether his name had been notified to the sanitary authorities as suffering from consumption. If it was found that these questions were properly answered in the affirmative, the man would not be taken. The Local Government Board had arranged for local tuberculosis officers to supply particulars of all men of military age on the tuberculosis registers, and recruiting officers would be instructed not to accept such men for service. In cases of doubt the advice of the tuberculosis officers would be asked.

TRAINING OF DISABLED MEN.

THE Statutory War Pensions Committee issued a circular, dated July 27th, to local pension committees calling their attention to the provision of the Naval and Military War Pensions Act, 1915, which makes it one of the functions of local committees established under the Act "to make provision, subject to the approval of the Statutory Committee, for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment." The circular is headed "Disabled Soldiers and Sailors," but has, in fact, only incidental reference to men in this category. A disabled soldier is a soldier not yet discharged from the army, but the circular is almost entirely concerned with men discharged from the army owing to some disability which will prevent them from ever serving again in the army in any capacity. It will not, we believe, however, be found possible to deal with the matter in watertight compartments. The Statutory Pensions Committee, in fact, states that it will work in conjunction with the Local Government Board and the Insurance Commissions in dealing with the questions of health; in questions of training with the Board of Education; and in questions of employment with the Board of Trade and the Board of Agriculture. We believe, however, that it will be found necessary in organizing this work to maintain an intimate connexion with the military departments of the navy and of the army. Pending the further investigation of the matter, it seems unnecessary at present to consider the circular of the Statutory War Pensions Committee at length, more especially as the Prime Minister has promised to give an early date for the discussion of the financial position of the Committee.

THE SUPPLY OF PETROL.

REFERENCE was made last week to the fact that the British Medical Association was in communication with the Petrol Control Committee as to the supply of petrol to medical practitioners. The Petrol Control Committee has now stated that after giving careful consideration to the question of supplies of petrol for medical practitioners, it recognizes that in certain cases the maximum allowance of 50 gallons, on which it had decided, could not be adhered to. This amount, however, would be sufficient to meet the usual requirements of medical practitioners until about the middle of August. The Committee hopes to issue further licences for additional supplies early in August when the great pressure of work on its staff has been somewhat relieved. During the discussion in the House of Commons on August 1st Mr. Harcourt said that the Committee had received demands for 324,000 licences, representing a much larger number of vehicles, and its morning post on July 31st contained 20,000 letters. There was, he said, plenty of petrol in the world, but our consumption had greatly increased since the outbreak of the war, while the supply of ships for its conveyance had diminished owing to the torpedoing of some, the diversion of certain American oil ships to what were regarded as safer seas, and the commandeering of commercial tankers by the Admiralty, including some recently completed for the Board of Trade. The requirements of the army had grown enormously, and this country had contributed largely and gladly to the petrol needed for the carriage of supplies for the French troops at Verdun. The Jockey Club had decided to license no additional race meetings, and it might be necessary to stop civilian motoring on Sundays. On the other hand, he said that he had found no evidence of the cornering of petrol or oil, and he hoped that the Admiralty would shortly be able to launch ships for its heavy oil, and so release petrol tankers. In addition, the building of more tankers was being expedited. The total civilian consumption last year was 111,000,000 gallons, but the recent census showed demands for 153,000,000 gallons, to meet which 70,000,000 gallons were available, though the Committee had issued licences for 75,000,000 gallons. Allotments had been made for commercial cars and industrial purposes of 60 per cent. of the quantity demanded; for cabs and other public vehicles of 50 per cent.; for cars of doctors and veterinary surgeons the full amount up to a maximum of 50 gallons a month; for private cars 25 per cent., with a maximum of 30 gallons a month; and for motor cycles 2 gallons a month. The amount available for a month's distribution was, Mr. Harcourt said, 6,300,000 gallons, of which nearly half would be allotted to commercial cars and other industrial processes, over 2,000,000 to cabs and omnibuses, 418,750 to doctors and veterinary surgeons, 700,000 to private cars, and 181,250 to motor cycles. He added that the taxicab drivers were mixing paraffin with petrol, and could thus get on with 2 gallons of the latter a day. We hope to recur to this subject of the use of paraffin with petrol in an early issue.

THE MOTHERS' UNION.

THE appalling loss of men in the war, and the still more appalling loss of infants before birth and during the first year of post-natal life, have given enhanced value to all efforts to protect motherhood and infancy. We have received a letter outlining a scheme put forth by the Mothers' Union for the building of a central institute and maternity centre in Westminster. The scheme has the cordial approval of the Archbishops of Canterbury and York, and has commended itself to men and women of many shades of opinion. The Mothers' Union was founded about thirty years ago by Mrs. Mary Sumner, its main object being to raise the religious and moral tone of the homes of our land. The society has now a membership of nearly half a million women, and its organization is excellent. It appears likely that this large membership and smoothly working organization will enable the Mothers' Union to act as a co-ordinating centre for various efforts for child and mother welfare. For many years past the Central Committee has felt that want of space and want of a central home was hampering its work and rendering futile many of its efforts. It has therefore been resolved that an adequate building shall be erected in Westminster, and that it shall be a permanent memorial to Mary Sumner, the foundress of the Mothers' Union. It is proposed to build a large central hall available for lectures and public meetings, rooms for council and committee meetings, and that there shall also

be a large maternity centre to be worked by experts. The objects to be served by the Mary Sumner Home are threefold—a school for mothers, a school of mothercraft for educated women, and a school for the training of Mothers' Union workers somewhat similar to six training schools already worked by the Union in Greater Britain. In addition to these three main objects the Council of the Mothers' Union also desires to found a training school for young women who intend to become childrens' nurses. There are already some such schools, for example, the well-known Norland Institute, but the home to be founded by the Mothers' Union will be worked on Church of England lines, and special care will be taken to develop the religious and moral as well as the technical side of the training. All the objects contemplated in the design of the Union are of great importance to the welfare of the children of the nation. The mothers' school will be under the management of a body of experts who are already accustomed to all the best methods of feeding, clothing, and general management of infants. In the Mothercraft School for Educated Women opportunity for acquiring practical knowledge will be given to health visitors, and to other ladies specially interested in child welfare. They must possess a knowledge of the physiology and hygiene of infancy before they can be successful officers in the army of child welfare workers. The school for training the paid workers of the Mothers' Union will be an extension of the methods that have already been successfully developed in other parts of the empire. Lastly, the training home for children's nurses ought to be an important link in the great chain of agencies for the promotion of child welfare that are springing up all over the land. It is time that institutions such as the Norland should be multiplied, and that children's nurses and nursery governesses should receive such careful training as shall fit them to serve the children well both in sickness and in health. The lives of many young children are lost because neither mother nor nurse understands their structure and their functions, because the laws of health are unknown to them, and because they have never been taught how to observe, and therefore are unable to detect the early symptoms of disease. Invaluable time is lost and the golden opportunity for treatment passes unperceived and unused, with disastrous results. If the Mary Sumner Home succeeds in providing all the training and instruction at which its founders aim, they will have conferred a real benefit on the nation. The very large membership of the Mothers' Union and its admirable organization justify the hope that a large portion of the £100,000 required will be raised by the Union itself, but some outside help will be needed, and there is little doubt that "the cry of the children" will meet with an ample and immediate response. The central office of the Mothers' Union is at Church House, Dean's Yard, S.W.

A SEVENTEENTH CENTURY NAVAL SURGEON.

In *Roderick Random* Smollett, fulfilling what Carlyle called his "mission to take portraiture of English seamanhood with due grimness, due fidelity," painted a very unpleasant picture of the conditions under which naval surgeons in the eighteenth century had to work. It may be compared with that of naval surgery in the seventeenth century given by John Moyle, "one of Her Majesties Ancient Sea-Chirurgions," who had been "in most of the sea fights that we have had with any nation in my time." He refers to his experiences in "the last Holland war," and "before Tripoli in Barbary when we had wars with that place"—that is, in 1676. He also speaks of having been at Newfoundland and at many places in the Mediterranean. In 1693 he retired on a pension, and died in Westminster in 1714. An interesting account of the two books he wrote is given in the *British Journal of Surgery* for April. Of the *Chirurgus Marinus or the Sea Chirurgion*, which reached a fourth edition in 1702, the author says that it was not collected out of other authors, "howbeit it contains the general practice of most chirurgions (especially such as use the sea), but it hath been my own practice"; and he adds that it is not founded upon "frothy notions," but is the product of real experiences. In describing the preparations of the surgeon for a sea fight, he says that in men-of-war the surgeon's place is "in the hold abaft of the mast, between that and the bulkhead of the cockpit from side to side. In this place you must have two chests to set your wounded men on to dress them; and at the corner of the platform you are to place two vessels, one with water to wash hands in between each operation, and to wet your dismembering bladders in and for other services, and the other to throw amputated limbs into till you have opportunity to heave them overboard. . . . You must likewise place good store of lights about the platform in lanthorns, but two of the largest (without lanthorns) in the place where you are to operate. You must have there in readiness your instruments, both large and small, and your first intentions must now be there ready with your restringent powders, rowlers, linnen, cross bolsters, tow, acetum, ova, broad tape to make ligature and narrow to bind on splinters (for apparel for fractures must not now be missing). . . . Have likewise your cordial bottle ready at hand to relieve men when they faint." Being thus "in a competent readiness for wounded men when they shall be brought down," the surgeon has to consider the case of men differently wounded. Moyle insists that "he is a good surgeon who can take off a limb dexterously, but he is a better that can save it on and heal it." He objects to the use of the actual cautery to sear the mouths of the great veins, as "it is a dreadful operation to the patient and often brings great fears and horror upon him, if not a fever." He says that in the last Holland war His Majesty sent them "Royal Stiptic Water," which was very good in wounds of the head and other dangerous hurts; when it had remained on two days and he opened the wounds again he found "perfect and laudable digestion" when he did not yet expect it. In cases of amputation it was not found so useful, because the pledgets and compresses steeped in it had to be held fast with the hand to the end of the stump, "the which, in heat of fight, we cannot spare time to do, but must be as speedy in our operations as possible." It is interesting to note that one of the chief constituents of the styptic water was *urina juvenum*. His other book, *Chirurgic Memoirs*, published in 1708, is a record of cases. These are interesting in themselves, and they are made amusing by the language in which they are related, which might be that of a medical Don Adriano de Armado. Thus, we have such phrases as "a leasure of the Dura Meninx"; "decussate secation"; "the Mucronata of the incisure"; two large segments of bone which lacerated the "Crassior tunicle" were extracted, "then the fractured Chasma appeared vastly large and salebrous." The grumous blood oppressing the meninges was "absterged with a Linteolum"; a "dossett of dry lint" was applied in the chasma "to defend from the piercing air that would soon alter the bone from its colour natural to a labasceous hue." Moyle's pedantry was probably due to a wish to ape a learning which he did not possess. But he was evidently a man of strong common sense, who could use with good effect such knowledge as he had gathered from his teachers and his own experience.

METZ AND VERDUN.

SIR HENRY MORRIS pays a graceful tribute to our gallant French allies in the form of an interesting historical sketch entitled *How France Obtained Metz and Verdun*,[1] which is

[1] Published by John Bale, Sons, and Danielsson, price 3d. net.

sold for the benefit of the Red Cross Fund. There is so much ignorance and confusion, to say nothing of deliberate misrepresentation, about the history of these places which so long played the part of shuttlecocks between France and Germany, that a clear recital of the facts comes very opportunely at the present time. Professor Blackie in 1872 said that Metz had been treacherously stolen from Germany two hundred years before, and that for this "infamous act" the French had then received "the just reward of a slowly but surely avenging fate." Sir Henry Morris shows that this is a gross error. Metz, with Toul and Verdun, came originally under the control of France in 1552, when they were surrendered to Henry II of France by the princes of the small German states then in rebellion against Charles V. From that time Toul and Verdun were never restored to Germany; Metz fell into its power in 1870, after it had been in the possession of France for nearly 320 years. France was confirmed in the possession of Metz, together with Toul and Verdun, by the peace of Westphalia in 1648; and again in 1684, three years after Strassburg was seized by Louvois on behalf of Louis XIV. France was again confirmed in the ownership of Alsace and Lorraine by the treaties of Paris in 1814 and 1815. Verdun, which was an important town in the time of the Romans, is famous in history as the place where, in 843 A.D., the treaty was signed whereby the three grandsons of Charlemagne divided the Frankish kingdom into three parts—an eastern, which became modern Germany, a western, which became modern France, and an intermediate portion bounded on the east by the Rhine, which has ever since been at different periods a battle-ground between the rival countries. For 364 years Verdun has been in the possession of France, except for a few months in 1792, and again for a short time in the war of 1870–71. The eyes of the whole world have now been watching the battle which has been raging around it for more than five months, and we in this country are following with anxious but confident expectancy the issue of the struggle in which our heroic allies have already taught the vainglorious enemy to appreciate their valour and tenacity. Sir Henry Morris's short but lucid narrative supplies the key of an intelligent knowledge of the past to the better understanding of the new history now in the making at Verdun.

VENESECTION AND GAS POISONING.

Our attention has been called to the fact which, though it was noted at the time in our columns (August 21st, 1915, p. 306), had escaped recollection, that the *Memorandum on the Treatment of Injuries in War based on Experience in the Present Campaign*, issued by the War Office in July, 1915, contained a recommendation of venesection in certain cases of gas poisoning. In an early part of the section on the subject it was pointed out that chlorine is certainly a chief constituent of the drift gas discharged from cylinders by the Germans. In discussing treatment it was said that in the first twenty-four hours its aim must be to check bronchial spasm and lessen the oedematous flooding of the lungs; atropine in doses of $\frac{1}{100}$ of a grain is directed to be given every four hours, and ammonium carbonate, 10 grains every six hours, is said also to be useful. Many patients, it was stated, vomited spontaneously, or provoked vomiting, which relieved the stomach, and might help to empty the lungs temporarily; for the same purpose emetics might be tried. Chloroform, ether, and alcohol only allayed the bronchial irritation and spasm to a slight degree, and were otherwise dangerous. Oxygen inhalation was useful. "From the second day onwards," the memorandum continued, "the oedema of the lungs is established and the bronchial spasm has ceased. Extreme cyanosis with a full pulse requires venesection to about 15 oz. Oxygen gives some relief, though it does not reduce the lividity." We understand that venesection has been used for gas casualties in France continuously ever since the end of April, 1915, but that opinions as to its value have varied greatly. The dates, however, show that it was used by the Army Medical Service in France before any suggestion to that effect was, so far as we are aware, made in this country. The memorandum, the full title of which is quoted above, is published by H.M. Stationery Office, price 4d., and can be obtained through any bookseller. It is a manual which any one who has to treat sick or wounded soldiers should have constantly in his valise or on his table.

COCAINE AND OTHER LOCAL ANAESTHETICS.

It is satisfactory to note that in the latest orders dealing with the sale of cocaine (Supplement, page 58) the principle is adopted of making the possession of the drug, except by properly qualified persons, a punishable offence; the advantages of this method of dealing with the present serious position were recently urged in this Journal. In the House of Commons, on Monday, questions were addressed to the Home Secretary by a number of members who appeared to be moved by a curious solicitude for the interests of unregistered practitioners of dentistry, urging that this class of persons would be unfairly hit in being denied the opportunity of using cocaine in dental operations. The reply of the Home Secretary showed a correct appreciation of the fact that individuals possessing no qualification have no legal or moral claim to be treated otherwise in the matter than any other members of the general public, and he added the suggestion that other and less dangerous drugs, such as novocaine, can be employed as local anaesthetics. The supply of novocaine, as is well known, has been greatly restricted since the war began, and it is far from certain that this particular drug can be obtained; but while registered dentists will still be free to obtain and utilize cocaine for dental extractions, the public cannot be said to be unfairly treated if its use is denied to those of whom Sir H. Craik said that they "constitute a very great danger to the public community, and a great injury to the health of the community." A further interesting and important point which at once arises is whether novocaine and other local anaesthetics are open to the same kind of abuse as cocaine. Most of these substances have been given names ending in -caine, but this is only for the purpose of indicating their physiological action as local anaesthetics, and does not imply similarity of chemical constitution. Novocaine is the hydrochloride of the organic base para-aminobenzoyl-diethylamino-ethane, which is a derivative of para-aminobenzoic acid. It therefore possesses no chemical relationship to cocaine, which is benzoyl-methyl-ecgonine, ecgonine being a derivative of pyridine. With regard to the question whether novocaine is capable of being used for improper purposes in a manner similar to cocaine, no information appears to be available, but in view of the above-mentioned difference between the chemical constitution of the two substances, it seems hardly likely that persons who have become victims of the cocaine habit would find the action of novocaine to be sufficiently similar to that of cocaine to encourage them to use it as a substitute in an undesirable way.

Medical Notes in Parliament.

Cocaine and Novocaine.—On July 31st Mr. Raffan, Mr. Tootill, Mr. Anderson, Mr. Chancellor, Mr. Outhwaite, and Mr. Watt asked questions with regard to the restriction of the sale of cocaine to unregistered dentists; as they were dissatisfied with the answers of the Home Secretary the matter was raised on the adjournment. After speeches by Mr. Raffan and Mr. Anderson, the Home Secretary said that the regulation did not deprive an unregistered dentist of the right to administer local anaesthetics as had been suggested. It dealt only with cocaine, and he was advised

that among registered practitioners novocaine was used more than cocaine, being regarded as a safer and better means of obtaining local anaesthesia. It was anticipated that the effect of the regulation with regard to cocaine would be to stimulate the production of novocaine. The application of cocaine might be extremely dangerous in the hands of unskilled persons, and there had been some fatal, and a large number of non-fatal but serious, cases of poisoning. A certain number of those who practised dentistry without being registered were chemists and druggists and could obtain cocaine for dental purposes, because as chemists and druggists they were free from the restrictions. Among the other unregistered dentists were persons who moved about from place to place and could not be traced. A certain number of them were men of no very elevated character or remarkable skill or training, and there would be very great administrative difficulties in organizing the scheme if the use of cocaine by these individuals were allowed, for the very reason that they were not registered. Mr. Samuel promised to consider the suggestions put before him with regard to organizations of unregistered dentists, but said that he must first ascertain whether novocaine could be obtained quite freely. Mr. Glyn-Jones said that he believed the War Office had practically commandeered all the available novocaine, but there would be no difficulty in producing all the novocaine for this purpose. If the Home Office was satisfied that a genuine practice was being carried on a general or special order might be made, but all unregistered dentists ought not to be regarded as authorized persons for the receipt of cocaine, since that would make the Order practically of no effect. Mr. King contended that though some unregistered dentists were men of not very good character, who went wandering about, others were men of good character, highly regarded locally. Mr. Watt urged that if unregistered dentists could show that they were practically ruined the matter should be reconsidered. The House at this point adjourned, pursuant to the Standing Order.

War.

Retention of Temporary Officers R.A.M.C.—Sir Henry Craik asked, on July 31st, whether medical officers employed in Egypt had been informed that they must remain for a longer period than the year for which they had contracted, and, if so, whether they would be allowed to return to this country to exercise their right of appeal to the Professional Committee. The Financial Secretary to the War Office said that temporarily commissioned R.A.M.C. officers serving in Egypt, who would, on ceasing to serve as doctors, become subject to the provisions of the Military Service Act, had been retained beyond the termination of their year's contract. Their retention was necessary in order to provide adequately for medical requirements. It was hoped, however, that they might be able to return to this country at an early date, when reliefs were available.

Dardanelles and Mesopotamia Commissions. — On August 1st the bill to set up special commissions to inquire into the origin, inception, and conduct of operations of war in the Dardanelles and Gallipoli and in Mesopotamia respectively, was read a third time and passed. Both commissions are instructed to take into consideration the supply of drafts, reinforcements, ammunition and equipment to the troops, and fleet, the provision for the sick and wounded, and the responsibility of those departments of Government whose duty it has been to minister to the wants of the forces employed in these theatres of war. The commissioners will have power to enforce the attendance of witnesses and to examine them on oath, to compel the production of documents, and to authorize the representation of any person interested by counsel or solicitor. Any two commissioners may be delegated to make inquiries and take evidence abroad. The commissioners may determine whether their proceedings, or any part of them, shall be held in public or in private. A witness making a full and true disclosure is entitled to indemnity from subsequent proceedings. The Mesopotamia Commission is directed to proceed with all possible expedition to inquire with regard to the provision for the sick and wounded and to report the results of its inquiries on this matter as soon as they are completed. The Committees are constituted as follows:

Dardanelles and Gallipoli.

Earl Cromer (Chairman).
The Right Hon. Andrew Fisher.
Sir Thomas Mackenzie.
Sir F. Cawley, Bt., M.P.
Mr. J. A. Clyde, K.C., M.P.
Captain S. L. Gwynn, M.P.
Mr. Walter Roch, M.P.
Admiral Sir William Henry May, G.C.B., G.C.V.O.
Field-Marshal Lord Nicholson, G.C.B.

Mesopotamia.

Lord George Hamilton (Chairman).
The Earl of Donoughmore.
Lord Hugh Cecil, M.P.
Sir Archibald Williamson, Bt., M.P.
Mr. John Hodge, M.P.
Mr. Josiah C. Wedgwood, M.P.
Admiral Sir Cyprian Bridge, G.C.B.
General Sir Neville Lyttelton, G.C.B.

Mesopotamia Campaign.—The Financial Secretary to the War Office stated, on July 27th, in a written answer, that for several months past all demands received from India for supplies had been complied with, and large quantities had been, and were being, dispatched from the reserves in the Mediterranean. As regards deficiencies of medical stores, all demands received had been complied with. The War Office had taken over the supply of medical stores, and the military authorities in Mesopotamia had been directed to submit any further demands for such stores direct to the War Office, where they would be promptly met.

Pay of Indian Officers taken Prisoners.—In a written answer, on July 27th, the Secretary of State for India stated that since the fall of Kut the rules regarding the pay of officers taken prisoners while on the Indian establishment had been reconsidered. It had been decided that Indian army officer prisoners after sixty-one days of full pay shall receive full pay of rank, *plus* half the staff pay attaching to their ordinary employment. Speaking very roughly, this would, on an average, give them about five-sixths of their full ordinary emoluments. Staff officers still on the cadre of a regiment would, after sixty-one days, be treated as regimental officers. This followed the War Office practice. It was not proposed to make any alteration as regards officers of British regiments, who only lost to the extent of coming on to British rates of pay and allowances, which (unlike officers of the Indian army) they were liable to do at any time. The decision to alter the rules for Indian army officers had retrospective effect from the beginning of the war, and applied to all prisoners, and not only to those taken at Kut. Family allotments would be adjusted in accordance with the pay of officers.

Deaths of Territorials in Indian Troop Train.—On August 1st the Secretary of State for India informed the House of the result of the inquiry, held by the Government of India, into the circumstances under which unacclimatized troops had been sent in large numbers by rail in the middle of summer from Karachi through the Sind Desert, contrary to the decision of the Commander-in-Chief taken in December, 1915. The responsibility for diverting the ship *Ballarat* from Bombay to Karachi rested with Brigadier-General Roe, who was acting as Quartermaster-General at the time. The Government of India was satisfied that the train left Karachi insufficiently equipped, overcrowded, and without experienced officers, either medical or combatant. It placed the responsibility on Brigadier-General Roe, on the general officer commanding at Karachi, and on the assistant director of medical services at Karachi—an officer of long experience of the Indian Medical Service. The Government of India had decided to remove these three officers from their appointments, and this action had been approved by the Secretary of State.

British Prisoners in Germany.—Lord Newton stated in the House of Lords on July 27th that the conditions in Güstrow, as in almost every camp in Germany, were abominable in almost every respect at an early period of the war, but had been largely changed. It had not been possible to ascertain for certain whether bayoneting actually took place, as had been alleged, although there was no doubt that there was a considerable amount of brutality at this camp. He had never concealed his opinion that the men who were imprisoned at Ruhleben were, perhaps, more to be pitied than any other body of unfortunate people in Germany at the present moment. It would be extremely rash for the Government to announce to the world that in no circumstances would it resort to any means of exercising pressure upon the German Government. It did not require any great ingenuity to realize that there were means of exercising such pressure which would not involve cruelty to any individual in this country. In reply to a question in the House of Commons on July 31st Lord Robert Cecil said that no reply had been received from the German Government to the original British proposal with reference to interned prisoners; nor had any reply been received to a modified proposal, made towards the end of May, that British ministers of religion should be allowed to reside in Germany without being interned in order to conduct services in the prisoner camps. The British Government considered that the German Government ought to agree to this modified proposal, because, as was

explained in the British Note to the United States Ambassador, five German clergy were allowed to reside in this country uninterned and to minister to German prisoners of war. He sympathized very deeply with the proposal, and anything that could be done would be done. In a written answer, on the same day, Lord Robert Cecil said that the British Government regretted that it was still unable to support the proposal for a conference of Red Cross representatives of the belligerent Powers in a neutral country, similar to that held in Stockholm between representatives of Russia and the Central Powers, to discuss, and, if possible, determine, a common basis upon which prisoners of war should be treated, detained, exchanged, or transferred. In reply to Sir Henry Craik, he promised publication of the most recent reports upon prisoner camps in Great Britain drawn up by members of the American Embassy. On August 1st he said that negotiations were in progress for the repatriation or internment in a neutral country of all British civilian prisoners of war now in Germany, whether invalids or not.

THE WAR.

AN ECHO.

A French provincial newspaper a short time ago contained a brief account of a picturesque incident which is worth further record, if only as a useful reminder of a not too well known past.

It was the public presentation of the insignia of Lady of Grace of the English Order of St. John of Jerusalem to the Mother Superior of a convent school in a town within the war zone. The reason of the ceremony was the conduct of this French woman in the month of August, 1914, at a moment when in the eyes of the population of the invaded provinces all seemed lost save honour.

A British medical unit which had taken up its quarters in her pensionnat had had to evacuate so quickly as to be forced to leave behind it all its equipment and belongings, including the rifles and packs of its patients.

Hardly had the train in which the men were placed left the station before the Germans entered the town. One of their first steps was to issue an order that, under pain of death, everything left behind by the British and troops should be handed in forthwith.

But to this order the Mother Superior determined to bid defiance. Her late guests were the allies of her country; they had been doing noble work. Why hand anything of theirs to the bullying, threatening Huns? Intent on the well-being of their patients they had no time even to remove their flags—the Red Cross Pennant and Union Jack. They were as sacred as the tricolor of her own country; these at least she must try to save. So the flags she gave to a Sister, an Englishwoman by birth, to hide among her clothing, the patients' arms and accoutrements she buried in the convent graveyard, and the hospital equipment she hid in cellars, whose very existence she then contrived to conceal by brick and mortar and whitewash. She managed in short to conceal everything but beds and mattresses, for which no hiding place could be found, and to keep them safe until, the town being reoccupied, she was able to hand them over to the French authorities.

The hospital in question was one of the general hospitals which came out with the original Expeditionary Force. It was sent up immediately on its arrival to what was then the advanced base, and not being able to secure any one building sufficiently large for its purpose, it had distributed its beds in several buildings. The principal of these was the convent school mentioned. It had only been at work about a week when the fall of Namur upset the scheme of the Allies' campaign and the backward movement commenced.

At this time the hospital had some 500 cases on its hands and the advance of the Germans was so rapid that the hospital had to be left behind when the town was evacuated by the allied forces. Those in charge of it managed to get away all the lighter cases in batches, together with the sisters and the majority of the personnel, but they still had 45 very serious cases on their hands when news came that the Germans might be expected at any moment.

It seemed at first as if these patients, together with the personnel in attendance on them, must be allowed to fall into the hands of the enemy. They were for the most part grave surgical cases, hardly evacuable in the best of circumstances. How could they be moved from a town now lacking any suitable transport, indeed seemingly void of any wheeled vehicles at all? Still, would even the roughest of journeys be really worse for them than being subject to the untender mercies of a German officer? The patients themselves, at any rate, had no doubt. The devil was worse than the deep sea, which, after all, might not prove unkindly.

So the commanding officer and his remaining staff instantly set to work again. The civilian station-master managed to find a stray engine and three or four vans, and these having been made as comfortable as possible in the time available, the patients were hand-carried to the station, and the extemporized hospital train steamed out just in the nick of time.

In the event the decision proved fully justified, for within twenty-four hours the patients, seemingly none the worse for the experience, were safely lodged in another hospital 100 miles away.

This was the only hospital which had to face quite so crucial a test, but several others had adventures of a similar kind; in fact, all the hospitals which came out with the original Expeditionary Force led a pillar-to-post existence for several weeks after their first arrival. The military situation at the time changed and rechanged so quickly that the D.M.S. of the Expeditionary Force had to keep on moving his medical units, whatever their nominal status.

It must have been a worrying time for everybody, and not least for those who were finally responsible for the success of all the arrangements, worst of all, perhaps, for those battalion, field ambulance, and other medical officers who during the course of the fighting retreat found their choice lay between saving their own skins and sharing the fate of the wounded men in their charge. Of these several with whom the writer is personally acquainted barely escaped being pistolled in cold blood, the Germans choosing to regard them as would-be spies.

Too little has as yet been heard of this first chapter of the medical history of the war. On most occasions those who look back can see how things might have been much better managed; on the present one wonders how they were half as well managed as they were. For it was the unexpected that always arrived, and it arrived with puzzling celerity. No sooner were hospital bases formed than they had to be abandoned, and the casualties—as also the loss of medical personnel—exceeded all calculations based on previous wars. In addition, the military organization of the French railways still had to be completed; the few hospital trains in France did not half meet the needs of the French themselves, and the British forces, in common with their allies and the enemy, began the campaign dependent in the main or horse-drawn transport for all medical and other field formations.

When it came the Germans' turn to recoil things began to settle down, but it was not until the Belgian frontier had again been reached and the long-drawn-out first battle of Ypres was well over that moments of strain and anxiety ceased to be the daily portion of many officers of the R.A.M.C., and especially of its administrators.

Although this early period was one of great difficulty, it was also one of much progress. By the time relatively smooth water had been reached—that is, towards the end of December, 1914—most of the present hospital bases and connecting evacuation lines had been successfully organized, and the R.A.M.C. had gained and had commenced to utilize a long-desired power, namely, that of providing for the transport of its patients from field units to railheads by vehicles directly under its own control, and specially built for this purpose.

Also on the therapeutic or executive side progress had been considerable. The introduction of antitoxin injections as a routine first-aid measure had begun to lessen materially the incidence of tetanus, and the thralls of peace-time experience had so far been shaken off that it was nearly everywhere recognized that the primary aim of treatment must not be aseptic healing but effective drainage.

AUSTRO-GERMAN EXPERIENCES.

An Outbreak of Purulent Stomatitis.

Rumpel[1] has described a serious outbreak of stomatitis among Russians in a prisoners' camp. The disease was confined to a draft of new prisoners and broke out two days after their arrival. There were 12 cases on the first day,

[1] *Muench. med. Woch.*, January 18th, 1916.

50 on the second, 169 on the third, and 200 on the fourth day. The epidemic then waned and had ceased at the end of five weeks. The prodromal symptoms were headache, giddiness, nausea, abdominal pain, and constipation. The gums were swollen and suppurating, there was profuse salivation, and the patient's breath smelt like rotten hay. False membranes and ulcers were scattered around the teeth and in the folds of the mouth, and in smaller numbers over the throat. The temperature was high, the cervical lymphatic glands were swollen, and the liver and spleen were tender. Under treatment with aperients and local astringents, including silver nitrate, the disease ran a favourable course. Dr. Rumpel was inclined to trace the outbreak to some metallic poison in preserved food. The condition somewhat resembled that of mercurial stomatitis; it was not contagious, for it did not spread to the attendants in the camp, nor to the prisoners already interned there. A bacteriological examination showed fusiform rods and spirilla of the Plaut-Vincent type, but inoculation of calves and goats proved negative. In six cases there was a measly or scarlatiniform rash terminating in fine desquamation. The diagnosis of foot and mouth disease or scurvy was dismissed as highly improbable.

Typhoid Carriers with Infected Mouths.

Dr. Eggebrecht[2] states that not only has the typhoid bacillus been found in the mouths of patients long convalescent from typhoid fever, but it has also occasionally been demonstrable in the mouths of persons who had not actually suffered from it. He found that typhoid bacilli may continue to exist in the mouth after they are no longer demonstrable in the faeces. Among 200 cases examined, he found nine with typhoid bacilli in the mouth; and among all his cases there was not one in which typhoid bacilli were demonstrable simultaneously in the mouth and faeces. To ascertain the frequency with which typhoid bacilli occurred in the mouths of convalescents and others who had not apparently contracted typhoid fever, he examined the throats of 174 inmates of an asylum, and in 4.2 per cent. the bacilli were found. These persons were carriers in the truest sense, not convalescents from typhoid fever, and they had not been inoculated against typhoid fever.

Inoculation against Typhoid Fever and Cholera in the German Army.

We have received from a reliable source the following account of the methods of inoculation against typhoid fever and cholera in general use since the beginning of 1916. Inoculation against typhoid fever has been made compulsory in one army corps after another, and now it is compulsory for all the German and Austrian armies: and by the end of 1915 all the armies of the Central Powers were inoculated against cholera as well as typhoid fever.

In performing typhoid inoculation three injections are given at intervals of at least seven days, 0.5 c.cm. being given at the first injection and 1 c.cm. at the second and third injections. When the soldiers are reinoculated only two injections are given, the first dose being 0.5 c.cm. and the second 1 c.cm., an interval between the two injections of at least seven days being allowed.

In cholera inoculation two injections are given at intervals of at least five days, 0.5 c.cm. being given at the first, and 1 c.cm. at the second, injection. When the soldiers are reinoculated, only one injection of 1 c.cm. of vaccine is given. The soldier's number and name, the date of inoculation, its course (local and general reactions, rise of temperature, etc.), and the source of the vaccine are all recorded; and when the inoculation is completed the fact is noted in the soldier's "Soldbuch."

When there is no time to be lost, the following scheme of double inoculation is followed:

First day: First inoculation against cholera.
Third day: First inoculation against typhoid fever.
Fifth day: Second inoculation against cholera.
Seventh day: Second inoculation against typhoid fever.
Seventeenth day: Third inoculation against typhoid fever.

As inoculation against cholera is considered to be effective for not more than six months and that against typhoid fever for not more than eight months, soldiers are reinoculated against cholera and typhoid fever after six and eight months respectively. Soldiers who have recovered from sickness and wounds and who have been inoculated against cholera more than four months earlier and against typhoid fever more than eight months earlier are reinoculated before being sent to the front. This does not, however, apply to soldiers who have recovered from typhoid fever and cholera.

The injections are given in the afternoon, so that the reaction may occur at night. The skin over the left nipple is disinfected with alcohol or tincture of iodine, and the needle is boiled between each injection. As the syringe has a capacity of 10 c.cm. and plenty of needles are available, this precaution does not waste much time. At the outbreak of the war the Army Medical Service was caught napping with regard to vaccines, of which not even a small stock had been laid in, and there were no laboratories in the service for this purpose. A number of university and other laboratories began to make good this want, and even a couple of dyeing firms undertook to prepare vaccines for the army. Towards the end of 1915 there were twenty-six laboratories in Germany turning out vaccines, which were tested at a control laboratory in Berlin before being sent to the central dépôt of the Medical Service, where they were stored in bottles containing 20, 50, and 100 c.cm. A considerable quantity of the vaccines had to be rejected at the control laboratory on account of autolytic processes, deposits, or too few bacilli to the cubic centimetre. Another mistake often committed at first was to add carbolic acid to the cultures before they had been diluted, instead of after.

As the whole German army was revaccinated in time of peace, there was little fear of serious outbreaks of smallpox during the war. But the older classes, revaccinated more than seven years earlier, had again to undergo vaccination before being dispatched to the front. When vaccination had to be combined with inoculation against typhoid fever and cholera, the soldier was vaccinated on the first day, inoculated against cholera on the second day, against typhoid fever on the fourth day, against cholera on the sixth day, against typhoid fever on the eleventh day, and again against typhoid fever on the eighteenth day.

The Recruiting Standard in Austria.

The conditions under which the medical examination of recruits is at present carried on in Germany, and the extent to which the standard of fitness for military service has been lowered, are closely guarded secrets. But the following information has filtered out about the relaxation of the earlier requirements for recruits in the Dual Monarchy. Here practically every one who can do an ordinary day's work is pressed into military service. Men who cannot be used at the front are employed on the lines of communication and on military duties at home. Recruits are given three months' training, during which "useless material" is weeded out. The military age is now 18 to 50, and men with compensated heart disease are taken for active service, as their efficiency for trench warfare is regarded as normal. Hernias are no longer a cause of exemption; its subjects are compelled to undergo an operation for it. The loss of the left eye is no longer a disqualification for combatant service, and even the very deaf are accepted, being drafted into the artillery. Loss of fingers of either hand is also overlooked, and men with extreme curvature of the spine or club-foot are frequently seen in the Austrian uniform. On the other hand, men suffering from definite nephritis are still exempted.

[2] *Munch. med. Woch.*, March 14th, 1916.

CASUALTIES IN THE MEDICAL SERVICES.

Army.

Killed in Action.

Captain Alexander Petrie Low, R.A.M.C. (T.F.), reported as killed in action in July, was a native of Arbroath, and was educated at Edinburgh University, where he graduated as M.B. and C.M. with honours in 1896. After acting as resident medical officer at Craiglockhart Poorhouse, Edinburgh, he went into practice in Dundee, and was one of the surgeons of the Dundee Royal Infirmary. He took a commission as captain in the 1st (Aberdeen) Scottish General Hospital on December 20th, 1912, and after serving with that unit for the first year of the war, was attached to the Seaforth Highlanders at the front. He leaves a widow and two sons.

Captain Hugh Gwilym Morris, R.A.M.C., was reported killed in action in the casualty list published on July 25th. He was educated at Oxford, where he took the M.B. and B.Ch. in 1914, entered the R.A.M.C. as a temporary lieutenant on February 8th, 1915, and was promoted to captain on completion of one year's service.

Captain Alfred Maurice Thomson, R.A.M.C., was reported as killed in action in the casualty list published on July 30th, aged 30. He was the only son of Mr. Alfred Thomson of Belfast, and was educated at Queen's College, Belfast, and at Manchester University, graduating as M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1909, also taking the certificate in mental psychology of the National University of Ireland in 1910, and the D.P.H.Camb. in 1914. After qualifying, he acted successively as casualty house-surgeon at the Miller General Hospital, Greenwich; first assistant medical officer at Farnham House Private Asylum at Finglas; assistant medical officer of the Lancaster County Asylum at Prestwich; and finally assistant medical officer of the Middlesex County Asylum at Napsbury, St. Albans. He joined the Special Reserve of the R.A.M.C. as lieutenant on September 10th, 1914, and was promoted to captain a year later.

Lieutenant Richard Fenton Theodore Newbery, R.A.M.C., aged 25, was killed in action on July 14th. He was the elder son of the late E. C. Newbery, of Nice, was educated at Tonbridge School and at Edinburgh University, where he graduated as M.B. and Ch.B. in 1915, and, after acting as house-surgeon and house-physician of Edinburgh Royal Infirmary, took a temporary commission as lieutenant in the R.A.M.C. last October. He was attached to the Northamptonshire Regiment, and had been recommended for a Military Cross for heroism in attending the wounded. His wife is the eldest daughter of the Rev. Alex. Wylie, Edinburgh.

Died of Wounds.

Captain William Garrow Shand, R.A.M.C., died of wounds on July 25th, aged 34. He was the eldest son of the late John Shand of Lanark, and was educated at Glasgow University, where he graduated as M.B. and Ch.B., with commendation, in 1903. After acting as clinical clerk at the Gartloch Asylum, Gartcosh, and as surgeon on the Anchor Line, he went into practice in Regent Road, Salford, and represented his ward in the Borough Council of Salford for some years, retiring in 1912. He took a temporary commission as lieutenant in the R.A.M.C. in June, 1915, and became captain a year later.

Died on Service.

Lieutenant-Colonel A. H. Lister, C.M.G., R.A.M.C.(T.F.), died on his way home from Egypt on July 17th. An obituary notice is published at p. 207.

Captain Wallace Hillbrook died at Nairobi, British East Africa, on July 22nd, aged 24. He was the son of Mr. J. E. Hillbrook, of Sutton, Surrey, and was educated at Clifton College and at Emmanuel College, Cambridge, where he graduated as M.B. and B.C. in 1915, and at St. George's Hospital, taking also the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915. After acting as house-physician at St. George's he went to Africa as medical officer of the Church Missionary Society's hospital at Mengo, in Uganda, and at the time of his death was employed as medical officer of the Congo Carrier Corps.

Lieutenant Stanley Walter Burrell, R.A.M.C., died in France of cerebro-spinal meningitis on July 22nd, aged 25 years. He was the second son of the Rev. F. W. Isaacs, vicar of Chiswick, having taken the old family name of Burrell shortly after qualifying. He was educated at St. Paul's School and at St. Bartholomew's Hospital, where he gained the Wadham Prize for Surgery, and filled the post of house-surgeon; he was also president of the Abernethian Society, and a contributor to the Hospital Journal. While house-surgeon at St. Bartholomew's he volunteered for the Royal Army Medical Corps, and went to the front early in May last, being attached to a field ambulance, and subsequently transferred to a casualty clearing station. He obtained the diploma M.R.C.S., L.R.C.P. in July, 1915, and he had only the final examination to take (for which he was not yet eligible when he went on active service) for the London M.B. degree. His late chief at the hospital writes: "He was one of the best." While one who knew him well there writes: "He leaves behind him a loved, honoured, and tender memory in the hearts of us all—staff, patients, students." And one who was contemporary with him on the resident staff of St. Bartholomew's writes: "Undoubtedly, had he survived, he would have attained to eminence in the profession, as he combined with technical skill the spirit of sympathy with the afflicted which is so important." He was keen on all outdoor games, and was an excellent rider. A memorial service was held in the Church of St. Bartholomew-the-Great, Smithfield, on July 28th, when the Bishop of Stepney officiated.

Dr. Eliot William Welchman, of the Close, Lichfield, Staffordshire, died suddenly at sea on July 15th while employed as a surgeon in the Admiralty Transport Service, Union Castle line. He took the diplomas of L.R.C.S. and L.R.C.P. at Edinburgh in 1883, and the M.R.C.S. in the same year, after studying at Queen's College, Birmingham. He had served in the Staffordshire Imperial Yeomanry, from which he retired with the rank of surgeon-major.

Wounded.

Captain W. K. Campbell, R.A.M.C. (S.R.).
Captain W. D. Chambers, R.A.M.C. (temporary).
Captain F. E. Chapman, R.A.M.C. (temporary).
Captain J. P. Charles, R.A.M.C. (temporary).
Captain D. H. Derry, R.A.M.C. (temporary).
Captain D. J. Evans, R.A.M.C. (temporary).
Captain J. S. Granger, South African Medical Corps.
Captain A. Grant, R.A.M.C. (temporary).
Captain L. S. Greene, South African Medical Corps.
Captain C. F. Hacker, R.A.M.C. (S.R.).
Captain W. J. Henry, R.A.M.C. (temporary).
Captain R. Lawson, R.A.M.C. (temporary).
Captain S. S. Liebson, South African Medical Corps.
Captain R. H. Lucas, R.A.M.C. (temporary).
Captain S. W. Maclellan, R.A.M.C. (temporary).
Captain J. A. Macleod, R.A.M.C. (temporary).
Captain A. T. Nankivell, R.A.M.C. (temporary).
Captain H. E. O'Brien, R.A.M.C. (temporary).
Captain F. W. E. Paisford, R.A.M.C. (temporary).
Captain A. F. Palmer, R.A.M.C. (temporary).
Captain R. Park, R.A.M.C. (temporary).
Captain J. H. H. Pearson, R.A.M.C. (temporary).
Captain D. Pottinger, R.A.M.C. (temporary).
Captain T. Sheehan, R.A.M.C. (temporary).
Captain J. Stenhouse, R.A.M.C. (temporary).
Captain J. D. Wilkinson, R.A.M.C. (temporary).
Captain C. R. Wills, R.A.M.C. (temporary).
Lieutenant A. L. Anderson, R.A.M.C. (temporary).
Lieutenant M. Macniff, R.A.M.C. (temporary).
Lieutenant H. B. Maxwell, R.A.M.C. (temporary).
Lieutenant E. F. Nivin, R.A.M.C. (temporary).

Prisoner of War.

The name of Major S. Bose, I.M.S., is added to the list of officers taken prisoners at Kut-el-Amara in April.

DEATHS AMONG SONS OF MEDICAL MEN.

Blumer, Murray P. H., Middlesex Regiment, only son of Mr. Percy Blumer, F.R.C.S.Edin., Muswell Hill, N., aged 27 years, is missing, and unofficially reported killed in action on July 1st. He was educated at Dean Close School, Cheltenham, and joined the Public Schools Battalion at the outbreak of war. He went to the front in November, 1915.

Bullivant, Alfred J., Second Lieutenant Sherwood Foresters (Notts and Derby Regiment), younger son of the late Dr. Bullivant, died of wounds on July 4th, aged 19. He was wounded at Hooge last August, and got a commission in January, 1916. His only brother has been missing since October, 1914.

Caesar, C. P., Lieutenant King's Shropshire Light Infantry, son of the late Dr. C. A. Caesar, of Hatfield, Herts, killed recently, aged 29. He was at Keble College, Oxford, before the war, and got his commission on February 1st, 1915.

Chambers, Antony Gerald, Second Lieutenant Duke of Cambridge's Own Middlesex Regiment, fourth son of the late Dr. Antony B. Chambers, of Long Eaton, Notts, killed on July 1st, aged 21. He was educated at St. Mary's College, Chesterfield; enlisted in the Public Schools Battalion; and got his first commission on May 9th, 1915. Three of his brothers are serving at the front.

Clery, Noel Cairns, Lieutenant Royal Field Artillery, younger son of Surgeon-General Clery, C.B., A.M.S. (retired), killed July 24th, aged 23. He was educated at Downside and at Woolwich, got his first commission on May 24th, 1913, and became lieutenant in June, 1915; he had gained the Military Cross.

Compton-Burnett, Noel, Second Lieutenant Leicester Regiment, son of the late James Compton-Burnett, M.D., killed July 14th, aged 28. He was educated at Cambridge, where he gained a Fellowship at King's College, and got his first commission on November 23rd, 1914.

Donaldson, Geoffrey Boles, Captain Royal Warwickshire Regiment, only child of the late Dr. Donaldson, of Londonderry, killed on July 19th, aged 22. He was educated at Oundle School and at Caius College, Cambridge, gaining a leaving scholarship at the former and an entrance scholarship at the latter, and graduated as B.A. in 1914, taking a first class in the Natural Science Tripos. He was in the O.T.C. at the University, got his commission in October, 1914, became lieutenant on December 8th, 1914, and captain last March, and went to the front in May.

Doyle, Edward Percival, Second Lieutenant, eldest son of Dr. Doyle, of San Fernando, Trinidad, died on July 5th of wounds received the same day.

Fooks, Eric John Dodgson, Machine Gun Company, New Zealand Forces, youngest son of Lieutenant-Colonel G. E. Fooks, I.M.S. (retired), killed June 18th, aged 19.

Hall, Warwick, Lieutenant South Staffordshire Regiment, son of Dr. Hall, Hodnet, Shropshire, killed July 1st. He and his twin brother, Lieutenant Bruce Hall, were educated together at Denstone College, and had entered at Cambridge, when they both took commissions in the same battalion, on August 15th, 1914. Bruce being ranked the senior of the two. Bruce Hall was killed at Loos last September. Warwick Hall had previously been wounded last May.

Heyward, Maurice, Second Lieutenant Dorsetshire Regiment, attached Devon Regiment, fourth son of Dr. Heyward of Castlemain Avenue, Croydon, killed on July 20th, aged 25. His commission was dated March 13th, 1915.

Johnson, Henry Duffield, Private Somersetshire Light Infantry, third son of the late P. P. Johnson, M.B., killed July 1st, aged 24.

Limont, William Eric, Second Lieutenant Northumberland Fusiliers, only son of the late Dr. James Limont, of Queen Square, Newcastle-on-Tyne, killed July 14th, aged 22.

MacCombie, William John, Captain King's Own Scottish Borderers, only surviving son of Dr. John MacCombie, Manor House, Rothwell, Northants, killed July 17th, aged 24. He was educated at Oundle School, at Caius College, Cambridge, and at the London Hospital, where he was a medical student. He had taken his B.A., and passed the second M.B. exam., when he took a commission on October 17th, 1914. He went to the front in October, 1915, and got his company in June, 1916.

Ratcliff-Gaylard, Eric Ronald, Second Lieutenant Duke of Cornwall's Light Infantry, younger and only surviving son of Dr. Ratcliff-Gaylard, Clifton Park, Birkenhead, killed on July 19th, aged 21. He was educated at Probus School, Cornwall; King's College, Taunton; and Birkenhead Institute, and joined the 1st Battalion of the King's Liverpool Regiment at the outbreak of the war. Eight months later he was transferred to the Inns of Court O.T.C., and got his commission fourteen months ago. His elder brother, Cecil C. A. Ratcliff-Gaylard, of the Australian Forces, was killed at Anzac, in Gallipoli.

Ritson, John Andrew, Captain South Lancashire Regiment, only son of Dr. Ritson of Reading, killed in action in July. He was educated at Rugby and at Trinity College, Cambridge, and rowed in the Cambridge boat in 1914.

Sanderson, Walter Ker, Second Lieutenant Border Regiment, only surviving son of the late Dr. Sanderson of Penrith, killed in July. He was educated at Sedbergh, and served for eleven years in the Vote Office in the House of Commons. He joined the Public Schools Battalion at the beginning of the war, got a commission in the Royal West Kent Regiment, and was transferred to the Border Regiment.

White, John Lee, Lieutenant Leinster Regiment, attached Royal Flying Corps, third son of Lieutenant-Colonel M. J. White, R.A.M.C., killed by a shell during a reconnaissance over the enemy's lines on July 8th. He was born at Cape Town in 1894, educated at Castleknock and at the Jesuit College, Liverpool, and joined the Leinsters from Sandhurst in February, 1915, becoming lieutenant on October 20th, 1914. He came from India to France with his battalion, was wounded at St. Eloi on March 14th, 1916, and got the Military Cross in June.

White, W. F. O., Captain Dorsetshire Regiment, eldest son of Dr. W. White, of Bournemouth, killed in July. He joined the army in 1908, and became captain on June 16th, 1912. In 1911 he was accepted for service with the 2nd West African Regiment, of which he became adjutant, and also served as A.D.C. and private secretary to the Governor of Sierra Leone. In 1912 he was at home on leave, and rejoined the Dorsetshire Regiment when the war began; was put in command of a [illegible] company, and had served in Egypt and in Gallipoli.

Medical Services.

Fisher, Henry Lewis, Lieutenant North Staffordshire Fusiliers, who died in hospital on July 20th, was the younger son of Dr. C. L. Fisher of Brighton. He was born in 1895, and received his education at Cheam and Winchester. After farming in England for a year in Canada, he returned on the declaration of war, and joined the Sussex Yeomanry in December, 1914. He went to the front in July, 1915, and in January, 1916, was attached to the machine gun corps.

Gregory, Walter Vincent, Captain 1st attached 1st East Surrey Regiment, killed in action on July 20th, was the eldest son of Dr. Walter Gregory, of Wallington, Surrey, aged 27. He was educated at the Grange, Eastbourne, and at Haileybury. He obtained his first commission in 1907, and subsequently went out to the Federated Malay States. Soon after the commencement of the war he came home, rejoined his regiment, and was sent to France in November, 1915.

Gulliland, John Hutchinson, Captain Essex Regiment, died of wounds on July 18th. He was born in Calcutta in 1893, the elder twin son of Mr. Colin C. Gulliland, of Glenthorne, North Foreland, Broadstairs, and was educated at Oundle School and at Caius College, Cambridge, where he was a medical student. He was a member of the Cambridge O.T.C., joined the Public Schools Battalion at the beginning of the war, and got a commission in the Essex Regiment, becoming captain on March 6th, 1915. He was wounded at Loos, but rejoined early in 1916, and was recently attached to the staff of an infantry brigade.

Gunson, Leslie R. S., Lieutenant Royal Garrison Artillery, aged 21, killed in action, was the only son of Mr. and Mrs. Gunson of Ghyll Bank, Whitehaven. Previous to the war Lieutenant Gunson was a medical student at Edinburgh University.

McVicker, John W., Second Lieutenant King's Liverpool Regiment, of Moss-side, Antrim, killed in July. He was educated at Coleraine Academy and at Edinburgh University, where he had completed the first year's medical study when, on the outbreak of the war, he joined the North Irish Horse as a trooper. He got his commission on November 16th, 1914.

Murray, Henry Berkeley, Lieutenant Argyll and Sutherland Highlanders, aged 32, was the fifth son of the late Dr. W. Berkeley Murray of Tenbury Wells, Worcestershire. He was educated at Pocklington School, Yorkshire, and was a member of the London Scottish for seven years prior to his taking up a civil appointment in Bombay, which he held for six years. On the outbreak of war he returned to England and received a commission. He went to the front on December 10th, and had been in several engagements before he fell on July 18th.

Rigby, W. G. M., Lieutenant East Lancashire Regiment, died of wounds, was educated at King William's College, Isle of Man, and at Manchester University, where he was a dental student. He got his commission on October 2nd, 1914.

A CORRECTION.—In the list of prisoners of war taken at the surrendering of Kut, published in our issue of July 22nd, p. 123, the name of Captain W. L. E. Fretz, R.A.M.C., was incorrectly printed.

NOTES.

WITTENBERG CAMP.

AT a Chapter-General of the Order of St. John of Jerusalem, on July 28th, the Sub-Prior, Lord Plymouth, presented gold life-saving medals of the Order to Major Harold Edgar Priestley, C.M.G., R.A.M.C., and Captain Alan Cunliffe Vidal, D.S.O., R.A.M.C., in recognition of the gallantry displayed by them at the Wittenberg Camp. Captain James La Fayette Lauder, D.S.O., R.A.M.C., was prevented by military duties abroad from attending to receive a similar medal.

The response to the appeal of Lady Parker of Waddington has been sufficient to enable her to arrange for a bronze relief to be designed by Mr. Arthur Walker, sculptor of the statue of Florence Nightingale in Waterloo Place and the fine relief of her ministering to the wounded in St. Paul's. The memorial will commemorate the names and services of Major W. B. Fry, Captain A. A. Sutcliff, and Captain Stephen Field, officers of the Royal Army Medical Corps, who died of typhus fever while attending on British soldiers suffering from the disease in Wittenberg Camp. Captain Lauder, it may be remembered, also suffered from the disease, but recovered.

HONOURS.

The *London Gazette* of July 27th, 1916, announces the grant of a large number of honours, D.S.O.s, and Military Crosses. The following medical officers are included among the recipients.

D.S.O.—Temporary Lieutenant L. M. Rowlette, R.A.M.C.

Military Cross.—Temporary Captain N. Black, R.A.M.C., Captain H. E. Cumming, Canadian A.M.C., Captain H. F. L. Hugo, R.A.M.C.(T.F.), Temporary Captain F. P. Joscelyne, R.A.M.C., Captain N. L. Joynt, R.A.M.C.(S.R.), Captain R. A. Stewart, R.A.M.C.(S.R.), Temporary Lieutenant J. R. Irwin, R.A.M.C., Temporary Lieutenant P. M. Turnbull, R.A.M.C.

The same *Gazette* also specifies the services which gained the D.S.O. for Captains P. F. Gow (I.M.S.), W. Dawson (R.A.M.C., temporary), and W. A. Miller (R.A.M.C., S.R.); and the Military Cross for Captains C. M. Brophy (R.A.M.C., temporary), J. A. Cullum (Canadian A.M.C.), A. E. Ironside (R.A.M.C., T.F.), J. M. Mackenzie (R.A.M.C., temporary), W. H. Riddell (I.M.S.), and Temporary Lieutenant C. C. O'Kell (R.A.M.C.). The grant of these honours has been previously announced in the *London Gazette* of June 26th (BRITISH MEDICAL JOURNAL, July 1st, p. 28).

The name of Surgeon-Major and Honorary Surgeon Lieutenant-Colonel Roger Bullock (Warwickshire Yeomanry) should have been included in General Maxwell's recommendations—first list, Part I. operations on the Western front—published in our issue of July 1st, p. 28.

Western Australia.

THE CONTROL OF VENEREAL DISEASE IN WESTERN AUSTRALIA.

WE have just received, by the courtesy of the Commissioner of Public Health, Perth, W.A., a copy of the new "Health Act Amendment Act," which received the Royal assent on December 8th, 1915. The Act deals with venereal diseases—namely, gonorrhoea, syphilis (including congenital syphilis), soft chancre, venereal warts, and granuloma. The Act is short, very much to the point, plainly drawn, and punctuated with penalties. Each salient clause ends up with the appropriate penalty for non-observance; some are very severe. The main provisions are as follows:

"No person other than a medical practitioner, or person acting under the direct instructions of such a practitioner, shall attend upon or prescribe for any person suffering from any venereal disease for the purpose of curing, alleviating or treating such disease." Penalty £50 or six months' hard labour. There are certain exceptions with regard to the sale of prescribed or authorized drugs by registered chemists, but they do not invalidate the general effect of the clause.

"Every person suffering from any venereal disease shall, within three days of his becoming aware or suspecting that he is so suffering, consult a medical practitioner and place himself under treatment by such practitioner." Penalty £20. He must keep under treatment until he receives a certificate of cure. Penalty £20. If he changes his doctor he must declare the name and address of his last previous adviser, the new doctor shall notify such previous adviser. Penalty £5.

Every doctor must notify all cases of venereal disease in prescribed form to the Commissioner, stating age and sex of patient, but not name and address. Penalty £5.

If a patient fails to attend his doctor for six weeks the doctor must notify the Commissioner, giving name and address of the patient. Penalty £5.

The doctor shall give the patient written notice of the danger of the disease, particularly warning against marriage until cured. Penalty £5.

In case of a person under the age of 16 years being infected the parents or guardians are to exercise their authority to secure observance of the Act. Penalty £10. They must report to the Commissioner failure of the person to carry out the law. Penalty £10.

The most drastic provision of the Act, however, relates to compulsory examination and treatment.

"When the Commissioner has received a signed statement, in which shall be set forth the full name and address of the informant, stating that any person is suffering from venereal disease, and whenever the Commissioner has reason to believe that such person is suffering from such disease, he may give notice, in writing, to such person requiring him to consult a medical practitioner . . . to produce . . . a certificate . . . that such person is or is not suffering from the disease. . . . If the Commissioner is not satisfied with such certificate he may, by warrant under his hand, authorize any medical officer of health or any two medical practitioners to examine such person to ascertain whether such person is suffering from the disease, and the said officer or practitioners shall have power to examine the person accordingly, and shall report the result of his or their examination to the Commissioner in writing." In case of a female one doctor shall, if the person so desire, be a female doctor if one be available.

If the report states that the person is suffering from the disease and the Commissioner judges there is risk of infecting others he may issue a warrant for the arrest of the person and detention in hospital for two weeks, where any examination necessary may be made. If further detention is deemed necessary the Governor, on the recommendation of the Commissioner, may issue a warrant for the arrest and detention of the person for such time as he thinks fit and for treatment and examination. The detained person has the right to apply to the courts for an independent examination by two doctors, one named on behalf of the patient, who shall certify his state. Such appeal may not be repeated within six months of a previous appeal. The section applies to persons already in prison, and the hospital detention is to count as part of their term of imprisonment. The warrants issued authorize the use of force to carry them into effect, and the police "shall on sight of the warrant" render all necessary aid. Penalty £20.

"No person shall knowingly infect any other person with venereal disease or knowingly do or suffer any act likely to lead to the infection of any other person with such a disease." Penalty £50 or six months' hard labour.

The Commissioner is to provide, free of charge, all laboratory investigation necessary to accurate scientific diagnosis to all medical practitioners.

Powers are given to subsidize hospitals for the treatment of the infected, and at such hospitals the treatment shall be free. Every medical practitioner in receipt of any salary from the State shall examine and treat free of charge any infected person who applies to him, and the Commissioner shall reimburse him. Penalty £5.

All proceedings under these sections of the Act in any court shall be *in camera*, and it shall be unlawful to publish in any newspaper a report of any such proceedings. Penalty for first offence £100 or six months', second offence £500 or twelve months' imprisonment.

There is complete prohibition of advertisements of medicines, instruments, or appliances for venereal disease, sexual impotence, female irregularities, and so forth. No circulars, books, or any printed notices are permitted to be circulated by hand, exhibition, or newspaper, or to be sold or sent through the post. There is a clean sweep of all means of circulation, and every agent for such possible circulation is brought into responsibility for such infringement.

Secrecy is enjoined on the administrators of the Act. Penalty £100.

Certificates.

Of the certificates required under the Act the most important is that for the "anonymous" notification, as follows:

Date .....

Address .....

THE COMMISSIONER OF PUBLIC HEALTH.

I have this day attended for the first time a case of:

Syphilis (primary)	
,, (secondary)	
,, (tertiary)	
,, (congenital)	
Gonorrhœa	
Chancroid (soft chancre)	
Infective granuloma of the pudenda	

occurring in a male / female aged .....

I have advised the patient of the communicable nature of his / her complaint and have handed to him / her the pamphlet provided.

The patient has / has not previously been under treatment for the present infection.

.....

Signature of Medical Practitioner.

NOTE.—Only one form should be used for each patient, a × being placed in the square provided opposite the disease or diseases from which the patient is suffering.

The "Certificate of Cure" is also of interest. It reads as follows:

Date.....

Address .....

I hereby certify that to the best of my knowledge and belief .....is not now suffering from venereal disease in any form.

Sgd.....

Medical Practitioner.

This Certificate is not to be regarded as a guarantee of cure, for the reason that it is frequently impossible to definitely detect evidence of sexual disease. By it the medical attendant implies that as a result of his observations he can no longer detect signs or symptoms of sexual disease.

No one should regard himself cured of syphilis unless he has been under active treatment for at least two years.

In the case of gonorrhœa, the cessation of all visible discharge does not of itself definitely indicate that the patient is non-infectious.

The Attitude of the Chemists.

A roneographed letter to the chemists shows that steps have been taken to disarm the opposition of the "prescribing chemists"; it is acknowledged they may suffer loss, "but it is felt that all right thinking men will realize the urgent need for legislation in this direction, and will support it."

An Official Pamphlet.

A very neat booklet of ten pages has been issued from the Government press dealing with sexual diseases. The cover has no indication of the contents, save that it is issued by the Department of Public Health. But within there is plain writing of the best sort. The salient parts are printed in red ink, so that there can be no chance of overlooking them. And lest ignorance should excuse the lack of understanding the significance of names like syphilis and gonorrhœa, their common synonyms are printed alongside as pox and clap. The ways in which the diseases may be contracted are stated. The symptoms, stages, and the ultimate effects of the infections are described in simple but impressive words. The precautions to be taken by an infected person are so plainly put that the reader can scarce fail to see the picture of the leper hiding his face in his hands as he warns the passer-by of his uncleanness. Yet to each is appended the state-

ment that "the earlier he gets skilled treatment, and the more of it he receives, the earlier will he cease to be a danger to the community." No reference is made anywhere to the nature of the treatment.

There is an excellent note on the common belief that sexual intercourse is necessary to health, and, finally, one on the dangers of alcohol through the loss of self-control. The book is excellently written, and it should have a wide circulation with every advantage to the community. This pamphlet must be handed to an infected person by a doctor attending him by direction of the Act, but it is intended that it shall have an even wider circulation wherever men congregate, as in military camps.

Scotland.

WOMEN MEDICAL STUDENTS IN EDINBURGH.

IN a paragraph in the JOURNAL for July 8th (p. 58) on the position of the women medical students in Edinburgh as affected by the recommendation of the Senatus Academicus of June 28th, it was stated that the action taken by the Medical Faculty and the University Court would be awaited with great interest. The recommendation of the Senatus was that the classes in the Faculty of Medicine should in future be open to women. It is understood that the Court, at their meeting on July 10th, resolved to make provision within the university for the instruction of women in the Faculty of Medicine. Further, with a view to the completion of arrangements for providing this instruction next session, so far as practicable, in subjects qualifying for examination, the Court remitted to a committee of the Court to report upon such arrangements, after taking into consideration the replies from the heads of the various departments transmitted by the Senatus, and upon the additional expense, if any, involved, and to confer with the Faculty of Medicine, and with power to negotiate with Dr. Russell and the extramural teachers and with the infirmary managers. Following upon this action, it is understood also that the lecturers of the Edinburgh School of Medicine for Women had several meetings; that the Dean of that school (Professor William Russell) had an interview with the committee appointed by the Court; and that matters were also discussed by the Faculty of Medicine with the Court's Committee.

The University Court met again on July 24th, when there were present: Principal Sir Alfred Ewing (in the chair), the Hon. Lord Dundas, Mr. James Walker, Dr. D. F. Lowe, Dr. R. McKenzie Johnston, Baillie Buchan, Sir George Berry, Professor Rankine, Professor Hudson Beare, Professor Lodge, and Professor Littlejohn. The proceedings as reported in the *Scotsman* newspaper on July 26th were as follows:

With regard to the medical education of women within the university, the Court had before them an interim report by the Committee appointed at the special meeting on July 10th. After consideration, the Court resolved to suspend the standing orders in order to hold a meeting on August 28th, and to ask the Committee to present a further report by that date.

The Court had before them a letter signed by Mrs. Chalmers Watson (first medical woman graduate, 1878) and Miss S. E. S. Mair (chairman of the Edinburgh Hospital and Hospice for Women and Children), offering, on behalf of the women medical graduates, the students, and their friends, to pay to the University Court within a year from date the sum of £4,000 towards defraying whatever outlay the university may find it necessary to make in order to facilitate the introduction of women students to the classes of the medical faculty. The conditions attached to the offer are (1) that women are admitted to professorial teaching; (2) that the same privileges at present enjoyed by male students are extended to women students; and (3) that this information is provided at an early date. The Court resolved to thank the women medical graduates, the students, and their friends for their very generous offer, and to express their hope that its fulfilment would facilitate the making of the arrangements for the instruction of women medical students within the university, which are under the consideration of a committee of the Court.

It is understood that the £4,000 which Mrs. Chalmers Watson and the others are endeavouring to raise is to enable the university to acquire the New School and thus meet most of the difficulty of accommodation.

At a meeting on July 26th the lecturers of the Edinburgh School of Medicine for Women resolved to send a letter in the following terms to all the students (over 120) who had been attending the school:

The lecturers of the Edinburgh School of Medicine for Women beg to inform you that the University Court have resolved "to make provision within the university for the instruction of women in the Faculty of Medicine," and is making "arrangements for providing this instruction next session." They have therefore to intimate to you that as the university has come to this decision this school will no longer exist, and that the arrangements made for the students at Surgeons' Hall will cease. The lecturers regret the severance of their relations with the women students, which have been so highly satisfactory in recent years, and they also regret that, so far as they can judge, the university does not contemplate making arrangements for their teaching in classes apart from men students. You will understand the action the lecturers are taking at this time when you are reminded that for the past eight years the lecturers of the school in their corporate capacity have been recognized by the university as the only lecturers to women in Edinburgh, a condition of their recognition being that the women should be taught in classes separate from the men. This abrupt change in university policy makes the continued existence of this school both unnecessary and impracticable, and this intimation is made to you with the least possible delay.

In an article in the *Glasgow Herald* of July 28th, the following comment is made upon the "innovation at Edinburgh University":

The decision which the University Court has now come to in agreeing to the principle of admitting women students brings the university into line with other well-known teaching centres in Scotland such as [Queen] Margaret's College, Glasgow, Aberdeen, Dundee, and St. Andrews. It also eliminates certain factors in examination which sometimes told against the candidate where the examiner, when there was any doubt, might have been inclined to act differently had he known the class record of the student under examination.

Ireland.

WOUNDED SOLDIERS IN DUBLIN.

THE hospital ship *Marama*, from the western front, arrived at the North Wall Extension, Dublin, on July 22nd. A large number of motor ambulances, as well as two hospital trains, were waiting, and a large number of members of the Dublin Branch of the British Red Cross Society and St. John Ambulance Association, as well as a party of military stretcher bearers, were present. The Irish Automobile Club supplied an ample number of motors, and the motor ambulance of the Dublin Fire Brigade was also in attendance. The entire ambulance arrangements were carried out under the supervision of Dr. Lumsden. There were in all 479 wounded men on board, all of whom had sustained their wounds during the recent heavy fighting. Within an hour of the ship's arrival the special hospital trains were dispatched for Belfast and Cork, each train having on board 20 cot cases and 120 sitting cases. The Dublin cases were sent to the following hospitals: Wheeler's Hospital, 3 officers; Richmond Hospital, 20 men; Jervis Street Hospital, 15 men; Mater Hospital, 10 men; Mercer's Hospital, 8 men; Adelaide Hospital, 10 men; Meath Hospital, 10 men; Castle Red Cross Hospital, 100 men; St. Vincent's Hospital, 6 men; Royal City of Dublin Hospital, 10 men; Sir Patrick Dun's Hospital, 6 men. The passing of the ambulances attracted a considerable crowd at O'Connell Bridge and Eden Quay, and cheers were frequently raised for the wounded heroes.

England and Wales.

THE London County Council at its last meeting agreed to extend for a further period the engagement of a psychologist in the Education Department. It was stated that the experiment, which was started three years ago, had proved successful. During the years 1914 and 1915 the average number of children certified for admission to schools for the mentally defective had decreased by 287 as compared with the average number for the preceding four years.

Dr. Robert Armstrong-Jones has resigned, as from September next, his appointment as medical superintendent of Claybury Asylum, which he has held since the opening of the institution some twenty-three years ago. At the last meeting of the London County Council the Asylums and Mental Deficiency Committee placed on record its high appreciation of the great and useful work he had done at the asylum.

The London County Council and Venereal Diseases.

The London County Council at its meeting on August 1st had before it reports from several of its committees on the subject of venereal disease, in view of the recommendations of the Royal Commission. The Asylums and Mental Deficiency Committee submitted some figures which showed that acquired syphilis was a principal or contributory cause in 421 out of the 3,631 cases admitted during 1914; this represented 11 per cent. of the total admissions, leaving out of account those cases in which hereditary syphilis might have operated as a factor. The number of general paralytics in residence in London county asylums at the end of 1914 was 464, representing an estimated annual cost for maintenance of £18,560. As the number of deaths from general paralysis rather more than balanced the number of admissions, the time of residence in an asylum before the fatal termination of the disease might be taken to be about twelve months, the number of so-called recoveries being negligible. The Local Government Committee expressed the opinion that if any steps were taken by and duties entrusted to the local authorities, the Council should be constituted the authority for the administrative county of London; and, further, that the whole or a considerable part of the cost of diagnosis and treatment should be met out of imperial funds. The Education Committee gave details of the procedure which has been followed for some time past with regard to instruction in sex hygiene in the elementary schools, and stated that it had been decided to remind responsible teachers of certain memoranda which had been issued on this subject. It was felt that responsibility for instruction in sex hygiene should rest with the head master or head mistress, and that in the case of girls in mixed schools the head master should delegate this duty to the chief assistant mistress. The General Purposes Committee expressed the opinion that a scheme should be framed for diagnosis and treatment; but the Public Health Committee was not in a position to make any report, beyond putting forward the suggestion that measures of prevention should be carried out side by side with any system of treatment.

India.

St. John Ambulance Brigade.

The *Indian Ambulance Gazette* reports that the St. John Ambulance Brigade in India has contributed two contingents, of fifty men each, for service in the field, also twenty nurses to Queen Alexandra's Imperial Military Nursing Service Reserve. In each case the chief difficulty was to select the most suitable individuals from the crowd of applicants. When the Indian Expeditionary Force was being dispatched from Bombay to Europe, the Bombay branch of the brigade established ports in Bombay docks to attend to accidents and cases of sudden illness, and from August to November, 1914, treated over 1,900 cases. When this work was no longer necessary, after the dispatch of the force, the same branch took over the duty of transporting the sick and wounded soldiers arriving from the forces overseas, from ship to hospital and from hospital to train, and since December, 1914, when the first cases arrived, had handled about 27,000 cases. The Bengal Ambulance Corps, consisting of Bengali volunteers, in Mesopotamia, had sustained fifteen casualties; one private was wounded in the head, but recovered; six privates missing were supposed to be prisoners of war; eight privates were invalided to India for sickness, two of whom had rejoined after recovery.

The Lady Hardinge Medical College.

The Lady Hardinge Medical College and Hospital at Delhi was opened by the Viceroy on February 17th, one of the last of Lord Hardinge's public acts in India. Lying midway between the site of New Delhi and the present city, the college may be regarded as the first completed building of the future capital; it has been constructed in a remarkably short space of time. Although the front of the institution faces New Delhi, from which it is at some little distance, the hospital gates have been placed at the rear of the buildings, and will give direct access to Indian patients from the old city. The college will thus form, as it were, a link between the old and the new. In the course of his speech the Viceroy said there had hitherto been no medical college in India for the exclusive training of women. In these circumstances instruction in medical subjects to female students had had to be given in mixed classes at men's colleges, with the result that Indian women of the right type and class would not come forward in sufficient number to meet the ever growing demands for qualified women practitioners. The establishment at Delhi of a college for women with its attendant hospital would, it was hoped, successfully meet to a certain extent the objections mentioned. Affiliation to the Punjab University has been sanctioned and educational work could commence next autumn. There was every reason to hope that before many years had passed there would issue from the college many women doctors holding the degrees M.D. and B.S. To the college and hospital it had been decided to attach a training school for nurses. The college, hospital, and training school were to be conducted on strictly purdah lines and every possible attention would be paid to religion and caste rules.

The Bengal Ambulance Corps.

The military authorities have suggested the reorganization of the Bengal Ambulance Corps as a base hospital and as an ambulance division recognized separately, with distinct spheres of work and with a personnel of about 370 of all ranks, instead of 190 as at present. The Governor of Bengal, in a letter to the secretary of the corps enclosing a cheque for Rs.250, writes: "The desire of the general officer commanding that the present work of the corps should be enlarged and its activities extended is sure proof, if any were required, of the valuable nature of the work which is being accomplished by the Bengal Corps. To carry out the wishes of the general officer commanding it will be necessary, I fancy, to raise immediately at least another lakh of rupees, but I have perfect confidence that the people of Bengal will again rise to the occasion, and that you will have no difficulty in securing the sum required within a few days." The secretary of the corps, in a note to the press, states that there will be no difficulty in recruiting sufficient men of the right stamp nor in meeting the financial liabilities.

Canada.

Annual Meeting of Toronto Academy of Medicine.

At the ninth annual meeting of the Toronto Academy of Medicine, the President, Dr. W. H. B. Aikins, stated that the number of Fellows had been increased by fifty-three, and that despite the fact that eighty-three members of the Academy were overseas the attendance at the seven regular meetings had been good. The report of the Special Committee on Patriotic Relief was submitted by its chairman, Dr. H. B. Anderson. During the year the amount of gratuitous work required from physicians has decreased month by month owing to the decrease in the amount of unemployment, the improvement in conditions, and the assistance given by the Patriotic Fund Association, so much so that it has been concluded that it was no longer necessary for the fund to procure free medical attention for its dependants, but that the matter may safely be left in the hands of the doctors themselves. It had also been arranged that a minimum fee of 5 dols. shall be charged in obstetrical cases.

Canadian University Conference.

A conference of presidents and other representatives of Canadian universities was held at McGill University, Montreal, on May 22nd and 23rd, in accordance with the arrangement made at the Imperial Conference of 1912, when it was agreed that such conferences should take place during the five-year interval between the meetings of the larger body. The next conference will take place in Ottawa in 1917. The question of compulsory military training was discussed. This has already been approved by McGill University "for the duration of the war and while the university is without a gymnasium, for the first three years of his course for every British male student of the university who is declared fit by the medical officer." The matter is under consideration by other

universities, and it is probable that compulsory military training will be adopted next session. In view of the fact that, with the exception of McGill and Toronto, none of the Canadian colleges have facilities for post-graduate work or are in a position to grant the higher degrees, the following resolution, drawn up by President Falconer, of Toronto University, was passed unanimously:

> This conference is strongly of the opinion that, to strengthen the unity of the empire, the universities of Great Britain should be urged to modify and increase their graduate facilities to meet the needs especially of students of the Dominion; and also, to effect this purpose, that a committee be appointed to correspond with the universities of Great Britain, and that the committee also correspond with the universities of France, with the object of increasing the number of students from Canadian colleges.

The members of the committee are: President Falconer, of Toronto University; Sir William Peterson, President of McGill University; Abbé Emile Chartier, of Laval University; and Dean Cappen, of Queen's University.

A report was submitted by the committee appointed to study the question of the proposed lengthening of college sessions. Many of the students of Canadian universities work at various occupations during the vacation and thus earn the money to put themselves through the session. It was pointed out that if the vacation were shorter the students would not be able to earn enough; this, however, applies only to a certain percentage of students, and the hope was expressed that an arrangement might be made similar to that in force in some of the American universities—for instance, Chicago. The medical committee recommended that the medical course should be extended from four to six years. A resolution was also passed to petition the Canadian Government to remove the head tax on Chinese students who are entering Canada to follow classes in Canadian universities.

Correspondence.

THE USE OF BONE GRAFTS.

SIR,—In the BRITISH MEDICAL JOURNAL of July 15th there is an interesting article from Colonel Fagge under the above heading, in which he gives his reasons for disagreeing with some of the statements made by Colonel Robert Jones in a recent article in the JOURNAL on the same subject.

In the opening paragraph he disagrees with Colonel Jones's advice in regard to prolonged waiting before resorting to a bone-grafting operation, and the reason of his disagreement is not, so far as one can see, connected with surgery in any way, but is, in his own words, the fact that "military considerations do not favour any such delay."

Surely in a question of this sort surgical indications should be strictly followed, and a very strong argument for this is to be found a little further on in Colonel Fagge's letter, where he states that the chief disaster to be feared, and one which in his own work has several times led to failure, is the lighting up of the original infection. Is a man in whom sepsis has been restarted improved from any standpoint?

One must agree with Colonel Fagge in his statement that the wide removal of loose pieces of bone in comminuted fractures is to be condemned. The power of union possessed by these loose and apparently useless fragments can be seen on looking at a skiagram of any healed comminuted fracture which has been treated by conservative means.

Absolute fixation without pressure or traction is the ideal to be aimed at in the after-treatment, and this can only be obtained by means of plaster of Paris, in which the part is immovably fixed.

Colonel Fagge has found that in his practice the sepsis which has occurred debars this method of treatment. This objection to plaster of Paris can be overcome in two ways. The better way is to leave an adequate interval between the cessation of the discharge and the operation of grafting; as a result the occurrence of sepsis will be no more frequent than in any other planned aseptic operation. The second way is only necessary in cases in which for some special reason the proper interval has not been allowed to occur. In this method the part is placed in plaster as before, and a large window is cut in the plaster over the site of operation, so that the wound may be inspected and dressed frequently.

Many surgeons have during the past few years written on their experiences regarding the use of Lane's plates. Thus, John B. Murphy of Chicago has written that, whilst in a plated fracture bone is deposited round the site of fracture, none of this deposit occurs at the region of the plate or of the screws. H. H. Trout, writing in the *Annals of Surgery*, June, 1915, under the heading, "Autogenous Bone Grafts *versus* Lane's Plates," states that out of one hundred American surgeons with whom he had communicated only seven had not found it necessary at some time to remove Lane's plates which had been inserted either by themselves or by some other surgeon.

In four cases of fractured tibiae in athletes, which had been plated, there was constant aching pain at the site of fracture on any attempt at resuming the former athletic life. The pain and tenderness disappeared entirely in all four cases on removal of the plate.

Whatever may be the opinion regarding the advisability of the presence of a Lane's plate in a recent fracture there is no doubt that its presence in an ununited fracture is positively harmful. Here it acts as a foreign body, which by its pressure reduces osteogenesis and by the screws destroys bone tissue, whilst in the case of a bone graft the graft itself, as well as the cut edges of the bone, act as osteogenetic centres and both deposit new bone.

Recently there came under my care a patient whose humerus had been plated immdiately after the occurrence of a fracture about two inches above the elbow-joint. The operation wound healed by first intention and the arm was apparently quite sound. After six months' use he refractured it at the original site whilst using a stick. The *x*-ray photograph subsequently taken showed marked loss of tissue caused by the presence of the metal plate and of the screws. This only bears out the experience of most operating surgeons—namely, that a Lane's plate is a foreign body and will in many cases be the cause of irritation until it is removed.

Fixation of a fracture by means of a bone plate is, when properly performed, quite as effective as that obtained by means of a Lane's plate. After removal of a bone wedge extending from the periosteum to the medulla, about half an inch wide, from one of the fractured ends, a similar wedge, but shorter, is removed from the other fractured end. The longer wedge is then slipped down into the space left by removal of the other wedge so that it bridges the fracture and is then retained in position by means of kangaroo tendon passed through holes drilled in the cortex of the bone on each side of the graft. In this way no displacement of any kind can occur at the fracture.—I am, etc.,

Liverpool, July 24th. T. P. MCMURRAY.

THE INTERNATIONAL OPIUM CONVENTION AND THE TRAFFIC IN COCAINE AND OPIUM.

SIR,—In my presidential address to the Society for the Study of Inebriety on July 11th I made allusion to the magical achievements under that marvel of legislation, the Defence of the Realm Acts, and to the prompt accomplishment under the stress of war of legislative and administrative changes—perhaps not all of them reforms—which during long years of piping peace had but provided the barren battleground and strife-worn *insignia* of party warfare. I inquired why a recently issued restriction on the sale of morphine and cocaine had been limited to the case of the military, as if morphinomaniacs and cocaine-fiends were not to be found outside the ranks of His Majesty's forces, and why this much needed regulation of national and international traffic in drugs of addiction had remained undealt with until war had, by moral introspection, compelled attention to a great and growing abuse. The proclamation and regulations gazetted last Friday might go some way in the direction of the desired goal.

Your columns during the last four years have duly and sympathetically chronicled the great work accomplished at the three international opium conferences held at the Hague in 1911–12, 1913 and 1914, and you have urged the need of a radical revision of our pharmacy laws, more especially in regard to the manufacture, sale, import and export of drugs of addiction. The authors of the proclamation and regulations would appear to have had before

them the articles of the International Opium Convention and to have availed themselves of some of its provisions, terms, and definitions, but the new municipal regulations are in some respects inadequate, notably in the ominous omission of all reference to morphine and in regard to the necessity for international co-operation, which, while emphasized by prohibition of import (save under licence) of opium and cocaine, remains otherwise undealt with.

As a British Plenipotentiary at the three International Conferences at the Hague, and as chairman of the Technical Commission, it fell to my lot to draft and to bring up to the full Conference, *inter alia*, Articles 9 and 14 of the Convention, which in their final form read as follows:

Article 9.—The Contracting Powers will enact pharmacy laws and regulations so as to limit the manufacture, sale, and use of morphine, cocaine, and their respective salts to medical and legitimate uses only, unless such laws already exist. They will co-operate among themselves in order to prevent the use of these drugs for any other purpose.

Article 14.—The Contracting Powers will apply the laws and regulations for the manufacture, import, sale, or export of morphine, cocaine, and their respective salts to (*a*) medicinal opium; (*b*) to all preparations (official and non-official, including the so-called anti-opium remedies) containing more than 0.2 per cent. of morphine or more than 0.1 per cent. of cocaine; (*c*) to heroine, its salts and preparations, containing more than 0.1 per cent. of heroine; (*d*) to every new derivative of morphine, cocaine, or their respective salts, or to any other alkaloid of opium which, as the result of scientific research, shall be generally recognized as giving rise to analogous abuse or as producing the same injurious effects.

Now these articles, if put into effective operation, along with the rest of the machinery provided in the Convention, would go far towards controlling the production and distribution of drugs of addiction throughout the world, and restricting them to use for medicinal or legitimate purposes only.

At the last of the three Hague Conferences, held only a few weeks before the outbreak of war, no fewer than forty-four out of the forty-six Powers had come into line, and had either ratified or signed or had expressed intention of signing the Convention. Germany alone of the signatories jibbed at ratification, as she had formerly jibbed, at the first Conference, in regard to the regulation of the trade in these drugs, but she had nevertheless concurred in making representations to other Powers to accelerate the deposit of their ratifications. Moreover, it was resolved to open a special protocol at the Foreign Office at The Hague, which could be signed by those Powers which, having ratified the Convention, were willing to put it into force without waiting for the stragglers to come in. This special protocol has been signed by the United States, the Netherlands, and China. Great Britain (whose ratification of the Convention my colleague, Mr. Max Müller, and I were authorized to announce to the last Conference on behalf of His Majesty) has hitherto not seen the way clear to co-operate with the three Powers named. Possibly the quickened pace we have witnessed in municipal law-making may now have an international counterpart. Meanwhile it is not to our credit that in a single year some 14 tons of morphine, manufactured in Great Britain, should have been exported to the Far East, where the most credulous could not believe it was utilized for "medical and legitimate uses only."

I dealt with the whole question of "The Ethics and Law of Drug and Alcohol Addiction" in the sixth Norman Kerr lecture on October 12th, 1915,[1] so that I need not occupy your columns now at greater length, but I would venture to urge (1) the inclusion of morphine in the new proclamation and regulation; (2) the necessity for international co-operation to secure effective results.

I may add that the United States have by the Harrison Law of 1915 embodied the principles of the Opium Convention in their statute law, and that only this month my friend M. Marius Moutet, deputy for Lyons, has induced both the Chamber and the Senate of France to pass a law which increases the penalties for unauthorized traffic in these drugs of addiction (including morphine and hashish), and which also extends the law (after six months' interval) to Algeria and the French colonies and protectorates.—I am, etc.,

London, N.W., July 30th. WILLIAM J. COLLINS.

[1] *British Journal of Inebriety*, January, 1916.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—Dr. Power does not appear to have grasped the object nor the provisions of a Midwives Act for Ireland—presumably on the lines of the Act of 1902 for England, or rather of that for Scotland modelled upon the amending bill for England.

The main object of these is the elimination of the handy woman, who was evidently the main cause of the puerperal mortality from sepsis, which declined so suddenly and so satisfactorily on putting the Act into operation in England.

It has become penal for any woman not on the Midwives' Roll to attend women in childbirth habitually and for gain *as a midwife*. Unregistered women can only act as *monthly nurses* under the direction of a registered medical practitioner, and not as midwives.

The *bona fide* clause is necessary to enable any bill to pass, as the Houses of Parliament always recognize vested interests. But it brings all these women under the power of the Midwives Board, who can remove any name on its being proved that a breach of the rules has been committed.

As to such legislation bringing a higher mortality in its train, such an idea is negatived by thirteen years' experience and statistics in the case of England. Figures show that both Scotland and Ireland are considerably behind England in the safety of their women in childbirth, and it is almost certain that an improvement in these matters will follow the passing of a Midwives Act, as it has in England.

Into the arguments about Irish Poor Law regulations I will not follow Dr. Power.

The statistics given below are from a table by Dr. Kidd.—I am, etc.,

London, S.W., Aug. 1st. F. H. CHAMPNEYS.

Dr. Newsholme, Medical Officer to the Local Government Board (England), says Scotland and Ireland have a higher rate of mortality from child-bearing than England, and gives the following figures:

MATERNAL DEATH-RATE PER 1,000 BIRTHS.

TABLE 1.—*Due to Puerperal Fever.*

	England.	Scotland.	Ireland.
1881–1890	2.56	2.42	2.83
1891–1900	2.22	2.01	2.62
1901–1902	2.10	2.29	2.22
1903–1910	1.62	1.93	2.04
1911–1914	1.39	1.44	2.01

TABLE 2.—*Accidents and Diseases of Pregnancy.*

1881–1890	2.08	3.03	4.24
1891–1900	2.74	2.71	3.98
1901–1902	2.33	2.66	3.99
1903–1910	2.13	3.37	3.41
1911–1914	2.47	4.26	3.19

TABLE 3.—*All Causes connected with Child-bearing.*

1881–1890	4.64	5.45	7.07
1891–1900	4.96	4.72	6.60
1901–1902	4.43	4.95	6.21
1903–1910	3.75	5.30	5.45
1911–1914	3.86	5.70	5.20

TABLE 4.

Scotland	...	1	mother dies in every	175	registered*	births.
Ireland	...	1	,, ,,	191	,,	,,
England	...	1	,, ,,	259	,,	,,
London	...	1	,, ,,	327	,,	,,

* That is, living.

The English Midwives Act of 1902 came into operation in 1903, and immediately followed a substantial reduction in the death-rate due to puerperal fever and in the general death-rate of child-bearing.

The quality and supply of skilled assistance before, during, and after childbirth are important factors in determining child-birth mortality.

The rate for puerperal sepsis is much the same in London as in the provinces. The more favourable position of London in Table 4 is due to a lower rate for other complications than sepsis—probably because skilled attendance is more freely available.

Sir Francis Champneys, Chairman of the English Central Midwives Board, bears further testimony to the influence of the Midwives Act in lowering the death-rate of child-bearing from sepsis and accident. He says:

> Prior to 1903 the death-rate was never below 4.4 per 1,000 births.
> In 1907 the death-rate was never below 3.8 per 1,000 births.
> In 1911 the death-rate was never below 3.6 per 1,000 births.
>
> In 1902 the death-rate from puerperal sepsis per million was 118.
> In 1907 the death-rate from puerperal sepsis per million was 81.
> In 1911 the death-rate from puerperal sepsis per million was 74.

These last figures, compared with those of 1902, represent a saving of 46 lives per million, which means that, as there were 18,672,986 women in England in 1911—859 women were saved in 1911 who would have been lost in 1902.

Infant Mortality.

Premature Birth, Atelectasis, Injury at Birth: All due to conditions acting at or before the birth of the child, account for 23.6 of all infantile deaths under one year.

Here again the quality of assistance and attendance given at childbirth will be important determining factors in the rate of infantile mortality.

SIR,—Dr. Power has addressed you on this question under circumstances which are rather unusual, and are disclosed in the following letter which I have written to Dr. Power, and which I shall ask you to publish.—I am, etc.,

L. KIDD.

Enniskillen, July 29th.

Dear Dr. Power,

Thank you for your letter. I do not object to criticisms of the Midwives Acts and their application to Ireland, and I am sure the Committee appointed to deal with the matter (which will have further meetings) will be very pleased to consider any suggestions you may put before them.

But, as a member of the Committee and the person who wrote the circular from which you quote, I do object to you, who are not a member of the Committee, publicly criticizing a document which was the property of the Committee five days before the Committee had met to consider the matter.

You criticize and quote from a circular, issued only to members of the Committee, to assist them in their deliberations and elicit criticism within the Committee. This circular was not marked private, but, nevertheless, was obviously private and privileged in character; it was issued individually to members of the Committee on July 17th, your letter was dated July 19th, and the Committee did not meet until July 24th.

Under these circumstances I trust you will forgive me for saying that I consider your action, and that of your "friend" in abusing his privileged position to place a private document at your disposal, equally improper.

I do hope that before you offer any further criticism you will realize that the object of the Midwives Act is not to legalize (as you appear to think) but to penalize the handy woman, and further that not only will dispensary medical officers be "exempted from attending" confinements in comparison with uncertified women, but that they will be struck off the *Medical Register* for doing so, except in an emergency.

Yours faithfully,

L. KIDD.

Enniskillen, July 29th, 1916.

A CLASSICAL ALLUSION TO ALCOHOLIC DROPSY NOT CAUSED BY CIRRHOSIS OF THE LIVER.

SIR,—I have sometimes wondered what precise kind of general dropsy or "waterlogged" condition Horace referred to by way of simile in the following stanza (*Odes*, II, ii, 13-16):

> Crescit indulgens sibi dirus hydrops,
> Nec sitim pellit, nisi causa morbi
> Fugerit venis et aquosus albo
> Corpore languor.

According to Horace, the "dreadful dropsy" in question is increased by being indulged (that is, by gratifying the thirst), and the thirst is not got rid of, nor does the dropsical fluid leave the pale swollen body, till the cause of the disease has been removed from the system. Horace had probably seen persons afflicted with dropsy; but what kind of dropsy was this, associated with insatiate thirst? Had he been reading some imaginative medical work on dropsy, or had he acquired peculiar ideas on the subject from conversation with his friends, and from popular theories on the causes of disease current at the time?

I think he must have alluded to some real kind of dropsical condition, one sufficiently known to his friends to make his simile appeal to them. It would have been strange indeed if Horace had tried to illustrate such a well known "vicious circle in psychical life" as that sometimes constituted by the hoarding of money and riches (the increase of the vice of avarice which may accompany advancing years), by comparing it to an almost unknown and possibly imaginary disease of the body. Yet it must be admitted that dropsy associated with an insatiable desire to drink, like the *aquosus languor* pictured by Horace, is not very frequent nowadays. His description does not correspond to ordinary dropsy of renal, cardiac, or cardio-pulmonary origin, nor to dropsy connected with cirrhosis of the liver. It does, however, to some extent correspond to a form of dropsy which occasionally supervenes in strongly built men who have been accustomed to consume extraordinarily large quantities of relatively weak alcoholic drinks, such as beer, cider, and weak or diluted wines. In some of these cases the patients have had to work in a very hot atmosphere, for instance, at furnaces, or in a bakery, where the sweating (and resulting thirst) is enormous. Such patients are likely to be troubled by the desire to drink, as mentioned by Horace; and moreover, under favourable conditions and with reasonable treatment, they are likely to recover from their dropsy. I do not mean to say that they have no disease of the heart or kidneys, but not the cardiac or renal lesions which are most frequently associated with dropsy. They probably have a so-called "beer-drinker's heart" (whether due to drinking beer or some other relatively dilute alcoholic drink), and the walls of their minute blood vessels have probably become functionally altered in some way by the vast quantities that they have been accustomed to drink. It may reasonably be supposed that in Horace's days such a dropsy occasionally occurred in men who habitually drank (as many doubtless did) large quantities of diluted wine.

The explanation I have given appears to me the most probable, but I mention it merely as a suggestion, and I hope that it will not appear too fanciful to others. The alternative possibility is that Horace knew of the ordinary nephritic dropsy, which disappears when the inflammation of the kidneys passes off, but that, owing to some fanciful medical theories of the time, he erroneously supposed that the dropsy must usually be accompanied by great thirst.—I am, etc.,

London, W., June 24th. F. PARKES WEBER, M.D., F.R.C.P.

DEATH AFTER NITROUS OXIDE-OXYGEN AND LOCAL ANAESTHESIA.

SIR,—Dr. Dudley Buxton's suggestion of the dominating influence of the heart muscle in the case I reported in the JOURNAL for July 22nd, p. 109, is very feasible. Cases of acute dilatation of the heart under the influence of nitrous oxide-oxygen were recorded years ago in the *Transactions* of the Society of Anaesthetists. Percussion of the cardiac dullness before operation in my case revealed no dilatation of the right side of the heart, but I suspect that some degree of myocarditis, or rather muscular degeneration, existed, and that anaemia caused by profuse haemorrhage made dilatation of the heart potential, leading to the train of events so well described by Dr. Buxton. The pupils were not at any time minutely contracted as in morphine poisoning, and the type of respiration was not that usually seen in this condition.

In reply to Dr. Buxton's questions, I would say that the cardiac area was not percussed after the initial difficulties had revealed themselves; and, unfortunately, *post-mortem* examination was not allowed to give information which would have been very valuable.

No attempt was made to massage the heart from the abdominal route when the fatal collapse occurred, and I greatly doubt, if the method had been tried, that it would have had any success.

When circulatory failure became acute, the head and shoulders of the patient were lowered, but the acute Trendelenburg posture was not adopted.

With regard to the possibility of traumatic shock, the serious symptoms developed before the abdomen was opened. From my own experience I am inclined to believe that it is impossible to block inside the abdomen the traumatic effects of operation. Such a light anaesthesia as that indicated by nitrous oxide-oxygen does not mask the effects of trauma, as does the deeper anaesthesia of ether or chloroform; hence the result of local anaesthesia inside the abdomen can be better estimated. Personally I have little faith in the efficacy of injection of local anaesthetics intra-abdominally, though for operation on the abdominal wall nerve blocking can be absolute.

Possibly transfusion of blood in moderate amount instead of infusion of saline solution would have been remedial if

Dr. Buxton's theory that the heart was overwhelmed by intravenous infusion be correct.

I cannot help thinking that in certain types of case such as this the psychic factor plays an important part, and prepares the nervous mechanism of a heart already labouring under muscular disability to, as it were, collapse under strain. Mechanical and toxic causes alone will not always explain deaths during or after anaesthesia. Unfortunately these different factors cannot be estimated but only guessed at beforehand.—I am, etc.,

Birmingham, Aug. 1st. W. J. McCardie.

"THE FASTING TREATMENT OF DIABETES."

Sir,—I should like to express my thanks to Dr. Cammidge for confirming my statements which he heard at the Royal Society of Medicine on May 16th, and for doing me the honour of paraphrasing some of my remarks.

It is unfortunate that Dr. John Hume's and Dr. Cammidge's letters appear under the same heading, because, in spite of Dr. Hume's treatment presenting certain similarities to that suggested by Allen (of the Rockefeller Institute), nevertheless the basis and details are very different.

It was the recognition that Guelpa's treatment was frequently referred to as the "fasting treatment" that led me to discuss Allen's treatment under the heading of "Treatment of Diabetes by Alimentary Rest." The advisability of distinguishing from all others the single treatment, which aims at, and succeeds in, the complete and permanent absence of sugar from the urine, will be accepted by all. I have no data to decide whether Guelpa or Hume was the earlier to treat diabetes by laxatives and short fasts. No doubt in both it was original if not novel.

The essential part of Allen's treatment is alimentary rest until the last trace of sugar has disappeared from the urine. The object of this does not seem to be recognized by all. Simultaneously with this disappearance there is an alteration of metabolism, which allows a much freer oxidation of carbohydrates. Until this has been accomplished food should be withheld. No case which has not had alimentary rest until the urine has become free from sugar should be considered to have undergone the Allen treatment.

Dr. Cammidge has drawn up a useful table; perhaps he will add to its value by publishing the number of analyses upon which it is based, and whether the vegetables have been gathered at various seasons.

To illustrate the importance of this I draw attention to his statement that 5 oz. of boiled turnips contain 1 gram of carbohydrate. Atwater and Bryant, working in America, found that the percentage of carbohydrates in turnips varied from 2.8 to 23.8; therefore, unless they are boiled in an extremely large quantity of water, it is unwise to assume that they will contain a constant amount of carbohydrate. Again, blackberries, according to the same observers, vary from 7.5 per cent. to 16.7 per cent.; Dr. Cammidge assumes that they contain about 10 per cent.

My experience (which, thanks to the authorities of the London Hospital, is now based on many dozens of cases) has taught me that those vegetables and fruits which vary greatly in composition should be avoided.—I am, etc.,

London, W., July 31st. O. Leyton.

THE SOLDIER'S HEART.

Sir,—Sir James Barr has given me his answer at least so far as concerns his method of excluding from a share in the causation of "soldier's heart" that part of bacterial action which might be due to dental sepsis. He allows that there may be areas of inflammation in the mouth, but asserts that these are not necessarily injurious. He allows the presence of foul breath, but apparently forgets that its owner is swallowing decomposing food.

That there can be no inflammation without some degree of general injury is a pathological axiom. That the swallowing of decomposing food is injurious is equally one of the first principles of hygiene. When it is realized that in a case of dental sepsis, in addition to the visible areas of inflammation there are generally concealed areas of inflammation and suppuration, and that these latter areas often exist with little or no external sign, I think it will be seen that Sir James Barr's exclusion of dental sepsis is indeed ill founded.

My reason for entering this discussion was to disallow Sir James Barr's neglect of dental sepsis as a possibly important factor in any disease which may be of microbic causation.—I am, etc.,

London, W., Aug. 1st. J. G. Turner.

TREATMENT OF "SHELL SHOCK."

Sir,—I was deeply interested in Captain Milligan's article on this subject in your issue of July 15th, recommending suggestion under what I have ventured to call "chloroform hypnosis." In a paper which I published in the *Clinical Journal* for March 1st last, entitled "Chloroform Hypnosis and Manual Aid during Protracted and Painful Labour," I pointed out the great value of moderate chloroform anaesthesia, whereby the patient who is in acute mental and bodily suffering is quickly placed in a condition of passivity and suggestibility, wherein she can be encouraged to bear down and so assist natural expulsion. For some time I have made constant use of this method, and, along with skilled manual aid, I find that the necessity for the use of forceps now is much less frequent. The object of this communication is to draw attention to the value of chloroform hypnosis, not in obstetrical work only, but in a much larger field, whenever, in fact, we wish to abolish higher consciousness, with its many disturbing elements in highly strung neurotic patients, and to induce a condition of answerability to suggestion. I am therefore a strong advocate of Captain Milligan's method in all cases of traumatic hysteria, as well as mere "shell shock," and, indeed, in all functional nerve disorders where suggestion treatment is indicated. Ordinary hypnotism no doubt will succeed in a certain number of these cases, but not many doctors have mastered its methods, and its many failures and the time and trouble required make it impracticable in these busy days, whereas chloroform hypnosis can generally be induced in five or ten minutes. Perhaps Captain Milligan could be induced to give further practical details of the employment of his method—I am, etc.,

P. R. Cooper, M.D., B.Sc.Lond.,
F.R.C.S.Eng., etc.

Bowden, Cheshire,
July 15th.

THE ARSENIC CONTENT OF SALVARSAN AND NEO-SALVARSAN.

Sir,—It appears from recent medical literature that there is some misapprehension as to the percentage of arsenic contained in salvarsan ("kharsivan") and neo-salvarsan ("neo-kharsivan"). Thus Staff Surgeon Sheldon F. Dudley, M.B., R.N., in a paper on galyl and neo-salvarsan,[1] states that the latter contains 31.2 per cent. of metallic arsenic. This statement is accepted in the leading article appearing on page 118 of your issue of July 22nd, where the additional information is given that salvarsan ("kharsivan") contains about 34 per cent. of arsenic. As a matter of fact, however, salvarsan ("kharsivan") contains about 31.6 per cent. of arsenic, whilst neo salvarsan ("neo-kharsivan") contains about 21 per cent. of arsenic. The following historical notes will explain the cause of the confusion in each case.

Salvarsan.—The earlier circulars of the Farbwerke vorm Meister, Lucius und Brüning, the manufacturers of salvarsan, stated that salvarsan "contains about 34 per cent. arsenic." In 1911, however, G. O. Gaebel[2] found 31.2 and 31.8 per cent. As in salvarsan, and pointed out that these results agreed well with the figure 31.6 per cent. required for the formula $C_{12}H_{12}N_2O_2As_2, 2\,HCl, 2\,H_2O$. This work was brought to the notice of Ehrlich, and in consequence the later circulars of the above mentioned firm no longer assert that salvarsan contains about 34 per cent. of arsenic, but bear the statement "The As content of the preparation corresponds to the formula $C_{12}H_{12}N_2O_2As_2\,2\,HCl+2\,H_2O$." This statement applies equally to "kharsivan." Salvarsan and "kharsivan," therefore, contain about 31.6 per cent. of arsenic.

Neo-salvarsan is stated by the Farbwerke vorm Meister, Lucius und Brüning, to contain as the active constituent

[1] *Journ. Roy. Naval Med. Service*, 1916, *2*, 283.
[2] *Apoth. Zeit.*, 1911, *26*, 215.

dioxydiamidoarsenobenzene-mono-methane-sulphinate of sodium $C_{19}H_{11}O_2As_2N_2$-CH_2-O-SONa, together with inorganic salts. The active constituent itself contains 32.2 per cent. of arsenic, but in consequence of the presence of inorganic salts the commercial product, neo-salvarsan, is stated to contain in 0.15 gram only as much arsenic as 0.10 gram of salvarsan. This means that neo-salvarsan contains about $\frac{2}{3} \times 31.6 = 21.1$ per cent. of arsenic. That this figure is approximately correct is confirmed by the analyses of F. Lehmann,[3] who found 22 per cent. of arsenic in this product. Similarly 0.15 gram of "neo-kharsivan" is equivalent in arsenic content to 0.10 gram of "kharsivan." Neo-salvarsan and "neo-kharsivan," therefore, contain about 21.1 per cent. of arsenic.—We are, etc.,

London, E.C., July 27th. BURROUGHS WELLCOME AND CO.

Universities and Colleges.

UNIVERSITY OF LONDON.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

THE Burney Yeo scholarships for 1916 have been awarded to Messrs. R. Roberts, J. M. Bickerton, G. A. Harrison.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on July 27th, the Senior Censor, Dr. Percy Kidd, being in the chair.

Admission of Members.

The following candidates having passed the required examination, were admitted Members of the College: Richard Alun Rowlands, M.B.Lond., L.R.C.P., and Gilbert Innes Strachan, M.D.Glasg. (Cardiff).

Licences Granted.

Licences to practise physic were granted to 120 candidates who had passed the requisite examinations.

Diplomas in Public Health.

In conjunction with the Royal College of Surgeons of England, Diplomas in Public Health were granted to Reginald St. George Smallbridge Bond, M.B., F.R.C.S.Edin., Ethel Mary Minett, M.B., B.S.Lond., and Henry Owen West, M.D., B.S.Lond., M.R.C.P.Lond.

Election of Censors.

The Censors were elected as follows: Drs. W. Hale White, William Pasteur, Sidney H. C. Martin, Hector W. G. Mackenzie.

Communications.

The following communications were received: (1) From the Secretary of the Royal College of Surgeons of England, dated May 12th, June 9th, and July 14th, reporting proceedings of the Council of that College on May 11th, June 8th, and July 13th respectively. (2) From the Royal Society, dated June 19th, enclosing a copy of regulations for the organization of a conjoint board of scientific societies adopted at a conference of representatives of the societies concerned, and asking the College to nominate representatives upon the board. The Acting President nominated the President and Dr. Henry Head.

Gift to the College.

An offer was received from Mrs. Streatfeild to give £10,000 in Consols to be held by the Royal College of Physicians of London and the Royal College of Surgeons of England, jointly, in trust for the promotion of research. The offer was accepted and a letter ordered to be written to Mrs. Streatfeild thanking her for her generous gift.

Appointments of Representatives of the College.

Dr. T. D. Acland was elected a Representative Governor of the University of Sheffield, and Sir George Savage was reappointed a Representative on the Committee of Management of the Chelsea Physic Garden.

Reports.

Reports were received from the Committee of Management recommending that Rugby School be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics, and that the State University at Iowa, Iowa City, U.S.A., be added to the list of universities whose graduates in medicine are admissible to the final examination of the Conjoint Board. The reports were adopted.

After some further formal business the Acting President dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary Council was held on July 27th, when Sir Watson Cheyne, Bt., President, was in the chair.

Lists of Diplomates.

Diplomas of membership were granted to 119 candidates found qualified at the recent examinations.

[3] Apoth. Zeit., 1913, 27, 976.

Streatfeild Research Fund.

Representatives from the Council were appointed to serve on a joint committee to prepare, for approval by the two colleges, a scheme and regulations for the administration of the Streatfeild Research Fund.

Venereal Diseases.

A letter, dated July 13th, was read from the Assistant Secretary of the Local Government Board, forwarding by direction of the President of the Board, copies of the Circular and Regulations which the Board has issued with regard to the prevention and treatment of venereal diseases.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P., M.R.C.S. have been conferred upon the following candidates who have passed the final examination in medicine, surgery, and midwifery:

W. Agar, G. C. Agarwala, A. M. Ahmad, E. B. Alabaster, *Mary C. Albuquerque, F. M. Allchin, D. H. Anthony, R. Aspinall-Stivala, K. Atkin, T. B. Bailey, G. A. Beyers, W. H. Blackburn, C. E. Bond, E. G. P. Bousfield, C. V. Braimbridge, H. G. Broadbridge, J. Brooks, W. W. K. Brown, L. J. F. Ball, G. E. Burton, C. P. L. Carrier, P. D. H. Chapman, P. N. Cook, M. C. Cooper, J. M. Courtney, F. Crinsoz de Cottens, F. G. L. Dawson, F. P. G. de Smidt, W. R. Dickinson, J. M. Downie, G. G. Drummond, W. H. Dye, J. D. Dyson, W. C. C. Easton, H. E. Fernayake, D. D. Evans, T. S. Evans, H. W. Featherstone, F. O. Fehrsen, J. B. Flamer-Caldera, W. B. Gabriel, J. J. Gasperine, E. T. Gaspey, L. S. Gathergood, E. A. Green, T. H. Gunewardine, *Hilda M. Halliday, M. St. C. Hamilton, C. C. Harrison, N. H. Harrison, A. G. Harsant, E. H. V. Hensley, R. B. Hick, *Mary I. Hounsfield, J. B. Hume, G. G. Jack, F. B. Jago, *Elizabeth E. Jenkins, A. R. Jennings, B. E. Jerwood, T. Joekes, J. R. John, L. P. Johns, S. H. M. Johns, W. H. Jones, T. R. F. Kerby, G. E. Kidman, P. R. E. Kirby, N. M. Lewis, *Louisa M. Lister, *Katharine Lloyd, Arcot Doraisawny Loganadan, D. Loughlin, H. M. C. Macaulay, G. C. Mathie, G. L. Maule, A. A. Miller, E. C. de M. Morgan, J. J. Murphy, R. L. Newell, E. Newton, F. P. Nicholas, J. D. Oliver, *Alice O'Reilly, J. A. P. Perera, V. J. E. C. del S. Perez y Marzan, E. S. Phillips, J. W. G. Phillips, R. L. Portway, R. H. C. Pryn, Lakshminarayanapuram Subramanier Ramier, J. S. Ranson, S. D. Rhind, T. H. Rhys, *Evelcen B. G. Rivington, W. R. Rowlands, Bishambhar Sahai, E. Sakoschansky, E. E. Samarawebra, *Enid E. Sanger-Davies, W. H. Sarra, J. A. D. Skinner, A. C. Smith, N. A. Sprott, G. P. Tatton, *Lily D. Taylor, Ismail Tewfik, R. O. Townend, R. R. Traill, W. J. Vance, P. M. J. Van Gehuchten, H. S. Wacher, *Phillis E. Webb, H. M. Wharry, R. C. P. Whitcombe, A. G. P. Wills, T. Wilson, W. E. Wilson, R. A. Woodhouse, L. Zeitline.

* Under the Medical Act, 1876.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have passed the final examination, and have been admitted L.R.C.P. and S.Edin. and L.R.F.P.S. Glasg.:

R. L. Jones, W. B. Lawson, M. Campbell, Keki Sorabji Bhiwandiwalla, Manikoth Vythi Menon, W. C. Borrie, J. A. Murray, J. A. Smith, J. Y. M'Lean, P. Hayes, J. Bygott.

CONJOINT BOARD IN IRELAND.

THE following candidates have passed the final examination:

H. M. Alexander, J. C. Attridge, D. Boland, R. D'Alton, B. J. Daunt, G. Dunne, R. Green, Marjorie M'Mullen, W. A. Malone, T. Moore, E. B. Palmer.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C., administrative experience over a year's foreign service, now with railway troops, desires exchange with medical officer at hospital or dépôt in London or Greater London. Address No. 3,000, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain (temporary) R.A.M.C., in Field Ambulance, France, desires exchange with officer in base hospital, France, M.A.C., or Hospital Train, France, or hospital at home. He has experience as an anæsthetist. Address 2,999, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), attached to Casualty Clearing Station which is unlikely to proceed overseas, desires exchange to Casualty Clearing Station abroad. X. Y. Z., BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Yeomanry regiment, desires exchange into field ambulance, base hospital or regiment at front or abroad.—Address No. 2879, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

THE late Mr. Emil C. Bundy, of New York, bequeathed £20,000 to Columbia University for research work on cancer.

DR. LLEWELLYN C. P. PHILLIPS, professor of medicine in the Medical School, Cairo, and physician to the Sultan of Egypt, has received the King's permission to wear the insignia of the Third Class of the Order of the Nile conferred upon him by the Sultan of Egypt in recognition of valuable services rendered.

Obituary.

SIR WILLIAM HENRY POWER, K.C.B., F.R.S., F.R.C.S.

We regret to record the death on July 28th, after a long illness, of the distinguished epidemiologist and sanitarian, Sir William Henry Power. He was born in London in 1842, educated at University College School, and apprenticed as a medical student to his father, a well-known and successful medical coach. He entered St. Bartholomew's Hospital, where he was apprenticed to Fred. Wood, the dispenser of the hospital. At that date there were no house-physicians to the hospital, and in the absence of the physicians the dispenser was all-powerful in the medical wards.

Power took the diplomas of M.R.C.S. and L.S.A. in 1864, and, after serving as house-surgeon to Mr. Holmes Coote, he was for some time resident medical officer to the Royal Albert Hospital, Devonport. He then became resident medical officer to the Victoria Hospital for Diseases of the Chest, and it was here that he acquired that intimate clinical knowledge of tuberculous disease which proved so useful later on when he had to advise the Government on tuberculous diseases, and served on the Royal Commission.

Power's first work for the Local Government Board began in 1871, when he served as a temporary medical inspector; in 1875 he received a permanent appointment. It was in 1871 that the Medical Staff of the Privy Council was transferred to the newly-created Local Government Board. Mr. John Simon (afterwards Sir John Simon, K.C.B., the first appointed medical officer of the Privy Council) was the medical officer, and associated with him were Seaton, Buchanan, Thorne Thorne, Netten Radcliffe, and Ballard. The first three in turn succeeded to the principal office.

Public health as conceived by Simon was a broad and wide-reaching science, and his work as medical officer to the Privy Council was based on this conception. And although Simon's ideas were cramped by association with, and were in measure controlled by, the Poor Law office (which with the medical department of the Privy Council constituted the newly formed Local Government Board, and supplied its administrative staff), his influence, directed to systematize ordinary disease-prevention inquiries, to give them a methodical character, and extend their scope, was not exerted in vain, and set a stamp on the department which it has never altogether lost. Years after Simon had retired from the service, he was able to write of his department: "I believe we had the credit of earnestly endeavouring to learn the truth, and tell the truth, as to the matters which our inquiries regarded." It was in company of these pioneers and in this spirit that Power's public health work commenced and continued. The first period of his service, when he acted as an inspector, proved extraordinarily fertile. He turned his knowledge of natural history and his remarkable faculty for seeking and balancing facts and putting them in their right relation to one disease after another as the Local Government Board gave him opportunity. To some of these and their results we must make special reference.

Small-pox.

Power was able to observe the small-pox epidemic of 1871–2 from the point of view of central administration; his interest in this disease and in all aspects of the vaccination question thus aroused never flagged, and his knowledge of them was unrivalled.

The freedom of London from small-pox during the last thirty years is largely due to Power's inquiries as to the part played by the small-pox hospitals in determining the local distribution of the disease; and this is the more important since London formerly was the great centre of distribution of small-pox to the rest of the country. During the pandemic of small-pox in 1871, the Metropolitan Asylums Board began to isolate small-pox in hospital, and until 1886 the hospitals used for this purpose were situated within or on the outskirts of the metropolis. They were in each instance surrounded by, or at the edge of, thickly populated areas.

Power showed the influence exercised by the Fulham Hospital during the epidemic of 1881 on the prevalence of small-pox in its neighbourhood. He demonstrated that following on the use of this hospital for small-pox a graduated intensity of small-pox incidence upon the surrounding houses was observed, the percentage of houses invaded by small-pox in the neighbourhood of the hospital becoming gradually smaller as the distance of these houses from the hospital increased. The influence of the hospital in this way was most marked within half a mile; it was manifested, however, in the zone lying between half and one mile from the hospital. This graduated incidence from centre to periphery was not, Power considered, to be explained by the hospital operations, and it did not follow lines of communication and traffic to and from the hospital.

The striking facts obtained with regard to the Fulham Hospital in 1881 formed the basis of the theory of aërial convection of small-pox formulated by Power and inevitably led to inquiry whether other London small-pox hospitals had caused spread of the disease in their neighbourhood, and whether, or to what extent, such spread could be prevented by stringent administrative regulations and precautions; and to the appointment in November, 1881, of the Commission to inquire respecting the Small-pox and Fever Hospitals (Metropolis). The Commission reported in 1882, and its report, though neither adopting nor rejecting the hypothesis of aërial convection, led to the isolation hospital accommodation of the metropolitan districts being disconnected from the administration of the Poor Law and treated as part of the sanitary arrangements of the metropolis. While the Commission expressed the view that the existing hospitals could no longer be used to anything like their then extent for cases of small-pox, and that accommodation for a large proportion of London small-pox cases should be provided in hospitals situated in the country, this did not advocate that all small-pox hospitals should be removed from the metropolis, and they were disposed to rely on stringent administrative regulations and precautions to limit, if not to prevent, "hospital influence" in spread of the disease.

In 1886 the Medical Officer of the Local Government Board published in his *Annual Report* Power's "Statistics of Small-pox Incidence in the Registration Districts of London, relatively to the operation of Small-pox Hospitals in the Metropolis." It consisted of a series of chapters dealing with local incidence in the metropolis for 1876–1885. This elaborate investigation made it clear that, for whatever reason, the local distribution and intensity of small-pox in the metropolis during the epidemics included in the period under review had been determined to a very marked extent by the operations of the hospitals in London receiving acute small-pox cases. In particular it brought out instances in which the opening for the reception of small-pox patients of a hospital in a part of London hitherto comparatively free from the disease had been speedily followed by a severe local outbreak, and in general the facts afford strong evidence that the persistence of small-pox in London and the excessive prevalence of the disease in the metropolis relatively to that in the provinces during this period were to a large extent attributable to the use for small-pox of the hospitals in London of the Metropolitan Asylums Board.

Meantime opportunity of investigating the effect of stringent administrative regulations in preventing this hospital influence had come during the epidemic of 1884–85. The incidence of small-pox in the neighbourhood of Fulham Hospital in that year was again studied with great care and in great detail by Power. Notwithstanding a great variety of special and stringent precautions adopted at the hospital during this period, with a view to prevent opportunity of infection arising through hospital communications and traffic, the experience of 1881 was repeated. Again there was exceptional incidence of the disease on dwellings near to the hospital, manifested within a few weeks of the admission of acute cases thereto, and again characteristic graduation was observed. Thereafter the Metropolitan Asylums Board took all cases of small-pox to hospitals altogether outside the metropolis, and in abrupt and precise correspondence with the inauguration of the new departure of removing small-pox cases to Long Reach, small-pox ceased to prevail in London on the scale exhibited when the hospitals were within the metropolitan area.

This is not the place to consider controversies regarding the theory of aërial convection of the infection of small-pox

which some authorities hesitated to accept. But it is well to leave no misconception of what has followed Power's work on the subject and is established beyond controversy. First, that the characteristic spread of small-pox round hospitals has occurred many times since 1884, when small-pox has been isolated in or near populous areas. Next, as Power himself showed, there is no parallel in the case of other diseases; the characteristic spread of infection is associated only with acute small-pox and the explanation must be special to that disease. Thirdly, no explanation other than aërial carriage of infection has been adduced to explain the frequent occurrence of "small-pox hospital influence" in hospitals differing widely in the circumstances of their use and in their administration. Power himself claimed no more for the theory of aërial convection than its acceptance as a working hypothesis until some other explanation was found which fitted all the facts, and the alternative explanation is still to seek. The question, though of great interest, is now academic rather than practical. Owing to the steps that have been taken to remove small-pox hospitals from populous areas, the material for its study is unlikely to be forthcoming in future epidemics of small-pox in the way that it was in the past.

Spread of Diphtheria.

In connexion with an inquiry made in 1876 on diphtheria at Brailes,[1] Power discussed the question of age in relation to school attendance, and while at that time no definite conclusions were reached, a number of considerations were set out for future guidance in investigation of this aspect of diphtheria occurrences. In 1877 he had opportunity of further inquiry when investigating diphtheria prevalence in Radwinter in Essex.[2] The result of this showed that while diphtheria had been irregularly distributed as regards place and time it had been associated with long continued and widespread prevalence of sore throat; that the chief incidence of the throat illness had been upon children, especially in children at ages 3 to 12; that whatever the origin of the disease, its propagation had been mainly by personal intercourse; and that the attendance at the village day school had been one important means of distributing it. This investigation definitely established and brought to notice the important influence on the diffusion of the infection exercised by school attendance, notably by children incubating the disease or suffering from comparatively trivial attacks of "sore throat," facts which, it need hardly be said, were later abundantly verified with increased bacteriological knowledge.

Disease and its Propagation by Milk.

Dr. Michael Taylor in 1858[3] argued, and submitted evidence to show, that an outbreak of fever was due to specific contamination of milk derived from a dairy where that fever prevailed, and Dr. Ballard in 1870 demonstrated conclusively that the diffusion of enteric fever in Islington was due to a special milk service; and in the same year Dr. Michael Taylor recorded for the first time an occurrence of scarlet fever in connexion with a milk service. It was not, however, until 1878 that proof was obtained as to the dissemination of diphtheria with milk. This proof was produced by Power in his report on the prevalence of diphtheria in Kilburn and St. John's Wood.[4] In 1879, in a paper submitted to the Pathological Society,[5] he pointed out the parallelism which existed between certain diseases affecting both man and the bovine race; as, for example, is the case in vaccinia, which is *ejusdem generis* with human small-pox, in tubercle, and in anthrax.

The attention of the medical profession to such possible means of distribution of infectious disease brought to light many outbreaks of enteric fever, of scarlet fever, and of diphtheria presumably spread through local communities by means of milk. The first explanation that offered itself—and in many such outbreaks this explanation appeared valid and sufficient—was that the contamination of the milk by the material of specific disease had been derived from some antecedent case in the human subject brought into relation with the cow or the milk. But such a hypothesis of the manner in which the milk may have obtained its specific quality had not always accorded with the observed facts, and this was especially the case in regard to some outbreaks of scarlet fever.

In 1882 Power made inquiry concerning an outbreak of scarlet fever in St. Giles and St. Pancras,[6] in which milk was unquestionably the vehicle of the epidemic. The circumstances of the outbreak caused him to consider the hypothesis that the milk actually possessed at the moment of entering the pail the power of subsequently producing scarlet fever in the human subject, and that harmful attributes of the milk might be "an affair of the very system of the animal furnishing the milk." Although such an hypothesis was beyond ordinary experience, it was seen to accord with the observed facts of this outbreak, and in 1885 Power produced evidence which he regarded as conclusive that milk had been the vehicle of scarlet fever from a farm at Hendon to its consumers in Marylebone and other parishes in London, and that its faculty so to act depended on the diseased condition of certain milch cows at the farm, a condition first introduced there in the previous month by some animals newly arrived from Derbyshire. He found strong circumstantial evidence for believing that the later phenomena of this dependence were brought about through the extension of a diseased condition of one set of animals to another set after the fashion of a personal infection.

The epidemiological facts showed that as cowshed after cowshed became involved through the spread of a recognized diseased condition to the particular cows therein, the distribution of the scarlatiniform disease followed the distribution of the milk from the newly-involved sheds, and even from one particular cow, to the human consumer of the milk. Power's observations demonstrated, and they have been verified many times since—that milk of cows suffering from constitutional disease, whether associated with "sores" on the udder as in the Hendon cows, or not accompanied by "sores" on the udder, has the property of producing disease among human consumers. The disease thus induced in the human subject may be accompanied by a rash of a scarlatiniform character with or without sore throat, or partake of the nature of tonsillitis. The disease is constitutional, lasting some days, and desquamation may appear as in scarlet fever. Whether anomalous diseases thus produced are individually specific or not, they do not fully conform to the classical type of scarlet fever as clinically recognized in the Metropolitan Asylums Board hospitals—indeed, they may be due to a "sepsis." Moreover, as Power has pointed out, such illness has little, if any, power of spreading, and secondary cases in human beings are rare, if, indeed, they occur. Streptococci have been found, not only in the milk, which may be ropy in character, but also have been isolated from the tissues and organs of the sick, human and bovine. Streptococcus infection may be regarded as responsible for some of the grave symptoms of scarlet fever cases. Though this organism may, and now and again does, cause the death of the patient, it is now generally regarded as a secondary infection; the distinctive organism primarily causative of scarlet fever being probably a "filter passer." Power's observations, however, relate to facts which remain whatever the bacteriological explanation may be, demanding only acceptance of the view that an infecting organism can be excreted with the milk. There are some who hesitate to accept the "Hendon cow disease" as the cause of any known malady and in a measure discredit any evidence that milk-producing animals may suffer from a disease which may be transmitted through their milk to man. Nevertheless, it is doubtful whether any one would now question the fact of the transmissibility of Malta fever to man by the medium of milk from infected goats or of tuberculosis to young children by ingestion of milk of tuberculous cows.

[1] Mr. W. H. Power's Report to the Local Government Board on an Outbreak of Diphtheria at Brailes in Warwickshire. 1876.

[2] Mr. W. H. Power's Report to the Local Government Board on Prevalence of Diphtheria and Sore Throat Illness at Radwinter in the Saffron Walden Rural Sanitary District. 1877.

[3] Medical Times and Gazette. May, 1858: On the Infection of Fever [illegible].

[4] Report to the Local Government Board on an Epidemic Prevalence of Diphtheria in North London. By Mr. W. H. Power. [illegible]. 1878.

[5] Transactions of the Pathological Society of London. 1879.

[6] Report of Mr. W. H. Power on an Outbreak in Certain Districts of London of Scarlatina believed to have been distributed in Milk; with Postscript recording certain experiments by Dr. Klein, F.R.S.

In each instance the malady being transferred from animal to man in the form of living particulate matter.

Water Supplies.

In 1887 Power submitted to the Local Government Board a memorandum[7] on lead poisoning by certain public water supplies. At that time it was known that the water supplies of some of our large towns at intervals had been dissolving lead and producing lead poisoning on a somewhat wide scale amongst the water consumers; these occurrences were understood to be practically limited to towns and districts receiving soft moorland water. During the year 1885 the Sheffield water came suddenly to possess the power of vigorously dissolving the lead of the delivery pipes, with the result that the water was found to be producing plumbism amongst a large number of the inhabitants of that town. This Sheffield occurrence was the subject of an excellent report by Dr. Sinclair White, then medical officer of health to the borough. In this report attention was drawn to the different behaviour of a water in respect of its ability to dissolve lead according as it came from one or other gathering grounds, or as it represented the aggregate of water from different sources. And, not only was this diversity manifest in waters owning different local origins, but variability was also observed with alterations in temperature and other physical conditions. All Sheffield water supplies that dissolved lead were found to have an acid reaction, and Dr. Sinclair White spent much time and labour in the attempt to ascertain the source of free acid in these waters. No definite determination was then made as to any single chemical condition the presence or absence of which stood in direct relation with the variations in the lead-dissolving power of a water. Power, after study of the subject generally and of the facts recorded respecting the Sheffield experience, set out the considerations to be borne in mind in making further investigation of the conditions under which moorland waters at times acquire this power of dissolving lead, and indicated the probability that they were related to certain special chemical conditions associated with peaty areas, dependent on low organic or microbic life.

In 1890 the sanction of the Board was obtained to an inquiry into this subject by the Medical Department, such inquiry to include not only chemical and bacteriological study of the circumstances which might give to these waters the power of dissolving lead, but also simultaneous investigation at the various gathering grounds of the origin and characters of the waters having plumbo-solvent quality. This work in part was carried out by the Board's medical inspectors—Dr. F. W. Barry in the sanitary districts of the West Riding of Yorkshire in 1891, and Mr. T. W. Thompson in the counties of Lancaster, Cumberland, and Westmorland in 1892. They showed that lead poisoning was known to have occurred at one or another time among a large population inhabitating various sanitary areas in the North of England, all of which are served by public water supplies of moorland origin. The detailed observation, both on the physical conditions of representative gathering grounds, and on the chemical and biological questions involved, were entrusted to Dr. A. C. Houston, whose reports on several years' work on the subject form the foundation of much of our present knowledge and of the preventive measures which have been taken to remove this serious and often unsuspected cause of invalidism from many important industrial districts. Dr. Houston showed that the main cause thus operating was acidity produced in the peat by the action of bacteria, and distinguished the lead-dissolving power of water, thus acquired, from the ability to erode lead, which was an additional element in the problem. As a whole, Dr. Houston's results fully accorded with the provisional inferences which Power had originally drawn, and the sustained attention which Power gave to the subject, both directing and controlling these investigations, has resulted in the removal of the principal sources of danger from practically all the chief public supplies derived from moorland sources. Such supplies are now regulated, and exclude the acid washings of the peat, or the acidity is systematically neutralized.[8]

On the subject of water supplies brief mention may be made of one of Power's inquiries in which his knowledge of natural history was of special service. The East London Water Company had some years prior to 1887 been troubled by the appearance of eels in water pipes; and consumers, objecting to have their service pipes choked by eels and to the putrid flavour of dead eels, had come to regard their presence as chargeable with causing disease. An inquiry into this matter was directed by the Local Government Board and was held by Power in conjunction with Major-General A. de Courcy Scott, R.E. The evidence showed that the company had three sources of supply and that only one of these supplies was involved, and further, in all probability, that only the water service from one portion of this supply, the reservoir at Old Ford, was concerned. On the subject of this inquiry Power, while not rejecting the hypothesis brought forward by the company that in some way the eels might have gained access to the supply through an accident to the filtering arrangements in 1879, advanced another based on the seasonal migration of eels and the capability of eels to wander overland, and especially over grasslands supersaturated with the heavy dews of autumn, for considerable distances. He pointed out that it was possible for full-grown eels descending the Lee on their autumnal migration and eel fry and adult female eels ascending the river in spring and summer to leave the stream; and that they would, if disposed to wander ashore from the stream (which hereabouts received manifold pollutions) find in the gentle shelving bank of the company's works the best opportunity for so doing. Wandering in a direction at right angles to the river, they would, in another few feet of their transit, find themselves on the grass-clothed ground surface of the roof of the reservoir whence by the apertures in the manholes or ladder holes in the roof, nearly flush with the ground surface, the eels could drop into the water of the reservoir. Power's hypothesis regarded the intrusion of eels to the Old Ford reservoir as an occasional and autumnal affair mainly, and one which could be prevented by interposing gauze wire screens between the Old Ford reservoir and the engine wells associated therewith and by securing the Old Ford reservoir itself from intrusion of eels through apertures in the manholes of its roof. These simple preventive precautions were adopted and no further trouble from eels was experienced.

In 1879 Power, in investigating a remarkable outbreak of "fever" on board the Reformatory School Ship *Cornwall*, was able to disprove the identity of this "fever" with enteric fever, and, proceeding to search for direct *post-mortem* evidence of its nature, ascertained that it was a parasitic disease, in certain essential particulars resembling that produced in the human subject by the presence of trichina. Some anatomical peculiarities of this *Cornwall* parasite threw doubt as to its identity with trichina, and the parasite was referred to the genus *Pelodera*, which had not hitherto been known to invade the human body.

Head Quarters Work.

Power's service as a medical inspector came to an end in 1887 when he was appointed assistant medical officer. In this office he served until, on the death of Sir Richard Thorne Thorne in 1900, he succeeded to the senior office. During the period of his service as assistant medical officer his name scarcely appeared in the published reports of the Board; he was, however, doing valuable work for the State. Among many other duties he was teaching the junior members of the medical staff, who found in him a sound adviser and sure friend. Above all they valued his extraordinary gift of synthetic criticism. Barry, Bruce Low, Sweeting, T. W. Thompson, Theodore Thomson, Bulstrode, Reece, G. S. Buchanan, Wheaton, Mivart, Darra Mair, Ralph Johnstone, to mention some only of the well known medical inspectors of the Board, were in this sense his pupils; too many, unhappily, have predeceased him, and there are now comparatively few members of the medical

[7] Memorandum on Lead Poisoning by Certain Public Water Supplies; with some Considerations concerning the Nature of the Action of Potable Waters on Lead. By Mr. W. H. Power. Seventeenth Annual Report of the Medical Officer of the Local Government Board for 1887.

[8] Twenty-third Annual Report of the Local Government Board, 1893-4, supplement containing the report of the Medical Officer. Appendix A and B, Mr. W. H. Power's report on Lead Poisoning by Moorland Waters. On Lead Poisoning and Water Supplies. Supplements in continuation of the reports of the Medical Officer for 1900-1 and 1901-2, Local Government Board, 1902.

staff of the Local Government Board who served with Power.

The policy of so inquiring into subjects by the medical staff that their investigations should make standard works was fostered by Power. *The Influenza Epidemic of 1889–90*, by Franklin Parsons; *Oyster Culture in Relation to Disease*, by Dr. H. T. Bulstrode; *Sanatoria for Consumptives, and other Aspects of the Tuberculosis Question*, by Dr. H. T. Bulstrode (1905–6), may be quoted as examples of this principle. During Power's tenure of office no small portion of the medical staff was occupied in inquiring into the circumstances and administration of backward sanitary districts; he was of opinion that when light was thrown on these matters through their official publication by the Board reform followed and advance was made. The accumulated result of these inquiries showed the soundness of Power's view. Incidentally it illustrated the lack of power possessed by the central health authority to enforce the compliance of recalcitrant, passive, or lax local authorities in bringing their sanitary arrangements up to modern standards.

The multiplicity and complexity of technical and administrative questions which had arisen in connexion with the purity and wholesomeness of the food supply of the country did not escape Power's critical attention, and in 1905 the Local Government Board, on his advice, instituted a new subdepartment of the Board for the purpose of exercising supervision of the food of the people, and the new department was placed for the time being in charge of Dr. G. S. Buchanan under the title of Inspector of Foods. In general terms, the duties which are required of this subdivision of the Medical Department of the Local Government Board are to advise the Board as to the administration of the Sale of Food and Drugs Acts and other Acts relating to food questions; to deal with matters relating to the purity and adulteration of food which are brought to the Board's notice by public analysts, medical officers of health, and others; to obtain information upon special questions relating to the purity and adulteration of food and the use of deleterious substances therein; and to make suitable inquiries and investigation for the purpose. The subdepartment thus instituted developed gradually and has fully justified Power's forethought of the need of such an impartial, expert department. In the present crisis it has proved one of the most important assets of the State. Its inspectorial staff has been in close touch with manufactories wherein food for the troops is prepared and its medical inspectors are in North and South America supervising the preparation of the meat supply for the army.

When the Royal Commission on sewage disposal was set up in 1898, Sir Richard Thorne Thorne was appointed one of the members. On his death in 1900 Power was appointed to the vacant seat on the Commission. The research work of the Commission, carried on for long years by expert investigators working in great part under Power's direction, practically made what is known to-day of the science of sewage disposal work, and determined much of the present practice. Throughout he was fully alive to the economic industrial consequences of overzealous action to purify rivers, and of the need for laboratory standards which could be applied impartially and without injustice throughout a watershed, with proper regard to the use and volume of the river and the nature of the effluents.

With the proceedings of the Royal Commission on Tuberculosis (human and bovine) which was appointed in 1901 Power kept in close touch. He instituted the Local Government Board inquiry in regard to sanatoriums, which was carried on side by side with the Commission's work.

The report on this subject was published as a separate volume in 1908.[9] In 1907, on the death of his friend, Sir Michael Foster, K.C.B., Power was appointed in his place as chairman of the Commission, and he continued his work as chairman after he was retired from the office of medical officer to the Local Government Board. The value of the work done by the Commission is due in great measure to Power, who was intimately acquainted with all the research work carried out, a great deal of which was undertaken on his suggestion. Each piece of research was carefully considered before it was undertaken, and on its completion its value and its teachings were thoroughly investigated before the next step was attempted.

He brought to bear on each process his rare qualities of selection and discrimination, and his genius of recognizing the essential facts and investigating each problem in logical sequence. Interested in every aspect of the tuberculosis question, he was especially so in its relation to animal infection. The Commission was brought to a close in 1911; and it was a great disappointment to Power that the work was not continued under new auspices on the conclusion of the Commission. His views of the work still required to be done and the advantage in antecedent knowledge on a variety of questions which still remain obscure relating to the disease and the bacillus the essential cause of it, are presented in characteristic and concise fashion in a memorandum submitted to the Departmental Committee on Tuberculosis which was set up in 1912.[10]

Power was the recipient of the Jenner Medal of the Epidemiological Society of London, the Bisset Hawkins Medal of the Royal College of Physicians of London, the Stewart Prize of the British Medical Association, and the Buchanan Medal of the Royal Society.

In 1895 the value of his scientific work was acknowledged by his election as a Fellow of the Royal Society, and in 1902 by his election as a Fellow of the Royal College of Surgeons "honoris causâ." While he was medical officer of the Local Government Board he acted as a Crown nominee on the General Medical Council.

Power was a man of fine physique. He stood 6 ft. 5 in., and in his hospital days he could put the 16 lb. weight 38 ft. 8in. In common with other members of his family, he was a keen cricketer, and he could throw a cricket ball 110 yards. Conjointly with his brother, Fred. Power, he made what is acknowledged to be a fine collection of English birds, and every specimen was procured, prepared, stuffed, and mounted by the brothers. He was an exceptionally good shot, and the sport he liked best was duck shooting; such holidays as he permitted himself to take towards the last years of his official life were spent in pursuit of duck in his small yacht off the Eastern Coast. To the very end his love of the natural history of birds continued, and when no longer able to leave his home he spent much of his time in his garden watching through powerful field glasses their flight and behaviour.

Even those who knew him well, even his own personal friends, will never fathom the extent of the influence which Power exercised on the public health of the world. His amazing powers of intuition and constructive criticism were always placed at the disposal of others. Even after his period of public office had ceased, many "humble seekers after truth" sought him in his retirement to discuss with him problems in which they were interested, and to find their difficulties vanish under his masterful perception of the circumstances involved, to enjoy and to appreciate his scientific acumen and personal kindliness. He neither sought nor would he accept any share of, while he rejoiced in, their success. He shunned any occasion which would bring him prominently before an audience, and he had a physical dread of notoriety. It is impossible to do such a man justice.

To those who lay stress on heredity the following particulars may prove of interest.

William Henry Power, born December 15th, 1842, was the eldest son of William Henry Power, M.D., of Ladywell, Kent, born at Bosworth, May 13th, 1811, died February 7th, 1877; who was second son of John Power, M.D., of Bosworth, later of London, born Bosworth, December 22nd, 1785, died July 27th, 1858; who was eldest son of John Power, M.D., of Bosworth, Lichfield and Atherstone, born Polesworth, Warwickshire, April 15th, 1758, died December 29th, 1847; who was eldest son of John Power, surgeon, of Polesworth, born at Arley, Warwickshire, April 17th, 1730, died November 28th, 1795; who was only son of Robert Power of Arley Hall, baptized at Ansley, Warwickshire, December 15th, 1698, died October, 1738. The family, then represented by Robert Power who died in 1565, were living in the reign of Henry VIII at Baxterley, Warwickshire.

Power married in 1876; his wife died in 1882, leaving him two daughters, who survive him. The funeral took place at Brookwood Cemetery on August 1st, and in

[9] [illegible] and certain other aspects of the Tuberculosis question, by H. Timbrell Bulstrode, M.D. Supplement to the Forty-fifth Annual Report of the Local Government Board, 1915–16.

[10] Departmental Committee on Tuberculosis. Final Report, vol. ii, Appendix, p. 146.

addition to his family, many of his old friends and fellow workers were present. He lies within a few yards of his life-long friend, Sir George Buchanan.

A. H. LISTER, M.D., C.M.G.,

Physician and Lecturer on Clinical Medicine, Aberdeen Royal Infirmary; Lieutenant-Colonel, R.A.M.C.(T.F.).

We have to record with great regret that Lieutenant-Colonel A. H. Lister, of Aberdeen, died at sea on his way home from Egypt. He had suffered for a good many years from pulmonary tuberculosis, and had on several occasions been compelled to give up work in Aberdeen and spend several winters in Switzerland.

Arthur Hugh Lister was the son of the late Mr. Arthur Lister, F.R.S., brother of Lord Lister. He was born in 1864, and graduated B.A.Camb., with a second class in the natural science tripos in 1886. After spending two years as a medical student in the University of Aberdeen, he spent a third at King's College, under his uncle, Lord Lister. He graduated M.B., C.M.Aberd. in 1895, with highest honours, gaining the John Murray medal as the most distinguished graduate of his year. After serving as house-physician at the Middlesex Hospital he returned to Aberdeen, and in 1897 was appointed assistant physician to the Aberdeen Royal Infirmary. In 1912 he became full physician to the infirmary and lecturer on clinical medicine in the university. In 1904 he took the degree of M.D.Aberd., with honours for his thesis on "Roentgen rays and their application in the examination of the chest." He was at various times medical referee of the Newhills Sanatorium, honorary physician to the tuberculosis wards of the Aberdeen City Hospital, and medical officer of Morningfield Hospital for Incurables, Aberdeen. He devoted particular attention to the study of tuberculosis and his opinion was much sought in consultation in the North of Scotland.

Long before the war he held a commission in the Territorial R.A.M.C., and had been in command of the 2nd Highland Field Ambulance. In 1910 he was commissioned as lieutenant-colonel in the 1st Scottish General Hospital, Aberdeen, and on the outbreak of the war volunteered for general service. For a time he worked at Sir Henry Norman's ambulance in Northern France, but early in 1915 proceeded to the Mediterranean in charge of the medical division of a general hospital with the Egyptian Expeditionary Force. In this capacity he did not spare himself, and the excellence of his work was recognized by the honour of C.M.G., conferred upon him in the list of Birthday Honours last June, and how it was appreciated by his patients is shown by the following note from "A Subaltern":

> Not least among those who lament the loss of this admirable physician and handsome gentleman do we lament it who were his patients in the General Hospital in Alexandria, Egypt. He was a man of unusual charm and of unusual firmness. He knew how ill he himself was, yet through the frightful dust and heat of those bad days, when we were streaming from Gallipoli into Egypt, knocked out by wounds and disease, he worked unceasingly, patching us up, always good to look upon, always charming, yet always to the point. "One must do what one can," he said, and he did it. That is why we who owe to him not only health but life itself will cherish ever the memory of that "very gentil perfet knyghte."

As a young man Dr. Lister was something of an athlete; he played Rugby football as a student, and later became a keen golfer, but he was handicapped in his career by the disease which has now caused his death. His loss will be keenly felt in Aberdeen, where he enjoyed the confidence and regard of the profession. He was a member of the British Medical Association, a member, and for some time treasurer, of the Aberdeen Medico-Chirurgical Society, and a member of the Association of Physicians of Great Britain and Ireland.

He married the daughter of the late Sir Reginald Palgrave, Clerk to the House of Commons, and is survived by this lady and seven children.

CANON E. F. HOËRNLÉ, M.B.Edin.

A most interesting and attractive personality has been removed from Edinburgh clerical and medical circles by the death on July 23rd of Edward Frederick Hoërnlé, M.B., L.R.C.S.Edin. Although at the time of his death and for several years past Dr. Hoërnlé had no active connexion with medical practice, yet in the earlier part of his life, as a medical missionary under the Church Missionary Society in Ispahan, Persia, he was as devoted to the medical as to the clerical side of his work. Born at Agra in 1851, son of the Rev. Theophilus Hoërnlé (missionary under the Church Missionary Society in India), he was educated in Switzerland, and studied medicine and theology in Edinburgh, Vienna, Bonn, Bâle, and Munich. He obtained the qualification of L.R.C.S. at Edinburgh in 1877, and graduated M.B. in 1878; in 1879 he was ordained deacon and priest, and went to Ispahan. After some ten years' work there he returned to Edinburgh, and was in 1890 appointed assistant superintendent to the Ed nburgh Medical Missionary Society, of which Dr. John Lowe, F.R.C.S.E., was then superintendent. For three years (till 1893) he did work in the Livingstone Dispensary (Cowgate) under that society, and after Dr. Lowe's death he held for six years a curacy at St. Peter's (Episcopal) Church in Edinburgh. In 1899 he was appointed rector of St. James's (Episcopal) Church, Leith, where he officiated till his decease; and a few years ago he was made chancellor and canon of the Cathedral Church of St. Mary, Edinburgh.

Canon Hoërnlé took an interest in, and did good service for, education in Leith, acting for several years as a member of the School Board, as a director of Leith Hospital, and as a member of the Business Committee of the General Council of the University of Edinburgh and of its Library Committee.

He was the author of an *Introduction to Browning's Poems*, and of *Technical Education: A Portal to the Palace of Truth*. With a wide knowledge of the world, of men, and things; with a keen interest in philosophy; with well-trained and fully-considered views on medicine and theology, Canon Hoërnlé was a most entertaining and stimulating companion and conversationalist, and was highly esteemed, not only in the medical profession and amongst the members of his own church, but also in the large circle of friends in Edinburgh and Leith who had gathered round him, and to whom his death will come as a personal bereavement.

Mr. Charles J. Rayley Owen, M.R.C.S., L.S.A., died suddenly at his residence at East Hagbourne, near Didcot, Berks, on July 10th, aged 62. He was a grandson of Mr. Daniel Owen, of Halifax, Nova Scotia, the youngest son of Dr. William Buy Owen, of Finchingfield, Essex, and Cleveland Square, Hyde Park, and brother of Mr. Edmund Owen, LL.D., the distinguished surgeon, who died on July 23rd, 1915. Mr. Rayley Owen was born in Finchingfield, and educated at King's School, Canterbury. After giving up an appointment in a merchant's office, which was not to his taste, he matriculated and studied at St. Mary's Hospital. He took the diploma of L.S.A. in 1876, and that of M.R.C.S. a year later. He became resident medical officer and senior house-surgeon to St. Mary's, and afterwards held resident appointments at the Lock and the Kent and Canterbury Hospitals. He made several voyages as ship's surgeon, returned and assisted his father for a few years, and then entered into a partnership. In 1887, after his marriage, he resided at Devonshire Terrace, Hyde Park, and practised there on his own account on the termination of his partnership. His skill and geniality made him both popular and prosperous, but he overworked himself, and suffered grave shock about eight years ago from a carriage accident; on recovery he travelled to Japan, but never regained his health. Four years ago he settled at Hagbourne. He had no family.

Medical News.

At a meeting of the Executive Committee of the Society for the State Registration of Trained Nurses on July 27th a resolution expressing profound sorrow at the irreparable loss the society has sustained by the death of its distinguished vice-president, Sir Victor Horsley, was adopted in silence, the members standing.

The General Secretary of the Medical Defence Union (Dr. A. G. Bateman) has been in correspondence with the War Office respecting the claims of medical practitioners for the medical inspection of recruits. In certain districts claims were disputed owing to a memorandum issued by the War Office in February, 1915, limiting the amount to

be paid to a rate below peace scale, not having reached some recruiting centres until a later date. The financial department of the War Office has now decided to settle the disputed claims referred to by the payment of 2s. 6d. a head up to sixteen recruits examined, and 2s. for each recruit examined in excess of sixteen in any one day.

SPECIAL meetings of the Central Midwives Board for hearing penal charges were held on July 26th and 27th; Sir Francis Champneys presided. Thirteen cases were heard and eleven of the midwives were struck off the roll. Many serious charges were brought against the women besides the usual ones due to ignorance. Among them were fraud; the administering of a drug other than an aperient without making a note of the fact in the register; registering the birth of a child under a false name; employing an uncertified person as a substitute; putting infants under the care of a person without making proper inquiries as to her character, etc.; and failing to send for medical assistance in cases of puerperal fever, ophthalmia neonatorum, skin eruption, haemorrhage of the cord, oedema of the legs, feet, and hands prior to the confinement, and purulent discharge during pregnancy, etc. At an ordinary meeting on July 27th the board, in reply to a letter from the Local Government Board relative to the question of visits paid by a health visitor to a lying-in woman during the attendance of a midwife, expressed its trust that medical officers of health would exercise their discretion with great care in such circumstances. A letter was considered from the acting registrar of the General Medical Council in regard to a registered medical practitioner alleged to have visited patients delivered by a midwife whose name had been removed from the roll. The board resolved to signify to the Council that, without expressing any opinion on the merits of the case, it did not propose to press the matter further.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Articulate Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocre Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

C. H. B. asks for suggestions for the treatment of chicken-pox marks on the forehead in a girl aged 12, after an attack of chicken-pox in April.

POISONS CONVEYED BY DRESS.

ORIENS, who seeks evidence as to the possibility of the conveyance of poison by dress, may be referred to Norman Chevers's *Manual of Medical Jurisprudence in India*, where the legendary queen of the Queen of Canara, who is said to have killed Raja Parikit by poisoning his hair-oil or robes, is related. Chevers implies that this form of poisoning is possible. "Anyone," he writes, "who has noticed how freely a robust person in India perspires through a thin garment, can understand that if the cloth were thoroughly impregnated with the cantharidine of that very powerful vesicant the Telini, the result would be as analogous as that of an extensive burn." Chevers, however, quotes no definite and authentic report of a murder of this kind, though he states that Counsel Todd had published ample evidence of the existence of an idea that the deaths of several ladies and princesses were caused by personal robes. Can any reader supply our correspondent with more definite evidence?

ANSWERS.

HELIOTHERAPY.

DR. THOMAS DUTTON writes to suggest that the use of the apparatus for the utilization of sun rays devised by him would cure the sinus in a case now under treatment, a sinus of two years' standing is healing rapidly under ten minutes' [illegible] a day.

LETTERS, NOTES, ETC.

DR. J. W. [illegible] writes to suggest that cooling pipes on the principle of water-freezing plant for removing water vapour from the air blast used in room sweating should be installed in hospitals in hot countries. We believe that the method has been found the most suitable apparatus for preventing depressing effects of heat in hospitals and barracks. The principle of its action has been explained by Professor Leonard Hill.

DEATH AFTER NITROUS OXIDE-OXYGEN ANAESTHESIA.

DR. DUDLEY W. BUXTON (London, W.) writes: There is a printer's error in the sixth line of my letter (BRITISH MEDICAL JOURNAL, July 29th, p. 159). The word "terrible" should read "tenable," the true sense being, "My theory of the mechanism of the death is rendered less tenable."

FERGUS(S)ON'S SPECULUM.

WE have received a few communications concerning Fergus(s)on's speculum since a letter about the disputed question of the inventor of that instrument appeared in the JOURNAL of March 11th, p. 397. Dr. Carline, of Lincoln, forwards us a quotation from Bennet's *Inflammation of the Uterus*, third edition, 1855, p. 495: "I had ceased to employ them (glass specula) until this objection was obviated by Mr. Ferguson. He has had the outer surface of the speculum coated with a thin piece of Indian rubber, after previously surrounding the glass itself with a brilliant metallic coating." "Ferguson" here appears to stand for the dealer. We may add that the same sentence will be found in the first edition of Dr. J. H. Bennet's book published in 1849, p. 499, with the name spelt "Ferguson," as in that passage which Dr. Carline quotes.

The evidence from Maw's early catalogues is, as was shown in Mr. Doran's letter, inconclusive, as the name was not spelt in the same way in different editions. In reference to the note in the catalogue of obstetrical instruments, 1866, on "Hilliard's (speculum) exhibited by Ferguson," Mr. J. B. Hilliard informs us that a dilating speculum was probably meant, an instrument invented by his father, Mr. W. B. Hilliard, and used largely in Scotland and elsewhere about that date. Mr. J. B. Hilliard remembers the original pattern of "Ferguson's speculum," before 1866, made with silvered glass covered with black varnish or gum elastic, not rubber. It was followed by other patterns in clear glass, silver-plated metal, and plain black vulcanite. "The name was always spelt Ferguson, with one 's'": important evidence, as the correct orthography of Sir W. Fergusson's name must, of course, have been well known in Scotland.

Mr. H. Matthews states that the inventor was his father, the late Mr. William Matthews, who was present at King's College Hospital in his capacity of surgical instrument maker to that institution when he expressed an opinion that the speculum then being used was unsatisfactory. On this, Sir William (then Mr.) Fergusson said to him, "Then, mon, you make a better one." The result was the production of the silvered glass speculum coated with elastic gum. Sir William Fergusson was very pleased with it, was its first user, and it was called by his name. "At the time of my entering my father's business (1864)," Mr. H. Matthews continues, "I know that Fergusson's speculum had been in existence for many years; I should put the date of the invention as probably the early Fifties. I well remember a conversation I had on the subject with Sir William shortly before his death, which took place in 1877. He said he had advised my father to take out a patent for the speculum, and much blamed him for not having done so, as he had told him that he would have made a fortune by it; he added, 'but your father was a very obstinate man and thought he knew best.'"

The evidence here seems conclusive, but it is strange that, like earlier writers, the compilers of the *Catalogue of Obstetrical Instruments, 1866*, should have misspelt the name of Sir William Fergusson and omitted his title, although the catalogue was published not many months after he received his baronetcy. For, as reference to Mr. Doran's letter will show, this error can alone explain the misleading discrepancy.

Lastly, according to the *Catalogue* of the Obstetrical Society's Exhibition in 1866, the Ferguson's speculum was "coated over with a thin layer of india rubber." Mr. Barry Hopkins informs us that this statement was incorrect. The covering was elastic gum, a varnish painted on the outside of the instrument, and the speculum was then dried in an oven, and a series of coats were added till the desired thickness was attained. The late Mr. Alfred Walsh introduced an improved process, still in use, the silvered glass being covered with one coat of varnish and a linen web woven over it; lastly, more coatings of elastic gum are applied in the usual way. It is remarkable that though so much is remembered and has recently been reported about the introduction of Fergus(s)on's speculum by contemporaries, those veterans still do not seem agreed as to whom out of four men, all living in their own time, the instrument was ascribed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

CONTRACTURES OF THE HAND AFTER WOUNDS OF THE UPPER LIMB.

BY

W. M. MACDONALD, M.D.Edin., B.Sc.New Zealand,

MÉDECIN-TRAITANT, NEUROLOGICAL CENTRE, LE MANS.

During the early period of the war contractures occurring in the limbs after wounds, without electrical changes in the muscles, were looked on as hysterical, and were treated by disciplinary measures, which, however, failed in a large percentage of cases. Then some doubt arose in the minds of neurologists as to the correctness of this opinion, and Sicard, Meige, Mdme. Benisty, Claude, and others published cases which they could not class as hysterical. Recently Babinski[1] has published an article



Case I.—D. A. Sprained wrist from fall, June 25th, 1915. Contracture one month later (accoucheur's hand). Contracture of trapezius and slight atrophy of deltoid on same side. Severe pain in neck and shoulder for eight days after the accident. Anaesthesia in the territories of spinal roots C VI, C VII, and D I, light hypoaesthesia of C VIII.

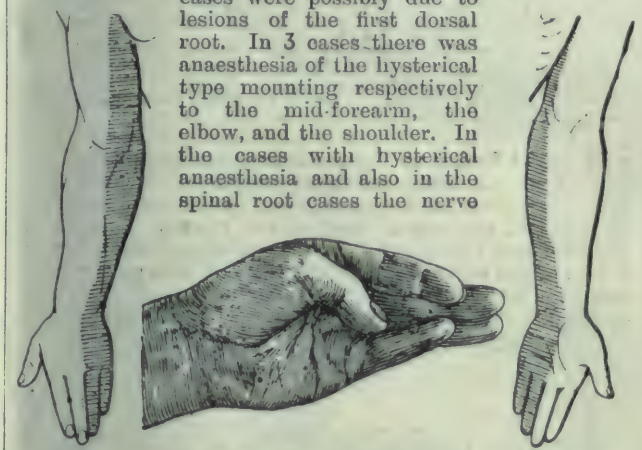
in which he frankly describes these cases as reflex, and speaks of an exaltation of the anterior cornual cells. He says, further, that as these cases are organic in nature they should not be submitted to certain disciplinary procedures which are justified in hysterical cases. But this explanation appears merely to replace one difficulty by another. In the case of a group of muscles which remain firmly contracted during six, twelve, or eighteen months and which contract anew in twenty-four hours after having been straightened and kept in plaster for four weeks, is our curiosity appeased by the substitution of "reflex" for "psychic," and by the transfer of the unknown quantity from the cortical cells to those of the anterior cornua? Careful search for the organic factor ought to be made in all these cases.



Case II.—D. S. Bullet wound of left arm, September 25th, 1915. Immediate contracture of the fingers (accoucheur's hand). Thumb contracted some weeks later. Spinal root anaesthesia (C IV, C V, C VIII, and D I). Pressure on Erb's point causes tingling in the little and ring fingers.

In the neurological service at Le Mans we have at present some 450 cases under treatment, amongst which are 25 of pure contracture of the hand. Others are complicated by fibrous retraction of the muscles, by neuritis *a frigore*, or by destruction of muscle and tendon. Several cases of contracture of the elbow and shoulder have not been included in the present series. The contractures have followed on wounds, which were mostly slight, of the arm (8), forearm (9), wrist (3), and hand (4), while in one case the original injury consisted merely of a sprained wrist. In no fewer than 16 cases the patient states that his hand contracted immediately or very shortly after the infliction of the wound; in 4 cases the contracture occurred in two to four weeks, while in the remainder it took some months to become fully established.

A detailed examination of these cases revealed the interesting fact that in all of them there was evidence of a neuritis, such as localized anaesthesia and trophic changes, tenderness of nerve and muscles, atrophy, etc. There was anaesthesia in the territory of the ulnar nerve in 10 cases, of the ulnar and median in 1, and in the median and musculo-spiral in 1. In 5, or possibly 6, cases the anaesthesia was of the spinal root type, and in several of the ulnar cases it mounted much higher in the arm than the classical territory of the nerve, suggesting that these cases were possibly due to lesions of the first dorsal root. In 3 cases there was anaesthesia of the hysterical type mounting respectively to the mid-forearm, the elbow, and the shoulder. In the cases with hysterical anaesthesia and also in the spinal root cases the nerve



Case III.—C. R. Bullet wound of left wrist, with fracture of fourth metacarpal, September 7th, 1914. Contracture set in very shortly after—accoucheur's hand, with adduction of thumb and little finger and slight flexion of wrist; third and fourth fingers in hyperextension at the first interphalangeal joint; reduction difficult and painful. Brachial plexus hypoaesthesia (D I).

trunks were tender and the trophic changes were practically the same as in the other cases. In 4 other cases the anaesthesia was of an indefinite character, chiefly affecting the hand and not possessing an anatomical distribution. These were probably cases in which partial regeneration had taken place, as was observed in several during the course of treatment, the anaesthesia changing to paraesthesia and the affected zones diminishing at the periphery. In 8 cases the nerves were tender above the wound, and in 10 prolonged suppuration had occurred, so that an ascending infective neuritis is often responsible at least for the persistence of the contracture. In other cases the nerve is injured either directly by the projectile or indirectly by the shock of its passage. In the spinal root cases the brachial plexus is stretched or jarred. In one of these the patient stated that his arm was projected violently backwards when he received the wound.

As will be seen by the diagrams the anaesthesia, or rather hypoaesthesia—for it is rarely complete, pin-prick being felt as a light touch—does not conform in all cases to the classic type. The line of demarcation between the normal and hypoaesthetic areas is usually abrupt, and there is an absence of the transitional zones commonly found after section of a nerve. In 5 of the 11 ulnar cases, the hypoaesthesia mounted more than halfway to the elbow and the digital distribution varied from 1½ to 3 fingers, the palmar and dorsal surfaces being equally affected in each case. Most forms of sensation were usually affected; thus light touch was not felt, pressure was felt as light touch, pin-prick as touch, the recognition of heat and cold was diminished and the



Case IV.—G. N. Bullet wound of right hand with fracture of third metacarpal, June 17th, 1915. Contracture two months later (accoucheur's hand); marked hypertrichosis, myotonia of ulnar and hypothenar eminences, ulnar hypoaesthesia and tenderness of nerve.

circles of Weber were enlarged. Spontaneous pains occurred in 9 cases, and in nearly all pressure on the affected nerve in the arm or forearm caused distal tingling in its cutaneous territory.

The muscles most commonly affected were the interossei



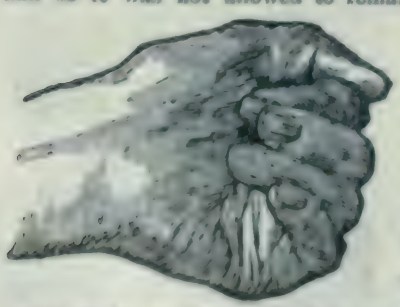
CASE V.—G. M. Bullet wound of right arm near shoulder, April 9th, 1915. Arm contracted immediately against the chest, elbow at a right angle, and fingers in extension. Later the little finger became strongly adducted. Thumb remained free, but shows trophic changes. Ulnar hypoaesthesia.

with slight flexion at the metacarpo-phalangeal, and extension at the interphalangeal joints. Frequently the little finger was strongly adducted towards the mid-line of the hand, and lay in front of the others. Sometimes the forefinger and thumb were also adducted (accoucheur's hand). Less commonly the superficial flexors of the ring and little fingers or of all four fingers were affected, producing flexion of the fingers into the palm, and in one case



CASE VI.—D. F. Shell wound of right forearm. September 23rd, 1915. Two weeks later contracture of third, fourth, and fifth fingers in extension, with slight flexion on the metacarpals; fifth finger in forced adduction. Anaesthesia of the three fingers affected and the ulnar region of the hand. Tingling in the fourth and fifth fingers when the ulnar nerve is compressed at the elbow.

the flexor profundus of the middle and ring fingers was contracted, giving rise to a curious deformity (Case XI). The flexor carpi ulnaris and palmaris muscles were also sometimes affected. Although the adductor pollicis is the most powerful of the interosseous muscles, the thumb was included only in eight cases, the explanation being that the thumb is necessary for eating and cigarette-rolling, and so it was not allowed to remain contracted. The muscles affected have usually a decreased faradic and an increased mechanical excitability, but the marked myotonia with delayed contraction on percussion which was demonstrated in several cases by Babinski at the recent Conference on War Neurology at Paris could not be elicited in any of these cases. In about half the cases there was a mild degree of myotonia with slightly delayed contraction. In eight cases there was atrophy of the hypothenar, and to a lesser degree of the thenar, eminences.



CASE XI.—D. L. Bullet wound of left forearm, February 1st, 1915; contracted four days later. Hand firmly closed two days after, and has remained contracted ever since. Cannot bring the palm of all four fingers and adduction of thumb. Ulnar nerve tender in the axilla; paresthesia on it in all the course of area included in the little and ring fingers. Ulnar hypoaesthesia.

All cases showed trophic changes, and in most they were well marked. The hand is cold and blue or marbled. The patient complains that it is too cold in cold weather and too hot in hot. Babinski has noted a difference of 7° or 8° C. between the two hands. There is excessive perspiration in the area of the nerve affected, and in some cases it is extremely fetid. The fingers are atrophied and pointed. The skin is smooth and is attached firmly over the interphalangeal joints, the folds of which are effaced. The nails are rigid, brittle, waxy in tint, incurved, and rounded. The nail in its rapid growth drags the skin with it so as to form a pad under its free end. The phalanges may show rarefaction under the x rays, and there is a tendency in some cases to ankylosing arthritis with ulnar deviation of the fingers. Most of these trophic changes are commonly present, but they are not all found in each case.



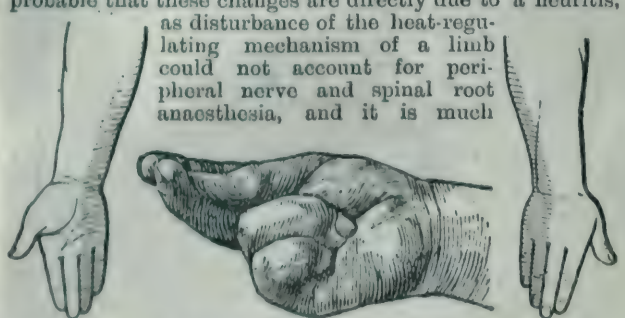
CASE VIII.—S. M. Bullet wound of right arm, June 20th, 1915. Contracture of fingers in flexion one week later, thumb remaining free; easily reduced until August 23rd, when an operation for liberation of the ulnar nerve was performed, after which reduction became very difficult. Marked retraction of the palmar fascia as seen in sketch. Ulnar anaesthesia and tenderness of nerve.

The tendon reflexes, which are usually altered in reflex nervous troubles, are rarely exaggerated, but Babinski has found that patellar clonus occurs under chloroform in some cases of contracture of the lower limb, and he takes this as definite evidence of the reflex origin of the contracture from irritation of the anterior cornual cells. He further develops this line of argument by assigning a similar causation to all other pithiatic cases of contracture or flaccid paralysis without reaction of degeneration, on the ground that in every other respect they are similar to the cases that do possess this pathognomonic sign of reflex spinal action. By pithiatic he means irresponsive to oracular suggestion or psychotherapy.



CASE IX.—R. S. Contracture in flexion of the little and ring fingers, of twenty years' standing. Supervened on paralysis of the arm caused by a lightning stroke. Slight hypoaesthesia of the dorsum and palm of the hand except in the region of the first metacarpal. Marked retraction of the palmar fascia.

He suggests further that the reflex action may affect chiefly the thermic control of the limb and in this way produce the trophic and other changes. But, in those cases at least in which definite evidence of reflex action has not been induced by chloroform narcosis, it is more probable that these changes are directly due to a neuritis, as disturbance of the heat-regulating mechanism of a limb could not account for peripheral nerve and spinal root anaesthesia, and it is much more simple to attribute the thermal changes to a neuritis, of which we have definite proof in the tenderness of the nerve, localized anaesthesia, etc. It is perhaps possible that the neuritis and all the other changes may be due to a vasomotor reflex affecting the nutrition of the nerves and muscles, similar to that which produces atrophy of the rectus femoris very shortly after injuries near the knee-joint, and even near the ankle.



CASE X.—M. D. Shrapnel wound of right wrist, September 8th, 1914; fourth and fifth fingers contracted in flexion three days after; reduction easy. Ulnar hypoaesthesia mounting almost to the elbow.

This condition is exceedingly common, sets in very rapidly and is accompanied by diminished faradic and galvanic excitability without polar change. Then again in phthisis we have a reflex atrophy of the trapezius, rhomboids and pectorals. But on the whole it seems more rational to attribute all the sensory, motor, and trophic phenomena to the neuritis.



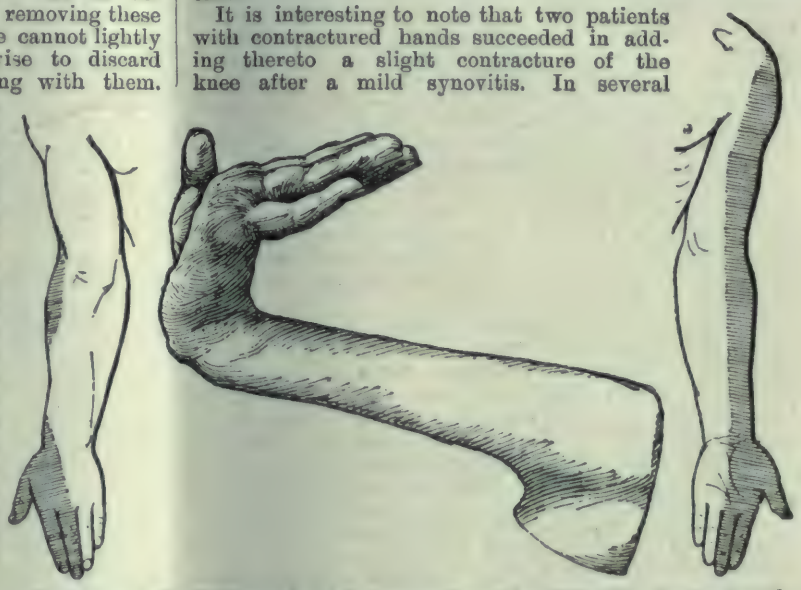
CASE XI.—B. A. Bullet wound of right arm, June 29th, 1915. Contracture of the deep flexors and interossei of the third and fourth fingers a few days later. Hyperextension at the first and acute flexion at the second interphalangeal joint. Reduction easy but accompanied by a marked click as if the fingers worked on springs. Ulnar anaesthesia mounting two-thirds of the way to the elbow Trophic changes limited to slight cyanosis and excessive sweating.

It is obvious, however, that Babinski is right in removing these cases from the hysterical class. Yet one cannot lightly dismiss the mental factor, nor is it wise to discard entirely disciplinary measures in dealing with them. They rarely occur in civilians. One soldier with a contracture of the thumb alleged that it began three years ago. One of the present series of cases (No. IX) was a civilian who came to the hospital for consultation with a contracture of the fourth and fifth fingers of twenty years' standing which had supervened on paralysis of the arm following a lightning stroke. But these are cases of extreme rarity and are not commonly found in civil practice. Again, contractures do not occur in officers and rarely in non-commissioned officers. They develop after slight and rarely after severe wounds as with all functional conditions. The thumb is rarely affected. They occur more commonly in men who come from certain districts, and, lastly, they are specially prone to occur in certain hospitals where the atmosphere is suited to the culture of functional troubles.

On the other hand, they often fail to respond to psychotherapy, they persist both in natural and in drunken sleep, they yield only to deep chloroform anaesthesia, and, as Babinski has pointed out, they return along with or even before the tendon reflexes after anaesthetization. It is evident, therefore, that we have to deal with both an organic and a mental condition.

In discarding the purely hysterical hypothesis, however, it is not necessary to invoke the assistance of reflex action when we have evidence of neuritis. Contracture of this intensity is not an ordinary feature of neuritis, but military contracture is not an ordinary condition. What probably happens is that immediately or shortly after the wound the muscles contract from irritation of the nerve. This is probably very common and is in most cases overcome either by the patient or his attendant. Dr. Clunet, of the *Provence*, in the very interesting account that he gave at the Paris Neurological Congress of the events which followed on the torpedoing of the vessel, stated that next day he found some of the survivors from the rafts half-dazed and with all four limbs firmly contracted in flexion. He cured them all by flagellation, but there is no doubt that if they had been taken then and there under the wing of Red Cross ladies some of them at least would have remained contractured for months. An interesting case is that of a French surgeon who was shot through the lower jaw, and who found that by firmly contracting his masseters he could keep the fragments in position without a bandage. The contracture was well established in several hours. A month later, when he wished to decontracture himself, he found that he could not do so, and it took him two months of hard work before he could open his jaws freely. In the case of the common soldier with perhaps an inherited nervous disability, and with the call of the trenches setting up a negative chemio-taxis, there is an incentive for the patient not to make the effort at decontracture, with the result that the spasm persists. The irritation of the neuritis supplies the thorn which probably exists in all functional motor troubles, and which prevents the perverted mentality from resuming its normal tenor.

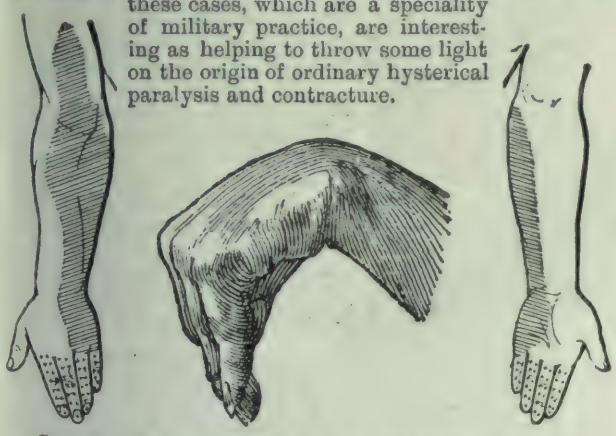
It is interesting to note that two patients with contractured hands succeeded in adding thereto a slight contracture of the knee after a mild synovitis. In several cases of disturbance of the gait after slight wounds, of false shortening of the lower limb, of knees and hips which work as if on springs, of contractured club-foot following slight sprains, I have found bands of anaesthesia, most commonly in the territory of the external popliteal. All these cases, which are a speciality of military practice, are interesting as helping to throw some light on the origin of ordinary hysterical paralysis and contracture.



CASE XIII.—B. N. Shell wound of left forearm, September 18th, 1915. Contracture of the hand and fingers in forced extension two weeks later. Brachial plexus hypoaesthesia (C V, C VI, C VIII, and partly C IV and C VII).



CASE XII.—V. H. Forefinger amputated at the second phalanx by a bullet, September 9th, 1914. Fingers began to contract the same day. Contracture established in eight days with the fingers hyperextended and widely separated, wrist in acute flexion, hand very rigid, reduction impossible. Well marked atrophy of the long supinator, radials, extensors, and flexors, and to a lesser degree of the triceps; faradic hypoexcitability of all these muscles. Muscles of the hand not atrophied. General anaesthesia of the upper limb mounting to the shoulder. Ulnar and radial nerves sensitive.



CASE XIV.—S. N. Bullet wound of the left forearm, April 30th, 1915. Contracture, two weeks later, of the wrist and elbow in flexion and extreme pronation; fingers flexed on hand with all the phalanges in extension; thumb free; marked hypertrichosis; pressure on ulnar nerve in all its course from axilla to wrist causes tingling in the little and ring fingers. Irregular ulnar anaesthesia (possibly C VII and D I); hypoaesthesia of the fingers very marked.

Treatment is disappointing, but the best results are obtained by strong hot faradic baths (with metronome), followed by massage, manipulation, and re-education, by

frequent stimulation of the hypoaesthetic areas with a strong coil and metal brush, and by strictly limiting leave until some improvement is shown. It is not wise to keep them too long in plaster, as they develop a contracture of the opposing muscles.

For the sketches of the hands I am indebted to M. Arouy, orderly in the electrical service. A few typical diagrams of the alterations in sensibility have been added.

REFERENCE.
[1] *La Presse Médicale*, February 24th, 1916.

NOTE ON THE DISTANT EFFECTS OF RIFLE BULLETS; WITH SPECIAL REFERENCE TO THE SPINAL CORD.

BY JUDSON S. BURY, M.D.LOND., F.R.C.P.,
MAJOR R.A.M.C.(T.).

EXPERIENCE of gunshot wounds in the present war teaches that the effects of a high velocity bullet with rapid rotatory spin are rarely limited to the parts through which it passes; as a rule there is evidence either of indirect or of secondary lesions and sometimes of remote lesions. Thus, haemothorax may be caused by a bullet passing through the muscles of the chest without injury to the pleura; haemorrhage into the abdominal cavity, or even rupture of a viscus, by a bullet passing through the abdominal wall without penetration of the peritoneum. The passage of a bullet through the scalp which strikes but does not fracture the cranium may be followed by symptoms of an intracranial lesion; indeed, the effects of such concussion are sometimes quickly fatal owing to inhibition of the respiratory and cardiac centres in the medulla.

Paralysis, and anaesthesia of parts supplied by one of the nerves to a limb, may be set up by the passage of a bullet through the limb at some distance from the nerve which becomes affected—for example, the functions of the sciatic nerve are often affected by gunshot wounds of the thigh when it seems unlikely, from the position of the wound, that the nerve could have been directly injured. Under the heading "sciatiques télétrosiques" (τῆλε, distant; τρῶσις, act of wounding), Lortat-Jacob, Sézary, and Ferrand[1] describe eight cases of traumatic sciatica produced by a projectile penetrating either the lower limb or the ileo-lumbar region without directly implicating either the sciatic nerve or the lumbo-sacral plexus. Such sciaticas may present the most diverse clinical types, from simple neuralgia to severe neuritis, characterized by paralysis, sensory disturbance, and loss of the knee-jerk. The symptomatology does not differ from that which is observed in cases in which the nerve is directly injured. In one of their cases which was operated on, the nerve was yellow and indurated, although it had not been in contact with the bullet and was not involved in scar tissue. The authors believe that a definite lesion of the nerve may be produced by the vibrations set up in adjacent tissues by the passage through them of a swift rotating bullet.

Of particular interest are the effects on the spinal cord of the passage of bullets in its immediate vicinity, in cases in which there is no evidence of direct injury to the cord. In some instances there was an impact of the bullet upon some portion of a vertebra; in others, however, it was probable that the bullet did not strike the bone, but passed through the tissues outside it. In both conditions the damage to the cord may be either severe or slight. Records of such damage are to be found in the Goulstonian Lectures recently delivered by Gordon Holmes,[2] and in the address by James Collier.[3]

In the first of the two following cases some of the dorsal spinal roots were severely injured; the spinal cord was also implicated, and it is probable that the bone was injured. In the second case the soft tissues were probably alone involved.

CASE I.

Lance-Corporal S. was admitted to the Stepping Hill Hospital, Stockport, on June 1st, 1915. He stated that on April 25th he was struck by a bullet which entered the back near the top of the left shoulder, and came out on the right side of the spine. He was unconscious for two or three days, could not hold his water for about a fortnight, and has suffered from severe pains in the back and sides since the injury. On examination the scars of the bullet wounds were observed, the scar of entrance being just above the spine of the left scapula, that of exit about two inches to the right of the tenth and eleventh dorsal spinous processes. The whole of the dorsal spine below the third vertebra was very tender to pressure, the greatest pain being produced by touching the sixth spinous process. The hyperaesthesia extended over the ribs on both sides, the area included between the fifth and eighth ribs being most affected. Partial anaesthesia to cotton-wool and pin-prick was detected over the back on the right side, between the seventh and the tenth ribs, and in front on both sides, from the fourth to the eighth rib. During inspiration the action of the lower intercostal muscles seemed to be impaired. The right leg was weak, and the dorsiflexors of the right ankle were nearly completely paralysed. The abdominal reflexes were normal. The knee-jerks were slightly exaggerated, the right jerk being the greater of the two. Slight ankle clonus and Babinski's reflex were obtained on the right side.

During the two months that the patient was in hospital the pains in the back and the sides and the hyperaesthesia persisted, though gradually lessening in intensity. The anaesthesia on the left side disappeared in a fortnight, that on the right side in about six weeks. The weakness of the dorsiflexors of the right ankle persisted. On August 24th the patient was transferred to the Calgarth Park Auxiliary Hospital, Windermere, and was under the care of Dr. John Mason, who has kindly kept me informed as to his condition. The patient still suffers from pain to the right of the spine and in the back of the right thigh. He is able to walk a mile, and is able to work a few hours daily in an office. The right knee-jerk is exaggerated, though less so than formerly. The right leg is weak, and the foot tends to drag along the ground.

The main points of interest in this case are: (1) The temporary incontinence of urine; (2) the implication of some of the dorsal roots; (3) the signs of a lesion of the right pyramidal tract, the fibres which convey impulses to the dorsiflexors of the ankle being chiefly affected.

CASE II.

Private G., aged 19, was admitted to St. George's Hospital, Stockport, on December 31st, 1915. He was shot in the back on December 1st, the bullet going in over the posterior border of the left scapula at the level of the sixth dorsal spine and out over the middle of the right scapula at the level of a line between the fourth and fifth dorsal spines. At the time he was shot he was standing on a firing step in a trench; he fell backwards, his feet remaining on the step and his back resting against the wall of the trench. He did not lose consciousness; suddenly he felt severe pain in the upper part of the abdomen, which lasted for a few days. He was laid down at the bottom of the trench where he remained for three hours before being conveyed to the dressing station. He was unable to move his legs; when they were touched a curious painful sensation went right through him from the legs to the back. For two or three weeks after the injury his legs were completely paralysed and sensation was lost as high as the middle of the body. During this time his urine had to be removed by a catheter; strong medicine was required to move his bowels; he had no sensation in the bowel during defaecation. Power and sensation gradually returned to the legs, and thirty days after the injury when I examined him I was unable to detect any paralysis in the movements of his lower limbs. The knee-jerks were much exaggerated and ankle clonus and Babinski's reflex were present on both sides. The presence of the superficial epigastric reflex was doubtful, the abdominal was absent and the cremasteric was normal. There was no anaesthesia. The man still suffered from pains in the abdomen. He was unable to hold his water for more than an hour. There was incontinence of faeces, and sensation in the rectum was impaired. The condition of the bladder and rectum gradually improved, and on April 19th, when he left the hospital, the action of these viscera was almost normal; the knee-jerks were still exaggerated and ankle clonus was present, but the plantar reflex was of flexor type.

In the group of "spastic paralyses," cases are not uncommon in which no paralysis can be detected, the lesions of the upper neurones being represented clinically only by exaggeration of the deep reflexes; such a condition one has often observed in cases of early disseminated sclerosis. The explanation is difficult. It may be that a lesion too slight to produce paralysis, or at least paralysis that can be detected, is sufficient to cut off cerebral impulses which are inhibitory to muscular tonus, when there will be over-action of the spinal centres which is probably the result of the unopposed action of the cerebellum.

REFERENCES.
[1] *Rev. de méd.*, August, 1914; November, 1915. [2] BRITISH MEDICAL JOURNAL, November 27th, December 4th and 11th, 1915. [3] *Lancet*, April 1st, 1916.

ON account of the epidemic of infantile paralysis in the United States, the military authorities of Cuba have ordered that children arriving from American ports who have an abnormal temperature shall be isolated until the cause of the condition can be diagnosed. Children in normal health will be kept under supervision till any danger has passed.

THE TREATMENT OF GUNSHOT FRACTURES.

BY

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THERE are several points in Mr. Hey Groves's article on the treatment of gunshot fractures which appear to be at variance with what I believe to be fundamental physiological principles, and also with my experience in the practical details of treatment with splints. We are all too much concerned to assist the general mass of practitioners engaged in military practice to arrive at a safe, easily intelligible, and practically convenient method of efficient treatment, for me to have any fear that a frank reply to those statements in his article with which I strongly disagree will be regarded in any way as an attack on Mr. Hey Groves; we are all too deeply concerned with the importance of the subject for that to be possible.

The first point at issue is the discussion of the relative importance of the treatment of wound infection and the restitution of normal relations. Though this has been forcibly put by others, it is still necessary to point out that restitution of the normal relations is essential to the efficient working of the natural defensive processes of the blood and tissues. Every surgeon is aware that in such operative procedures as muscle and tendon grafting twisting the muscle is fatal to its survival, at least as far as useful function is concerned; how much more fatal to the survival of the tissues must kinking and damming of the natural flow of blood and lymph be when the maximum value of the circulation is required to combat infection.

It seems obvious that to bring the limb at once into its normal alignment gives the circulation its best chance of a free flow. Further, if fasciae and muscles remain twisted, pockets of discharge form behind the kinks, precisely in parts where the malposition has impeded the circulation in the tissues and rendered them the more vulnerable to toxins. Free drainage of accumulations in the various intermuscular and interfascial tissues in which discharges may collect is obtained by suitable incisions tapping the various strata of natural interspaces; the natural flow will proceed most easily if the tissues are lying in their normal relation without avoidable kinks and twists.

Immediate restitution of normal alignment is one of the strongest agents in assisting Nature to establish a proper system of physiological defence. Of course, cases of gas gangrene and acute infection require, in addition, all the assistance that can be given by free incision, the use of hypertonic solutions, free removal of grossly infected tissues, and any other appropriate device known to surgical art.

The Survival of Bone Stripped of its Periosteum and Apparently Devitalized.

Mr. Hey Groves very properly lays stress on the importance of the medullary circulation, and when he suggests that "if angulation of the fractured bones occurs in such a way as to bring the fragments close to the surface of the wound, this ought to be maintained or even increased," he is clearly contradicting himself, for a bone in an angled position cannot come to that state of physiological rest of the part which is necessary for defence against toxins—not to mention repair. His statement that "it greatly shortens the cleaning of the wound" is open to question and contrary to my experience, and while it may be true that "it facilitates the drilling of any bare bone that may present," this is not in itself an object to be desired. I fully admit that drilling through the hard bone into the medulla is an ingenious and perfectly proper means of providing access for new vessels in the form of granulation tissue; it seems much more physiological to allow the normal surroundings of the bone to provide this as soon as possible instead of having recourse to a surgical artifice. I have frequently had occasion to remark, during the treatment of fractures of the lower limb by means of the Thomas splint, that as soon as the limb is pulled down into correct alignment and brought to a state of physiological rest by means of "fixed extension" the bare ends of the bone which seemed inevitably doomed to suffer necrosis are rapidly vascularized from the periphery by a growth of granulation tissue. This is entirely in accordance with the teachings of Hilton's classical work entitled *Rest and Pain*, a work which is worthy of much more close study by the modern surgeon than it commonly receives. In this war we have to deal with septic conditions in surgery well known to our grandfathers, and while using modern methods of invoking the defensive powers of the tissues, we cannot afford to neglect the lessons they learned in a hard school of experience, unless we are content to let our patients pay the price by buying the experience anew for ourselves.

Much of the most heart-breaking work which those of us who are orthopaedic surgeons have to do is to break up repair tissue formed in wrong positions in order to restore correct position in limbs, when that correct position might easily have been secured in the first instance, when all the parts were free and easy to adjust.

The points I wish to make so far are, first, that while free incision, saline irrigation to promote lymph flow, and mechanical cleansing and excision of the wound all have an important place in the process of defence and repair, the restoration of a free blood supply, and with it free drainage, is best assisted by getting the limb into correct alignment, so that the natural paths of flow of blood and lymph are not twisted or obstructed; and, secondly, that if this is done repair follows naturally and continuously on the initial processes of defence without the necessity of inflicting a new injury on the tissues at a later date in order to restore the shape and normal relations of the limb.

The Best and Most Efficient Type of Splint.

I cannot accept the statement that the muscular pull "which is mainly responsible for the element of displacement of a fracture which is most difficult to reduce" is, to quote again, "constant and elastic in its action, and not merely reflex or voluntary." My experience of the use of the Thomas splint in fractures and in dealing with the spastic contraction of muscles in cases of cerebral palsy of infants, has led me to a firm conviction that the muscular contraction which leads to deformity is essentially reflex. It was not till I grasped this fact that I was able to understand the extraordinary way in which a case of fracture of the femur treated on a Thomas knee splint comes in due course to a state of complete muscular rest, so that the muscles relax, and no force is needed to complete the restoration of the length of the limb.

The wholly inaccurate and misleading impression of the Thomas splint and its use in the treatment of fractures of the lower limb, given in Mr. Hey Groves's article, compels me to attempt to explain how it ought to be used, and to dispel some of the misapprehensions which have evidently arisen. I can do so with some confidence, as I have used the splint constantly since I first was taught how to use it in 1901, and it had then already enjoyed an established reputation for twenty-five years.

The Thomas knee-splint in the treatment of fractures is no new thing—though many surgeons seem to regard it as such. It was written about in 1878 in strong terms of praise by Rushton Parker. The new factor is that many surgeons who have never given much attention to surgery of bones and joints, and have not, so to say, served a regular apprenticeship in this branch of surgery, are now compelled to pay a great deal of attention to it, and have discovered that a section of surgeons accustomed to the treatment of bone injuries are in the habit of using Thomas's splint.

As a surgeon who has used the Thomas splint as a matter of routine, I would lay down the following points as constituting the essential difference between the "fixed extension" employed with the Thomas splint and the "elastic extension" employed in any method of weight and pulley extension. With "fixed extension" the nerve-muscle apparatus concerned in spinal reflexes comes to rest and ceases to act within forty-eight hours of efficient fixed extension, and after that the whole musculature of the limb comes to rest and no further trouble need be feared from "muscular action." On the other hand, with weight and pulley extension the nerve-muscle apparatus is kept on the alert. The muscles remain in the state of elastic tension described by Mr. Hey Groves and do not come to rest. It is true that this state of elastic tension may be overcome by fatiguing the muscle by the use of great weights such as he describes, weights up to 25 lb.

But the use of such weights subjects the tissues to a tension which he properly deprecates—again I quote: "Extension involves tension, and the less tension there is in the tissues the easier the drainage and the better the natural resistance of the soft parts against inflammation." With this statement I am entirely in accord, and I use the Thomas splint because when this splint is properly constructed and properly used there is less tension on the tissues than in any other method of treatment with which I am acquainted.

The first difficulty raised is that it is impossible by a "single act of traction," a "single momentary act," or by a "sudden act" to restore the femur to its full length; the phrases quoted all occur in Mr. Hey Groves's article. In order fully to repel these suggestions, which I consider to be erroneous, I shall attempt to explain the manner in which I am in the habit of dealing with a fracture in the middle or lower third of the femur. I will take as an example a case admitted under my care on May 4th, 1916.

The patient had been hit by high explosive shell on April 29th. He was suffering from numerous scalp wounds, a wound of the chest which gave rise to a pleurisy, diagnosed on May 5th, and numerous small wounds down his right leg, in addition to a fracture of the middle of the right thigh with a large ragged wound on the posterior and outer part of the thigh communicating with the seat of fracture. He was transferred from France on a Mayberry-Wallace splint. He had three inches of shortening, measured from the anterior superior spine to the internal malleolus. The large ring of the Mayberry-Wallace splint, not being correctly shaped, was pressing up into the perineum and not riding on the tuber ischii, as a properly shaped Thomas ring would.

An anaesthetic was administered, the Mayberry-Wallace splint removed, and the wounds covered with temporary dressings. Some difficulty was experienced in getting convenient areas of uninjured skin for application of adhesive strapping for the "extensions," but by cutting the strapping into many tailed strips it was possible to have room to dress the various stray wounds in the leg and yet get efficient hold of the limb. Most of the traction was from the sides of the knee and just above it.

The limb was pulled out by hand to within about ¾ in. of the length of the opposite leg without any exercise of great force—that is, the deformity was at once reduced by about 2¼ in. A gutter metal splint was applied to the back of the leg and thigh below the fracture, and a bandage sling from the side bars applied to support the upper third of the thigh, leaving the region of the wound free for irrigation and drainage; an interrupted back splint to fit the patient was made but not used, as the alignment was good.

The bottom of the splint was supported in a crutch at the bottom of the bed. At the same time a Thomas right-angled shoe was applied to steady the foot, as there were rather extensive wounds of the leg just above the ankle. The nurses, who were not familiar with the splint, were surprised to find that there was no difficulty in moving the patient for any necessary purpose. About a fortnight ago I heard the patient tell a surgeon who was visiting the hospital that, except for the first two or three days, he had felt no discomfort from the ring.

Secondary haemorrhage occurred from the anterior tibial artery. It was associated with a phlebitis of the internal saphenous vein which caused some disturbance in the course of treatment. In spite of complications, the whole treatment of this case was carried through without removing the splint till July 22nd, when it was taken off altogether as the fracture had united, though the surface wound was not quite healed. The shortening is between ½ in. and ¾ in. If it had not been necessary to ease the strapping in places on account of the phlebitis, it would probably have been possible to avert even this small degree of shortening.

This case alone—and it is only one of a series—answers most of the objections raised by Mr. Hey Groves. The suggestion that it "only needs a little slipping of the adhesive plaster . . . a little giving on the part of the soft tissues over the tuber ischii, to allow the powerful thigh muscles still further to drag the bone fragments out of position," contains three fallacies. The first he exposes himself. On the next page he writes: "That extension by adhesive plaster alone is capable of reducing and retaining every kind of fracture has been long ago demonstrated by Hackenbruch and his pupils"; there is therefore no reason to attach importance to a "little slipping of the adhesive plaster"; even if it happened it would be discovered by the surgeon if he uses his tape measure as he ought.

The tuber ischii is the bone on which man sits, and the soft tissues over it are not likely to give. If the ring of the Thomas splint is properly constructed and fits the patient reasonably well, it will not slip off the tuber ischii into the perineum. The thickest part of the padding on the Thomas ring should not be more than 1¼ in. to 1⅜ in. in diameter even in the largest ring. The ring is usually made larger than this in the Mayberry-Wallace splint and in other splints improvised since the war began. No such splint is a Thomas splint, and its faults ought not to be associated with Owen Thomas's name. I think that the reason why Messrs. Mayberry and Wallace put such a powerful winch on their splint is not because it was needed to overcome the muscles, but because the ring of their splint is too thick to lodge securely on the tuber ischii, so that it slips off into the perineum. The more the winch is wound up the more the ring is driven into the perineum; but this is not fixed extension, and the splint is not even a modification of a Thomas splint, for it does not fulfil the first requisite of a Thomas splint—namely, a properly designed ring.

The third fallacy is that the powerful thigh muscles will further drag the bone fragments out of position. This is a myth which ought to have been exploded long ago.

The behaviour of the muscles in the case of a fracture under treatment by fixed extension was long very puzzling to me, for, like many others, I had an idea that the muscles crossing the seat of fracture had a constant tendency to contract. Experience, however, proved that not only these muscles but all the other muscles of the limb come to rest in a relaxed state if the limb is put in fixed extension. A study of the behaviour of the muscles in cases of spastic paraplegia, together with a consideration of the experiments of Magnus on spinal reflexes in the dog and the cat, gave me the clue to the situation.

In spastic paraplegia or spastic central diplegia in children the inhibitory control of the upper neuron is impaired, and reflexes are exaggerated, especially in the strong hypertrophied adductors of the thigh. Any stimulus almost may excite a strong contraction, not only of these, but also of other hypertonic muscles, inducing movements of the hands, twisting of the face, and other phenomena familiar in such cases.

Clinical experience has shown that if the powerful thigh muscles and calf muscles are completely controlled by fixing the limbs in full abduction in a Thomas abduction frame, not only do the controlled muscles cease to fight, but other muscles become less excitable, and the general twitchings tend to disappear; the explanation is that the excitable state of the spinal motor cells maintained by afferent impulses from the hypertonic muscles ceases.

To cut off these afferents Forster divides posterior nerve roots; surgeons of the school of thought to which I adhere prefer to cut them off at their source by controlling the muscles—in many cases dividing some of the stronger adductor muscles to put them temporarily out of action.

These physiological facts lead us to expect similar results in cases where localized groups of muscles are on guard over an injury. There is no loss of the control of inhibition by the upper neuron, and therefore we have normal physiological reflexes from the injured limb to consider, not exaggerated uncontrolled reflexes.

It is a physiological law that the muscles about any injured area remain in a state of tone or guard to prevent accidental movement of the injured part; whether the pleura, an abdominal organ, or a fractured bone is in question makes no difference.

It is a further physiological law that sudden changes of tension in a muscle excite afferent impulses which give rise to reflex contractions, as in the familiar method of testing the knee-jerks. Now, in setting a fracture of the thigh on a Thomas splint the method of procedure I have always understood to be correct is first to extend the limb gently but firmly in the line of its axis by manual extension. In a recent simple fracture the muscle will quietly relax if the surgeon pulls firmly and quietly. If he varies his tension suddenly a reflex contraction at once occurs, and the patient (if not anaesthetized) suffers a spasm of pain. In this way in all recent cases it should be possible to bring the limb to within about half an inch of its full length. No struggle is made to get the other half inch, the extension straps are secured to the bottom end of the splint, and the limb slung comfortably from the side bars along its whole length, great care being taken to preserve in this way the convex bowed contour of the front of the thigh. Sagging at the site of fracture is a very bad fault, and, unfortunately, very common; if the front of the thigh merely looks straight the femur is sagging; the

posterior support, whether a gutter-shaped metal splint, or perforated zinc, or merely webbing slings, must be tightened up if this occurs.

Within twelve to twenty-four hours it will be found that the extension straps are no longer taut—not because they have slipped or stretched to any extent, as is proved by the tape measure, but because the muscles have relaxed. If the surgeon merely tightens the extension straps he finds that he has gained a quarter of an inch or more. In all ordinary cases of simple or even compound fracture, by merely taking up the slack of the extension straps—hand-taut—two or three times a day, it is possible to extend the limb to half an inch beyond the length of its fellow. In civil practice this is what I have always aimed at.

There is no constant extending force put on the muscles, they are merely prevented from contracting. In twenty-four hours at most the nerve muscle apparatus acquiesces in this and no further reflex actions occur; on the contrary, the whole nerve muscle reflex system goes to sleep, the muscles relax and do not remain on guard, as the system of fixed extension has relieved them of all responsibility for the guard against adventitious movement.

The contrary is the case when weight and pulley or elastic extension is used. The nerve muscle system is now kept awake; sudden movements of the patient's body are liable to cause "starting pains" due to sudden reflex contractions. The only means of stopping this is to increase the weight, putting a constant tension on the tissues; but, as Mr. Hey Groves rightly points out, "the less tension there is on the tissues . . . the better the natural resistance of the soft parts against inflammation."

It is on those grounds that I hold that "fixed extension" is physiologically preferable to any method of applying constant extending force, and results show that it is efficient.

When Mr. Hey Groves states, with regard to treatment of cases on the Thomas splint, that he "has never yet seen one in which gross displacement had been corrected by it," he must be speaking from a limited, and possibly unfortunate, experience of the splint. His statement could be contradicted by any surgeon who, at any time during the past thirty years or more, has visited the clinics in Liverpool or elsewhere where the splint is regularly used.

Cases in which malunion has already occurred fall into two classes—civilian and military. In civilian surgery we have been in the habit of interfering with impunity, in cases of compound fracture, very shortly after wounds have closed. In military surgery the danger of recrudescence of virulent infections latent in the wound is so great that an interval of many months must be left after the last sinus has closed. A year ago I regarded three months as a reasonable interval; now I am doubtful if six months is always safe.

It is therefore all the more important, in the case of gunshot fractures, that full restitution of form should be made in the first instance, when the whole area of the fracture is easily manipulated; if malunion is permitted, it may be more than twelve months before it is safe to attempt to correct the mistake.

In civilian practice one has frequently been called on to deal with shortening of 2½ in. to 3 in. two, three, or four months after the injury. In most such cases one can confidently promise to reduce the shortening to ½ in., and often completely. The malunion has to be broken down before the limb can be lengthened. In many instances the fracture can be disunited even several months after the original injury by manipulation only, without having recourse to osteotomy. The guiding symptom as to the possibility of doing this is tenderness at the seat of malunion, for callus which is still tender is rarely very firm.

The difficulty begins after the fracture has been disunited, for the soft parts must be stretched. The method I employ is active extension with block and tackle. This is led through the ring of the Thomas splint, so that when the maximum extension considered advisable at one sitting has been obtained the splint is slipped up the limb and the extension straps secured. It is to be noted that when the block and tackle extension is removed the limb relaxes a little, as it is impossible to tie the straps by hand to the bottom of the splint quite as tight as the limb can be pulled by block and tackle. This is really the salvation of the situation, as it relieves the tissues of severe tension which if continued would be injurious. From this time on the case is treated as an ordinary recent fracture, unless it is considered necessary to give an anaesthetic again after a week to pull the limb still further down.

It is clear that the cases of malunion brought to the orthopaedic surgeon in civil life following simple fracture or an ordinary compound fracture are seldom associated with the massive cicatrization of all the tissues of the thigh found in cases of compound gunshot injury associated with extensive laceration of the tissues and still more extensive fibrosis the result of septic infiltration of the tissues. In civil cases full correction of a shortening of 2½ inches or more is frequently obtained by these means three or four months after the injury. In military cases associated with very extensive infiltration of the tissues it is necessary to wait about twelve months after the injury, and prognosis must necessarily be more guarded.

The relative value of bone grafts and plates is too big a question to discuss here. Personally I have not put metal of any kind into bone for about ten years. My impression is that metal is physiologically a deterrent to rapid and strong osteogenesis and repair of bone. My training has been to treat fractures by manipulation, and recent experience, during which I have seen many cases of non-union after plating, even in cases in which there is no history of sepsis following the operation, inclines me to the view that plating is an operation requiring a high degree of technical care and skill—a degree of skill attained by Lane and some of his school, but not by all his followers.

The question is whether it is more easy to train a surgeon to be an efficient master of manipulative treatment of fractures on splints or to be a master of Lane's technique in treatment by plating. My own view is that it is easier for a man to become competent in the former, and this course has the advantage of being applicable alike to the septic compound fracture and the simple fracture, while plating to be really successful must be performed in the aseptic case only.

THE TREATMENT OF CONVALESCENT SOLDIERS BY PHYSICAL MEANS.*

BY

MAJOR R. TAIT McKENZIE, R.A.M.C.

A GREAT military hospital may be compared to a general post office in which the sick and wounded from the front are sorted out into first, second, and third class matter.

The first class matter is distributed rapidly to regular military hospitals and those under the Red Cross, where an operation, or a short course of treatment, puts them right, and after ten days' leave they go back to the fighting line, with few exceptions.

The second class matter requires an additional stay at a convalescent hospital, commanded by an officer of the Royal Army Medical Corps, in which they receive treatment by physical means, including exercise in addition to the usual hospital treatment, and a large proportion of these men again find their way to the front.

The third class matter, however—the cases too tedious for the hospital and the convalescent camp—are more difficult to provide for and dispose of. During the first year of the war they were referred from dépôt to dépôt, always finding that they were at the wrong address, and it was not until last autumn that the Director-General was able to give his attention to these cases that had begun to accumulate in considerable numbers. He arranged a series of command dépôts, commanded by a combatant officer for discipline, with medical officers attached, and to them have been sent all for whom there was some hope of cure, or improvement, within a period of six months.

The objects of these dépôts were to return every available man to active service by treatment; to return men fit for light service abroad who could replace fit men in

* Read before the Section of Surgery of the Royal Society of Medicine, July 21st, 1916.

light duties on lines of communication; to fill positions requiring light duty at home by men who were unable to do anything more than to release a better man for active service; and to discharge from the army those for whom no treatment could be expected to give further results.

These command dépôts afforded welcome relief to the various regimental dépôts and other places overcrowded with men useless from the military standpoint, and of but little use to themselves—men who were rapidly lapsing

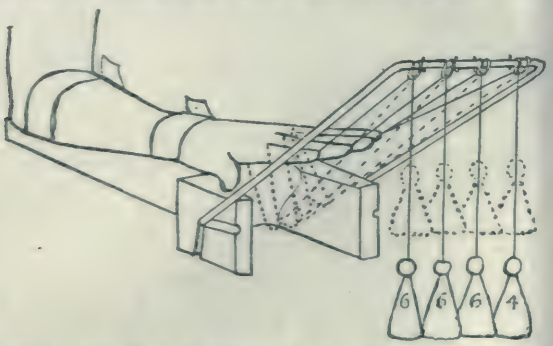


Fig. 1.—Machine for exercising the fingers. First position. Fingers extended. Movement, flexion at the metacarpo-phalangeal joints. Movement represented by dotted lines. (Weights in ounces.)

into complete or semi-invalidism, and whose deterioration from a military standpoint was even greater, under the combined influence of sympathy and freedom from all duty.

Either two or four thousand men constitute the complement of patients for a command dépôt—a strange assemblage of cases.

Profound neurasthenia, the result of sleepless nights and arduous days; shock in all its forms—tremulous hands and tongue, stammering speech or deafness, persistent nightmares and fears by day; disorders of sensation, contractures, and paralyses; rapid and weak heart action, hearts that were overstrained and that are unable to sustain the effort of the lightest gymnastic exercise or the shortest march; rheumatism, real and unreal, in all its forms; lungs suffering from the bronchitis of gas poisoning, asthma, and even tuberculosis; profound debilities following typhoid fever, dysentery, and malaria, requiring months of good food, light duty, and progressive exercise to build them up.

An endless stream of the wounded—feet and legs pierced by bullets or pitted by shrapnel; arms and hands with torn nerves and jagged tender scars; chests still containing bullets or pieces of shell—in fact, no part of the body escapes the effects of the ordeal through which they had gone.

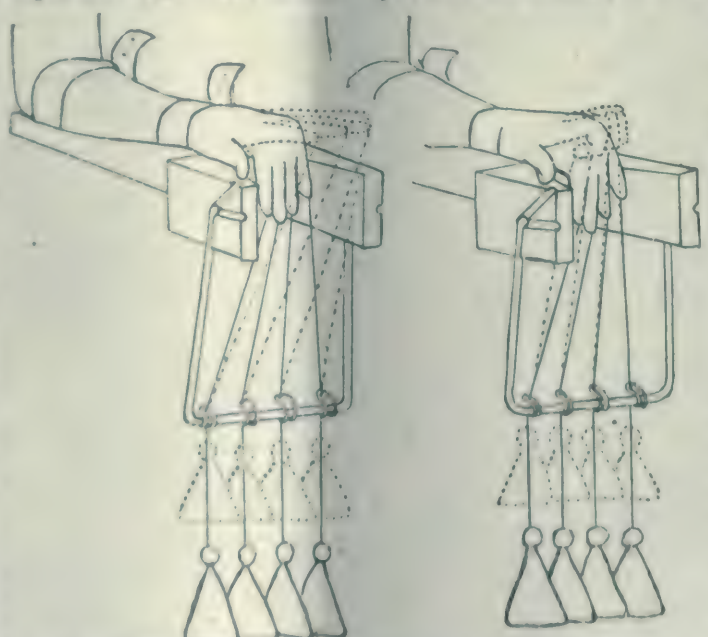


Fig. 3.—Machine for exercising the fingers. Third position: (*a*) Extension of the metacarpo-phalangeal joints; (*b*) flexion of interphalangeal joints with the extension of metacarpo-phalangeal joints.

For almost all these cases the treatment comes under what might be called "physical therapy," electricity, hydrotherapy, massage, mechanotherapy, corrective exercises, physical training, and marching.

The electrical equipment consists of the three currents usually supplied by the polystat.

The faradic, used largely in diagnosis of nerve injury, in the treatment of functional conditions of the heart, and for the stimulation of wasted muscles. By the use of the condenser the current is rhythmically interrupted and varied in intensity, and a good substitute for exercise is obtained where movements cannot be made.

The galvanic current, transmitted through water in the Schnee arm and leg baths, is useful for weakened limbs, for certain cases of frostbite and other conditions of impaired circulation, and for the softening of scar tissue by ionization with sodium chloride and potassium iodide solu-

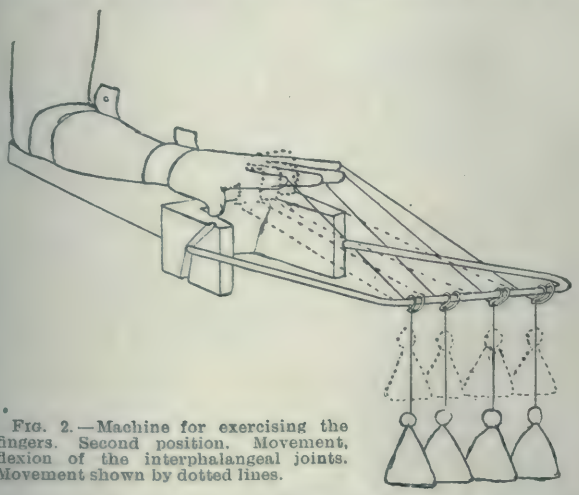


Fig. 2.—Machine for exercising the fingers. Second position. Movement, flexion of the interphalangeal joints. Movement shown by dotted lines.

tions. The ordinary electrodes do not serve for these cases, and we have used copper wire mesh, cut to fit the front of the thigh, the back of the leg, or any other special region; they are covered with felt after the terminals have been soldered on, and are inexpensive.

The sinusoidal current, less irritating than the faradic current, is of value in keeping up the nutrition of muscles whose nerve supply is defective.

The Committee on Balneology of the Royal Society of Medicine gave the War Office the benefit of their experience in planning an ideal equipment for hydrotherapy, by which the ordinary hut is turned into a complete hydro, with the douche, tub bath, a pool and whirlpool baths.[1]

The stimulating douche, hot and cold, has been of use, not only in the treatment, but also in the diagnosis of the many cases of rheumatism, two or three treatments sometimes being sufficient to cause an apparently confirmed cripple to declare himself quite able to undertake full physical training, other cases where the diagnosis was not in doubt, being progressively improved. Many of these cases are treated daily in the tub bath—fifteen to twenty minutes with the temperature at 98°, followed by general massage. A pool is kept at a constant subthermal temperature, about 94°. It is large enough to contain twelve men sitting up to their neck in water, in which they remain for an hour, and there is a constant succession of patients. It is now applied as a routine treatment for practically all cases suffering from shock and disordered heart action. Under its influence a rapid and excited pulse goes down, and an hour's rest continues this sedative effect.

In the whirlpool bath, limbs with painful scars or frostbitten feet are submerged in water up to 110°, violently agitated by a continuous flow from two or three jets, or, still better, by a turbine in the bottom. The introduction of compressed air into the stream turns it into a bubbling

and effervescent envelope for the painful arm or leg. It enables one to apply more heat and stimulation with water at a lower temperature than would be possible if the water were still. After twenty minutes' immersion, the whole part is flushed with blood, the pale limb and purple scar become crimson and comfortable, and the circulation remains heightened for hours. It makes an ideal preparation for the necessary massage and manipulation that would not be tolerated without it.

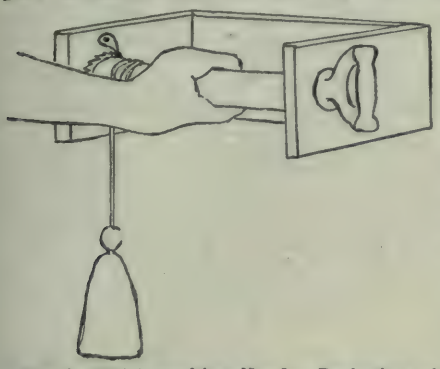


Fig. 4.—Wrist machine, No. 1. Beginning of flexion of the wrist. At the end of flexion the roller is held in position by the ratchet, seen at the left. The handle on the right is for pronation and supination.

In many cases, however, it is not advisable to have a scar sodden by water, so that the heat must be applied in a dry form. For this the radiant light baths are designed, and need not be complicated or expensive. We have found the small hinged shoulder appliance with six lights fulfils all the requirements. It can be adjusted to any single joint at will, and a row of three or four can be placed over the back from the hip to neck, covered by a blanket, and in twenty minutes the whole region so covered will be flushed and reddened, making an excellent preparation for the massage that usually follows. In the great majority of cases at a command dépôt electricity, hydrotherapy, and radiant light are but preparations for massage.

The Almeric Paget Massage Corps has supplied trained masseuses, one operator being able to treat 20 cases a day, and recently the corps has been strengthened by the first graduates from St. Dunstan's—four men blinded in action and taught their profession since the beginning of the war. The histories of cases neglected for months, or maltreated by unskilled amateurs, shows the imperative necessity for careful training in this most important work.

Many cases come in with limbs which have become wasted and joints stiffened by long immobility in splints, cases which must be slowly coaxed back to strength and usefulness by skilled massage and manipulation.

As massage progresses it is followed by passive manipulation, either by the hand of the operator or by machines designed to stretch shortened ligaments, break down slight adhesions, and restore the normal movement in joints.

The Zander machines for passive movement, owing to their cost, are quite beyond the reach of any but the very few. They are unnecessarily complicated, but substitutes giving the same movements have been designed which will produce the same effects at a cost of as many shillings as the Zander machines cost pounds. Circumduction of the shoulder, with increasing range both active and passive, is given by one inexpensive machine made of two uprights of wood, one with crutch-like support for the shoulder, and the other having attached to it an arm with movable weights, the two connected by a rod grasped by the patient, and capable of being moved out or in at the will of the operator. By it we can progressively increase the range of movement in the shoulder; another acts on the wrist, and still another on the ankle. Treatment must, however, not stop at passive manipulation. The muscles and joints must be systematically re-educated to take up again their normal movements, and again the expensive and cumbrous Zander machine can be replaced by simple devices to strengthen

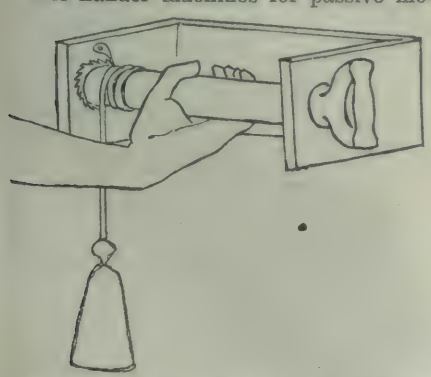


Fig. 5.—Wrist machine, No. 2. An undergrip for extension of the wrist.

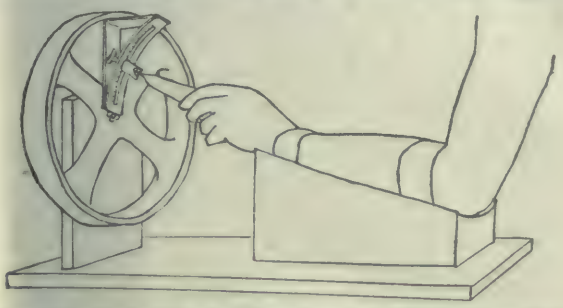


Fig. 6.—Machine for wrist circumduction. The arm is strapped in position, the hand grasping the handle rotates the wheel. The extent of movement is governed by a scale marked in inches.

enfeebled muscles by giving them definite tasks of increasing difficulty.

Specially designed machines are now in use at Heaton Park in which the principle of the weight and pulley is employed. Flexion and extension of the fingers at the metacarpo-phalangeal joints and at the interphalangeal joints can be obtained by one (Figs. 1, 2, and 3) having a wire hoop with rings through which cords are threaded and attached to a cotton glove by one end, the other end terminating in rings to which are hung shot bags weighing 2, 4, 6, and 8 oz., so that the muscles can be given an increasing load as they become stronger. The direction of the pull is changed so as to obtain flexion or extension by adjusting the hoop. Other devices are used for the wrist (Figs. 4, 5, and 6), elbow, shoulder (Fig. 7), trunk, thigh, leg, and ankle (Fig. 8), but to be effective movements on them must be given with great accuracy and in known doses. It is easy to mistake the real action that has been performed on one of these machines, the normal action of a stiffened wrist is simulated by lifting the elbow, and what looks like pronation may be in reality a rotation of the shoulder. Many cases of functional paralysis in men who have been crushed or buried have been treated successfully by these means, one extreme

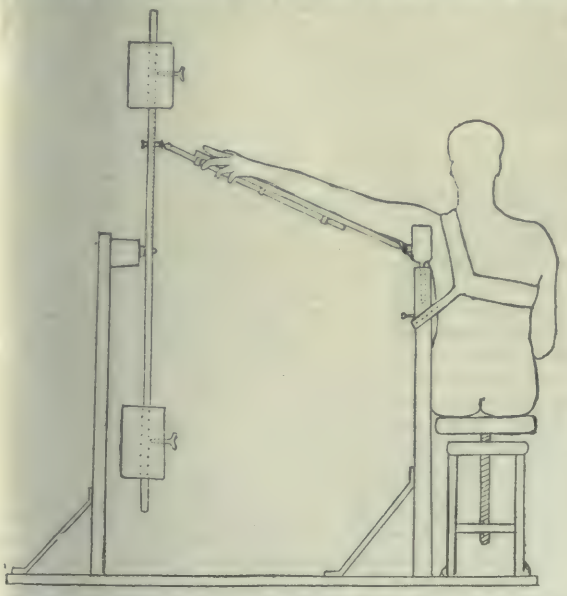


Fig. 7.—Machine for circumduction of the shoulder. The patient is strapped to the upright bearing the crutch support for the shoulder, the arm is extended along the lever and rotates the two weights. This can be either an active or a passive movement.

case of paralysis of the abdominal muscles making a quick and complete recovery.

When a patient is able to perform these movements he must be thrown still more on his own resources by free gymnastics in which there is no guidance from the

machine or operator, and cases are then sent to the gymnastic instructor, who begins with three tables of carefully compiled exercises, starting with half an hour's repetition of such simple movements as raising the heels, turning the head, and bending the arms and trunk, going over the body region by region in a definite progression. Here the wounded man is joined by cases of shock who are able to do only the lightest exercise, by men whose neurasthenia, enteric, or dysentery has left them profoundly debilitated, and slowly they progress through this light physical training from stage to stage until they are able to march in quick time, to bend and twist, and use their arms freely. When they are able to do all these movements they are promoted to full physical training, which introduces quick and active movements, running, jumping, and gymnastic games teaching alertness, control, and agility; walking balanced on raised beams, or lifting their feet high as they go through wire entanglements, climbing walls and leaping ditches. Parallel with this course goes graduated walking on level and then on hilly ground, starting with a mile or two at the patient's own pace, and even with the help of a stick, progressing to three or four miles, and graduating finally into the full route march at quick time.

The patient who can do his full physical training and full route march is ready for the final stage of hardening in which he does the full table of exercises required of

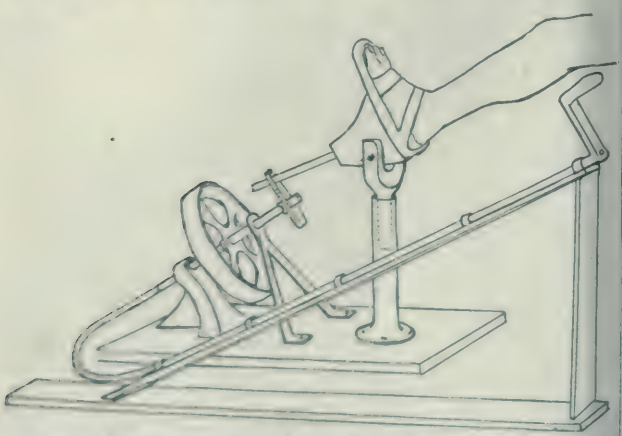


FIG. 8.—Machine for circumduction of the ankle. The patient is seated with the foot strapped to the foot-piece. The movement of flexion and extension is given at the joint between the foot-piece and the wooden upright. A movement of eversion and inversion is given between the wooden upright and the gas pipe into which it is inserted. The foot-piece is attached to a crank coming from a shaft which supports a heavy fly-wheel. This is driven by a flexible driving rod terminating in a handle which is turned by the patient himself, or by the operator. The extent of the movement is determined by the length of the crank that receives the foot piece.

the trained soldier, and a twelve or fifteen miles march in full kit. This test is necessary, for sometimes it is only when the kit is put on that the healed scar or old fracture becomes painful.

Many cases of disordered heart action can be brought up to the full physical training but not into it. After the first day of it their pulse, which has been brought down to a normal of 80 by faradism or subthermal baths and rest, and which remains undisturbed after a gentle slow walk, jumps up to 120 or 140, and can only be reduced by a reduction of the amount of work required. Several cases were brought up to this point on three or four occasions and had to be returned to lighter duty. Not more than 30 per cent. succeeded in passing into Class A. This experience has also been shared by some cases of shock, and bronchitis following exposure to gas is frequently reawakened by the forced effort of running or jumping, and many cases of frostbite that are quite able to walk a mile or two find themselves unequal to a forced march, and have to be left on light duty.

We shall in future be able to refer suitable cases to the special hospitals now in course of organization for the treatment of different orthopaedic cases, obscure and puzzling nervous conditions, and for the thorough and minute study of the heart, where individual attention can be paid to cases that would otherwise have to be taken in groups.

A glance at the final result obtained in a command dépôt will, I think, show how thoroughly justified the Director-General has been in establishing them in spite of the difficulties met with in manning and equipping these great camps.

At Heaton Park an analysis of all classified cases sent out up to date shows that out of all men discharged,

Nearly 50 per cent. have been rendered fit for active service, and have rejoined their units in the fighting line.
About 15 per cent. have been sent to lines of communication abroad.
About 15 per cent. have been sent to useful work of a sedentary character at home; and
Over 20 per cent. have been discharged as permanently unfit, many of these being untreatable from the first.

The average time of each man spent in treatment was well under three months, and the fact must not be lost sight of that, even though a man is not sent back in category "A," his opportunities for a useful career in civil life after the war have been enormously increased and the burden on the nation in future pensions correspondingly lightened.

Note.—I wish here to acknowledge the assistance of Captain A. E. Barclay, R.A.M.C., whose help in time, ideas, and money made it possible to make the experimental machines for corrective exercises, and to thank Dr. H. J. Seuwen for notes on cases under his immediate charge for electric treatment, and Dr. Frank Ratcliffe for special and valuable assistance in observing cases under treatment by hydrotherapy.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, 1916, vol. i, p. 319.

TRISMUS DURING SERUM SICKNESS (SEPTIC FINGER).

BY R. F. BOLT, M.R.C.S., L.R.C.P.,
CAPTAIN R.A.M.C.(T.C.).

As the occurrence of trismus fourteen days after the infliction of a wound is calculated to give rise to great anxiety, not to say alarm, I think the following case may be of interest.

An officer of the Royal Army Medical Corps, doing duty at a casualty clearing station, pricked his right index finger on March 1st while operating on a case of empyema the result of a gunshot wound of the chest. On the following day his temperature rose to 102° F., and the finger was incised. On March 3rd a dose of 18 c.cm. of antistreptococcus serum was injected into the right flank. No antitetanic serum was injected. In the evening his temperature rose to 104° F. On the next day the temperature was 102° F., and it fell to normal on the following day.

On March 7th he was transferred to a general hospital, where he came under my care. On admission the wound in the finger was healed. There was a tender enlarged gland in the right axilla. The temperature was normal and remained so for seven days. The gland subsided. He was up and going about and was marked fit for a convalescent home, but on March 14th an urticarial rash appeared on the arms and chest and abdomen. On March 15th the rash was distributed generally over the body; there was severe headache, and the temperature rose to 100° F.

On the morning of March 16th the temperature rose to 102° F., and he had great pain in the neck, back, and limbs. He complained of stiffness in various muscles; there was also some rigidity, especially in the right upper limb. The lower limbs were drawn up and could not be fully extended. The metacarpo-phalangeal joint of the right middle finger was swollen and very tender. He was given a mixture containing sodium salicylate and sodium bicarbonate, 20 grains of each, to be taken every four hours. There was profuse sweating, the eyes were congested, and the same evening trismus developed; the teeth could only be separated by a quarter of an inch. There was no sore throat and no local inflammatory condition of the jaw or mouth.

The case was seen in consultation by Colonel A. Fullerton, A.M.S., and Major A. E. Webb-Johnson, R.A.M.C. The possibility of the symptoms being due to tetanus was seriously considered, but it was decided that, as the patient was already suffering from serum sickness, it was not advisable to give antitetanic serum, but that other methods of treatment should be tried. Accordingly the patient's room was darkened, and he was kept very quiet. He was given 20 grains of chloral hydrate at 7 p.m., and again at 11 p.m. The pain continued, and he was given ¼ grain of morphine at midnight. The sodium salicylate and bicarbonate mixture was continued.

On the morning of March 17th he was a little better; the temperature was 102° F., the trismus was less marked, and the pain was subsiding. Chloral hydrate (20 grains) was repeated every four hours alternately with the sodium salicylate mixture during the day. There was still considerable anxiety as to

whether the symptoms were due to tetanus or whether they could not be entirely accounted for by serum sickness.

On March 18th the trismus had almost disappeared and the muscular pains were less severe. He had one dose of chloral hydrate (20 grains) during the day. On March 19th he could open his mouth to the full extent. The temperature was normal and the pain disappeared. Further progress was rapid and satisfactory. He was allowed up on March 23rd, and went to a convalescent home on March 25th.

If the symptoms were due to tetanus the infection might have taken place at one of the following times:

1. When he pricked his finger. Inquiry showed that the patient on whom the operation for empyema was performed made an uneventful recovery. But as he had received an injection of antitetanus toxin it is possible that tetanus bacilli were present in the wound.

2. When the finger was incised. This is almost unthinkable at a place where there is constant operating and a regular surgical technique.

3. From the needle, when the antistreptococcus serum was injected. This is also unthinkable.

4. The serum might have contained some tetanus toxin. This is possible, but unlikely, otherwise one would expect to have heard of other cases of a similar character.

The course of the symptoms and the rapid recovery point to the condition having been due entirely to the antistreptococcus serum.

I am indebted to Lieutenant-Colonel T. H. Goodwin, C.M.G., D.S.O., R.A.M.C., for permission to publish this case.

BABINSKI'S SIGN FROM THE POINT OF VIEW OF COMPARATIVE ANATOMY.

Abridged from a Paper by

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CONSULTING PHYSICIAN TO THE NERVOUS DEPARTMENT OF THE NICHOLAS MILITARY HOSPITAL, PETROGRAD.

In a series of papers published in the Russian *Journal of Psychiatry*, Petrograd, I have brought forward arguments showing that in the explanation of symptoms observed in lesions of the pyramidal tracts it is necessary to call attention to some facts of comparative anatomy.

About twenty years ago Babinski enriched the symptomatology of nervous diseases with a very important sign, the causation of which remains hitherto unexplained.

To say that the extensor plantar reflex is a spinal reflex, while the normal plantar reflex is a cortical one, is no solution of the problem. Such a statement contains no clearing up of the nature of the phenomenon and is but a paraphrase of the question. In fact, the sign of Babinski is somewhat enigmatic; it is neither an exaggeration nor an abolition of a function, but an inversion of it. We must search for some special mechanisms which, being latent in the normal subject, are set in action by a lesion of the pyramidal tract—that is, when the communication between the spinal cord and cerebrum is interrupted.

What is the nature of these mechanisms? A reply to this question is hinted at by the fact that the extensor reaction of the great toe is a quite normal phenomenon in infants who have not learnt to walk. Thus the sign of Babinski appears to be a normal phenomenon during a period of the ontogenetic evolution of man. Hence it can represent a rudimentary function, which is common to an earlier period of phylogenetic evolution, and being manifest in man during a certain period of his ontogeny, becomes latent in the adult individual, to reappear again in the case of lesions of the pyramidal tracts.

To prove the supposed rudimentary nature of Babinski's sign we must consider whether there are facts supporting the assumption that a lesion of the pyramidal tracts is a condition generally suitable for the appearance of any rudimentary signs.

In its long way of evolution from a lower metameric animal to the highest mammals the nervous system has undergone great and complex changes of structure and function. There is, however, a part of the nervous system which, in spite of these great evolutional variations, has retained its essential anatomic and functional features. This part is the "propriospinal" apparatus (*Eigenapparat des Rückenmarks* of Edinger). Even in the high stages of evolution it remains metameric in structure and reflex in function.

According to Edinger, there are to be distinguished in the central nervous system two parts essentially different from the point of view of their phylogeny—the neencephalon and the palaeencephalon. The increasing functional and structural complexity of the nervous system consists in the overgrowing of the neencephalic—that is, pallial—elements and in the adaptation of the palaeencephalic elements to new functional purposes. In man the neencephalon is represented by cortex and its projection fibres. In the spinal cord of man the part corresponding to the palaeencephalon is the grey matter with its metameric reflex "centres," whereas the white matter of the cord belongs to the neencephalon, and consists of fibres of the neencephalic elements penetrating into the spinal palaeencephalon to communicate with the neencephalon (cerebral cortex). The metameric spinal segments, thus connected by the pyramidal tracts with the cortex, gradually lose their pure reflex function to stand under the control of the neencephalic impulses—that is, to serve the purposes of voluntary innervation. In addition, the metameric nerves become combined in groups to form plexuses. The first rudiments of plexus formation are observed in the Selachia in the form of the "nervus collector," by which the metameric nerves are connected; in the Selachia, also, we meet the first traces of the neencephalic elements of the cortex.

Thus the propriospinal apparatus, without losing its essential character (reflex action), transmits the cortical impulses to the groups of nerves (plexus) by means of which these impulses spread further to muscles. By this combination of metameric nerves into groups a possibility is created for "neencephalic" innervation of *groups* of muscles (voluntary movements of extremities). Thus, instead of metameric reflex innervation, arises voluntary innervation by segmental groups of nerves. To get this result the neencephalon suppresses the reflex action of the propriospinal apparatus (cortical inhibition), this latter becoming appropriated to the transmission of the impulses, not from one segment to another, as in lower metameric animals, but to the whole groups of segments according to the groups of the muscles of the extremities. This influence of the neencephalon on the propriospinal apparatus is realized in the main by means of the pyramidal tracts.

In a lesion of the pyramidal fibres—that is, in a case of separation of the propriospinal apparatus from the neencephalic elements of the cortex:

1. The voluntary impulses cannot reach the periphery, whence arises paralysis or paresis.

2. The inhibitory influence of the cortex on the propriospinal apparatus ceases—thence appear: (*a*) the increase of reflexes, the clonus; (*b*) the propagation of the reflex irritation from segment to segment in form of "réflexe de défense" and analogous symptoms (the pandiculation of Bertolotti, femoral reflex of Remak, etc.).

3. Lastly, there arise some reflex reactions corresponding to some earlier stage of phylogenetic evolution. These reactions are nothing but effects of mechanisms latent in normal cases and manifesting themselves in the case of loss of the cortical influence on the spinal cord.

And so Babinski's sign comes into existence; the normal flexion of the great toe is neither exaggerated nor diminished after a lesion of the pyramidal tract, but is inverted into an opposite reaction of the extensor type.

We will now try to explain the origin of Babinski's sign from the point of view of the evolution of the function of the great toe. The normal plantar reflex, that is, the synergic flexor reaction of all five toes, is a function peculiar to man. The lower extremity of man, with its purely static function, is evolved from an extremity with the function of grasping. In the act of grasping, the great toe makes no flexion, but a movement of opposition. The transition from the grasping function to the purely static function has been realized by the loss of the function of opposition. In man, unlike almost all other primates, the opponens hallucis muscle is absent, and the first os metatarsale is situated parallel to the other metatarsals, while in the other primates the first metatarsal makes an angle with the others. When, in the process of evolution, the grasping function is lost, there remains in the second, third, fourth, and fifth toes an aptitude for flexion, while the great toe loses its function of opposition absolutely. But for the act of walking a function of the synergic flexion of all five toes together is necessary. This act, as

already mentioned, is absent in a newborn child, and develops but gradually in learning to walk. In man the function of synergic flexion of all five toes is not an inherited capacity, but a special adaptation of the neencephalic elements and a result of the cortical influence. In man the centripetal impulses from the irritation of the foot sole reach the spinal segments corresponding to the flexor centres of all five toes. In other words, the normal plantar reflex in man is a function of the cortex, and, when the spine is separated from the cortex, this reflex—the synergic flexion of all five toes—disappears. In such cases, instead of spreading to the flexor centres of all five toes, the impulses from the sole spread only to segments to which they used to spread when there existed no special cortical mechanisms for synergic flexion of all five toes which do exist in man. The nearest function of the toes preceding their synergic flexion in man is the grasping function observed in other primates. So in pyramidal lesions, the impulses provoked by irritation of the sole must spread to the centres to which these impulses used to spread when the function of the foot was a grasping one. Thus they spread to the flexors of the second, third, fourth, and fifth toes. As for the great toe, its opponens muscle, to which in this stage of phylogeny have spread the impulses from the sole, is lost in man, therefore there would be no reaction of the great toe. This isolated flexor reaction of second, third, fourth, and fifth toes, the great toe remaining without reaction, is to be observed in some cases of pyramidal lesion, and is considered as a certain sign of pathological reaction, as a not well pronounced sign of Babinski, or an "allusion" to it.

The above arguments explain why, in the pyramidal lesions, the great toe does not participate in flexion of the toes as it does in a normal individual.

Now we come to the most important part of our discussion—namely, to the question of the extension of the great toe. This reaction realizes itself by means of the long extensor muscles, because the extensor brevis, being no separate muscle but a part of the extensor digitorum communis brevis, cannot act independently of the extensors of the other toes. We therefore must admit that in Babinski's reflex the impulse from the foot sole, instead of running to the spinal centre of the flexor hallucis, as it does in normal cases, goes to the centre of the extensor hallucis longus.

As the man's foot is evolved from a grasping organ, it is possible that in a certain stage of evolution of the grasping function into the pure static one there was a period when the flexor act was limited to the second, third, fourth, and fifth toes, the great toe having been during this act not only not flexed, but rather extended. Or, otherwise, we could admit that in the way of evolution the great toe has lost its grasping function most early, there having been a period when it used to be excluded by extension from the grasping act—that is, the flexion, of the other toes.

These suppositions are not mere hypotheses, but based on facts. The Western monkeys—Hapalidae—have claws on all digits except the great toe, which has a nail. Moreover, unlike the other monkeys and apes, the great toe of Hapalida is not opponible. These conditions are very important for the question we are discussing. They demonstrate that in the evolution of the static foot function the great toe has lost its grasping capacity earlier than the other toes. Moreover, the grasping act, like that of scraping, being limited to the second, third, fourth, and fifth toes, the great toe, not participating in these acts, must be removed from other toes, what can be done only by its extension. In Babinski's sign we probably have a rudiment of this condition.

In conclusion must be mentioned a modification of Babinski's sign, the *signe d'éventail*, which consists in the spreading out of the toes. It is very interesting that the function of the spreading out of the toes, which is absent or very limited in a normal individual, is sometimes well pronounced in cases of pyramidal lesions. Like the extensor reflex of the great toe, this phenomenon of the spreading out of the toes is observed in young children. According to the above stated arguments, it is not difficult to explain the nature of the *signe d'éventail*. It is a rudiment of mobility of the toes which existed in the grasping stage of evolution of the foot. As well as the extensor reflex of the great toe, the spreading out of the toes is present in a certain period of ontogeny, and becomes latent when the walking function is developed, but reappears when, in consequence of a pyramidal lesion, the conditions arise for the manifestation of the phylogenetically older and more automatized mechanisms of the spinal cord. Perhaps the *signe d'éventail* is a rudiment of "showing the claws" act.

As to other phenomena analogous to the Babinski sign—those of Oppenheim, Gordon, etc.—their explanation is not difficult after what is argued with regard to the Babinski sign. Both Oppenheim's and Gordon's signs represent paradoxical extension reactions of the great toe in pyramidal lesions instead of the flexion observed in normal individuals. The synergic flexion of all five toes, seen in normal subjects at the manipulations of Oppenheim and Gordon, is, like the normal plantar reflex, a cortical function. In lesions of the pyramidal tracts this function disappears, and the spinal apparatus becoming automatic, there appear rudimentary functions explained by the facts discussed above.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A PORTABLE APPARATUS FOR THE CHLORINATION OF WATER.

IN the *Journal of the Royal Army Medical Corps* for October, 1913, Colonel F. H. Trehearne and Captain J. J. Harper Nelson describe a method of generating chlorine and using it for sterilizing water. After a series of experiments at the Bangalore Brigade Laboratory a small apparatus was designed to facilitate the production of chlorinated water in the field. It consists of a tin case which could be carried from the shoulder by a strap, divided into two compartments to hold two bottles, a generator and a receiver. The apparatus was said to weigh not more than 12 lb., and was fitted to carry enough chlorate and acid to sterilize 1,960 gallons of water without replenishing. A subsequent design had a sterilizing capacity of 9,600 gallons. This appeared a practical apparatus, and was very favourably reported upon by Major H. C. R. Hime during the battery practice camp of December, 1913, at Rajankunti. I took over charge of one of these apparatus during the medical interdivisional manœuvres at Poona later in the same year. I carried the apparatus about with me, and each evening prepared 20 oz. of chlorine solution, adding the required quantities to the ambulance packals. Although weighing only 12 lb., I learnt from personal experience that the box is sufficiently bulky to be cumbersome, and felt that something much simpler, stronger, and especially quicker in use was wanted. The making of a reliable chlorine solution when temporarily encamped on rough ground, by lamplight, with an apparatus consisting of glass bottles, glass and rubber tubing, and slippery stoppers, presents practical difficulties. In stationary camps or at head quarters the difficulties are less, but one of the great advantages of the chlorine method is, or should be, its practicability with small bodies of men detached from a permanent base or with large bodies on the move. It may occur in practice that the acid fails to produce the total quantity of gas unless the generating flask is warmed, and the chemical action is also hindered in some way by an increase of pressure in the generator.

I venture to put forward the following suggestion for an apparatus. Briefly the method depends upon the use of steel bulbs containing chlorine, under pressure, in sufficient quantities to make a stock solution of definite strength, when allowed to escape into a known volume of water. These bulbs I propose using with an apparatus similar to the ordinary commercial siphon soda flask, and I hope shortly to have a practical chlorine flask constructed of 20 oz. capacity, graduated, to facilitate the use of the stock solution when made. The solution will be of a strength of 1 in 550, for which purpose 15.9 grains of gas will be required for each 20 oz. of water. Steel bulbs each containing 15.9 grains of chlorine under pressure, together with a siphon flask of 20 oz. capacity into which these bulbs can be discharged, are the essentials of the apparatus. I am also arranging to have a 10 oz. chlorine siphon flask constructed of a similar pattern. The ordinary 20 oz. flask weighs 4 lb., and equipped with 6 dozen bulbs will weigh 4 lb. more. Six dozen bulbs are sufficient to sterilize 14,400 gallons of water, which to take as an example is enough, at the rate of a gallon a day per man, for a double

company of 200 men for seventy-two days, or roughly two months, leaving a margin of twelve days' supply for wastage. In permanent camps or at a base, where it is possible to centralize the purification of water, a large type of apparatus may be used, and I understand such an apparatus involving the use of large cylinders of chlorine has been described.

The 20 oz. flask will suit the army pattern cart water tank, mark II*, which is the largest in use, with a capacity of 217 gallons. Twenty ounces of chlorine solution emptied into a full cart will produce a dilution of one part of chlorine in 651,000 parts of water, which is sufficient to render water sterile after thirty minutes provided the water is not heavily loaded with organic matter. The shape of the bulbs suggest the use of a bandolier, to be carried by the water orderly of a sanitary section. The flask, fitted in a leather case with shoulder straps, could be carried like a water bottle, and with scarcely more inconvenience.

One of the chief advantages of the apparatus will be the rapidity and ease with which a fresh solution of chlorine can be prepared. With the chemical generator now in use it takes twenty minutes to have a flask of solution ready, and another thirty minutes must be allowed for the action of the chlorine in the water. For parties of men who fill their own packals or water vessels a wait of nearly one hour after a camp is fixed upon is an inducement to neglect precautions. I am convinced that once the siphon chlorine flask is introduced the speed and handiness of the means employed will ensure its success. I would refer those who are interested to an article by Captain J. J. Harper Nelson in the British Medical Journal of May 8th, 1915. A full account of a series of experiments testing the efficiency of the chlorine method is given by him, including a description of the apparatus now employed for obtaining the chlorine solution of the required strength.

H. R. Rishworth, I.S.M.D.,
Assistant Surgeon.

TWO CASES OF TUBERCULOUS MENINGITIS OCCURRING SIMULTANEOUSLY IN A FAMILY.

The coincidence of two cases of tuberculous meningitis occurring in the same family is so unusual that the following details may be interesting:

A girl, aged 14 years, had been seriously ill for about ten days with typical meningeal symptoms which were attributed to tuberculous meningitis, when her sister, aged 16 years, commenced with a similar illness. There is a tuberculous family history—a maternal aunt at present suffering from pulmonary tuberculosis—but neither of the patients had presented symptoms. As the simultaneous occurrence of two cases of meningitis in one family aroused suspicion as to their exact nature lumbar punctures were performed for the purpose of differential diagnosis.

In the case of the elder patient, who was violently irritable, an anaesthetic had to be employed. The cerebro-spinal fluid was under very high tension and was perfectly clear. Tubercle bacilli were found in the centrifugalized deposit from this specimen.

Unfortunately the fluid from the younger girl contained a large admixture of blood, which obscured its naked-eye characters and made the bacteriological examination more difficult. Tubercle bacilli, however, were demonstrated by the use of the Ellerman-Erlaudsen method. Both specimens were examined by microscopical and cultural tests for the presence of Gram-negative diplococci, with negative results.

That both these cases should be proved bacteriologically to be due to the tubercle bacillus is in itself of considerable interest, but at the present time, when it is desirable to collect accurate records of cases of epidemic cerebro-spinal fever, that interest is augmented. Both patients have since died, and without the investigation recorded much doubt would have existed as to the accuracy of the diagnosis.

It may not be out of place to mention that, in every case reported to the medical officer of health of Derby as cerebro-spinal meningitis, lumbar puncture is performed for diagnosis before removal to the Borough Isolation Hospital, and practitioners are encouraged to report all cases of meningitis met with, so that this procedure may be adopted. The practice has also been carried out *post mortem* in cases of sudden death in cases presenting symptoms suggestive of cerebro-spinal fever; two out of four such cases have thus been proved to be due to the *Diplococcus intracellularis meningitidis*.

I am indebted to Dr. Patey, of Derby, for his courtesy in informing me of the above-mentioned cases, and for allowing me to carry out and publish details of this investigation. The bacteriological examinations were conducted by Mr. Peckham at the Public Health Laboratory of the Derbyshire County Council; to him I am grateful especially for the happy result of his investigations of the second specimen.

E. H. Walker, M.B., Ch.B.,
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Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

CITY HOSPITAL NORTH, LIVERPOOL.

A CASE OF TETANY.

(By T. H. Donovan, M.D., D.P.H., Resident Medical Officer.)

The following notes on a case of well-marked tetany may be of interest.

W. K. K., aged 1 year, was admitted on May 6th, being notified as suffering from diphtheria and measles. A culture from the throat was negative as regards diphtheria, but showed *B. septus* in pure culture. There were well marked purpuric spots on the trunk and extremities. The child was much wasted, and was suffering from gastro-enteritis. Inquiry showed that its dieting had been quite unsuitable, and included fat bacon and cheese! On May 15th carpo-pedal spasms were observed; the hands were next affected, the "obstetric hand" being well marked. The muscles of the face were next involved, producing trismus. Dyspnoea due to spasm of the thoracic muscles was present for some days.

Treatment consisted in lavage, intestinal antiseptics, and a mixture of potassium bromide and chloral, and, of course, suitable dieting. Improvement was immediate, and the child was discharged on June 1st quite recovered from tetany, and its nutrition much improved.

The relation between tetany and infectious disease mentioned in textbooks has not been observed here. Dr. Richardson, with an exceptional experience here and in other city hospitals admitting all classes of infectious disease, has not seen any case amongst the great number of cases coming under his notice. I have to thank him for permission to publish these notes, and also the nursing staff for the efficient manner in which they carried out the treatment.

Reviews.

A RED CROSS UNIT IN SERBIA.

During the winter of 1914–15 when, in the presence of the gigantic drama then unfolding, so many people found the daily round of duty unsatisfying and longed to get something to do abroad, Mr. and Mrs. Berry obtained leave to organize a hospital unit to reinforce other foreign units already in Serbia or about to go there. The unit was recruited almost entirely from the Royal Free Hospital, London, and its adventures are related in a volume entitled *The Story of a Red Cross Unit in Serbia*.[1]

On arrival it was sent to the chief watering place of the country, Vrnjatchka Banja, and given a disused hydropathic establishment and a school; 100 beds were at once established, but eventually the unit controlled six hospitals with 360 beds, and there was also a British Red Cross Unit in the town. The worst misfortunes of Serbia had not then begun, the chief, and very serious, danger was typhus fever. Consequently the first task was to improvise disinfectors and destructors and to attend to the sanitary policing of the surroundings; fortunately Austrian prisoners were numerous and proved willing helpers. In his plans for the prevention of the dissemination of typhus fever Mr. Berry went whole-heartedly on the assumption that typhus fever is carried by lice and by lice only, and the fact that the measures he took, though improvised and in some respects of a summary kind, were completely successful is important evidence of the truth of that theory. One of the hot springs was used for cleansing all patients admitted,

[1] *The Story of a Red Cross Unit in Serbia*. By J. Berry, B.S., F.R.C.S., F. May Dickinson Berry, M.D., B.S., W. Lyon Blease, LL.M., and other members of the Unit. London: J. and A. Churchill. 1916. (Demy 8vo, pp. 307; illustrated. 6s. net.)

and a State coffee-house near by was used as a receiving hospital, where patients were kept for a few days after the bath. On leaving the bath the patient was given clean hospital clothes, his own having been taken away for disinfection—by boiling whenever this could be carried out without utterly destroying them, the remainder by sulphur fumigation. A wooden barrack was built for patients who developed typhus either in the receiving hospital or in the general hospital.

When Serbia was overrun the members of the unit had the good fortune to fall into the hands of the Austro-Hungarians, their actual guardians were Hungarians, by whom they were well treated, and eventually sent home by way of Switzerland. The book is a joint effort, to which several members of the unit have contributed one or more chapters, and is therefore unequal, but it is interesting throughout, and the chapters by Mr. Berry and by Dr. Helen Boyle very well written. Many tributes are paid to the courtesy of the Austrian captors, and as an illustration of this, as well as for the light it throws on a principle of Red Cross law which has been grossly violated by the Germans, we may quote the following passage (by Mr. Berry):

> In fact our treatment by the Hungarians throughout our captivity bore out a little remark made to us once when we were discussing with a Hungarian officer our position as a Red Cross unit in enemy hands. He admitted that we were technically neither "prisoners of war" nor "interned." In reply to the conundrum, "Then what are we?" he answered, "Let us say guests." And as the Austro-Hungarian authorities supplied us with rations, left us our stores, and asked very little of us in return, "guests" was perhaps a description not so very far wide of the mark.

BONE GRAFTING.

A SHORT account of a most interesting demonstration on bone grafting, given by Dr. ALBEE at the Royal Society of Medicine, was published on July 22nd (p. 120), and we now have the opportunity of noticing the publication of his book on *Bone-Graft Surgery*.[2] The fundamental principles are first discussed, and evidence is given that the cells of transplanted bone, under favourable circumstances, retain their vitality and proliferate. The most important factors in the life of a graft are, first, that it should be freshly taken from the body of the individual into whom it is going to be grafted (that is, autogenous), and secondly, that it shall contain all the bony elements (periosteum, bone, endosteum, marrow). The method of operating and special instruments are fully and clearly described. Dr. Albee began to perform his operations for Pott's disease of the spine in 1911. At an earlier date grafts, when used, were cut from the tibia with chisel and mallet—a somewhat lengthy process—which involved considerable trauma to surrounding parts, and the risk of fracture either to the tibial shaft or graft. Dr. Albee's present method is to remove a graft by means of the electrically-driven twin concentric saws recently described and figured in these columns. The motor is held in the operator's hand, in a sterilized casing. The motor can be fitted to saws, drills, or lathe (for the turning of bone pegs), by an automatic catch, and can be quickly interchanged. The operations can be speedily performed, and Dr. Albee states that he can insert a tibial bone-graft in a case of Pott's disease in nine minutes. The book contains descriptions of bone-grafting operations, and the results obtained. The field of bone-grafting, in Dr. Albee's hands, is indeed large. He uses it (1) in the treatment of fresh fractures, to supersede the metal plate; (2) in cases of ununited fracture; (3) to replace bone destroyed by disease, or congenitally absent; (4) to correct congenital dislocation of the hip, by forming a sound lip for the acetabulum, and even to replace the head of the femur by the introduction of a piece of the astragalus; (5) to correct untreated cases of congenital or paralytic talipes equino-varus, by the insertion of a wedge-shaped graft, either by splitting the scaphoid, or inserting the wedge between the head of the astragalus and scaphoid; (6) to close bony foramina after resection of nerve in cases of neuralgia. Many other applications could be quoted.

Throughout the book is beautifully illustrated by drawings, x-ray plates, and photographs.

[2] *Bone-Graft Surgery.* By F. B. Albee, A.B., M.D., F.A.C.S. Philadelphia and London: W. B. Saunders Company. 1915. (Roy. 8vo, pp. 417, 332 figs., &c. 25s. net.)

OPHTHALMOLOGY.

MR. CLAUD WORTH has issued a fourth edition of his monograph on *Squint*.[3] In introducing it he states that the lengthy consideration given to the preparation of the first edition has rendered unnecessary any great alteration in later issues; the experience of the dozen years following the first publication has confirmed his judgement on most material points. He is, however, now much more hopeful of successful treatment of the group of cases of temporary squint to which he gave the name "neuropathetic divergence." Now nearly all these are susceptible to treatment. He recommends advancement of both internal recti, and never the reverse operation—tenotomy of the external tendons. The recommendation for operation in these cases will need to be justified by very carefully compiled statistics. These cases of temporary divergence cause little trouble to those who are subject to them, and, particularly by reason of the fact that they are temporary, are not a constant source of remark by the onlooker, so that the recommendation of operation must be justified by substantial evidence of success. In the operative treatment of the usual forms of convergent squint the author's experience is that tenotomy is not a justifiable procedure; as a single operation it was uncertain and possibly dangerous. He has also discarded the "combined operation" of advancement of one tendon with tenotomy of the opponent. But he does not appear to have attempted any regular lengthening of the opponent on lines that have been reported as very successful at the hands of other surgeons. In the preface to the new edition Mr. Worth gives an account of the steps by which he has been led to modify his operative procedure and the method he has adopted to keep trace of his cases through many years. There is a suggestion of the formation of a body of statistics giving the results of these cases, but it has not yet appeared in print.

Hints on Refraction[4] has been written by S. K. GANGULY, of the Calcutta Medical College, to teach Indian students practically the subject of refraction. It is well printed upon unglazed paper of good quality, and is sold for twelve annas. If compared with another small book which covers exactly the same ground—Maddox's *Golden Rules for Refraction*—this book does not come out very well. All modern refraction is based upon accurate retinoscopy; sunrise diagrams, clock faces, stenopaic slits, and pin holes belong to a past age. The correct method is to begin with retinoscopy without a mydriatic, then to put up the lenses—a question of a few minutes—and, finally, to use a mydriatic if necessary; but many surgeons rarely use a cycloplegic. To begin with the trial lenses is a waste of valuable time, is tiring to the patient, and often leads to a wrong conclusion. Students should be instructed from the first in retinoscopy without a mydriatic—a procedure often as easy as with a dilated pupil, and sometimes even more accurate. Although minute directions are given for analysing spectacles, the student is not taught how to ascertain the angle of the cylinder, or to detect incorrect centring. It is stated that "about a week after cataract operation it is usual to record the vision of the operated eye without and with +10 D. sph." Surely it is far better to record the vision with the true correction, which is generally +10 D. = +2 to 4 D. cyl. axis horizontal.

Dr. W. W. HARDWICKE'S *Sight Testing Made Easy*[5] is a somewhat more ambitious book. Refraction, however, is not easy and cannot be made so. There is no royal road, but only the arduous path which all skilled refractionists must tread for several months, or even years, in the out-patient department of an ophthalmic clinic. As has been said, retinoscopy is the only sure basis of accurate and rapid refraction work, but it occupies a very minor place in Dr. Hardwicke's book, and is only recommended for certain cases. On p. 34 we read: "If neglected the squinting eye, being but little used, will become amblyopic in time, the first stage of amaurosis." As a matter of

[3] *Squint: Its Causes, Pathology, and Treatment.* By C. Worth, F.R.C.S. Fourth edition. London: John Bale, Sons, and Danielsson, Ltd. 1915. (Demy 8vo, pp. 259; 45 figures. 6s. net.)

[4] *Hints on Refraction, Subjective and Objective.* By S. K. Ganguly, M.B. Calcutta: The Hare Pharmacy. 1916. (Fcap. 8vo, pp. 56; 2 figures. 12 annas.)

[5] *Sight-Testing Made Easy.* By W. W. Hardwicke, M.D.St. And., M.R.C.P., L.R.C.S.Edin. Third edition. London: J. and A. Churchill. 1916. (Cr. 8vo, pp. 88; 12 figures. 2s. 6d. net.)

fact, these amblyopic eyes practically never become amaurotic—that is, completely blind. We cannot agree that squint is less likely to occur in high degrees of hyperopia than in the more moderate degrees, as is stated on p. 35. Section 94 says that glasses should rarely be ordered for children under 3 years of age owing to the difficulty and danger attending their use. The modern teaching, which is confirmed by the good results obtained in practice, is that a child, even a baby in arms, should be fitted with spectacles as soon as a squint is noted. A young child with high hypermetropia will often cry for his spectacles; in fact, children are often far more intelligent in this respect than their parents. On p. 39 it is stated that "when divergent squint is developed, the only successful treatment is operation," but some have gone so far as to assert that the results of fusion training are even more successful in divergent than in convergent squint, and it is certain that the majority of cases can be greatly helped by accurate correction of the refractive error and by fusion exercises. The directions for testing for heterophoria are incorrect. If the Maddox rod be placed before each eye in succession, and one test gives a deviation of 8 degrees, the other of 4 degrees, the total error is not 12 degrees, as stated, but only 6 degrees. As a matter of fact the result should be the same in each case, and generally is. It is usual to place the rods before one eye and a coloured glass before the other; the deviation is read on a tangent scale, and brought to zero by a suitable prism. It is more usual to order one-third of the total error in the correcting prism, and not one-half, as stated. The use of prism exercises to train the defective muscle balance does not seem to be mentioned, but cases of muscular imbalance are better referred to a skilled ophthalmic surgeon.

NOTES ON BOOKS.

ONE of the medical matters that has had more than its fair share of publicity and discussion in the daily press recently is the subject of painless childbirth. The methods employed in its production are discussed in a semi-popular manner in two American works now before us. In both there are abundant references to the recent literature of the subject. Dr. HELLMAN[6] sums up in favour of the "twilight sleep" obtained by the use of scopolamine and morphine in competent hands, such as those of Gauss of Freiberg. Dr. DAVIS[7] finds the anaesthesia due to nitrous oxide and oxygen far preferable.

Miss NEWSOME's book on *Home Nursing*[8] is based on her experience in teaching members of the British Red Cross Society in Gloucestershire. It contains twelve chapters, in which the effort is made to cover all the ground a nurse should traverse in her training. It contains much information; one may doubt whether the art of compression has not been carried too far in its preparation. Thus on p. 47 we read: "The abnormal respirations are: Cheyne-Stokes, dyspnoea, oedematous, stertorous, hiccoughs. *Cheyne-Stokes* is common in brain, heart, and the typhoid state."

[6] *Amnesia and Analgesia in Parturition (Twilight Sleep).* By A. M. Hellman, B.A., M.D., F.A.C.S. London: H. K. Lewis and Co., Ltd. 1915. (Cr. 8vo, pp. 197. 6s. 6s. net.)

[7] *Painless Childbirth, Eutocia and Nitrous Oxid-Oxygen Analgesia.* By C. H. Davis, A.M., M.D. Chicago: Forbes and Co. 1916. (Cr. 8vo, pp. 134. 1.00 dol.)

[8] *Home Nursing: Comprising Lectures given to Detachments of the British Red Cross Society.* By Edith Newsome, M.R.B.N.A. London: The Scientific Press, Limited. 1916. (Cr. 8vo, pp. 168; 38 figures. 2s. 6d. net.)

SIR WILLIAM POWER.

By J. C. McVAIL, M.D.,
Edinburgh.

I DOUBT whether any but a very small part of the medical profession realizes what a great man it has lost in the death of Sir William Power. As the official head of the Public Health Service of England some degree of publicity was unavoidable, but he shrank from notoriety as from a plague, and was never so happy as when he had succeeded in giving to some one else the whole credit for investigation and achievement initiated and largely accomplished by himself. This habit of effacement was illustrated in many ways. He would not attend meetings where he might be called on to speak; he would not be photographed; the *Medical Directory* contained only the very minimum of information concerning him. All his official work as medical inspector and finally medical officer had to be done of course within the limitations of the administrative system of the Board which he served, but to those who had the privilege of knowing him well he was an inspiration, and there was no higher reward than his approval of a completed task. In spite of frequent illnesses—due especially to attacks of influenza—he was a tireless worker, and even insomnia was utilized as affording time to continue his labours. "The night cometh when a man can work" was his explanation of how he accomplished so much, and his daily railway journeys from and to his home in Kent or Surrey were devoted to official "papers." He complained sometimes of having to take a holiday, and argued against it because return to duty was apt to be followed by illness of some sort.

Power had an admirable mental equipment. He had a faculty of scientific imagination which helped him to the solution of difficult problems. "What hypothesis or hypotheses," he seemed sometimes to ask himself, "would satisfactorily account for this given series of puzzling facts?" It was mainly in this way that he evolved the theory of the relation of bacterial life to the plumbo-solvency of certain moorland waters, and subsequent laboratory experimentation was found to justify his conception. His knowledge and study of natural history had impressed him with the possible or probable inter-relationship of the diseases of men and animals. This possibility he bore in mind in investigating, for example, the question of the conveyance of scarlet fever and of tuberculosis from the bovine to the human animal by means of milk. Though he exercised great care and took sufficient time in reaching conclusions, yet, having reached them, he quite disregarded the likelihood of criticism or dissent. His chief, Sir George Buchanan, used to say that Power was the most logically-minded man he had known. He followed where facts and the study of facts led, though the exploration might take him quite away from any beaten path. This was exemplified in his reports on the influence of small-pox hospitals in the spread of that disease.

Power had a remarkable faculty for mastering the principles and application of sciences which had been non-existent or in a comparatively elementary stage when he was a medical student. He had, needless to say, no opportunity for laboratory work in bacteriology or in the developments of chemistry, but he acquired a grasp of these subjects, which helped towards qualifying him to be an admirable chairman of the latest of the Royal Commissions on Tuberculosis and an invaluable member of the Royal Commission on Sewage Disposal. I think he had always misgivings as to some of the lines followed by the modern crusade against tuberculosis, lest disappointment should follow and the public health service be discredited, but where he could not give support he held his peace and did not interfere with the activities of more sanguine missionaries. It is not for an outsider to speak intimately of Power's relations to his colleagues in the medical department, but a long and somewhat intimate acquaintance with many of them may, perhaps, justify me in saying that he seemed not merely appreciated and respected, but admired and beloved alike by his seniors and by his contemporaries and by the juniors whose work he so wisely and kindly guided and supervised. His absolute unselfishness and his constant helpfulness, based on the tripod of great ability, great knowledge, and great capacity for work, could not but be of signal value to his colleagues and of signal service to the State.

On the personal side Power had a rare gift of friendship. His qualifications included a never-failing readiness to appreciate a point of view different from his own, and to throw his whole mind into the consideration and discussion of a question which was occupying the other man's thoughts. He used to say that officially his brain was a kind of gland through which all sorts of material had to pass for rejection or acceptance and digestion, and his half-amused grumble was that often it had not finished dealing with one substance before another was forcibly thrown into it. But this natural or acquired capacity for considering the most varied problems was always at the service of others.

MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

POSSIBILITIES OF RELIEVING THE FUEL SITUATION.

ACCORDING to Mr. Harcourt, the medical profession and veterinary surgeons have between them been allotted a total of 418,750 gallons of petrol a month, against 700,000 gallons for all users of private cars in the country and 2,087,500 gallons for all the cabs, omnibuses, and so forth. It is nevertheless a fact that many medical men have been allotted quantities of petrol quite inadequate to suffice for the total amount of professional work they have to do.

Where allotments have obviously been made in error, some relief will be received on the fact being established, though under this head we must not overlook the major facts, which are:

First, that a greater amount of petrol has been allocated by the aggregate of licences than the total quantity that it is anticipated will be available for civilian needs in these islands during the next six months.

Secondly, that whereas in the first six months of 1915 more than twice as many gallons of fuel were imported from the United States as in 1914, nevertheless the first six months of this year have witnessed a severe drop in such imports when compared with the corresponding period of last year, the fall from 32,260,000 gallons to 23,290,000 gallons being due to want of tank vessels.

Thirdly, that the needs of our army in respect of motor fuel will increase continuously from now on because we feed the guns and men engaged in the great offensive by motor transport, which we need more and more in measure as we advance over broken ground, the railway systems of which have been obliterated for the time being; and because in the warm summer days consumption attains its maximum efficiency, whereas in the cold winter weather much of the heat of burning petrol in the cylinders of an engine is wasted by the cooling effect of the atmospheric temperature, apart altogether from the heavier road conditions that generally obtain. One estimate of consumption for the services is to the effect that it will rise to 1,000,000 gallons a day, or thrice the entire petrol consumption of the country the year before war broke out.

Fourthly, because our increasing industrial activities to produce the requisites for carrying on the war will necessitate ever-increasing allotments of fuel for motor transport under this head, especially in view of the increasing curtailment of our horse supplies as the war proceeds.

Fifthly, because, on the average, the industrial allotments of petrol have been inadequate to a greater degree than the allotments to the medical profession; hence the early intimation of the Ministry of Munitions to the effect that wherever the allotments made were inadequate to those concerned with Government work, the fact should be notified to that department, which would see to it that there was no restriction of enterprise due to lack of motor transport. Therefore we may expect that relief to be granted under this head will absorb more than the total amount of extra fuel that may come to hand, or that might by any chance be left on the market owing to individual private motorists finding their allotments so inadequate that they prefer to lay up their cars.

THE OFFER TO AUGMENT IMPORTS BY 66 PER CENT.

Next as to possible sources of relief in these days of submarine enterprise and so forth, and when there is ever an increasing field for petrol in South America and other countries at a safe distance from the European conflict. These safer and no less profitable markets are being preferentially exploited by neutrals. The prime need of the nation is for tank vessels. Our maximum efforts in this connection can barely keep pace with the growing demands of the services. Consequently we need only consider prospects of obtaining extra supplies of motor fuel for civilian use when these supplies form part of schemes that embrace the production from overseas sources of the tank vessels whereby alone the extra fuel can be brought to these islands.

Such an offer has been submitted to the Government from a Canadian source, understood to be the Crown Oil Company, of Hamilton, Ontario. Another similar offer on behalf of a Colonial company is mooted, but does not emerge definitely yet. The Canadian one, however, is on a scale that would provide tank vessels for bringing fuel here from this fresh source to the extent of 4 million gallons a month, or 48 million gallons a year, which, with the 70 million gallons already estimated to be available for civilian uses, would give us 118 million gallons a year towards total requirements, amounting to 153 million gallons for the civilian community, according to the census of petrol requirements. To put the matter another way, the civilian community needs nearly 13 million gallons a month, whereas the present quantity of fuel available for distribution is estimated at less than one-half that figure—namely, 6,300,000 gallons a month—so that an additional four million gallons a month from Canadian sources should provide enormous relief to the situation, particularly as obviously such a supply would be distributed first in alleviation of the case of commercial cars and industrial processes, and to meet the requirements of doctors and veterinary surgeons. In other words, the private car user and the private motor cyclist would necessarily be the last to share any such additional relief, particularly as the total estimated needs of the users of commercial vehicles, according to the census returns, amount to more than 6,300,000 gallons a month.

The only certain point about the present fuel situation of the medical profession is that all the members of it are practically assured of receiving each the full amount of fuel allotted to him, whereas in the cases of private motorists no such thing is assured. On the contrary, I should not be surprised to see no licences, beyond those now granted for three months, issued to private motorists. It will depend entirely on the course of the war.

HOW PETROL COMES HERE.

Practically all the petrol that comes to this country from America arrives in the form of what we call third grade spirit. It has to be redistilled here before what motorists know as No. 1, or even No. 2 spirit is produced. The average motorist in the United States drives on a fuel about equivalent in quality to that used by the London General Omnibus Company to date. Petrol, even of this third grade, has to be imported in specially built tank steamers. The handling of it in course of landing it here is an elaborate and costly operation, attended by many unnecessary restrictions, particularly as regards storing it in bulk and the unnecessarily long distances from the actual main centres of distribution to the places where alone the authorities allow it to be unshipped. The result is that it has to be sent long distances by road and rail at great expense and in retail form to the large centres where the market exists.

AVAILABLE ALTERNATIVE FUELS.

The net outcome of the present motor fuel situation is a great deal of talk about the use of alternative fuels. Alcohol—which many regard as being the fuel of the future because it does not well up out of the ground, but is, instead, limited in quantity only by the extent to which beet and certain sorts of grain crops, from parts of which it can be distilled, are grown—is not available to us in this country, because we have done nothing in the way of establishing the necessary machinery either for cultivation or for distillation, though on the Continent the alcohol fuel industry has been appreciably developed in years past. As far as this country is concerned, however, during the war, we can look for no relief under this head.

Shortly before the campaign broke out there was established what may be styled a nucleus coal-tar industry concerned with the production of benzole in these islands. Germany has seventy makers allied in the Deutsche Benzole-Vereinigung, which embraces 1,100 sale dépôts, the present year's production to date being 140,000,000 kilos. No section of the civilian motor-using community, however, can look for relief under this head, even in face of alterations to the Board of Trade unit of gas for supply to the public; because all benzole is needed either for the Services or the aniline dye industry.

The production of the Scottish shale industry goes to the Government.

The medical profession is therefore driven to a consideration of the problem of burning the heavier grade distillates of petroleum, such as paraffin, or a type of white oil from which the fatty substances have been extracted, and which is to be marketed in strictly limited quantities by the

Anglo-American Oil Company under the name of "Petrofin," which is a distillation from spirit distillate as imported into this country. For motor purposes it is superior to the ordinary refined petroleum oils, inasmuch as it has the tail or heavy residues cut out. There is talk of other fuels, chiefly of the mixed variety, coming from other sources. But the points the medical man has seriously to consider in the case of using any alternative fuel are the following:

(*a*) Will it work with a standard carburetter or involve the purchase of some special alternative device concerning which the question arises whether, assuming that it will answer in this warm summer weather, it will prove practical for starting up in winter, since a car that cannot be got going quickly is worse than useless to the medical man.

(*b*) What guarantees are there that the given alternative fuels will be procurable continuously from now onwards throughout the period of the war, since it is both expensive and unpractical to lay out capital on the purchase of an alternative fuel carburetter device if the fuel for it can be obtained for a few months only.

(*c*) Will the employment of the given alternative fuel do any hurt to the mechanism of the engine?

As to the availability of alternative fuel supplies we know, first, that in the case of petrofin these will be strictly limited; while in the case of paraffin there are not vast stores in the country, and what there are have been bought by utility vehicle users; hence all subsequent supplies will have to be imported. Though this will not necessarily be so difficult as in the case of the more volatile spirit, petrol, nevertheless, extra ships will have to be provided to bring in any such additional supplies.

Some guess of the situation of the individual medical man endeavouring to obtain a share of future imported paraffin supplies may be had from the fact, first, that the Government is seriously considering the desirability of relaxing regulations concerning the emission of smell by vehicles using alternative fuels; secondly, that the London General Omnibus Company is understood to have completed its experiments with a paraffin carburetter, which it would be useless to standardize unless arrangements have already been made to ensure continuous supplies; and, thirdly, that the petrol licences do not contain the word "petrol," but "motor spirit." Therefore we may assume that huge contracts for the continuous supply of paraffin or other heavy grade fuels either have been or are about to be placed by the big carrying corporations, consequently the medical man who is minded to use paraffin would be wise first to enter into a contract for continuous supplies with a firm, if any be available, of such standing as shall at least offer a reasonable prospect that the conditions of the contract will be fulfilled. Even so, however, there are risks. If alternative fuels come to be used to any appreciable extent sooner or later the Government will be bound to treat them in the same fashion as petrol, in connexion with which a regulation has been issued under powers conferred by the Defence of the Realm Act whereby all contracts for suppiy may be broken.

How to Proceed.

Thus it is well to realize that at this stage of the war it is absolutely impossible for the medical man to take steps which will positively ensure his having adequate supplies of motor fuel for the rest of the campaign period. All he can do is to weigh these and other obvious factors against one another, form his own estimate, and take what is nothing more than a sporting chance, remembering that the utility vehicle users have for some time been very active buying up all manner of alternative fuel supplies in the country.

The method of procedure which will probably be found to be most practicable for the average medical practitioner in the country is to continue to employ his car with the carburetter as supplied by the makers, and endeavour to eke out his petrol allowance by mixing a certain amount of paraffin with it. The advantages of this method are, first, that no permanent outlay of capital for buying a paraffin vaporizer is involved; and, secondly, that the practitioner does not commit himself definitely to paraffin, or some other alternative fuel the supply of which may, for reasons already indicated, fail the individual medical man at any moment without warning.

The disadvantages of such experimenting are that one is apt to start off in too great a spirit of optimism, as, for example, by taking half a tankful of paraffin and mixing it with half a tankful of petrol. That is quite the wrong way to proceed, particularly at this period when the average petrol supplied is of much heavier grade than obtained before the war. The proper way to set to work is to begin with a very small proportion of paraffin to petrol, say 10 or 12 per cent., and gradually to increase the proportion of heavy fuel if and as the carburetter is found to take it. Scarcely any ordinary carburetter will take half and half. Some, though few, experimenters with this sort of mixed fuel are wary enough to weight the floats of their carburetters to counteract the effects of the greater density of the fuel. Even so, I find that even among professional motorists sparking plug troubles are a frequent and early consequence.

The Use of Paraffin by Itself.

Assuming, however, that the individual medical man is satisfied that he can secure sufficient supplies of pure paraffin to serve his purpose—despite the fact that the wording of the petrol licences now granted makes it abundantly apparent that, if the present extra and sudden demand for paraffin or any other substitute for motor fuel upsets other industries and trades by causing the price to advance rapidly, or defeats the aim of the Exchequer in the matter of revenue raising, such alternative fuels will be embraced in the scheme for taxing and licensing motor fuel supplies during the war—there are some further points concerning which he should be informed before making a final decision. In the earliest days of the motor movement the Government and the public alike were a great deal more frightened of petrol than they are to-day. Hence an extraordinary amount and variety of experimenting was then done with paraffin carburetters, a fact which we are apt to forget because that enterprise was not crowned with success. For months past, not only the big carrying corporations, but also all the big motor manufacturers concerned in the production of utility vehicles, have been experimenting with paraffin vaporizers, a number of these devices hailing from America. Furthermore, that the situation may be judged, one may give a hint to this effect: it would be erroneous to imagine that no attempt is being made towards using paraffin abroad in connexion with army service.

The burning of paraffin in the larger, heavier vehicles has an advantage deriving from the fact that they work at a lower piston speed than the average touring car. Nevertheless, certain makers of chassis that are used for passenger car work are conducting experiments with paraffin carburetters, and with two-fuel varieties. In my last notes in the British Medical Journal I mentioned that Willys-Overland were experimenting with a device, not of their own evolving, for using the electric current in connexion with the engine-starting apparatus to warm a special carburetter and the intake pipes sufficiently and very rapidly to enable the engine to be started on pure paraffin, at least at this period of the year. Now there is talk of the Ford Company making a two-fuel carburetter. Two-fuel carburetters, of course, are numerous, those on the market including the Binks, the King-Zenith, and the Smith-King, to name three only out of a large variety.

A Suggestion.

Even more interesting is the letter from Dr. F. W. Style, published below, concerning his three months' satisfactory experience in Devonshire with a "superheater" that has enabled him to run his Ford car on paraffin at 1s. a gallon once the engine has been started on petrol. His experience indicates that in three months' running he has already economized the cost of fitting the "superheater" and making the necessary alterations. Thus, if he continues to get the same results that he has obtained to date, from now onwards he will be saving a matter of £30 a year. His tip about turning on to petrol just before stopping the engine, so that the carburetter is full of petrol, is valuable.

Inasmuch as I have shown how very experimental is this matter of using alternative fuels, and as it is impossible in the time available to relieve the fuel problem arising out of the war through exhaustive tests carried out by the recognized automobile trials body, it would be to the best interests of the medical profession if doctors in various parts of the country would furnish the British Medical Journal with their experiences of the use of alternative fuels, and of special carburetter and of other

auxiliary fittings wherever such experiences have varied from those recorded in these pages.

A NOTE OF WARNING.

In the meantime a note of warning should be sounded concerning one source of trouble that may result from the use of paraffin, and concerning which it is necessary to be careful. By reason of its quality of very rapid evaporation, just before ignition petrol is in the cylinder in the form of vapour; whereas with paraffin the evaporation ordinarily remains incomplete the moment before the spark ignites the mixture present in the cylinder, when the paraffin is rather in the form of spray than vapour, even in the cases where hot water jackets are employed. The extraordinary power of rapid percolation possessed by paraffin constitutes the chief danger of using it. For instance, if it is in the cylinder in the form of spray, often the spark fails to ignite all the globules. In practice, paraffin spray easily percolates past the pistons, and, descending by gravity, is enabled in a brief space of time so to thin the oil in the base chamber as to render it no longer suitable for its work of lubricating the engine bearings, which are injured in consequence. In the ordinary way one hears the argument against the use of paraffin that it results in sooty plugs. Though this, of course, is caused by incomplete combustion, nevertheless it is a result of no importance whatever compared with the destruction of the lubricating scheme of the engine.

In many devices for using paraffin the heat of the exhaust gases of the engine is used to warm the carburetter and intake pipe, while in most modern European cars of up-to-date efficiency the carburetter and intake pipes are hot-water jacketed. Either of these arrangements, however, suffers from the practical disadvantage that at the time we most need the aid of heat they do not render it available—namely, when starting up the engine from the cold. Even with a spirit so highly volatile as petrol this may become a serious difficulty in cold weather. In the case of heavy grade fuels like paraffin it is impossible to start from cold. Hence, on the one hand, the wide variety of bi-fuel carburetters on the market whereby the engine can be started on petrol and, as soon as it is warmed, run on paraffin, and, on the other, the devices for warming the intake pipe by electrical means from the storage battery on the vehicle before the engine is started. This latter idea was really brought into practice first by a car standardized to use petrol and furnished with the original and still the best mechanical engine-starting apparatus of the electrical variety. I refer to the Cadillac vehicle, wherein the idea of pressing a button and using electricity to heat the engine and intake pipes while the motor was cold was evolved to relieve the Delco engine starting apparatus of a great deal of unnecessary work when it was set to start the engine in winter time in very cold countries.

THE MEDICAL MAN'S MOST PRACTICAL COURSE.

If he has no apparatus for warming his carburetter and intake pipes the medical man whose car is equipped with a mechanical engine starter will be just as ill off in regard to the difficulty of starting on pure paraffin in cold winter weather as the practitioner who cranks his motor by hand. On the whole, at the moment the two-fuel carburetter, or the carburetter with some adaptor device whereby the medical man can warm his engine on petrol, suggests itself as being the most likely course to give him satisfaction, particularly as in the matter of receiving petrol rations he is in a privileged class. Therefore, betide what may, certainly he will be assured always of sufficient petrol supplies to start his engine not only before issuing from the motor house but also on leaving the house of each patient.

I trust, moreover, that I have made it abundantly plain that there are very solid grounds for entertaining a doubt whether the medical profession as a whole, and apart from an individual exceptionally favourably situated here or there, will be able to secure for the continuance of the war adequate supplies of paraffin or other alternative heavy-grade fuel. In this connexion announcements about the advent of such alternative fuels and their availability should not be accepted by the medical profession without careful investigation. In some cases a new fuel is accompanied by the announcement that so many million gallons of it are in stock. Suppose the individual medical man were to have his car altered to enable it to use such a fuel only to discover that the given number of millions of gallons was the total quantity the vendors ever had it in mind to dispose of? The country's consumption of motor fuel is so great an amount that what it is necessary to consider is: What is the rate at which alternative fuel supplies can be maintained by the vendors?

Another point to have in mind is that paraffin, as an example of a heavier grade fuel, should really give a better mileage than petrol. If it gives only the same mileage per gallon, it cannot be burning perfectly. We know that, on the average, it has not yet been found to burn perfectly; hence the question brought before the Local Government Board, and being considered by it, touching the official attitude to be adopted towards the emission of visible or malodorous exhaust, which is a sure sign of imperfect combustion. As to medical men entertaining fears that they will be harried by the authorites on purely red tape lines if alternative fuels they may use shall come under these heads, I do not think there is much ground for apprehension. I understand at the time of writing that fumes from burning paraffin, for example, may be regarded as either "temporary" or "accidental." Certainly, it ought to be so because the fuel crisis has been almost entirely due to Government neglect arising from its failure to realize in sufficient time the importance of motor fuel to an island nation waging the biggest war in history and in a motoring age; also because, without practical experience all over the country, it will be impossible for us to progress sufficiently to discover how to ensure perfect combustion at all times and under all conditions in the case of much less volatile fuels than petrol that will have to be used not only during, but also after, this war; and, lastly, because it has not been proved that there is anything injurious to the health of the community in visible or invisible malodorous vapours resulting from imperfect combustion of motor fuel.

The fuel problem is one that is likely to occupy increasing attention from the Government for a long time to come. At present it appears to realize merely that it is a very serious problem. Seemingly, it has yet to be educated to the extent that will enable it to grasp the point that the time factor is all-important in dealing with this problem.

PRACTICAL EXPERIENCE OF PARAFFIN.

SIR,—It may possibly interest Ford car owners to know that three months ago I fitted a "superheater" to my car, which has enabled me to run on pure ordinary lamp oil at 1s. a gallon, and that the car runs in every respect as well as it did on petrol.

The total cost of superheater, together with cost of fitting and of certain alterations I made, amounted to £6 18s. 6d. The mileage with paraffin is the same as with petrol, so that using, say, 30 gallons a month and allowing for a small quantity of petrol for starting, etc., the "superheater" pays for itself in less than three months, whilst the annual saving works out at about £30.

As sent out by the makers, the superheater was provided with a glass reservoir, connected with inlet pipe. This had to be filled with petrol each time one wished to start up. Finding this a nuisance, and extravagant with petrol, I discarded it, and had an auxiliary petrol tank fitted. By means of a three-way tap, worked by a lever near the driver, having started upon petrol, one turns off the latter after a few minutes and gets on to paraffin without any trouble.

Naturally there are certain drawbacks to the use of paraffin. So far as my experience goes they are as follows:

(*a*) The piston heads require cleaning more frequently; I have had mine done three times. On a Ford this is not a very difficult job.

(*b*) Inability to restart without injecting petrol after the superheater has cooled down. This is not a very serious drawback, as petrol can easily be injected through a tap on the inlet pipe and a teaspoonful is sufficient. In the event of a lengthy stop, in order to avoid trouble in restarting, I turn off paraffin a few minutes before stopping the engine and get on to petrol, so that the carburetter is full of the latter when I wish to start up again.

When first installed I did not get quite such good results as I am now getting. There is a certain difference in driving on paraffin, but after a few weeks' experience one notices no difference whatever.—I am, etc.,

South Brent, Devon, Aug. 1st. F. W. STYLE.

British Medical Journal.

SATURDAY, AUGUST 12th, 1916.

WAR PENSIONS AND DISABLED MEN.

The debate on war pensions in the House of Commons on August 8th elicited a good many criticisms and ended in the Government consenting to a conference. Mr. Wardle, the acting chairman of the Labour Party, declared very emphatically that funds voluntarily subscribed by the public, or by the workmen, must not be used to diminish the State's obligation, nor to favour the exploitation of pensioners, whether men or women, by employers who wanted cheap labour. The debate, if it showed nothing else, made it clear that the allocation of pensions so that they shall be just, both to the pensioner and to the community, and shall not cripple the productive power of the country for a generation, presents administrative questions of great difficulty and complexity. No reference was made during the debate to the question of the treatment and re-education of the disabled soldier. It is an aspect of the matter that must particularly appeal to the medical profession which knows how much may be done in this direction by prompt and efficient treatment.

As long ago as May, 1915, an interdepartmental committee appointed by the then President of the Local Government Board stated at the outset of its report, and as its principal recommendation, that "the care of the sailors and soldiers who have been disabled in the war is an obligation which should fall primarily upon the State, and that this liability cannot be considered as having been extinguished by the award of a pension from public funds. We regard it as the duty of the State to see that the disabled man shall be, as far as possible, restored to health, and that assistance shall be forthcoming to enable him to earn his living in the occupation best suited to his circumstances and physical condition." The Committee went on to point out that under the existing system the responsibility of the naval and military authorities for the medical or surgical treatment of a disabled man ceased on his discharge as unfit, and that it rested with the medical officers under whose care the man had been placed to decide whether the patient was fit for discharge, and, if so, to set in motion the necessary machinery. "This decision," the Committee continued, "is often taken as soon as it has become clear that the man will not be able to return to active service, and without much regard to the question whether his health or his physical condition can be improved by further treatment. We suggest that the State should take a liberal view of its duties in this respect, and that it should assume the responsibility for the treatment of the disabled sailor or soldier and his restoration to health, when practicable." The Committee contemplated the establishment of a central committee with subcommittees in Ireland and Scotland, and local committees in various parts of the United Kingdom, which recommendation may be held to have been fulfilled by the appointment of the War Pensions Statutory Committee with its network of local committees. A section of the report dealt with the provision of employment and training for the disabled sailor or soldier, but the recommendations in respect of training were hazy, and in particular there was a complete failure to grasp the fact that the retraining of a man to earn his living should be begun at the earliest possible moment of his convalescence, and that such training is itself a therapeutic measure—probably the most powerful that can be employed. A surgical operation, perhaps bloodless, may be necessary to move a stiffened joint; machines may be useful to maintain or increase the amount of movement produced passively by the surgeon; massage and electricity, judiciously applied, will help to maintain the nutrition of muscles, but in perfecting the cure nothing will replace the voluntary intentional act. When by the use of mechanical appliances for exercising the limbs, the hand, or the foot, a certain stage of recovery has been reached, it is essential to bring in the patient's volition. Gymnastics under a skilled instructor are useful, and even necessary; they bring into the service of the cure the patient's own will power, and he is encouraged by seeing other men with similar disabilities accomplishing exercises of the kind he is told to practise; but to most people they become monotonous after a time, and they should be reinforced, or replaced, at as early a stage as possible by giving a man some definite work, so that when he has accomplished it he may feel that he has really done something useful. If he is given carpentering, or iron work, or gardening to do, he will, without thinking about it, co-ordinate groups of muscles to achieve certain definite ends, and the improvement in the nutrition of the muscles will then be remarkably rapid. A man who is making a box, or cutting a sheet-iron splint, or pruning a tree, is not thinking about how to move his hands or limbs according to the instructor's rules. His mind is full of purpose, fixed on the job. He is, perhaps, annoyed that his arm is weak or his fingers clumsy, and the spice of the devil that is in most men makes him will that they shall obey. This is as much as to say that the nervous system and the grouped muscles are stimulated to work by their natural normal stimulus, which is the will's will that some act shall be performed.

We are able to publish this week a number of communications explaining the working of several parts of the organization for the treatment of disabled men which Sir Alfred Keogh and the medical officers associated with him in the matter have worked out. The account of the Tipperary Command Dépôt, for which we are indebted to Dr. C. E. Ryan, gives a graphic picture of the general working of such institutions, while the paper by Major Tait McKenzie shows the results that may be obtained, and explains some of the means in use. Major Tait McKenzie, who is a Canadian by birth, is professor of physical training in the University of Pennsylvania, and for the last year has been placing his unrivalled experience at the disposal of the War Office for the benefit of British soldiers. To these accounts of British arrangements we have been able to add a description of the Belgian organization, and some details with regard to the French arrangements, the development of which has from time to time been recorded in our columns. Only a passing reference is made to the military hospitals established for men who have lost their arms or legs, and the arrangements for supplying them with artificial limbs, because these have previously been described at some length.

Speaking generally, it will be seen that while the British arrangements for the surgical and medical

treatment of disabled men are admirably devised and only stand in need of certain expansions and extensions, which we understand are now under way, those for the training of men in trades adapted to their disabilities have not yet reached the stage attained in some other countries. This defect ought quickly to be remedied, and we have no doubt that the British Red Cross Society will be anxious to take a hand in the work. Looking at the matter from a medical point of view, it is clear that orthopaedic treatment, including massage, electricity, and gymnastics, must go hand-in-hand with trade training, and that, in fact, as the director of the Belgian institution points out, both should be carried out at the same place. The responsibility of the War Office for the treatment or trade training of a man ceases when he is declared to be unfit to serve in the army, but it will be most unfortunate, both from the point of view of the man himself and of the community, if continuity of treatment is not maintained. It ought not to pass the wit of civil administrators to devise a scheme which shall ensure that the advantages of the fine organization developed by the army shall be continued for the benefit of men wounded in the war and so disabled that it cannot be hoped that they can again be fit for military service.

A TREATMENT FOR MENINGOCOCCUS CARRIERS.

THE season of the year at which cerebro-spinal meningitis is expected to be most prevalent is now over. To judge by the experience of the last two years, the next outburst of the disease is not due till the coming of next year. Now, therefore, would seem to be the time for considering what can be done to lessen the number of the carriers of the meningococcus, because it is generally recognized that cerebro-spinal fever is a disease spread by persons of any age and either sex who chance to harbour that microbe in their throats or noses. It appears that in London, at any rate, the percentage of meningococcus carriers among the ordinary population may be quite large. Thus Dr. Eastwood recently unearthed—or should one say nosed out?—49 among 480 hospital out-patients who were not known to have been in contact with any cases of cerebro-spinal fever, but who were yet carriers of a microbe believed to be identical with the meningococcus. Similarly Dr. Scott found that as many as 22 per cent. were meningococcus carriers out of 138 non-contact out-patients at Lambeth Infirmary. Are such carriers a danger to the community? If so, can anything be done to render them less dangerous?

In endeavouring to answer the first of these questions, bacteriologists have naturally tried to establish criteria that will enable them to decide whether any given meningococcal strain derived from the naso-pharynx of a supposed carrier is either pathogenic to human beings and capable of producing cerebro-spinal fever, or merely saprophytic and therefore negligible. There is at present no agreement as to the absolute value of tests to distinguish between pathogenic meningococci and those that are presumably harmless saprophytes. The cultural characteristics of the two are indistinguishable; their powers of fermenting sugars are identical; and serological investigations based on agglutination tests with the serum of immunized animals do not so far seem to have rendered possible in all hands a confident discrimination between the two. In fact, the only available way of deciding at the present time whether a carrier of the meningococcus is or is not a source of danger to himself and others is that recommended on a historic occasion—Wait and see—not always a safe policy. If the meningococci are of the virulent type they will no doubt give rise to an outbreak of cerebro-spinal meningitis in the circle of those with whom the carrier comes in contact. If they are of the saprophytic type, nobody will be a penny the worse.

This uncertainty as to the virulence or harmlessness of any given type or strain of meningococcus obtained by cultivation from the naso-pharynx of a carrier seems to have given rise to two schools of medical thought, so far as the attention to be paid to such carriers is concerned. The opinion of one of these schools is expressed by Dr. Eastwood in a recent Report to the Local Government Board in the following words: "My present opinion . . . is that all naso-pharyngeal strains, as defined above, should be regarded as possibly capable of producing cerebro-spinal fever." It is obvious that any medical man who believes meningococcus carriers to be sources of real danger to themselves or others will not be content until he has reduced such dangers to a minimum by local treatment, segregation, or some other active measures designed to prevent the development or spread of cerebro-spinal fever in or by the carrier. The point of view of the other school of thought is put forward in a recent Report of the Medical Research Committee. Here it is argued that the 1915 epidemic is to be considered not really an epidemic of cerebro-spinal fever but as what may be termed a "saprophytic epidemic" of the meningococcus in the throats of the population at large, governed as to its local incidence by the opportunities afforded for transfer of the coccus from pharynx to pharynx. It is maintained that the epidemic prevails in winter and early spring because climatic conditions bring people into closer contact indoors at that season. It is concluded, therefore, that cerebro-spinal fever is an epiphenomenon of this epidemic due to a secondary systemic invasion by the meningococcus from its saprophytic focus in the pharynx, and that at present we do not know the conditions which determine the secondary invasion. According to this view, the cases of meningitis should perhaps be regarded as beacons flaring up to give warning of the prevalence of the carrier condition in the local population; probably the bulk of the carriers found were carriers before the cases of meningitis occurred. Why the great majority of the carriers escape systemic infection, that is to say, cerebro-spinal meningitis, is an unsolved problem. The authors of the Report of the Medical Research Committee come to the conclusion that the direct source of infection in cerebro-spinal meningitis is usually to be sought, not in another case of the declared disease, but in the undeclared carrier. They recognize, however, that at present we have no laboratory methods for certainly discriminating between the carriers of saprophytic meningococci and those with meningococci that may give rise to meningitis. And, while making no direct statement as to the desirability of dealing with the carriers in any particular way or segregating them, they do not lead the reader to infer that they hold any such steps to be within the range of practical preventive medicine. So long as this is the case the practitioner who has to deal with a meningococcus carrier may perhaps be encouraged to "cling ever to the sunnier side of doubt," and in the treatment of such persons to follow a policy of masterly inactivity.

Quite recently, however, Lieutenant-Colonel M. H. Gordon has published[1] some preliminary observations made at the central cerebro-spinal fever laboratory which seem to show that in the new antiseptic chloramine (paratoluene-sodium-sulphochloramide),[2] we possess a drug that may prove invaluable in ridding the naso-pharynx of meningococci. By means of a Lingner's spray apparatus a 2 per cent. solution of chloramine was sprayed into a small room until the atmosphere was saturated with watery vapour; saturation was proved when the readings of wet bulb and dry bulb thermometers suspended in the room became equal. The meningococcus carrier then entered the room and breathed the disinfecting atmosphere for as many minutes as was deemed necessary —perhaps fifteen or twenty. Experience showed that this 2 per cent. chloramine spray could be tolerated by human beings for such periods without marked discomfort and without harm; if a 5 per cent. solution of the drug was employed the saturated air was distinctly trying, and, after two or three minutes, painful. A promising feature of Lieutenant-Colonel Gordon's experiments is that patients soon become accustomed to the chloramine spray, and that tolerance was speedily raised. One of his patients was freed from naso-pharyngeal meningococci after inhaling the spray for fifteen minutes, another after twenty minutes. While it is as yet too early to say that the method is a certain cure for the meningococcus carrier, it may at any rate be described as simple, convenient, and promising. Naturally it is still in process of investigation.

RECORD OF THE DISPENSING OF COCAINE.

We publish in another column the form prescribed by the Home Secretary as that in which all dealings in cocaine or opium are in future to be recorded, and it is to be presumed that we have now been made aware of all the restrictions with which any passing of these drugs from hand to hand will now be hedged round. Briefly, the position is this: Under the term "authorized persons" are included medical practitioners, dentists, veterinary surgeons, pharmacists and corporate bodies entitled by law to practise pharmacy, and such other persons as may be granted a permit by the Secretary of State, and it is made a summary offence to sell, give, procure, or supply to or for any other person either cocaine or opium, subject to the specified exception, or to offer to do so. The only exception is that cocaine may be supplied to any one on the prescription of a medical practitioner, provided this is signed with his full name, address, and qualifications, and also bears the words "Not to be repeated"; the total amount of cocaine to be supplied must be specified on the prescription, and the person or firm dispensing it must mark the prescription with the date of dispensing and the name and address of the firm, and must enter the full particulars in a book kept solely for the purpose. No such provision is made for the dispensing of opium; this, however, is to be explained by the fact that "opium" is defined as raw opium or powdered or granulated opium, and therefore does not include medicinal preparations of the drug, whereas "cocaine" is defined as including all preparations, salts, derivatives, or admixtures containing one part or more of cocaine in one thousand parts. The chief effect of the regulations regarding opium, so far as medical practitioners are concerned, is that powdered opium cannot be supplied, even to a medical prescription, unless the person for whom it is prescribed happens to be an "authorized person"; preparations of opium in powder form, however, such as the compound powder of opium or the compound powder of ipecacuanha of the *British Pharmacopoeia*, do not appear to be interfered with, and it can only very rarely happen that it is desired to order powdered opium by itself. In the Proclamation[1] prohibiting the importation of cocaine or opium, except by licensed persons, "opium" is defined as including any solid or semi-solid mixture containing opium, which would embrace such compound powders as those just named; evidently the more restricted meaning has been adopted in the Regulations for dealings in opium within the country in order not to interfere with the proper medicinal use of such powders.

Medical men who dispense their own medicines are in law selling the medicine; but even if it is supplied gratuitously the transaction is just as effectively covered by the wording of the Regulations, and they must observe exactly the same rules of procedure as a pharmacist so far as these are not excluded in the nature of the case. For example, there is no presenting by the patient of a prescription to be dispensed, and therefore there is no marking on the prescription the date of dispensing and the other particulars required of a dispensing chemist, but a full entry must be made, in a book kept specially for the purpose, of the ingredients of the medicine and the name and address of the person to whom it is sold or delivered; presumably if the medicine is not handed to the patient personally, it will be necessary to enter the name of the person to whom it is actually delivered.

The form prescribed by the Home Secretary for keeping these records is printed in the Supplement this week, and it will be observed that it is intended for dealings in opium as well as cocaine; but in the letter which we have received from the Home Office it is merely stated that medical practitioners must use this form in recording all cases in which they dispense cocaine. The explanation, no doubt, is that (as noted above) no provision is made for the dispensing of "opium," as defined in the Regulation—namely, "raw opium or powdered or granulated opium"—by any one, and it is naturally assumed that medical men will not sell or otherwise supply opium to authorized persons; if they should do so, the transaction would have to be recorded in the prescribed form.

The number of cocaine preparations in fairly general use which will come under these regulations is somewhat large. Of the compounds of the *British Pharmacopoeia*, hypodermic injection of cocaine, cocaine discs, krameria and cocaine lozenges, and cocaine ointment contain more than 1 in 1,000. In the *British Pharmaceutical Codex* the number containing this proportion is much larger.[2]

The coca wine of the *British Pharmaceutical Codex* is in a somewhat uncertain position. It must contain at least ½ grain of alkaloid in each fluid ounce if it is to be sold without a wine licence; and if this alkaloid were all, or almost all, cocaine, the amount of the latter

[1] British Medical Journal, 1916, ii, 8; *Journal of the R.A.M.C.*, 1916, xxvii, 92.
[2] See British Medical Journal, 1916, i, 160.

[1] Supplement, August 5th, p. 58.
[2] It includes menthol and cocaine snuff, adrenine spray with cocaine, compound benzoin spray with cocaine and quinine, compound cocaine spray; eucalyptus, menthol and cocaine spray; compound menthol spray, menthol and cocaine spray, oleinate of cocaine, cocaine pastilles, cocaine and morphine pastilles, eucalyptol and cocaine pastilles, menthol and cocaine pastilles, cocaine eye ointment, atropine eye ointment with cocaine, cocaine pessary, borax and cocaine tablets, strong soluble cocaine tablets, soluble cocaine tablets, adrenine and cocaine suppositories, cocaine suppositories, cocaine tablets (chocolate), potassium chlorate and borax tablets with cocaine, adrenine and cocaine ointment, menthol and cocaine ointment, extract of coca, and liquid extract of coca, miscible.

would be more than 1 per 1,000. Usually, however, since coca contains other alkaloids as well, the percentage of real cocaine would probably be less than this, but the only safe plan will be to treat it as affected by the regulations. If a simple solution of a cocaine salt in water were supplied, this would undoubtedly be regarded as a sale of cocaine itself and not of a preparation, and therefore the 1 per 1,000 limit would not apply. Whatever the strength of the solution or the quantity, such a transaction would have to be recorded.

The requirement that the total quantity of cocaine ordered in a prescription shall be specified is perhaps intended to prevent the possibility of a patient obtaining double the number of doses ordered, though it may be merely to prevent any doubt or ambiguity as to the exact number of doses required. The remarkable exception of proprietary articles from the operation of this clause, provided the quantity of the proprietary article itself is stated, appears to be a most unfortunate error of judgement; if the cocaine strength of a proprietary article is not known and therefore the total quantity of cocaine cannot be stated on the prescription, this appears to be an excellent reason for requiring the proprietor to declare the strength on the label, and if proprietary medicines had not been thus illogically exempted, such declaration of strength would have undoubtedly resulted from the requirements of this clause.

DRUGS MADE IN GERMANY OR AUSTRIA.

Two resolutions were passed at the Representative Meeting of the Association dealing with drugs made in and formerly obtained from enemy countries. The first of these, recommending medical practitioners to avoid using drugs made in Germany or Austria, if substances of the same constitution manufactured by ourselves or our allies can be obtained, merely places definitely on record a view which is shared by every loyal person, and as to which there will be no difference of opinion within the profession. It raises, however, a very serious question as to what drugs, formerly made in Germany or Austria, are now or will in future be made in this country, and the second resolution deals more specifically with this point. This resolution instructs the Council to bring before the Government the advisability of guaranteeing protection to any firm that is willing to lay down plant to manufacture drugs and chemicals that were made in Germany before the war. However sympathetic one may be towards the general purport of the resolution, it must be admitted that it is highly unlikely that the present or any Government would be prepared to guarantee protection to *any* firm willing to lay down plant for the purpose named, even if the term "protection" be used in its natural and wider sense, and not in the limited sense (which will perhaps be attached to it by most persons as it stands in the resolution) of a protective tariff. While it is probably the opinion of a majority of chemical manufacturers that some form of Government assistance, by tariff or otherwise, will be necessary for a time if the manufacture of synthetic organic drugs on a large scale is to be put on a sound commercial basis in this country, there is certainly complete agreement that thorough organization of the industry, with a considerable degree of co-operation among manufacturers, is a far more fundamental requisite for its successful establishment. It will probably, therefore, be impossible to guarantee protection to *any* firm, regardless of the scale of work to be undertaken. The by-product of one chemical factory is the raw material of another; and for the successful commercial production of what are known as "intermediates"—such as sulphuric anhydride, carbonyl chloride, aceto-acetic ether, etc.—very large scale operation is essential. In an admirable paper on this subject, read at the recent annual meeting of the Society of Chemical Industry by a chemical manufacturer, Mr. F. H. Carr, the author expressed the opinion that "an immediate decision to extend for a period after the declaration of peace the prohibition against the importation of German chemicals would have a far-reaching effect by giving confidence to capitalist enterprise." Probably such prohibition would be sufficient to meet the desire expressed in the resolution adopted by the Representative Meeting, but Mr. Carr also gave it as his view that prohibition of long standing would bring about stagnation and do damage, and that if any tariff should be imposed the proceeds ought to be devoted exclusively to research and education. The need for improved scientific and technical education has been preached for so long that the subject may be thought threadbare, but, unfortunately, it is necessary still to insist upon it. There are many other ways, too, in which Government aid can be given without a protective tariff, such as that indicated by the remark, in the same paper, that "cheap and pure methyl and ethyl alcohols lie at the very foundation of fine chemical manufacture"; in this matter it is certain that Government action in this country has hitherto been the reverse of helpful.

THE HISTORY OF THE FIGHT AGAINST VENEREAL DISEASE.

MR. E. B. TURNER, F.R.C.S., has written for the current number of *Science Progress* a history of the movement the first stage of which terminated with the final report of the Royal Commissions on Venereal Diseases. The beginning of the second stage was marked by the issue by the Local Government Board of the circular and regulations which were the subject of discussion at the last Representative Meeting, over which Mr. Turner presided. No one is better qualified than he to write the story, for he was among the first of those who, twenty years ago, set themselves systematically to press upon public attention the gravity of the subject. After some preliminary spade work, during which the help of the late Colonel Long and Sir Victor Horsley was enlisted, it was decided to concentrate energy on the demand for the appointment of a Royal Commission to inquire into the prevalence and effect of venereal diseases. In 1898 Colonel Long drew up suggested terms of reference; the main headings were—to ascertain the extent of the evil irrespective of its temporary increase or decrease; to collect information as to existing arrangements for the treatment of venereal disease and the number of patients applying to hospitals and dispensaries; to collect opinions as to means for preventing or limiting the spread of these diseases; and, finally, to consider the possibility of so altering the law of libel, that while medical men should still be liable if they improperly divulged private information obtained in the course of their practice, they should yet be in a position to take action which would render interference possible by some sanitary authority, with a view to ensuring proper precautions being taken against danger to the community, and especially to innocent persons. A memorial on these lines was presented to the then Prime Minister, Lord Salisbury, who, believing that public opinion was not sufficiently informed and enlightened, took no action upon it. His decision, Mr. Turner thinks, was influenced by the belief that the disease was diminishing, that the Commission would be composed of men in favour of the old Contagious Diseases Acts, who would work up a scare with the object of reviving the Acts and applying them to the whole country, and that the disease was one which should be fought on moral and religious grounds. In 1899 the Brussels International Medical Congress passed strong resolutions, proposed by the British Medical Association, calling for full inquiry. In May, 1903, a

meeting was held with the present Archbishop of York in the chair, when resolutions were passed reaffirming this necessity. As a result a committee was formed under the chairmanship of Colonel Long, and was encouraged by a passage in the report of the Interdepartmental Committee on the physical deterioration of certain classes of the population recommending the "appointment of a commission of inquiry into the prevalence and effects of syphilis, having special regard to the possibility of making the disease notifiable, and to the adequacy of hospital accommodation for its treatment." The political upheaval of 1905–6 checked further action, but in 1911, after the Royal Commission on the Poor Laws had recommended that the law giving power to workhouse authorities to detain inmates suffering from contagious diseases should be extended to apply to persons suffering from venereal diseases in their infectious stage, Colonel Long's committee, with the support of many boards of guardians and city and borough councils, presented a memorial to the then President of the Local Government Board. Mr. John Burns was sympathetic, but did nothing. In 1913, shortly before the International Congress met in London, Sir Malcolm Morris and others who felt strongly on the matter resolved to appeal to the public, and drew up a manifesto which the *Morning Post* published in July. Public interest was aroused to a degree never before found possible. The strongly-worded resolutions of the International Medical Congress gave increased impetus to the movement of public opinion, and before Parliament rose the Prime Minister announced that a Royal Commission would be set up. The Royal Commission got through its work with commendable rapidity, and speaking of its report Mr. Turner says: "It is but the first act in the play. The rest must follow in due course, and the greater the success which may be expected to crown the adoption of many of the recommendations in this report, so much greater will be the enlightenment of the people with regard to these matters, and so much the more will it become possible to take further measures in the near future, which will even more effectually curb and remedy the ravages of this dread scourge."

SMALL-POX AND VACCINATION.

The National Antivaccination League is in a precarious state of health, and efforts are being made to stimulate the waning generosity of subscribers—not altogether, we gather, with success. The causes of its indisposition are numerous. In the first place, the term "conscientious objector" is not one to conjure with just now; the ordinary person shortens it to "slacker," no doubt thereby occasionally doing some injustice. In the second place, even the most infatuated antivaccinist knows that all men sent to serve in the British army abroad are vaccinated, and that the British army has suffered little, if at all, from small-pox. Lastly, they know that inoculation against typhoid fever (often spoken of as antityphoid vaccination) has been even unexpectedly successful. It appears that the league has had to retrench, and among other things to dispense with the services of two paid agents, who for years have perambulated the country, spreading its fallacies in public parks and at street corners. It has also had to reduce the supply of the literature which these persons and others used to distribute. The public propensity for horrors is satiated, and others who love fiction prefer to lay out 7d. on a novel. At the same time, it is probably true that sufficient effort has not been made in this country to neutralize the baneful influences of the Antivaccination League. In the United States of America the public is regularly informed on the subject in the "Health Bulletins" of the cities. They are circulated gratuitously among the people, and a similar effort here would have combated the fallacies (often uncontradicted) which have found a prominent place in the press of this country. Dr. George W. Gay, of Boston, has published recently in the *Boston Medical and Surgical Journal* (April 6th, 1916) a paper entitled "The Truth about Small-pox and Vaccination," which, it is stated, has the endorsement of the president and secretary of the Massachusetts Medical Society. Dr. Gay summarizes the case for vaccination "succinctly as an invoice." Thus he writes that "systematic vaccination by the surgeons of the United States Army in six provinces in the Philippines having an approximate population of one million, reduced the annual small-pox mortality from 6,000 to nothing. During the succeeding years there was not a death from this disease in this region of a vaccinated person." Another instance he gives is that of Porto Rico where "800,000 natives were vaccinated by the medical officers of the United States army in 1898, with the result that small-pox was under control for the first time in the history of the island." Dr. Gay further illustrates his argument by references to the Boston epidemic of 1872–3, and the more recent experiences of the City of Niagara Falls, where, owing to the pernicious influence of one or more opponents of vaccination, a large proportion of the 35,000 inhabitants had neglected to be vaccinated. Small-pox broke out and spread, so that in order to "avoid quarantine and to prevent the destruction of the tourist business, the local board of health finally got busy, and over 20,000 of the inhabitants were vaccinated within a short time. As a result of this energetic and intelligent action the epidemic was soon under control." In concluding his paper, Dr. Gay refers to the safety and reliability of the vaccination of to-day, and pays a high tribute to the memory of Edward Jenner. Vaccination, he writes, "has saved millions of lives. It has prevented an amount of suffering, mental and physical, that surpasses comprehension."

WEIR MITCHELL AS MAN OF LETTERS.

Memorial addresses and resolutions passed by the Philadelphia College of Physicians, the Council of the School of Medicine of the University of Pennsylvania, and a number of other bodies on the occasion of the death of Weir Mitchell have been collected into a volume.[1] Among the many tributes to the physician, the scientific investigator, and the man, the most interesting are those of Dr. William H. Welch and Mitchell's kinsman, the distinguished writer, Owen Wister, who supplies an appreciation, at once sympathetic and discriminating, of his qualities as a writer. Not a few doctors have won a place in the Valhalla of letters, but, as Sir William Osler said in the British Medical Journal on January 10th, 1914, we have not another instance of so distinguished a literary success in a man who at the same time was all his life actively engaged in professional work. Mitchell in his early days had felt the bitter truth of Johnson's words, "Slow rises worth by poverty deprest." It is all the more remarkable, therefore, that he did not put his pen to profitable use earlier, for his novels sold well and he said that his literary earnings were at times as large as those from his practice. Perhaps, like Scott, he thought that literature should be a staff and not a crutch. When very young he had got a hint to that effect from Oliver Wendell Holmes. Mitchell had sent a collection of verse to a Boston publisher, who submitted it to Holmes. The "Autocrat" advised the youthful poet to hide literature in his desk till medicine was full grown; 40 was the age suggested. Mitchell bettered the instruction, for he was 51 before a volume of prose stories, entitled *Hephzibah Guiness*, appeared with his name on the title-page, and 53 before his first long novel was published. Some unsigned verses by him appeared in 1857, and his last poem was a song to the Star of Bethlehem, written at Christmas, 1913, not long before his death. The fifty-six years between these dates in Mitchell's life were marked by more than forty separate publications in verse and prose—thirty-five of them after 1880. Besides this,

[1] *S. Weir Mitchell, M.D., LL.D., F.R.S., 1829–1914.* Philadelphia, 1914. (Med. 8vo, pp. 155.)

Mitchell produced a small library of scientific papers; Welch collected from the *Index Medicus*, the *Index Catalogue*, medical journals, and Mitchell's own printed catalogue, two hundred and forty-six references to books, papers and reports from his pen; and the list is incomplete. His literary faculty showed itself in his medical writings, which are marked by singular felicity of style. In his tales and poems, as Wister happily puts it, "every drop of ink is tinctured with the blood of the Civil War." He drew his material from his memories of boyhood, of Paris where he had been a student, of the war and the hospitals in which he had worked, of holidays in New England, and above all, from his experience as a physician. His trained power of observation gave him a knowledge of the roots of character and the secret springs of conduct, invaluable in the portrayal of human nature. Welch well says that Mitchell's literary works have much of circumstance, colour and insight which came to him as a physician. Many of his novels contain descriptions of doctors, patients, epidemics, and historical events of medical interest. Wister says that the success of Mitchell's novels increased until with *Hugh Wynne* it became a popular triumph. The fame of the book reached as far as Wales. In a graveyard there the sexton once pointed out to Mitchell, not knowing who he was, the graves of many real Wynnes, adding the information that the present head of the family lived in America, and his name was Hugh Wynne! All Mitchell's later novels were eagerly expected. His poems were less successful, though, according to Wister, it is in them that his best is to be found. Mitchell knew far more of evil and sorrow and pain than Balzac, Flaubert, or Maupassant. Four years of mutilated soldiers, and fifty of hysteria, neurosis, insanity and drug mania had shown him the darkest depths of human folly and frailty. But in one of his books he makes a doctor say, "Who dares draw illness as it is? Not I," a revealing phrase, which tells us the secret of his art. Although his novels abound in studies of decay—senile change in *Hugh Wynne* and *Circumstances*, hysteria in *Roland Blake*, and the insanity of persecution in *Far in the Forest*—he does not take pleasure in painting the sin and suffering of men. Consider, says Wister, what we should have had if Balzac, or Flaubert, or Zola had known what Mitchell knew about women! But no matter what muddy paths his muse had to tread, she always comes through with her skirts clean and her heart warm. She does not sneer at the evil of the world, she mourns over it. Mitchell's gospel is not of hate but of love. His books belong to what Wister calls the literature of encouragement.

HOSPITAL FIRE INSPECTION.

DURING the last two years the war work of the British Fire Prevention Committee has, we are informed, included the survey of many hundreds of hospitals throughout the United Kingdom with regard to the means which should be provided for the prevention of fires. The hospitals inspected have been of various sizes, and have included institutions utilized by the Red Cross, or St. John organizations, as well as civil hospitals taking military patients. The inspections have been carried out by a special fire survey force consisting of well-known members of technical professions and ex-public officials, acting under the general direction of the Earl of Londesborough, who is the honorary commandant. In the recommendations made due regard has been had to economy; simple fire preventive measures largely of an administrative character, simple fire drills, and the simplest of fire appliances, have been favoured, and nothing has been advised which might require exceptional skill in handling or any large expenditure. Many thousands of suitable posters and warnings in respect of fire precautions and air-raid dangers have been issued, and are to be found not only in practically every important institution in this country, but are to be seen also in colonial centres and in the war zones. In addition to hospitals and other medical institutions, the committee has dealt with practically every class of structure and every class of fire risk during the war emergency, and it is rather a matter for congratulation for the medical profession that in one of its official reports the committee has pointed out that the ready co-operation of the medical officers in instituting fire precautions showed how professional men prone to forethought are specially ready to take precautions in such establishments as hospitals and convalescent homes. As the vast majority of the military hospitals and convalescent homes are under the supervision and direction of medical men who in ordinary times are in civil practice, there can be no doubt that the interest they have shown in the past must have had a considerable effect on the safety of civil hospitals generally, whilst the more modern fire arrangements particularly developed by the committee during the war emergency will no doubt be applied to ordinary civil conditions after the war. We are informed that of the serious fires in hospitals during the past two years none, with one exception, have occurred in institutions that have been under the committee's care. The one exception was an establishment in the South of England on which the committee had reported, but, except for posting up the committee's warning notices, none of its recommendations had been acted upon at the time of the fire. In no hospital, so far, where the committee's recommendations have been adopted, has any fire, it is stated, extended beyond the area of a single room.

CONVICTIONS UNDER THE NEW COCAINE REGULATION.

THE first charges under the new Cocaine Regulation were heard on August 9th, when five persons were prosecuted at the instance of the Commissioner of Metropolitan Police. All the prisoners were convicted, three women to three months' hard labour and one to two months' hard labour and a fine of £5. The fifth prisoner was a man who, it was stated, had recently suffered six months' imprisonment for selling cocaine to soldiers. In sentencing him to six months' hard labour and fine of £100, the magistrate said that while a certain compunction might be felt for the wretched women there could be none for the men who made them their cat's-paws in an odious trade.

Medical Notes in Parliament.

War Pensions.

THE debate on August 8th on the Government scheme for war pensions and the work of the War Pensions Statutory Committee showed the Labour members in a critical mood, and ended upon the acceptance by the Government of a proposal for a conference between the representatives of the Statutory Committee and of the National Committee. Mr. Hayes Fisher, who opened the debate for the Government, said that the Treasury grant for supplementary pensions had been increased to £6,000,000, which on the estimated possible loss of life really equalled £7,500,000, so that substantially the State had undertaken to provide the whole estimated cost of the supplementary pensions of all kinds—that is to say, the Government had undertaken to find the money not only for pensions, but for supplementary pensions. After two years the adequacy of this capital sum of £6,000,000 would be reviewed. In settling the amount of individual pensions the Statutory Committee would depend largely upon the advice of the local Pensions Committees. Extra local grants from voluntary funds, given for special education purposes, holidays, outfits, and to meet other temporary requirements, would not be taken into account in estimating the regular income. The aim was to make a widow's pension from the State up to two-thirds of the pre-war income, but not going beyond 40s. a week,

and to make the pension of a totally disabled man up to a sum not exceeding 50s. a week and for a partly disabled man to a sum not exceeding 40s. a week. It was hoped that such bodies as the Navy League and the Kitchener Memorial Fund, which received large voluntary gifts of public money, would work with the Statutory Committee. Already 191 local committees were at work and 249 schemes had been approved; eventually there ought to be 259 local committees.

Mr. Hogge (Edinburgh) said that the proposal of the Government to take local funds into account in considering applications for supplementary pensions had excited considerable hostility, and if it were adhered to two of the largest benevolent corporations in Scotland would not pay a penny.

The Chancellor of the Exchequer sought to throw the whole responsibility of settling the amount of pensions and the total amount to be voted upon the House. The basis upon which the total amount had been calculated was so many pounds according to the total number of deaths, which he regarded as the most rational proceeding, since it was proposed to begin by giving the Statutory Committee a lump sum down. He agreed that this, as had been said, was an estimate "trembling in its conjectures and quaking in its hypotheses." The Treasury would review the whole question of supplementary pensions before the end of 1918, and would then determine what the total State contribution ought to be. The principle was that the State should pay a flat rate of pension without regard to a person's income or social status, and that this flat rate should be supplemented by additional pensions, into the provision of which the element of voluntary contributions would enter. The flat rate applied to officers as well as to men.

Mr. Wardle, acting chairman of the Labour Party, said that it appeared from what the Chancellor of the Exchequer had said that, so far as the amount of money the Treasury was prepared to put at the disposal of the Statutory Committee was concerned, it would be sufficient to meet the first pensions granted by Parliament—those, namely, which came from the War Office or Admiralty—the supplementary pensions to widows, the supplementary allowance to dependants, and the supplementary disablement grants, and that any compassionate allowances after and beyond these pensions would be given from private funds. He gathered that the obligations set out in the regulations of the Statutory Committee would be fulfilled by the State. He did not wish to interfere with local generosity, but it would vary in different places, the wealthier towns being able to give more money, and it was essential that the supplementary pensions should be definitely guaranteed by the State, that the amounts should be set out and provided by the State, and that there should be no raid on any other fund collected for any other purpose to make good a deficiency. Most of the trade unions had done two things already—they had excused their members who had gone into the army from paying contributions and had guaranteed them their benefits. If the trade unions continued these benefits it would be unfair that they should be taken into account in assessing the pensions given to a disabled man or to a widow or dependant. Again, most of the railway companies started relief funds at the beginning of the war and large sums had now been accumulated. Funds formed by deductions the railway men themselves allowed to be made from their wages should not be used to relieve State obligations. He condemned the regulations recently issued as complicated and involved, and hoped that they would be looked upon only as a draft and revised before they were finally issued.

Mr. Hayes Fisher interposed to say that the revision of the regulations by the Treasury might take months, and that it would be better to put the draft into force at once, and to revise the regulations after a few months in the light of experience.

Mr. Wardle, while agreeing that a delay of months would be most undesirable, reiterated his opinion that some of the regulations would be very difficult to work. The action of the Chelsea Commissioners in taking note of quite trivial matters for the purpose of revising and altering a pension made it impossible for the men to know whether they could rely upon the amount so as to arrange their life accordingly. The Labour members were putting their energies into the work with the idea that men and women would be granted reasonable and sufficient pensions, and that pensioned persons should not be exploited and employed at rates which were not remunerative by employers who wanted cheap labour. Trade unionists did not desire that a man or woman capable of being employed should be denied work because he or she received a pension, but they set their faces against any attempt to use those persons to pull down the wages or reduce the standard of the workers generally.

The debate continued on similar lines, and eventually, as has been said, the Government accepted the proposal for a conference.

On August 7th the Chancellor of the Exchequer informed Sir Henry Craik that the regulations made by the War Pensions Statutory Committee for supplementary pensions had been approved, so that it could proceed to put its scheme into operation.

War.

Examining Medical Officers.—On August 2nd Mr. Touche raised the question of payments to civil practitioners appointed examining medical officers. He asked why, since such officers were allowed 40s. a day for a full day's work and lesser amounts for part of a day, there were practitioners in London doing duty from 9.30 to 5 who were still receiving only 24s. a day, being the same rate of pay as that formerly allowed when they were doing only four hours a day. The Financial Secretary to the War Office replied that the rate of 40s. was the maximum, the actual payments depending upon the number of recruits examined. The rate of 24s. was for the period of regular employment and covered whole-time service.

Captains R.A.M.C.—Mr. Joynson-Hicks, on August 7th, asked the Secretary of State for War whether lieutenants in the R.A.M.C. had been given three years' acceleration of promotion after six months' service, but captains of ten years' service had so far been given no acceleration; and whether, having regard to the work done by the R.A.M.C. captains at the front, he would consider the possibility of acceleration of promotion in regard at least to some of them. The Financial Secretary to the War Office said that as a matter of fact 148 captains had received such promotion, and each of them had between ten and twelve years' service. The acceleration of promotion given to lieutenants did not in fact amount to as much as three years; in the majority of cases it had amounted to less than twelve months.

Staffs of Military Hospitals.—In reply to Mr. Kennedy, on August 3rd, Mr. Forster said that the number of hospitals in the London district was 186, of which 158 were auxiliary hospitals. A very large amount of the work performed in military and other hospitals in London and elsewhere was gratuitous. The surgical, medical, and some of the other staffs paid by the War Office were paid monthly in arrear; the remainder were paid weekly. The rates for the nursing staff varied. There was no reason to suppose that the payments were not paid promptly.

Army Medical Equipment (India).—In reply to an inquiry addressed to him by Sir Henry Craik as to committees instituted within the last six years to inquire into the medical equipment and organization of the army in India, Mr. Chamberlain said that in 1912 a committee, of which Surgeon-General Sloggett was chairman, inquired into the system of field medical organization and equipment of medical units of the army in India. Its recommendations were approved by the Government of India and were now in force. The station hospital system for Indian troops was the subject of inquiry by another committee. Its recommendations were under discussion when the war broke out, and as they related solely to peace arrangements their further consideration had been postponed. The reports would be laid before the Special Commission on Mesopotamia if the Commissioners should call for them.

Treatment and Rations of War Prisoners in Great Britain.—In reply to Mr. R. McNeill, on August 3rd, the Financial Secretary to the War Office said that the rations authorized for prisoners of war in this country consisted of 1½ lb. of bread, ½ lb. of meat, ½ lb. of potatoes, together with allowances of tea, coffee, oatmeal, salt, vegetables (including peas), and margarine. It was certainly more generous than that supplied to prisoners of war in Germany. The Army Council welcomed all opportunities for the profitable employment of prisoners of war.

Venereal Diseases.—In reply to Major Astor, on August 7th, Mr. Hayes Fisher said that the regulations and circulars of the Local Government Board as to venereal diseases were only issued about three weeks ago, and no complete schemes had yet been submitted to the Board. Numerous negotiations and conferences had already taken place and considerable activity was being displayed by local authorities.

THE WAR.

THE TREATMENT AND TRAINING OF WOUNDED MEN.

THE TIPPERARY COMMAND DÉPÔT.

In order to ensure the suitable medical treatment of soldiers invalided from the Expeditionary Forces so that they may become fit again as quickly as possible, command dépôts have been instituted at which men are received whose condition may necessitate a stay of any period up to six months, men who cannot be sent to a convalescent camp or dépôt, to which those who ought to be ready for service overseas within a maximum of six weeks of their transfer are sent.

In the case of men who are to remain in a dépôt for such a lengthened period, one of the great factors in getting and keeping them well is the provision of useful and pleasant occupation for the mind as well as means adapted to the repair and building up of the tissues of the body; if at the same time it is possible to prepare these men for useful work in civil life so much the better. Many of them have lost their old occupation or the capacity to carry it on, and they still require something to help out their pensions, and, perhaps equally important, keep them out of mischief not only during the time of their treatment but at the much more dangerous period—the end of the war.

These command dépôts are essentially military organizations, with, however, a larger element than usual of medical supervision. Existing barracks and hutments, well ventilated and slightly modified, are utilized.

THE WORK OF A COMMAND DÉPÔT.

We are indebted to Dr. C. E. Ryan of Tipperary for some particulars of the Irish command dépôt established there under the direction of Lieutenant-Colonel Sims Woodhead, Professor of Pathology in the University of Cambridge.

The fine barracks in Tipperary, with, in addition, hutments for two full battalions, and a large union, provide accommodation for the men of the eight Irish regiments who have returned from the Expeditionary Forces—the Royal Irish Fusiliers, Royal Irish Regiment, Royal Irish Rifles, Royal Inniskilling Fusiliers, Royal Dublin Fusiliers, Royal Munster Fusiliers, Leinster Regiment, and Connaught Rangers—regiments that have earned fame on so many fields. These men, when they arrive at the dépôt, are not yet strong, and many of them require special treatment. They have, however, to carry out most of their regimental duties under company officers who have been wounded alongside them; these officers look after their training, discipline, pay, messing, and the like.

The work of the dépôt will probably be best understood from a short account of the daily routine, it being borne in mind that the men remain for more than six weeks, but are likely to benefit permanently by a six months' residence in the dépôt. The men, most of whom are able to travel and march a moderate distance, though others may have to be conveyed in an ambulance wagon, are sent out from the hospitals or the regimental dépôts by district travelling medical boards. Arrived at the dépôt, all regimental details are collected and recorded by a company sergeant-major. They are allowed to settle down and become accustomed to their surroundings, but within forty-eight hours they are examined, first by the medical officer of the company to which they are assigned, and then by the medical officer in charge, who makes notes, decides treatment, and classifies, according to the amount and nature of duties, the drill and the character of the exercise they appear able to do. Those who require no treatment but rest, graduated physical exercise, and drill, are divided into four classes, 1, 2, 3, and 5, according to the nature and extent of injury and fitness. When special medical or gymnastic treatment is necessary they are put into Class 4, or more frequently into that and another class also, so that a man may be in either 1 and 4, 2 and 4, 3 and 4, or 5 and 4, as the case may be, the special treatment being carried out alongside the performance of the duties and exercises of one of the four other classes.

At first sight this may appear to be a somewhat complicated classification, but in practice it works smoothly and well. Under the commandant the military training of the men is in the hands of a major and company officers, assisted by a gymnastic instructor from Aldershot and a staff of assistant instructors selected from the dépôt and trained by the sergeant-instructor. Each class, 1, 2, 3, and 5, is passed through a systematic graduated course of physical drill and route marching, the men passing from the lowest class, 5, to the highest class, 1, in which are placed all those who are likely to be fit to return to their regiment for general service at the end of a further six weeks' period of training.

The special treatment given in the dépôt may be summed up generally under the headings: Massage, electrical treatment, galvanic, faradic, sinusoidal, and ionization; passive movements, usually combined with the massage and carefully supervised active movements on sliding-seat rowing machines, Foot's pulley exercisers, wrist machines, wall bars, peg poles, stationary cycle, Swedish drill for special groups of muscles, and plinth work, some of which of course is passive. Various kinds of baths—hot, douche, and needle; continuous temperature baths at 93° F., and tepid and cold baths—are also used as occasion may require. This side of the work is supervised by the medical officers, who are assisted by a trained drill sergeant, by one of Madame Osterberg's pupils, and a number of intelligent members of the R.A.M.C.

Many of the men suffer from general debility the result of malnutrition or impaired digestion after gassing, bad teeth, pyorrhoea alveolaris, fixed jaws, resulting from fractured rami, etc.; for these there is a special diet room. One of the men transferred from his regular mess to this diet room put on 11 lb. in ten days.

Some of the men suffer from stiff joints, useless fingers, tender scars, wounds breaking out again, and the like. Such lesions can only be treated by means of small surgical operations, usually done under a local anaesthetic. For the performance of these operations conveniently and safely a small but well equipped surgical room has been fitted up. The results have been most encouraging. A dental surgeon with an extremely well equipped surgery completes the personnel of the dépôt.

It was early found that, especially in the case of classes 3 and 5, time might hang heavy on the hands of the men, and even those who are occupied during some considerable part of the day required evening recreation. To meet this a band, which has contributed greatly to the enjoyment of players and listeners alike, has been formed of wounded bandsmen or of other wounded men with some knowledge of music. Concerts and indoor entertainments have been given, sometimes in the large gymnasium, or again in the Y.M.C.A. huts, of which there are two in the dépôt. Since summer began various outdoor games, cricket, quoits, gymkhana, and boxing competitions have been organized. These, with the regimental institutes, have contributed to brighten the life of the dépôt, officers and men alike taking part in these various recreations.

HANDICRAFT SCHOOLS.

Another side of the life and work of the dépôt, and by no means the least important, is that associated with the system of training in various crafts, in the use of tools and the like. In this work the military and medical authorities have received the cordial co-operation of a committee composed of the chairman and secretary of the Tipperary Technical Instruction Committee, members of other public bodies, and one or two other influential local gentlemen. The Technical Schools Committee made the first step possible by placing their "handicrafts room," along with the instructor in this subject, at the disposal of the committee during such times as they were not used for ordinary classes, with the result that something like forty or fifty men who afterwards may become farm labourers or handymen, have, during the time that they have been training in the dépôt, received instruction in the use of carpenter's tools and methods of carrying out rough, and in some cases even fairly good, carpentry. Some of these men have been discharged not without some skill that will in after-life probably stand them in good stead. In the same school some dozen men have received instruction in cookery, and the authorities have been informed that most of these have proved themselves exceedingly apt pupils.

An effort has been made to train over a hundred damaged men in motor driving and in ordinary "road repair" work,

and in the elementals of the theory and working of internal combustion engines. Many of them cannot become motor car drivers, but they may be able to turn their hand to farm work, where motor engines are coming more and more into use.

A class in French polishing has also been formed, another in the cobbling of shoes, and those who have followed the development of these classes have been astounded at the rapidity with which men have picked up a very considerable knowledge of and facility in these handicrafts. Now that machinery is used so much in the manufacture of shoes the demand for cobblers is very great, much greater than the supply, and from what has been noted of the work done in this dépôt, it is evident that these men will be ready to meet that demand.

Electric bell fitting, telephonic fitting, signalling, shorthand writing and typewriting have also occupied the attention of a certain, but, of course, comparatively small, proportion of the men of the command.

Much of the work of instruction has to be done by skilled teachers, but officers under treatment in the dépôt are playing a very important part in organizing and supervising this branch of the work.

In their spare time the men living in the hutments have developed a taste for gardening, or at any rate have laid out gardens for which company officers have felt justified in giving somewhat liberal prizes.

As the outcome of the work of and the experience gained in the dépôt, the local executive committee have decided to equip and maintain a special institute in which discharged soldiers, who, during their period in the command dépôt have undertaken the class work, and even some who have not, but wish to be specially trained, may attend the classes organized for the men in the dépôt. It is also contemplated that soldiers discharged on account of permanent disability from other dépôts may be received in this institute, which would be under the charge of a time-expired or partially disabled non-commissioned or warrant officer, who would maintain discipline, and whose wife would look after the domestic comfort and culinary arrangements of the institute.

The Organization and Staff.

It is obvious that work of this kind could only be a complete success if the combatant and medical staffs worked in hearty co-operation to bring approved customs and regulations into conformity with a series of entirely new conditions. In the Irish Command Dépôt this co-operation has certainly been achieved, and throughout the two staffs have worked together in perfect harmony, with the result that co-ordination has been excellent, and comparatively little effort has been required to overcome difficulties that might under other conditions have been almost insuperable. With a "scratch" staff made up largely of wounded men, home hospital reserve men, who, of course, were entirely new to the work, a number of masseuses of the Almeric Paget Massage Corps, and officers and medical men taking up duties to which they had not been accustomed, the occasions for friction and irregularity might have been numerous, but every one turned to so heartily and conscientiously that, though there may now and again have been irregularities and lapses from strict regulations, these were so trifling, and in some cases so amusing, that they interfered not at all with the efficiency of the work, and those in authority speak highly of the work done by their subordinates.

A point which is coming home to all who have followed the development of these convalescent dépôts and the course of the cases is that a great need has arisen for surgeons who have devoted themselves to plastic and orthopaedic surgery. Some of them might carry on their work in the dépôts could a small number of beds be set aside in the nearest military hospital for the reception of patients operated upon, and there appears to be little doubt that were such secondary surgical work encouraged not only in these dépôts but in special hospitals, many of the patients would be rendered sound and fit in less than half the time now required for cure, and others who, without such operations, would be crippled for life, might have their condition greatly ameliorated. Even now, were there a number of beds available a travelling surgical and advisory staff, which in certain cases might operate, would be an asset, and, without stereotyping the dépôts or interfering with the individuality of those who are responsible for the working of them, would be able to introduce a certain amount of co-ordination and common action, and be the means of carrying the experience gained at the various dépôts from one to another.

The display of public interest and sympathy in these dépôts has been astounding, and apparently the more they are used to draw in patients who have been discharged from military and regular hospitals and keep them under observation the better will be the results obtained, the less will discipline suffer and the more promising the future history of the patient.

Many of the patients sent into the Irish Command Dépôt when it was first opened were very unsuitable for treatment; some indeed were "hopeless," but latterly much greater attention has been paid to the strict rules for admission laid down by the authorities. In spite of this nearly 10 per cent. (9.7) of all the cases admitted up to date have been returned to their dépôts fit for general service; about 0.9 per cent. for garrison duty abroad, and 20 per cent. for garrison duty at home (of these latter about a third or half will ultimately, probably in two or three months, be fit for general service). About 1 per cent. have been sent out as munition makers, and 12.2 per cent. of the men have been invalided out of the service; about 56 per cent., many of them recent arrivals, remain under treatment in the dépôt.

OTHER PROVISIONS FOR BRITISH SOLDIERS.

When we inquire what is being done for the British soldier who has been disabled in the war, we find that in one department, the strictly medical section of the work, the work is very good up to a point, though it requires extension and greater elasticity in certain directions.

For the man who has lost a limb there is the hospital at Roehampton, where workshops have been established, and the corresponding hospital more recently established near Glasgow, as well as the smaller hospital at Edenhall, near Kelso, and several auxiliary institutions in various parts of Great Britain.

For the man whose disability is of such a nature as to afford reasonable hope that it will be possible for him to be returned to the ranks within a period of six months, there are such command dépôts as that at Tipperary described above, and that at Heaton Park, Manchester.

For the treatment of cases in which surgical orthopaedic treatment is necessary a special military department has been established under an Inspector of Military Orthopaedics (Lieutenant-Colonel Robert Jones). The central institution of this kind in England is the Hammersmith military orthopaedic hospital, established in a fine building at Wormwood Scrubbs, nicknamed the paupers' palace by indignant ratepayers, to whom the hackneyed phrase "they builded better than they knew" may be appropriately applied, for it has proved very adaptable to its present purpose. The neighbourhood, if not fashionable, is open, and the buildings well planned and easily cleaned and ventilated. It has a staff of skilled orthopaedic surgeons, through whose hands a man first passes. They apply such surgical treatment by way of operation or otherwise as may be appropriate, and the man can afterwards be referred to massage and electrical departments in the building. There is a medical man of special experience at the head of both these departments, by whom appropriate special treatment is prescribed, and under whose supervision it is carried out. As in Paris there is a department where a skilled artist makes careful drawings and prepares models. Not only does this system provide graphic records which can be preserved, but a collection is being formed which will be of the utmost value to surgeons, as illustrating the results of operations for various deformities. There are, for instance, some most striking models of deformities of the foot, such as hallux valgus and rigidus and claw-foot, before and after appropriate treatment by operation, splinting, massage, and movement. Other military orthopaedic hospitals are being, or have been, established in various centres in England and Scotland, and there is already a large institution at Croydon where work of this kind is carried on for the Eastern Command.

With regard to the re-education of disabled men who must be discharged from the army—their training, that is

to say, in order to enable them to return to their old trade, or to learn another—the position is as yet undeveloped. As will be seen, a good start has been made at Tipperary, where, with the co-operation of the county Technical Instruction Committee, educational workshops have been set up, and there is a small school at Chailey, but we have nothing to compare with the great school established under the direction of Professor Spitzy at Vienna, as described in the JOURNAL of July 8th last, p. 55.

THE BELGIAN SCHEME FOR DISABLED SOLDIERS.

HOSPITAL AND SCHOOL.

As long ago as November, 1914, the Belgian Government took up the question of the provision which should be made for the treatment and re-education of men discharged from Belgian military hospitals convalescent from their wounds but suffering from various disabling consequences.

The Hôpital Anglo-Belge and its Dependencies.

With the assistance of the Anglo-French Committee of the British Red Cross the Hôpital Anglo-Belge was established at the end of December, 1914, in the buildings of a technical school at Rouen. The hospital started with fifty or sixty beds, but three months later the number at its disposal in Rouen had been increased to about 350, and subsequently subsidiary hospitals were established at Orival, with 275 beds, and Saint Aubin lez Elbeuf, with 325. About the same time a dépôt for discharged soldiers was established at Havre and was gradually transformed into a school for re-education. Finally, in August, 1915, a military institute for re-education was established near Vernon, on the Seine below Rouen.

The hospital at Rouen was placed under the direction of Dr. Armand Deltenre, senior officer of the Belgian Army Medical Service, who has continued in charge of the enlarged organization, and has recently published a pamphlet describing it.[1]

General Considerations.

In this pamphlet, which brings the story down to the end of 1915, he begins by setting out very clearly the problem which had to be solved. The men sent to the Rouen hospital were patients discharged from military hospitals or convalescent dépôts suffering from wounds of the joints, bones, or nerves, but not then fit to rejoin for service. It was at once apparent that the cases fell into two main classes: (1) Those who it might be hoped could be sufficiently restored either to return to the army or to a full earning capacity in civil life. Under this head Dr. Deltenre enumerates cases of partial or total ankylosis, cicatricial contractions, muscular atrophy, lesions of tendons or nerves, and malunited or ununited fractures. (2) Cases in which the disability appeared likely to be permanent and incurable, though the working capacity of many could be considerably improved. He estimates that of all the cases admitted 30 per cent. could be improved to some extent—45 per cent. so much that they would be able to earn a living wage, and 35 per cent. to a degree which would render them able to do some work. This leaves 20 per cent. who, it would seem, were found to be permanently unable to earn anything.

From the first it was determined that the scheme must include a hospital and a school for re-education. The first question was whether these two institutions should or should not be under the same direction. The answer to this question was governed by the consideration that it is very difficult to determine the stage in any case at which hope of any further improvement through the employment of physiotherapeutic means must be abandoned. Experience showed that education in a trade often had a very favourable effect on functional disabilities which had resisted all therapeutic measures. The conclusion, therefore, was that the hospital, with its physiotherapeutic department and the school—since the one was the complement of the other—ought to be close together in the same place. As circumstances prevented the realization of this ideal, Dr. Deltenre had to content himself by keeping both under the same general direction, and providing for the closest possible co-operation.

[1] *L'Hôpital Anglo-Belge, Institut de Physiothérapie et d'Orthopédie de Guerre Belge.* Par le Dr. Armand Deltenre. Published at the Institut Technique Belge de Rééducation Professionnelle, Port-Villez, Vernon (Eure), and sold, price Fr. 1.50, for the benefit of the fund for crippled Belgian soldiers.

THE MEDICAL ORGANIZATION.

The strictly medical side of the organization, of which Dr. Deltenre remains directly in charge, consists of two parts: (1) the orthopaedic service, where surgical operations are performed, and artificial limbs or other appliances fitted; and (2) the physiotherapeutic service, which provides mechanotherapy, thermotherapy, radiology and electrotherapy, medical gymnastics and pedagogic gymnastics.

Mechanotherapy.—It was resolved to instal resistance apparatus of the Zander type, and the difficulty of purchasing such apparatus was overcome through the ingenuity of Dr. Waffelaert, a regimental medical officer, who employed the wounded men themselves to make the apparatus necessary both for the upper and lower extremities. A point the importance of which has not always been recognized was early appreciated at Rouen—namely, that the joint above a stump—the hip, for instance, in amputation of the thigh—may be stiff or the seat of arthritis, and that before an artificial limb can be used the joint must be rendered supple, and the muscles of the stump developed as much as possible by massage and exercise; the improvised Zander apparatus were found very useful for the purpose.

Thermotherapy.—This service includes hot air and running water baths and a local hot air douche. The last method is most in use, the hot running water bath being used only when the hot air bath cannot be borne. When the weather permitted, certain wounds were exposed to light out of doors. It was found that direct sunlight was not indispensable.

Radiology and Electrotherapeutics.—In addition to *x*-ray apparatus, the hospital has appliances for galvanism, high frequency, and diathermy.

Medical Gymnastics.—As soon as possible the patient is set to do medical gymnastics on the Ling system under the direction of Swedish experts or persons trained by them locally. As many as 175 patients are exercised every day. The manipulations include massage, which is applied in a very early stage to cases admitted soon after operation. The greatest importance is attached to medical gymnastics, because, to use Dr. Deltenre's rather picturesque phrase, "it appeals to the essential function of the limb—movement."

Pedagogic Gymnastics.—By this term is understood gymnastics in class, usually without apparatus. In addition many of the wounded are employed in the workshops.

Orthopaedic Service.—Treatment by operation had, down to the time of the report, only been carried out on a small scale, but it was intended to develop it quickly in order to deal with suitable cases in the early stage. Much more had been done in the way of making artificial limbs and other appliances. This part of the work had been pushed on because it was considered that in this way the production of vicious attitudes in the limbs could best be prevented. It is urged that cases should be sent to the orthopaedic hospital from the ordinary military hospitals as soon as possible after amputation. Measurements are taken on admission, and while the artificial limb is being made attention is given to the joint, or joints, and the condition of the stump is improved by local baths, by massage, and by suitable spiral bandages applied from above to prevent contraction of the tissues and atrophy of muscles. For the lower limb the Beaufort leg is rejected, and two types have been developed, both of which have joints and are made of wood and leather. Importance is attached to having the patient constantly at hand so that the workman can try on as often as he thinks necessary. With regard to artificial arms, Dr. Deltenre states that so far no limb has been found of real utility for disarticulation of the shoulder. For amputations below the elbow, and above it if the stump is sufficiently long, an arm made of leather is in general use. A rigid hand with a jointed thumb can be attached, but is usually replaced by a hook and ring used alternatively according to the work to be done.

Dr. Deltenre gives the following statistics of completed cases for the period ending October, 1915:

	Destination.	Percentage.
Cured and discharged to divisional dépôt	1,170	58
Transferred to Vernon School	670	33
Transferred to Havre camp dépôt... ...	180	9
Total discharged	2,020	

This allows for no failures, and we must assume that all those for whose restoration to working efficiency there was little hope were among the patients still under treatment, who numbered 880.

THE DISABLED FRENCH SOLDIER.

WE have from time to time published notes on the work done in France for men maimed or crippled in the war, and have had occasion to explain how, after overcoming many initial difficulties, the medical staff of the French army has established a central organization in Paris for those cases to which the methods of physiotherapy are specially applicable. Its cost to the State is, roughly speaking, nothing, as the building devoted to the work, the Grand Palais, is State property, and the equipment necessary has been provided free of charge by the insurance companies, the chief part of the funds having been supplied by the Syndicat de Garantie du Bâtiment et La Réunion des Assureurs, which recognized the immediate money value gained from the treatment in the reduction of the charges made upon their funds. Professor Jean Camus, who is the head of the service, was able to show[1] that from September, 1915, to February, 1916, the saving effected, based on the reduction of claims for damages, amounted to 18,164,980 francs (roughly, £726,000). The cases treated in the period numbered 3,348; of these, 2,676 (80 per cent.) were able to return to active service, 457 were drafted into the auxiliary services, and only 215 (7 per cent.) were finally rejected as unfit for military service. The improvements obtained, looked at from the point of view of function measured on arrival at the hospital and before discharge, showed that an average mean gain in function of 30 per cent. had been achieved.

To-day the Grand Palais is one vast military hospital, and the central unit of physical treatment in France. Sentries are at the doors, and strict military discipline prevails. The vast arena has been cut into two parts, the one half being used as a hospital and the other as a training school and gymnasium.

Appropriate treatment is assigned for each man, and he must every day present a card to each of those responsible for carrying it out, to be marked as a proof that he has duly attended. The cards are controlled at a central office, and the simple measure of allowing men conditionally the liberty of Paris has been found sufficient to ensure their rigid obedience to the rules. The importance of this is shown by the fact that, before the system was organized, out of 5,571 men for whom physiotherapeutic treatment was ordered, 1,000 never followed it at all, and 1,200 followed it irregularly, without deriving the benefit that might have been expected. Each man is medically examined on admission, and a note taken of his condition and the extent of available movement in the injured parts.

The rooms devoted to mechanotherapy present the appearance of a large factory workshop with rows of apparatus designed to reproduce the various movements of the limbs, with the result that there is a suitable apparatus to meet the needs of every case. Another department provides various forms of thermotherapy, including hot-air baths, and another electrotherapy, where opinions as to the value of static electricity for the relief of pain and of the irregularly varying current for stimulation have been confirmed. The hydrotherapeutic department has developed chiefly along the lines of treatment by hot water and the degree of movement of water. In the massage department, as in all others, treatment is given under immediate medical control by a large staff of trained masseurs. There is a special gymnasium equipped with the apparatus necessary for the treatment of injuries. Two well-known French sculptors have given their services partly to prepare accurate models with a view of placing on permanent record the more remarkable injuries that have occurred through wounds received in war, and partly to provide the special apparatus necessary to give relief.

As regards the actual treatment given in the Grand Palais, there is no novelty, except in details; but those responsible for its organization have devised an institution that has grouped and correlated a whole class of treatments on a scale that has hitherto not been attempted. It started as an institute for massage, and has grown rapidly by the addition of the other departments mentioned.

Further, the work done at the Grand Palais is advancing knowledge. Special apparatus has been designed, making it a simple matter to analyse not only the degree of movement possessed by the patient, but also his power of movement. A graphic record enables force and fatigue to be read off at a glance, with the incidentally useful result that the detection of malingerers becomes a matter of great simplicity.

For the minority who have definitely to be drafted out of the service further special arrangements have been made. A department of the Grand Palais has been reserved for their use, where they are taught special trades and occupations for which their injuries do not incapacitate them, after the manner of the Bordeaux scheme, described in our columns (June 10th, 1916, p. 825). A society with its head quarters in Paris (L'oeuvre de l'Assistance aux mutilés pauvres) helps a man, when his training is finished, to set up in his native place or elsewhere by advancing him money to buy tools and materials.

[1] *Archives de médecine et de pharmacie militaires*, March, 1916.

THE BRITISH ARMY MEDICAL SERVICE IN FRANCE.

READJUSTMENTS AND EXTENSIONS.

THE effect produced on the medical arrangements by the extension of the British front has been relatively small. Holding an additional length of trenches of course means the employment in the firing line of an additional number of men, and this in its turn must mean an addition to the length of the weekly casualty list, even though nothing beyond ordinary trench fighting may be in progress. The base hospitals have, however, long been far too well organized for any such additions to make any difficulty for their work.

On the other hand, seeing that with an extended line the casualties are distributed over a wider area, a need arises for the establishment of fresh casualty clearing stations. But such casualty clearing stations had already been quietly mobilized in advance, and the only step required was to find sites for them and to move them up. This was promptly done, though the selection and arrangement of the sites must have given a good deal of trouble.

It also might have been expected on the face of matters that so considerable an extension of the line as that which took place would have involved some material modification of the previously existing organization for getting back the sick and wounded from front line formations to the various base hospitals.

But this was not the case. Many months ago the medical authorities established a southern line of evacuation to supplement the old northern route, and to make this southern line meet all the needs of the new situation nothing was required beyond the creation and linking up of one or two sub-lines.

Furthermore, the medical authorities had been equally long sighted in the matter of rolling stock—that is to say, of hospital trains, and also of canal ambulance barges.

Consequently, when the call came they were not disturbed. It is quite likely, indeed, that 75 per cent. of medical officers in France would, until they saw it stated in the papers, have remained unaware that a new army had been formed and a fresh length of front occupied but for the circumstances that from time to time various well-known officers disappeared from their accustomed posts.

A large proportion, in fact, of the more important administrative and other positions in the army holding the extended line of front, are held by men who made their mark in the old or northern section of the existing line.

They have brought with them long experience of the special medical needs created by trench warfare and of the ways in which men engaged in more or less siege-like operations can be kept in good health. Hence there is very little dissimilarity in the medical arrangements from one end of the line to the other, and everywhere at the front the position is satisfactory.

The same statement can be made with equal truth of the conditions on the lines of communication. Every reasonable provision has everywhere been made, and the whole organization works smoothly. Consequently, if and when the great push comes, the medical department will certainly justify all reasonable expectation.

Nevertheless, no one who has studied the possibilities of this war with care can feel absolute assurance that there will never be any delay in the evacuation of the sick and wounded nor shortage in the matter of hospital accommodation. With the weapons that are now employed it is always possible for an evacuation line to be rendered impassable for many hours, and for the casualties to number tens of thousands for many days in succession.

Coincident with the extension of the British line but not consequent thereon have been sundry developments or refinements on the side of medical administration. One of the more important of these affects the base hospitals. In the permanent military hospitals at home there is a considerable amount of delegation of authority. In particular the commanding officer, though he remains responsible for everything done in his hospital, has amongst other assistants two senior officers, who, under the title of officers of divisions, are in direct charge of its medical and surgical wards respectively, and exercise administrative authority over the other officers employed therein in clinical work.

A like decentralization in the hospitals that came into existence on mobilization was anticipated by the regulations regarding war establishments, but in the base hospitals in France the appointments in question were at first only exceptionally made. Other calls being numerous, there was some paucity of officers of sufficient military experience to fill these posts, and the need for filling them at all was partly eliminated by the supervisory authority granted to surgical specialists.

Recently, however, it has been thought well to put this part of the plan into full operation. The base hospitals as a whole have grown very large—the general hospitals have commonly over 1,000 beds, and the stationary hospitals over 500—and their staffs are relatively small; to secure satisfactory results, therefore, the details of all work must be very carefully organized. Furthermore, as time goes on, circumstances tend to make changes in the personnel more frequent, and many of the new arrivals have had no previous experience of base hospital work. Consequently it is very useful to have at hand officers who besides doing more or less clinical work themselves are capable of taking complete control of ward units and instructing new arrivals in their duties. A good many of the officers of divisions are temporary or Territorial officers who have been out in France for a long time and have in one way or another gained the necessary knowledge and experience.

Another development affects the field armies. Under a recent order every D.M.S. of an army has an expert in sanitation attached to his staff. The army rank of such officer differs in each individual case, and no doubt their precise duties depend very much on the views of the D.M.S. concerned. But the general idea appears to be to provide the D.M.S. with an officer who can collate for him all information, bearing on sanitation and preventive medicine, received at Army Head Quarters from the senior medical officers of corps and divisions, and can also, under his authority, conduct correspondence thereon, when required, with General Head Quarters.

The direct responsibility for supervising the sanitation of the army lies primarily in the hands of battalion medical officers; next in those of the officers of sanitary sections (these in some cases are known as divisional sanitary officers); then in those of A.D.M.S. of divisions and the D.D.M.S. of corps. There are also the officers in charge of the mobile laboratories allotted to each army. The areas they serve are often coterminous with those of corps, but they do not move with corps, and the part they play in sanitation is not always identical. Sometimes they act merely as sources of information on given points, sometimes they take a direct part in the settlement of sanitary questions.

In a general way each army acts in regard to sanitation and preventive medicine as if it were an independent unit, but in respect of principle their work is closely correlated by two officers attached nominally to the staff of the Inspector-General of the Lines of Communication, but really forming part of the staff of General Head Quarters. One of them is an expert in pathology and the other an expert in hygiene. They advise the Director-General on all questions of preventive medicine, affecting any particular army or the Expeditionary Force as a whole, or on which he may have to give a decision. The practical and theoretical knowledge of sanitation possessed by most officers of the R.A.M.C. is more extensive than that of the great majority of their civilian colleagues, and the importance attached to this subject never ceases to grow. Nevertheless, comparatively few of them seem to wish to specialize in this subject. One reason, perhaps, is that the extra allowance made to a specialist in sanitation is no greater than to specialists of half a dozen other subjects, while the calls made upon his time and energies are pretty certain to be larger and more constant. Furthermore, it is not at present a speciality which, if practised with success, necessarily paves the way to the highest positions in the Army Medical Service.

It should be noted in conclusion that the appointments mentioned are not entirely a new departure, for the D.M.S. of the original army had a sanitary expert on his staff, and the senior medical officer of practically every hospital base has always enjoyed assistance of the same order.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN JOHN LESLIE GREEN, R.A.M.C.(T.F.), was reported as "missing, believed killed," in the casualty list published on July 11th (BRITISH MEDICAL JOURNAL, July 15th). The announcement below shows that he was killed. He was educated at Cambridge and at St. Bartholomew's, and became M.R.C.S. and L.R.C.P.Lond. in 1913. He subsequently served as resident medical officer of the Huntingdon County Hospital and as a ship surgeon on the Elder Dempster line of steamers. He joined the 5th Territorial Battalion of the South Staffordshire Regiment as lieutenant and medical officer on September 28th, 1914, and was promoted to captain a year later.

The supplement to the *London Gazette* issued on August 5th announces that the King has conferred the Victoria Cross upon Captain Green for most conspicuous devotion to duty. Although himself wounded he went to the assistance of an officer who had been wounded and was hung up on the enemy's wire entanglements, and succeeded in dragging him to a shell hole, where he dressed his wounds, notwithstanding that bombs and rifle grenades were thrown at him the whole time. Captain Green then endeavoured to bring the wounded officer into safe cover, and had nearly succeeded in doing so when he was himself killed.

Lieutenant B. R. Roberts, R.A.M.C. (temporary).

Died on Service.

Captain Herbert Rennie Robertson, R.A.M.C., attached Essex Yeomanry, died in London, after an operation, on July 29th. He was educated at Trinity College, Dublin, where he took the degrees of M.B., B.Ch., B.A.O., and M.D. in 1895; and prior to the war was in practice at Tientsin, North China.

Wounded.

Captain H. G. Bruce, R.A.M.C. (T.F.)
Captain W. S. Garden, R.A.M.C. (temporary).
Captain E. H. Griffin, R.A.M.C. (temporary).
Captain A. C. Hancock, R.A.M.C. (temporary).
Captain A. Hines, R.A.M.C. (temporary).
Captain O. H. Peters, R.A.M.C. (T.F.).
Captain M. Scott, R.A.M.C. (temporary).
Captain J. P. Walsh, Canadian A.M.C.
Captain J. R. N. Warburton, R.A.M.C. (S.R.).
Lieutenant W. E. H. Beard, R.A.M.C. (temporary).
Lieutenant H. G. Gibson, R.A.M.C. (temporary).

Missing, believed Killed.

Captain J. H. Beilby, R.A.M.C.(T.F.), Yeomanry.

Deaths among Sons of Medical Men.

Alexander, Philip Mansell, Second Lieutenant Gordon Highlanders, eldest son of Dr. S. P. Alexander, of Southsea, died of wounds on July 30th.

Binns, Raymond Lewis, Second Lieutenant Princess of Wales's Own Yorkshire Regiment, son of the late William Binns, M.D., of East Bergholt, Suffolk, killed July 10th. His commission was dated April 22nd, 1915.

Cheese, Ernest Velmont, Lieutenant Army Pay Department, younger son of the late Dr. James Cheese, died of pneumonia at No. 2 Red Cross Hospital, Rouen, on July 30th. He got his commission in September, 1915.

Crombie, Ian Osborne, Captain Middlesex Regiment, second son of Dr. Crombie, of Sidcup, Kent, killed on July 30th, aged 21. He was educated at Merton Court, Sidcup; at St. Paul's School; and at Wadham College, Oxford, where he had been in residence for a year when the war began, having gained scholarships both at St. Paul's and at Oxford. He got his first commission from the Oxford O.T.C., became lieutenant on January 20th, 1915, and captain in December. In May, 1915, he went to the front, was wounded on August 24th, rejoined in February, and went through the crater fighting in the Hohenzollern Redoubt last March.

Dickey, Stanley, Sergeant Canadian Mounted Rifles, son of Dr. Dickey, late of Antrim Road, Belfast, now of Saskatchewan, Canada, killed in July while endeavouring to extricate some men buried in a blown-up trench. He was at one time on the staff of the *Belfast Evening Telegraph*, but enlisted in Canada.

Ferguson, A. L. H., Lieutenant Gordon Highlanders, second son of the late Major Ferguson, I.M.S., killed on July 23rd. He was educated at Aberdeen Grammar School and at Epsom College, enlisted in September, 1914, got a commission in October, and became lieutenant on March 5th, 1915. He was wounded, losing an eye, in November, 1915, and wounded a second time in March, 1916.

Hatch, Laurence Collier, Lieutenant Durham Light Infantry, second son of Dr. F. H. Hatch, of Copse Hill, Wimbledon, reported "missing, believed wounded," on September 25th–27th, 1915, now presumed killed, aged 21. He was born in South Africa, educated at Ouudle School and at Pembroke College, Cambridge, and got his commission on September 14th, 1914. He went to the front on September 18th, 1915, and was killed at Loos a week later.

Holland, Archibald Close, Lieutenant Bedfordshire Regiment, youngest son of Dr. Holland, of St. Moritz, Switzerland, killed July 27th. He got his first commission on May 18th, 1915.

Jameson, Alan Battersby, Second Lieutenant Cambridgeshire Regiment, son of the late Major Granville Jameson, I.M.S., killed July 21st, aged 22. He was educated at Denstone and at Sidney Sussex College, Cambridge, where he was studying for the Church before he joined the army. He went to the front last February.

Latimer, Hugh, Lieutenant Queen's Own Royal West Kent Regiment, only child of Dr. H. A. Latimer, of Trengweath, Molyneux Park, Tunbridge Wells, killed July 3rd, aged 19. He was educated at Llanyre Hall, Llandrindod Wells, and at Rugby, which he left in December, 1914, having gained an open scholarship at Brasenose College, Oxford, which, however, he was not able to take up, having got a commission from December 30th, 1914.

McSwiny, Claude O'Connell, Second Lieutenant King's Shropshire Light Infantry, younger son of Fleet Surgeon McSwiny, R.N.(ret.), of Brandize Park, Okehampton, Devon, killed July 14th, aged 19. His commission was dated May 22nd, 1915.

Moir, Douglas Dana Drew Kinnaird, Second Lieutenant Yorkshire Regiment, second son of Major F. Drew Moir, R.A.M.C., of Pembridge Villas, London, W., killed on July 23rd, while leading his men in the attack on the German line. He was born at Halifax, Nova Scotia, on December 12th, 1894, educated at Plymouth College, and on November 4th, 1914, received a temporary commission in the 10th Battalion of the Norfolk Regiment. Thence he passed into Sandhurst, and while there played for the Rugby fifteen. On December 21st, 1915, he was gazetted to the Yorkshire Regiment. He was the grandson of the late Captain H. Kinnaird Alloway, of the Royal Monmouthshire Light Infantry.

O'Connor, Arthur Cathal, Captain Norfolk Regiment, only son of Colonel A. P. O'Connor, C.B., Army Medical Staff, killed on July 25th, aged 24. He was educated at Wellington and at Trinity College, Cambridge, and represented both his school and his college at gymnastics. He joined the army in 1913, became lieutenant on August 19th, 1914, and captain in May, 1915. He was wounded in the battle of the Aisne, and received the Military Cross on June 3rd, 1916.

Power, Reginald Colin, Private Royal Fusiliers, only son of Dr. Power, of Atherstone, Warwickshire, killed July 16th, aged 25.

Young, Frank Irvin, Second Lieutenant Brigade Staff, 1st Battalion Northumberland Fusiliers, sixth son of Dr. Ralph Young, Royton, Lancs. He was a dentist, L.D.S.Glas., and had previously served in the Army Service Corps during the Boer war. He was killed by shell whilst bravely extinguishing burning stores and ammunition on July 24th.

NOTES.

Honours.

The *London Gazette* of August 3rd publishes dispatches from Sir G. Smith, Governor of the Nyasaland Protectorate, and Colonel G. M. P. Hawthorn, officer in command of the troops in the military operations in Nyasaland from October, 1914, to October, 1915. Among the officers specially mentioned in these dispatches is Dr. (temporary Captain) Norman MacLean Leys, of the Colonial Medical Service, British Central Africa.

Medical Officers Wanted.

Scottish Women's Hospitals for Foreign Service.

Applications are invited from fully qualified medical women for posts in connexion with the Scottish Women's Hospitals. All members of the medical staff now receive an honorarium at the rate of £200 per annum, with uniform, travelling expenses, board, and laundry.

Scotland.

A travelling exhibition of maternity and child welfare work, food values, thrift, and home nursing has paid its first visit to Keith, Banffshire, where it was opened by Dr. Leslie Mackenzie, medical member of the Local Government Board for Scotland, on August 7th. After two days at Keith it goes on to other towns and villages in the county and afterwards moves through other counties in the north of Scotland.

Home for Helpless Soldiers.

The Ralston Hospital, at Paisley, equipped by Sir Charles Cayzer and given to the Scottish branch of the British Red Cross Society for the reception of paralysed soldiers and sailors domiciled in Scotland, was opened by the Duchess of Montrose on August 2nd. Sir George Beatson presided. The Duchess of Montrose said that the Scottish patients in the Star and Garter Home at Richmond were homesick, and Sir Charles Cayzer had not only offered his beautiful residence for the purpose of a Scottish home but he had equipped it with everything needed that could contribute to the comfort of the patients. They would need skilled and special nursing for a long time, but it was hoped that surgical science might do much to enable many of them to regain the powers they had lost. The gift of the hospital was formally accepted by Surgeon-General Culling on behalf of the War Office, and Sir George Beatson in thanking Sir Charles Cayzer said that from the start he had spared no effort to make the home as fine as possible for the purpose. The Scottish Red Cross Executive has undertaken the responsibility for the maintenance of the home and appeals to the Scottish people to provide the funds.

Edinburgh Hospital for Incurables.

At the annual meeting of the Royal Hospital for Incurables, presided over by Dr. A. G. Miller, it was stated that the number of patients under treatment in the Longmore Hospital and the Liberton Cottage Hospital during the year ending March, 1916, was 346, of whom 115 had been admitted during the year; 142 had died, left, or been discharged, leaving 204 in hospital. The institutions are for the palliative treatment of disease presumably incurable, but calling for continuous medical supervision and skilled nursing. The Chairman appealed for increased funds for the maintenance of the institutions, for the provision of additional accommodation mainly for cancer cases, and for the remodelling of the accommodation of the nursing staff at the Longmore Hospital. He mentioned that two former patients were now serving in the army at the front.

Scottish University Ordinance.

The present position with regard to the ordinance of the Scottish university courts relating to entrance examinations seems to be that it is now lying on the table of the House of Commons, but that there is a difference of opinion as to the advisability of putting it into force, at any rate at the present time. The Glasgow Council has declared itself in favour of delay, objecting particularly to the proposed substitution of a permanent entrance board for the joint board. The committee of the Edinburgh University General Council, on the other hand, has put out a memorandum deprecating any action by either House of Parliament which would interfere with or delay approval of the ordinance by His Majesty in Council, believing that none of the objections raised have sufficient weight to justify the postponement of a valuable and carefully considered reform in university methods. It has also pointed out that the university courts would retain unimpaired their capacity

to meet requirements in the future by suitable new ordinances as occasion arose. Mr. Tennant made his first appearance as Secretary for Scotland by answering questions on the subject set down by Mr. Eugene Wason and Sir G. Younger, who wanted to know whether, in view of the difficulties of the present time and the possibilities of the future, he would arrange to withdraw the ordinance until the changes the war would necessitate had been better realized. Mr. Tennant said that the question of withdrawing the ordinance was one for the consideration of the university bodies which had proposed it, but he had no doubt that the risks adduced in the question would be duly taken into consideration by the Privy Council when it came to deal with the question in virtue of its powers under Section 21 of the Universities (Scotland) Act, 1889.

Ireland.

The Holidays of Poor Law Medical Officers.

At a recent meeting of the Magherafelt Board of Guardians Dr. Hegarty applied for his annual holidays and nominated Dr. M. Hunter as his locumtenent. Dr. Hunter wrote to the Board that in view of the increased cost of living he considered £2 2s. for the dispensary and £1 1s. a week for the workhouse insufficient remuneration, and suggested a combined sum of £6 6s. a week for both as reasonable, but if the guardians thought it excessive he was prepared to accept £5 5s. for discharging the temporary duties of both workhouse and dispensary. A member of the board stated that he had an interview a few days previously with Dr. Kerlin, who was prepared to discharge the duties of both dispensary and workhouse for £3 3s. a week, and after some discussion Dr. Kerlin was appointed to discharge the duties at the dispensary and workhouse at that rate.

It is now many years since the Treasury made a special grant towards the holiday expenses of Irish Poor Law medical officers, and the Local Government Board (Ireland), in its regulations for the government of dispensary districts, states that each medical officer shall be allowed an annual vacation, not exceeding four weeks, and that the guardians shall pay to the locumtenent appointed such reasonable remuneration for his services as the Local Government Board shall approve or direct. The order also says that the medical officer shall not relinquish the discharge of his duties until he submits an application to the guardians nominating a duly qualified medical practitioner who undertakes to perform the duties of temporary medical officer at a rate of remuneration to be stated, and until the Local Government Board express its approval of the arrangement made. As might be expected, this order, from its want of definiteness, has been the cause of much unseemly wrangling at boards of guardians when considering applications for leave of absence from their medical officers. The Local Government Board, however, in correspondence with boards of guardians in connexion with the interpretation of this rule, made it plain that when the Treasury made a special grant towards the expense of Poor Law medical officers' holidays the understanding was that they should get annually, if required, up to one month's holidays and that the minimum remuneration should be £4 4s. for dispensary districts and £3 3s. a week for workhouses. The Local Government Board also urges that the locumtenent nominated by the doctor going on holidays should be appointed by the guardians where the arrangements made are satisfactory as regards the convenience of the sick poor. While it is true the majority of the boards of guardians act in accordance with the spirit of the regulation, yet there is a very considerable minority that avail themselves of the opportunity, afforded by the fact that the Local Government Board regulation is not mandatory, to cut down the length of the holidays and the customary remuneration as well as to refuse to appoint the substitute nominated by the doctor asking for leave.

At the last meeting of the Irish Committee of the British Medical Association a strongly worded resolution was passed urging the Local Government Board to remedy the defects of its regulation governing holidays so that it would be mandatory on all boards of guardians to give to Poor Law medical officers, where requested, one month's holiday and to appoint, with adequate remuneration, the locumtenent nominated by the doctor going on leave. It would be impossible for even a small minority of boards of guardians to impose objectionable holiday conditions on the Poor Law medical officers if certain doctors, fortunately a very small number, would only observe the ethical rule sanctioned by all medical bodies in Ireland that no doctor should apply to act as locumtenent for another while on holiday or sick leave without the invitation or consent of the doctor going on leave, or accept less than the customary remuneration.

Sphagnum Moss Dressings in Ireland.

When the Irish War Hospitals Supply Dépôt, 40, Merrion Square, Dublin, started its work in November, 1915, the entire control of sphagnum moss was handed over to the Royal College of Science Detachment of the St. John Ambulance Brigade, and since then it has controlled the sub-dépôts throughout Ireland.

Helped and encouraged by Colonel Cathcart's advice the work was started in December, 1915, and although some difficulty was at first experienced in getting the proper moss, it was soon overcome by sending correct samples to collectors, and there is now an excellent supply of moss, that coming from Galway, Mayo, and the King's County being particularly good. A Committee of the Royal College of Science Women's Division manages the dépôt, and most excellent workrooms have been granted by the Department of Agriculture. There are now 25 sub-dépôts, and though some have only been working for a very short time, yet during the seven months the work has been carried on 58,957 sphagnum dressings, 325 dysentery pads, and 1,435 elbow and garden cushions have been turned out.

The elbow and garden cushions are made from indifferent samples of moss, and the boxes in which the dressings are dispatched are made by the men of the Royal College of Science Division.

The requests for dressings are now so numerous—eighty different hospitals have been supplied in England, Ireland, France, Belgium, Egypt, and Greece—that it has been found difficult to make the supply equal the demand, which has grown so rapidly that a special effort has recently been made, with the result that over 20,000 dressings were provided in June, while the output for the first half of July was over 16,000. The War Office has requisitioned 5,000 sublimated dressings each month, and this branch of the work is carried out by the courtesy of Messrs. Fannin at their premises in Dublin.

In connexion with the question of sphagnum moss dressings the following quotation from Joyce's *Child's History of Ireland* is of interest:

> In the year 1014, when marching home after the Battle of Clontarf, the Dalcassians were attacked by an old enemy, M'Gilla Patrick, a prince of Ossory. Their chief gave orders to place the wounded in safety in the rear, but they insisted on taking part in the fight. "Let stakes from the neighbouring wood be fixed in the ground," said they, "and let us be tied to them for support, with swords in our hands, having our wounds bound up with moss, and let two unwounded men stand by each of us, on the right and on the left. Thus will we fight and our companions will fight better for seeing us." It was done so, and when the Ossorians saw this they were struck with fear and pity and refused point blank to fight with such resolute and desperate men.

It would appear from this that moss was a recognized surgical dressing in Ireland in 1014.

England and Wales.

Lancashire County Health Report.

The report of the M.O.H. for the county of Lancashire for the quarter ending June 30th shows a death-rate of 12.2 per 1,000 as compared with 13.2 for the same quarter last year. With the exception of small-pox, all the principal epidemic diseases showed a decrease in incidence and deaths. Scarlet fever had declined from 1,803 cases with 23 deaths in the March quarter to 1,347 cases with 20 deaths. Measles and German measles caused 111 deaths as compared with 343 in the corresponding quarter last year. Cases of small-pox had been notified from seven districts of the county; the number of persons attacked was 28 and 3 deaths occurred; the last case was notified on May 29th. In the previous quarter there were 14 cases

with 2 deaths; all the cases were removed to isolation hospitals.

The report of work under the Midwives Act shows 924 midwives on the roll, of whom only 702 were in practice; the large proportion of 483 were only on the roll by virtue of having been in *bona-fide* practice in 1901. The help of doctors was called for in 644 cases, and 107 still-births were recorded. The cases of puerperal fever which came to the notice of the M.O.H. numbered 22, of which 7 were fatal; of the total, 10 had been attended only by medical practitioners without midwives. In 3 cases of puerperal fever there were charges of negligence on the part of midwives, the offence in 2 consisting of delay in sending for medical help, and in 1 of failing to send for medical help altogether. During the quarter 73 cases of ophthalmia neonatorum were reported, and investigation revealed 18 instances of negligence on the part of the midwives, chiefly failure to send for medical help. As a result of representations to the County Education Committee in regard to a possible shortage of midwives, the number of scholarships to be offered for competition in 1917 has been increased from two to four. The scholarships are of the value of £30, and are offered to women between the ages of 23 and 40 to enable them to obtain a training in midwifery.

Correspondence.

PROPOSED MIDWIVES ACT FOR IRELAND.

Sir,—I should be much obliged to you for the insertion of the subjoined letter, which I have forwarded to Dr. L. Kidd in reply to a letter he addressed to me, a copy of which appeared in the Journal of August 5th:

Ardfinnan,
August 3rd, 1916.

Dear Dr. Kidd,

You neither claimed privacy nor privilege for your circular, therefore I cannot see how it could be "improper" for any member of your committee to bring to my notice—considering my position as vice-chairman of the Poor Law Subcommittee of the I.M.C.—any proposals affecting the class interests of the body which it represents. I invite you to deal categorically with my letter of the 19th ult. apart from all personality. I informed you in a previous letter—received by you before your public denunciation—that that was my intention in dealing with this matter. Promises, advice, denunciation, unsustained *ipse dixit* and assertions, are to me "trifles light as air" when dealing with matters concerning our profession. If you are in a position to declare publicly the decision of your committee to abandon the *penal* amendments to which I referred as applying to dispensary medical officers, and to accept my demand for their exemption from the necessity of becoming the unpaid attendants of every handywoman in their locality while she exercises "habitually and for gain" her execrable traffic in the lives of parturient mothers and their children, you will do much towards the possibility of your projected bill becoming law. Your committee will be expected to show explicitly how it proposes to effect this object, and if I am satisfied on the point my opposition shall be withdrawn. In conclusion I will say that I would have advised opposition to the appointment of your committee if I thought its proceedings were to be conducted at any stage *in camera*.

Yours faithfully,
J. Power.

In reply to Sir F. H. Champneys's letter, permit me to say the trouble is that I have as an Irish practitioner grasped the difficulties and drawbacks of the proposed Midwives Act for Ireland which he apparently has not, and his lack of knowledge in this respect is very likely due to the fact that he is an Englishman practising in London. The Medical Charities Acts in Ireland provide fully trained midwives whose services are given free of cost not only to the destitute but to working class people who would have to pay out of their pockets for such services in England. In the circumstances, the Midwives Act which is necessary in Ireland is one that would compel parturient women to avail themselves of the services of those trained women. From my reading of the Scottish Act it appears to me that all the *reputable* handywomen at present, and for some years to come, plying their septic trade can get on the Midwives' Roll, and thus impose on an unsuspecting public as certified and trained nurses, with the direst consequences to their victims. Now I ask, What is the necessity, even for a month, for creating such a state of affairs in Ireland where there are enough trained midwives, if only their services were availed of, to attend all parturient women? I should like to know from Sir F. Champneys what is the difference between an untrained woman, apart from her legal status, registered on the Midwives' Roll and the woman who will, unknown to the doctor, practise in mostly all cases as a midwife in the guise of what he describes as a *monthly nurse*. If Sir F. H. Champneys knew anything about the conditions of practice in Ireland he would at once realize the impossibility, from want of sufficient time, of a registered medical practitioner supervising or trying to undo the mischievous work of the infection-bearing untrained "monthly nurse." Dr. Kidd's statistics quoted by Sir F. H. Champneys are interesting, but they ignore the bearing of the filthy insanitary dwellings of our urban population, which, in Ireland and other parts of the empire, are nothing short of being disgraceful to the State which permits such a condition of affairs.—I am, etc.,

Ardfinnan, Aug. 5th. J. Power.

Sir,—I have been greatly interested to read the statistics dealing with maternal death-rate before and after the passing of the Midwives Act (1902) quoted by Sir F. Champneys in his reply to Dr. Power. I have long been hoping to see some such information, but candidly I cannot profess that the figures are such as to afford the supporters of that measure much satisfaction.

It is true that Table I shows a large falling off in the mortality from puerperal fever, and no doubt we must all feel thankful that so much at least has been achieved. But surely a death-rate from this cause of 1.39 per 1,000 is nothing to boast about. If my memory serves me aright, nothing exceeding 0.5 per 1,000 ought to satisfy the authorities.

It is, however, when we come to study Table II (accidents and diseases of pregnancy) that the failure of the Act becomes most apparent.

Here we have an actual increase of 0.39 per 1,000 in the period 1911–1914, as compared with the first period quoted, 1881–1890; and though there is an absolute decrease in the figures given under Table III (all causes) when we compare the same two periods, it is somewhat disturbing to find that in the last period (1911–1914) there is a slight increase of deaths (3.86, as compared with 3.75 in the previous period, 1903–1910).

I think on these figures Dr. Power has substantial ground for contesting the extension of the Act, or an Act on similar lines, to Ireland.—I am, etc.,

A. C. E. Parr, B.A., M.R.C.S., L.S.A.

Feltham, Aug. 8th.

JUNG'S PAPERS ON ANALYTICAL PSYCHOLOGY.

Sir,—As your reviewer states, Dr. Jung formerly used hypnotism, and thus gained intimate acquaintance with unconscious phenomena and practical experience of the limitations of hypnotism. It was, however, from the standpoint of experimental psychology that Jung came to an independent understanding of Freud's views. Through the work done in his *Diagnostic Association Studies* (1903) he found that the mechanisms of the unconscious described by Freud in his *Psychopathology of Everyday Life* were "complex indicators." From the beginning, however, there was a difference in the interpretation of the facts (see preface to *Psychology of Dementia Praecox*). Only those who are familiar with the writings of both schools can realize how deep the cleavage now is. It rests primarily on the meaning of the symbolic language of the dream. Jung lays stress on its analogy with primitive thinking, as seen in myth, folk-lore, and the symbolism of early religions, and regards it not merely from its causal standpoint, which is fully accepted as half the truth, but sees in it "an attempt to comprehend and point out the further psychological development of the individual, thus a prospective import is added to the retrospective value of the symbol."

It is difficult to believe your reviewer has read the article on the psychology of *so-called* occult phenomena.

The italics should carry conviction of the author's view. The case of mediumship is presented in the usual detached scientific manner, and the pre-existing facts of her psychology, and the gradual evolution of her so-called occult qualities carefully set forth. Her growing wilful deception, and the subjective nature of the somnambulic personalities is pointed out, and the meaning of such manifestations for the good or ill of the future personality. The medium creates her phenomena out of the unconscious, just as the dream constructs its images; certain aims of the personality are thus expressed, but the phenomena have no intrinsic value.

In criticizing the association test the reviewer is under a total misapprehension of the facts; thus the "naïveté" credited to Jung must, I think, be referred to himself. Three persons were implicated in a theft: circumstantial evidence and the author's suspicions pointed to B.; the experiment, however, cast the suspicion on A.; hence, as the author says, "one may assume the probability of this person's guilt." A.'s subsequent confession confirmed not the analyst's suspicions, but those of the test itself.

The view is controverted that when a marriage is crippled by a wife's neurosis "the cause of the unhappiness always lies in a too firm attachment to the parents." The statement is made that "no proof is given of this assertion." The reader must seek his proofs in the unconscious itself. It always looks as if an unhappy fate produced the neurosis; only on painstaking analysis does one discover that the unacknowledged and unknown "fixation to the parents" drives the victim subconsciously to the *milieu* which is her undoing.

In the remarks on "number dreams" the reviewer again shows misapprehension. The implication is that the analyst adds and manipulates numbers in such a way that they come out as they do. This is not so; numbers and associations are supplied solely by the patient, and come from the unconscious; when once tabulated it looks as if they must have been in consciousness all the time; but "consciousness is that of which we are aware at a given moment," the ultimate result was unknown till it was worked out consciously.

That misunderstanding should arise is not surprising. The laws of the unconscious are quite other than those which govern consciousness; but they are *laws*, and must be admitted as such if we would extend our knowledge of them.—I am, etc.,

London, W. CONSTANCE E. LONG.

THE SOLDIER'S HEART.

SIR,—The more Mr. Turner wriggles the more deeply he gets into the mire. Let us analyse a few of his sentences: "His method of excluding from a share in the causation of 'soldier's heart' that part of bacterial action which might be due to dental sepsis." There is here an assumption that the "soldier's heart" is due to bacterial action, and that a part of such action *might be due* to dental sepsis. He offers no evidence, no proof, not even a reasonable hypothesis of such a contention. In causation there is no such thing as *might be due*; such a statement is only suited for the law courts, where evasion of the truth is common. He utterly ignores the teaching of Newton, Hamilton, Koch, and Kelvin, and yet tries to pose as a scientific man. Bacteria have no more to do with the causation of "the soldier's heart" than the man in the moon, and yet a few sublunary controversialists readily set up such a bogey, and get annoyed when it is knocked down. Talleyrand said that "speech has been given to man to disguise his thought." Unfortunately for Mr. Turner, he does not find language sufficient to cloak his lack of knowledge.

He talks about the owner of a foul breath swallowing decomposing food. That individual must have his cesspool at the wrong end of his alimentary tract when he decomposes his food before swallowing it. I thought that the food which decomposed was that which clung to the teeth, and that it was the business of the dentist to instruct his clients to prevent such retention and subsequent decomposition.

He talks about inflammation as if he knew something about it, oblivious of the fact that it is a reaction of the tissues against disease or injury. To him it is the disease itself, and "there can be no inflammation without some degree of general injury is a pathological axiom." He can manufacture axioms with the greatest ease, but I do not think that he will find many ready to swallow them. He is evidently not a follower of Sir Frederick Treves, who said that a localized peritonitis is Nature's method of curing appendicitis. The inflammatory barrier which Nature sets up in the mouth is, according to him "necessarily injurious." He further says, "in a case of dental sepsis, in addition to the visible areas of inflammation there are generally concealed areas of inflammation and suppuration, and *that these latter areas often exist with little or no external sign*." (The italics are mine.) I have heard such yarns before when the operator wished to make a big job or cover a bungle. I should have thought that a man of his acumen would have readily discovered "the less gross signs of inflammation in the mouth," let alone the extremely gross evidence of the tension of pent-up pus. In my opinion, we want to eradicate the sepsis, and then the inflammatory barrier, which Nature has more or less successfully set up, will soon subside. I can give Mr. Turner the name and address of a dentist in London who has been very successful in this line of work. I only know this gentleman through some of the results of his treatment. By their fruits ye shall know them. I know Mr. Turner by his writings only.

What does he mean by the reiteration of his statement, "exclusion of dental sepsis is indeed ill founded"? I wish dental sepsis were excluded from the mouth. I only excluded it as a cause of hyperthyroidism and "the soldier's heart," but Mr. Turner and his friends have ignominiously failed to establish any position for sepsis of any kind in any place as even a cause of hyperthyroidism. Dental sepsis seems to be a disease of civilization where dentists abound, and it is very rare among negroes, who are their own dentists. Prevention is better than cure.

He tells us that his "reason for entering this discussion was to disallow Sir James Barr's neglect of dental sepsis as a possible important factor in any disease which *may be* of microbic causation." We have here got *suppressio veri et suggestio falsi* with a vengeance. I never neglected dental sepsis in any shape, form, or fashion. Neither Mr. Turner nor any one else has ever adduced a scintilla of proof that sepsis of any kind has ever caused hyperthyroidism or "the soldier's heart."—I am, etc.,

Liverpool, Aug. 5th. JAMES BARR.

TREATMENT OF "SHELL SHOCK."

SIR,—I should like to draw Dr. Percy Cooper's attention to a communication I made to the Laryngological Section of the Royal Society of Medicine in March of this year, and prior to the publication of Captain Milligan's valuable paper. It has fallen to my lot since the commencement of the war to see a considerable number of cases of so-called "functional" aphonia where the power of adducting the vocal cords has been either partially or completely in abeyance. In many of these cases the more ordinary methods of treatment, such as rest and quiet, the introduction of a brush into the larynx, administration of the bromides with or without valerian, the use of the faradic current, or re-education, have been sufficient to restore the voice.

In certain other cases, however—and more especially amongst those who have been "buried"—despite prolonged rest and treatment, the voice has absolutely refused to return. In this particular class of case I have for many months been using a method of "chloroform hypnosis" as follows: The patient is placed very lightly under a general anaesthetic, and a laryngeal spatula is introduced into the larynx and moved gently from side to side so as to stimulate the sensitive laryngeal reflexes. At the moment when the stimulus begins to take effect the anaesthetic is entirely stopped and the patient is encouraged to shout, and as a rule he does shout! He is now allowed to emerge from the anaesthetic fully conscious that he is using his voice. In a paper upon warfare injuries and neuroses[1] I expressed the opinion that the abrogation of function in such cases was due, not to the existence of any organic lesion, but to a temporary suspension of neuron impulses from the higher cortical cells of the central nervous system to the periphery—in other words, to a sudden arrest, probably of vasomotor origin, of those volitional impulses requisite to produce speech.

[1] *Journal of Laryngology*, August, 1915.

A word of caution is necessary, however. The possibility of early laryngeal tuberculosis or of some other gross intralaryngeal lesion should always be borne in mind as a possible cause of the existing aphonia. In only one of the cases I have treated by "chloroform hypnosis" has there been, so far as I am aware, any relapse.—I am, etc.,

WILLIAM MILLIGAN,
Major R.A.M.C.(T).

Manchester, Aug. 7th.

THE FASTING TREATMENT OF DIABETES.

SIR,—It is quite likely that in my remarks on Dr. Spriggs's paper on the fasting treatment of diabetes I should confirm statements made by Dr. Leyton, for our experience seems to have been much the same. I cannot claim to have treated "many dozens of cases," but I have obtained very gratifying results with the majority of the thirty odd in which I have employed it since Allen published his paper in 1915.[1] If I paraphrased the remarks made by Dr. Leyton in his paper read at the Royal Society of Medicine, I did so quite unconsciously and unintentionally, for I only heard a portion of it, and have become fully acquainted with its contents since my letter was sent to you on June 17th.

With regard to the table in my letter to which Dr. Leyton refers, most of the figures are the mean of three or more observations made on materials bought in the open market and prepared for table by the ordinary methods of cookery. They are, of course, only average values, but in practice one is bound to work with averages, and it is surprising how nearly the figures given by direct analysis of a mixture of vegetables, in spite of individual variations, correspond as a rule to the added values worked out from such a table. The example of boiled turnip which Dr. Leyton selects for criticism raises an important and interesting point—namely, the difference between the carbohydrate of a food as usually ascertained by the chemist and the available carbohydrate, which is the important clinical value. The "carbohydrate" as ordinarily reported in food tables is estimated by difference—that is, by subtracting the percentages of protein, fat, ash, and water from one hundred—hence all the errors in these estimations are charged to the carbohydrate; and, further, the "carbohydrate" includes woody fibre, gums, pectins, etc., that are of no food value. The only satisfactory method is to estimate the carbohydrate by direct analysis, and this is the way my figures have been obtained. Turnips are singularly free from starch and sugar, the bulk of the "carbohydrate" consisting of pectose bodies which gelatinize on boiling, but do not yield dextrose either then or on digestion. As starch and sugar are practically non-existent in turnips, the carbohydrate value of 1 gram for 5 oz. I have allowed errs rather on the safe side. Taking Atwater and Bryant's figures for blackberries—7.5 per cent. to 16.7 per cent.—we have an average of 12.1 per cent., which is about as much above my average figure as the latter is above the 8 per cent. given by Street in his report on diabetic foods.[2] I think therefore that it may be taken as a fairly safe working figure.—I am, etc.,

P. J. CAMMIDGE.

London, W., Aug. 5th.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on July 19th.

Recognition of Teachers.—The following have been recognized as teachers in the subjects and at the institutions indicated: Dr. R. A. Lyster (Hygiene—St. Bartholomew's Hospital); Dr. E. Holland (Midwifery and Diseases of Women—London Hospital).

Household and Social Science.—Miss Janet Lane-Claypon, M.D., has been appointed head of the Household and Social Science Department, King's College for Women, with the title of dean.

Council for External Students.—Dr. S. Russell Wells has been appointed chairman of the council for external students.

MEDICAL SCHOLARSHIPS.

THE following medical scholarships have been awarded by the London Intercollegiate Scholarships Board at the institutions indicated:

UNIVERSITY COLLEGE.—*Bucknill Scholarship* (Faculty of Medical Sciences) and the *First Medical Entrance Exhibition* divided equally between Messrs. H. D. Cadman and H. A. Harris. *Second Medical Entrance Exhibition:* Mr. H. G. Goldwater.

KING'S COLLEGE.—*Warneford Scholarships:* R. H. Yelf, C. E. Bacon, and J. N. Morris.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—*Arts Scholarship:* L. J. Soutter.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—*Arts Scholarship:* N. C. Scott. *Science Scholarship:* A. G. Dobrashian.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—*St. Dunstan's Exhibition:* E. M. K. Salmond. *Isabel Thorne Scholarship:* O. J. Flecker. *Mabel Sharman Crawford Scholarship:* M. H. S. Auden. *Prox. Accessit:* P. M. Phillips.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C.(T.) attached to battalion not proceeding abroad desires exchange with M.O. to battalion or field ambulance about to proceed to or already in France.—Address No. 3099, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Surgical specialist at a base hospital in France desires to exchange with surgeon attached to casualty clearing station, field ambulance, or R.G.A.—Address No. 3100, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Yeomanry regiment, desires exchange into field ambulance, base hospital or regiment at front or abroad.—Address No. 2899, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

WILLIAM TAYLOR, M.D., F.R.C.P.EDIN.,

EDINBURGH.

DR. WILLIAM TAYLOR, who died at his residence in Edinburgh on July 31st, after an acute illness, was in his 80th year. He was born in Forfarshire, and after some years spent in business in Australia studied medicine in the University of Edinburgh and graduated M.D. in 1867. It was this comparatively late entrance into the ranks of the profession which made Dr. Taylor the academical contemporary of so many men his juniors in age. He was elected a Fellow of the Royal College of Physicians in 1883. He had then been associated with the University for several years, first as assistant to Laycock, the Professor of Practice of Physic, and next as assistant to Professor James Spence, whose textbook on *Systematic Surgery* he re-edited with scrupulous care. He was always greatly interested in midwifery, and was elected a Fellow of the Edinburgh Obstetrical Society in 1868. He was fond of telling how he maintained the fetal circulation in a pair of twins after birth by means of artificial heat in water; indeed, he published an account of the case in the *Edinburgh Medical Journal* of 1865 (vol. x, p. 752), although he was then only a medical student who was given charge in the Maternity Hospital. He made many contributions to the *Transactions* of the Royal Scottish Society of Arts, and had been its president. He also wrote papers on the restorative treatment of varicose veins, on the treatment of neuralgia and rheumatism by currents of hot air, and on recrudescence in scarlatina. He made a special study of gout, and was fond of saying that all great men were gouty, adding, with a smile, that all gouty men were not, however, great. His eldest son, W. Macrae Taylor, took part in the South African war (medal), and is at present serving at the front (Major, R.A.M.C.). Dr. Taylor is also survived by another son and by two daughters, the elder of whom is serving abroad as a nurse.

Sir HALLIDAY CROOM writes: During his early days Dr. Taylor was very intimately associated with the University. He was assistant to Professor Laycock for two years and afterwards became assistant both in the University and in private to the late Professor Spence, in connexion with whom for many years he taught bandaging and minor surgery. At this sort of teaching he was a special adept, and after leaving the University he opened a class of his own which was extraordinarily popular and which after two or three years' duration he gave up no one knew why. He kept up his association with the University by regular attendance at the Assistants' Club, in this way maintaining his touch with the younger men. From his earliest years to the end of his life he was deeply interested in mechanical work and in electricity. In his

[1] *Amer. Journ. Med. Sci.*, 1915, p. 480.
[2] Report of the Connecticut Agricultural Experimental Station. 1913.

house he had an excellent installation which he used extensively. He was a Fellow and President of the Royal Physical Society, to which he communicated many papers. Amongst the more medical societies to which he belonged his attention was specially directed to the Obstetrical Society, which, in his early days, he attended and took very often a lively part in the discussions. For years he rented Swanston Cottage in the Pentland Hills, so long and so intimately associated with Robert Louis Stevenson, and here he entertained hosts of friends with reminiscences and readings from the distinguished author. The social element of his nature was further developed in his long membership of that famous old club, the Monks of St. Giles, where he entertained his brethren with poetry and most happy and witty speeches.

THE LATE SIR VICTOR HORSLEY.—We have received the following letter:

Sir,

In one of the accounts of Sir V. Horsley in the BRITISH MEDICAL JOURNAL of July 29th there is a sentence which says that "he grew less tolerant as he grew older. . . ." (p. 164). Perhaps you will allow me to hint that his impatience and intolerance over delay in reforms which his statesmanlike foresight realized were already overdue, for the good of humanity, arose, in recent years, partly from two things:

1. The feeling that, having reached middle age, his time for helping forward things was becoming short, whilst other labourers were still "few."

2. His disquietude at the way in which the ramifications and "combines" of evil seemed latterly to display their forces more openly against the public weal.

Now, the question arises as to whether "intolerance" of this origin can be stigmatized as a "fault"? If we recognize that alongside of his quickness and grasp of intellect there ran a capacity for irritation and disappointment over what naturally appeared to him to be the denseness and inertia of those who possessed the power to act and did not, then we have some clue to his nature, and to what he frequently suffered in silence and patience. Seeing we are discussing faults, surely it has been a far graver "fault" for most of us, his 20,000 or more colleagues to have held back and not really striven to sacrifice ourselves, as he certainly did year in and year out, on behalf of national health and its sequence—happiness? For instance, when and where have any of us expressed as he did *constant* dismay over the dwelling of thousands of families in single rooms? Yet, hygienically, as a guardian of the public health, he was nothing but right; and we had, and have, only to rise as a united profession and determine on a radical national reform on this basic health matter, to make any Government listen and probably act. Again, why have we not been doing our duty, both individually as patriots and unitedly as a profession, which has as a first duty the guardianship of the public health, by protesting, for instance, against the recent taxation of valuable foodstuffs? It is a medical rather than political matter.

Would that we all had Victor Horsley's power of visualizing the homes of the hungry poor and the thin bodies and pale faces of the growing breakfastless children, or the trembling old age pensioners, at present starving on their meagre 5s. a week. We should forthwith begin to express ourselves forcibly and aim at wise corporate advice and action on behalf of the heart of the great empire to which we belong and which he, as one of us, served faithfully and to the end.

Yours truly,

MARY D. STURGE.

Medical News.

THE Wounded Allies Relief Committee, of Sardinia House, Kingsway, has presented to the Russian Red Cross Society a second fleet of motor ambulances.

IN 1915 the Académie Française proposed as the subject of the prize for poetry offered by the State "The Glory of Pasteur." The prize has been awarded to Dr. Charles Richet, the distinguished professor of physiology in the University of Paris.

SINCE the commencement of the war 615 past and present students of University College Hospital Medical School, London, have joined the navy and army, 11 have died on service, 53 have been mentioned in dispatches, and honours have been conferred upon 21.

THE Board of Education has instituted a scheme for providing interned British prisoners of war with good books of an educational character. It is already in a position to supply books on almost any subject for reading or private study, and desires that the fact should be made known to interned prisoners. Requests for books, or lists of suitable books which would be given to this book scheme, should be addressed to Mr. A. T. Davies, Board of Education, Whitehall, London, S.W.

THE Central Midwives Board met on August 4th to consider penal charges against two midwives. Sir Francis Champneys presided. The charges in the first case were concerned principally with neglect of ophthalmia neonatorum. Two out of four charges were cancelled but the remaining two were admitted. Total blindness was caused in one instance and the midwife was struck off. The case against the second midwife was dismissed, the board finding that no offence under the rules had been committed.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

LETTERS, NOTES, ETC.

ACUTE ASCENDING PARALYSIS.

TEMPORARY SURGEON HALLIDAY SUTHERLAND, Royal Naval Hospital, Pembroke Dock, South Wales, has glycerinated portions of the spinal cord from a case of acute ascending paralysis (Landry's paralysis), and would be glad to hear from any physiologist or pathologist who has facilities for the inoculation of monkeys, and who may wish to study the disease in these animals.

MEDICATED WINES.

THE Central Control Board (Liquor Traffic) has issued an amending order directing that the following provision shall be inserted in any order of the board made with reference to the sale of medicated wines:—"Provided also that in any case where such medicated wine, or mixture, or preparation is sold or supplied in a bottle or other vessel enclosed in a sealed packet, and is so sold or supplied at any time before the 9th day of October, 1916, it shall be deemed to be a sufficient compliance with the terms and conditions of this order if such sealed packet bears such label."

FORMALIN IN PRURITUS ANI.

DR. J. CROPPER, Lt. R.A.M.C. (Chepstow) writes: Two or three years ago I published a note on tincture of iodine in this troublesome affection. Further experience showed that some cases were cured and remain so. In others the effect wore off after some months; in a few no good resulted. This is the history of many "cures," but may partly be accounted for by supposing that similar symptoms may be caused by different infections, or by the same organism at different times, just as conjunctivitis may be caused by five or six different organisms, if not more. Again, pruritus ani may be intense without much discharge, or may be accompanied by profuse weeping or even fetor and pus. I now submit the following, which, in addition to others, has succeeded in the case of a medical friend who found no benefit from iodine, but responds to *x*-ray treatment temporarily. The remedy is formalin, that is, the ordinary solution of formaldehyde (40 per cent.), 1 per cent. or 2 per cent. in starch jelly—the latter is about the strongest which it is advisable to use. If irritation is severe, which rarely happens, the application can easily be sponged off, and the irritation ceases at once. The remedy is cheap, easily got, and above all clean. The effect is almost immediate, and so far I have not had a failure with it even in chronic cases. I have tried both eusol and succus alii without much effect.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

INJURIES OF THE BLADDER AND URETHRA IN WAR.

BY

COLONEL ANDREW FULLERTON, C.M.G., A.M.S., M.D., M.Ch., F.R.C.S.Irel.,

CONSULTING SURGEON BRITISH EXPEDITIONARY FORCE.

Wounds of the bladder and urethra have received very little attention on the part of writers on military surgery during the present war. It has been assumed, perhaps too hastily, that there is nothing special to be said about the management of these injuries. During the last year I have seen most of those that have passed through my area, and, though the number has not been large compared with wounds in other regions of the body, some of the cases have been of great interest and importance, especially from the point of view of treatment.

I gather from what I have seen that there are practically only two lines of treatment adopted for these injuries at the casualty clearing stations—namely, (*a*) the tying in of a catheter, or (*b*) suprapubic cystostomy. Now, though each of these methods has a definite place as a surgical procedure under suitable conditions, there seems to be a want of appreciation in the mind of operators of the objects to be attained by these methods, and the dangers attending their indiscriminate use. A few remarks on the types of injury usually met with and the lines of treatment I have found most beneficial may not, therefore, be out of place.

Wounds of the Bladder.

Wounds of the bladder may be produced by bullets, shrapnel, shell, bombs, etc., and have certain dangers distinct from those produced by these missiles in other parts of the body. The more ragged the edges and surfaces of the missile, the more likely is clothing and dirt to be carried in and produce the usual sepsis. The missile may reach the bladder laterally, antero-posteriorly, or from above or below, and the track is often long and tortuous. Complications may occur in the form of fractures of the femur, pelvic bones, or spinal column; injuries to large vessels or nerves, injuries to the intestine, or extravasation of urine. A troublesome complication is involvement of the rectum, with the discharge of faeces into the bladder, of urine into the rectum, or of both through the wound in the soft parts. Wounds of the bladder may be intra- or extra-peritoneal, or both, and each variety has special dangers and requires special treatment. The intraperitoneal wounds are, as a rule, reached with comparative ease, whereas those outside the limits of the peritoneum may be quite inaccessible, especially those at the base and sides. The missile may stop short after wounding the bladder, it may enter and remain in the viscus, or it may pass through, leaving wounds of entry and exit. The wounds seen have been of all sizes and shapes, from small punctures to the most extensive laceration.

Signs and Symptoms.

The signs and symptoms of injury to the bladder will, of course, vary with the position and extent of the wound and the concomitant injuries to other organs and structures.

Intraperitoneal injury will probably be associated in many cases with injury to the intestine, and the usual signs of a ruptured viscus will be present. Urine may be discharged in such quantities into the peritoneal cavity that none passes by the urethra. A perforating wound of the abdomen in the bladder region will generally be explored, and it will not be necessary to adopt the ancient and clumsy method of pumping into the bladder a known quantity of fluid and measuring the amount returned. If the wound is small and a cystoscope is at hand, valuable information may be obtained as to the size and position of the opening or openings, and the presence or absence of a foreign body. If the patient can void urine at all haematuria will probably be present. Haematuria itself is not, however, evidence of a direct wound of the bladder, and I have seen two cases in which the latter showed splashes of haemorrhage into the mucous membrane though the missile had not directly involved the viscus. The first occurred in a case of injury to the spine in the lumbar region, and the second in a case in which the missile had traversed the posterior wall of the rectum without touching the bladder. As previously stated, in most cases of intraperitoneal injury the abdomen will be explored before reaching a base hospital, and, under present conditions, the same procedure should be carried out even in cases of doubtful injury.

In extraperitoneal wounds the chief signs and symptoms are—escape of urine from the wound, haematuria, and later, in many cases, the signs and symptoms of cystitis. The urine may not escape from the wound for several days after injury, or, in other words, until the sloughs have begun to disintegrate and separate. The patient may pass some urine by the urethra, but the fistula will leak more or less continuously in addition. If the fistula is narrow, the urine will be discharged more freely when the bladder has become to some extent distended and the patient makes efforts to micturate. In other cases the leak will be more uniform and continuous. Haematuria may be severe, and in some cases huge clots may form in the bladder. These complicate treatment, and are a serious source of trouble and danger, both from the mechanical difficulty they offer to normal micturition and to catheterization, and from the ease with which they become infected. When cystitis occurs, frequent attempts to micturate, scalding, straining, and penile pain add to the patient's discomfort.

Wounds of the Urethra.

For our present purpose it will be convenient to divide these injuries into two classes—those of the pendulous urethra and those of the fixed portion. The latter includes the bulbous urethra, the membranous urethra, and the prostatic urethra.

Wounds of the pendulous urethra have not been frequent in my experience, and they need not detain us here.

Wounds of the fixed urethra are comparatively frequent, and are produced by missiles which penetrate through the buttocks, the upper part of the thighs, or, more rarely, the front or back of the pelvis. Missiles passing transversely at the level of the lower part of the great trochanter may involve the prostatic portion. Those passing transversely at the level of the middle of the small trochanter may involve the bulbous portion. Between these levels the membranous urethra is liable to be injured. Concurrent injury of the rectum may occur in antero-posterior wounds. Any degree of injury to the urethra may be met with, varying from slight contusion to complete destruction of a segment. The signs and symptoms include possibly a wound in the perineum, ecchymosis of the perineum or scrotum, or both; haemorrhage from the urethra, independent of micturition; difficult micturition or complete retention; and, in some cases, extravasation of urine. If an open wound exists which communicates with the urethra, a urinary fistula is established, which leaks only when the patient passes water, provided the sphincteric apparatus of the bladder is intact.

Treatment of Wounds of the Bladder.

Intraperitoneal Wounds.

Intraperitoneal wounds of the bladder will usually be treated at the casualty clearing stations. These injuries may be complicated by wounds of the intestine, which will be dealt with in the usual way by infolding or excision. The wound in the bladder wall, if easily accessible and of moderate dimensions, may be excised so as to bring fresh healthy surfaces together, with a good prospect of prompt and sound healing. I have recently been advocating the use of the thermo-cautery to sterilize the edges of wounds which are to be excised in other parts of the body. The charred edges are removed, and the fresh surfaces are brought together. Foreign bodies will, of course, be removed from the cavity of the bladder, if present, and from other situations in the pelvis, if accessible. Catgut of good quality ought to be used to bring together the muscular walls rather than non-absorbable material, in order to avoid subsequent calculus formation. Fine silk or linen thread may be used for the peritoneal suture, though good catgut will answer the purpose. The sutures should be continuous in order to render the bladder watertight. If the wound is very extensive, and much laceration is present, it may be impossible to close the bladder, in which case an attempt must be made to render the wound in the latter extraperitoneal. In most cases of intraperitoneal bladder

wounds operated on at the front the viscus has been completely closed. The peritoneal cavity is now cleansed, and, if much soiling is present, it is wise to insert a drain into the recto-vesical pouch. The question now arises as to whether a catheter ought to be tied in. In transperitoneal operations in civil practice I have found it unnecessary; at the same time it is well to encourage the patient to avoid distension and, if necessary, to pass a catheter every four hours until it is judged that union is firm. If the peritoneal surfaces have been well turned in and a continuous suture employed, leakage into the peritoneal cavity is very unlikely to occur. The objections to the practice of tying in a catheter will be dealt with later. A case recently operated on by Captain D. C. Taylor at a casualty clearing station, which subsequently came under the care of Major West at a base hospital, will illustrate the correct method of dealing with cases of this sort. I am indebted to Captain Taylor for notes of this case, sent down with the patient, but I shall use only those that bear on the question under consideration, leaving Captain Taylor to publish later the full account with that of other abdominal cases operated on by him at his clearing station.

CASE I.

Pte. McK. was wounded with high explosive shell on June 5th, 1916, three hours before admission. The fragment entered on the left side in the mid-axillary line 1½ in. above the iliac crest, and was retained. The patient had a pulse of 140 on admission, vomited, and had blood in the urine withdrawn by catheter.

Laparotomy was performed; the pelvis was found full of blood, and the ileum perforated in many places. Four feet of intestine were removed. There was a small hole in the posterior wall of the bladder, and a piece of shell was removed from the latter. The bladder wall was sutured, a drain was placed in the recto-vesical pouch, and the abdomen was closed. A catheter was passed every four hours for three days.

I saw the patient with Major West on June 14th, 1916, that is, nine days after injury. The wound in the abdominal wall had healed by first intention except for the track of the drainage tube, and the patient was passing normal urine and was in a highly satisfactory condition.

It will be observed that in this case no catheter was tied in, and although a piece of shell was removed from the bladder, it was not considered necessary to drain the latter. Captain Taylor is to be congratulated on the successful issue of this case.

Extraperitoneal Wounds.

Extraperitoneal wounds of the bladder are treated for the most part at the base, and offer problems for successful management not quite so simple as might at first sight appear.

In those cases in which the rectum is also wounded, and faeces are discharged into the bladder, a colostomy must be done to divert the flow. A transverse colostomy above the umbilicus is much better than an inguinal colostomy in these cases on account of the proximity of the latter to the suprapubic area should it be considered necessary to undertake any operation on the bladder in that region. Further advantages of transverse colostomy are as follows:

1. The stoma is far removed from the wounded area.
2. The opening is easily controlled.
3. Restoration of the continuity of the bowel is easily accomplished when the need for an artificial opening is past.
4. Should it become necessary later to remove any part of a damaged rectum, the pelvic colon can be mobilized and brought down to supply the deficiency, if it has not previously been interfered with by an inguinal colostomy.

A case which I saw in consultation with Captain Fitzmaurice Kelly at a base hospital will illustrate some points in the management of cases of this kind.

CASE II.

Pte. S. was wounded on August 2nd, 1915, by a bullet which entered 1 in. above the pubis and 1 in. to the right of the middle line in front. Passing from before back, it emerged through the third piece of the sacrum, also to the right of the middle line. The bladder is stated to have been full at the time of injury. The patient was admitted to a base hospital on August 8th.

On admission, there was found to be slight leakage of urine from the anterior wound; the bulk of the urine, however, and all the faeces were discharged from the large exit wound.

On August 9th Captain Kelly brought out the transverse colon, which he opened on August 10th. Irrigation of the bladder was carried out through the wound in the sacral region by means of a Carrel-Dakin tube and eusol. The wounds rapidly cleaned up, and normal micturition was restored early in September, when the cystoscope showed both bladder wounds healed and a disappearing cystitis. The patient was discharged to England on September 21st, 1915.

Captain Kelly recently received a letter from the medical officer in charge of the case in England, dated March 2nd, 1916, which stated that the patient was practically cured, and that the colostomy wound had been closed. There was now no discharge from the remains of the sinuses. It will be observed that in this case suprapubic cystostomy was not performed.

I am indebted to Captain Kelly for notes of this case. The opening at the base of the bladder was sufficiently large to allow of proper cleansing and drainage, and there was no point in making another, or rather enlarging the existing one, in the suprapubic region. Extraperitoneal injuries to the bladder are frequently produced by missiles which enter through the buttocks and upper part of the thighs. The track of the missile is frequently long and tortuous, being rarely less than two inches and frequently as much as six inches or more in length. Notwithstanding their tortuous character, many of these wounds with urine pouring from them come down from the front in a surprisingly healthy condition, and I have in these cases decided against any further operation on the bladder itself.

This treatment is not in accord with the usually accepted practice, which is to perform suprapubic cystostomy. The object of this appears to be to prevent urine from passing over the wounded surfaces, and to drain the bladder. Now most of the men in the fighting line have a most efficient saline antibacterial fluid in the sterile secretion which passes into their urinary bladder from their kidneys. If proper drainage be established in the wound leading down to the bladder, urine flows through the fistula, and the wound is kept continually irrigated. If the urine remains undecomposed there is no necessity to interfere with such an admirable arrangement. It is true that the bladder may become infected from the wound, and that instead of aseptic urine a highly irritating fluid may be forced through the fistula. It will be seen from what follows that this can be prevented to a large extent, and that even if the urine has been allowed to become foul, properly conducted irrigation of the bladder will in some cases at least restore the urine to its former sweetness. In addition to the surgical treatment, urinary antiseptics may be given internally, in the hope that they may have a beneficial effect on the urine and on the wound.

If the bladder is severely lacerated and large sloughs are likely to separate into and foul its interior, there can be no question that the bladder must be drained. I shall be reminded, no doubt, of the disastrous results of urinary extravasation in cases of ruptured urethra in civil practice. In those cases in which the urethra gives way behind a stricture the urine is likely to be septic, and, both in these and in traumatic cases, the urine is forced under considerable pressure beneath resistant fasciae. Sloughing of skin and subcutaneous tissue is, however, not unknown when other fluids are introduced under the skin. I have in my mind at the moment a case of this type in which a huge slough occurred in the upper part of the thigh after a subcutaneous injection of saline. Further, the surprisingly rapid recovery of cases of perineal section demonstrates the innocuous effect of the urine which necessarily flows over such a wound.

Let us suppose that we have a case of a bullet wound in the buttock involving the bladder. Urine is continuously forced out through the fistula. The usual suprapubic cystostomy is performed. Let the urine which lies at the bottom of the bladder, no matter what method of drainage be employed, be taken and examined. Instead of clear urine, a turbid fluid containing pus and many varieties of micro-organisms will be found; in other words, a mixed infection has occurred. Suprapubic cystostomy does not necessarily prevent leakage from the fistula, and I have under observation at the present moment two cases in which, notwithstanding suprapubic cystostomy, urine still finds its way through wounds in the buttocks. If the urine in the bladder can be kept clean and the fistula well drained, I believe it will be well to allow the patient to continue to flush his own wound from within outwards with a highly cleansing fluid like fresh urine. If the bladder becomes foul and irrigation fails to control the sepsis, and especially if the patient

begins to lose ground, cystostomy must be performed at once.

With regard to the presence of foreign bodies in the bladder, Captain Taylor's case, previously mentioned, and other cases we have seen, show that the bladder can be completely closed after removal of the missile, if the wound has been intraperitoneal. With an extraperitoneal wound, say, near the base of the bladder, when a foreign body has been removed by suprapubic cystostomy, the indications are not so clear. Extraperitoneal suture is not so likely to be satisfactory as intraperitoneal. The treatment to be adopted will depend on the condition of the bladder. I should like to try closure of the suprapubic wound in the bladder, the insertion of a drain into the space of Retzius, and assiduous attention to the bladder. If the latter becomes septic and the sepsis cannot be controlled by irrigation it is easy to open up the cystotomy wound. I may mention here that in wounds of the loin involving the kidney or ureter the resulting urinary fistulae seldom give rise to serious trouble. Most of the cases I have seen have done well, though the wounds have been continually soaked with urine.

The following two cases will illustrate the type of wound involving the bladder in which I think less severe measures than suprapubic cystostomy will be sufficient.

CASE III.

Sapper F. was wounded on February 2nd, 1916, by a bullet which entered over the great trochanter on the right side and lodged, as was afterwards ascertained, in the left thigh, passing across the pelvis, and causing much comminution of the right great trochanter. *X*-ray examination showed, in addition, fracture of the ilium and ischium on the same side. There was severe sepsis with an area of cellulitis and dusky red discoloration of the skin nine inches in diameter round the wound.

Captain Simpson, who was doing temporary duty at a base hospital, enlarged the wound and counter-drained in the region of the tuber ischii. In addition to the wound there was ecchymosis of the scrotum, but there were no urinary symptoms. Eleven days after the injury urine began to flow from the thigh wounds, at first independent of micturition, but later only when attempts to pass water were made. I was asked by Captain Bryan, who was now in charge of the case, to see the patient with a view to deciding as to the advisability of cystostomy. The cystoscope showed a healthy bladder. From the direction of the wound we came to the conclusion that the viscus was damaged near the neck and out of sight, about six inches deep from the entry wound in the thigh. As the patient's condition was good and the wounds were cleaning up and granulating well we decided against suprapubic cystostomy. On March 19th (about seven weeks after injury) a note was made to the effect that normal micturition was becoming established and that the leak of urine from the wound was very slight. A fortnight later the leak had ceased altogether and the case became one of fracture of the upper third of the femur.

The patient was evacuated to England on June 14th, 1916, with exact alignment of his femur and ½ in. of shortening. A small sinus led down to a piece of necrosed bone, which will probably need removal.

It is quite possible that this was really a case of wound of the urethra near the neck of the bladder and not of that organ itself, but it is suitably introduced at this stage as an illustration of the policy of non-interference. The nursing of a case of compound fracture of the thigh in the upper third is difficult enough of itself, but if, in addition, the patient has a suprapubic wound leaking urine, the difficulties are much increased. Captain Bryan's hammock bed proved invaluable in the management of the case. The second case, which I saw in consultation with Major West at a base hospital, may be described as a test case.

CASE IV.

Pte. H. was wounded on May 26th, 1916, by two fragments of shell, which entered the pelvis through the right buttock. *X*-ray examination showed two fragments of shell in the pelvic cavity. The one which was judged to have wounded the bladder was situated on the left side, seven inches from the plate which was placed on the patient's back. To reach its final destination the missile probably passed through the following structures: Skin, gluteus maximus, great sacro-sciatic foramen close to the gluteal vessels, obturator internus, levator ani, vesiculae seminales, and bladder wall (twice). The missile probably passed just inside the great sciatic nerve. There was no sign of fracture of the bony pelvis in the *x*-ray photograph.

There was no leakage of urine until four days after injury, when a little began to trickle through the wound, independent of micturition. On June 1st the patient was unable to pass water himself and complained of urgency. Up to this he had been able to pass some by the natural passage. A catheter withdrew 6 oz. of turbid urine.

The patient was examined with the cystoscope on June 1st. While on the operating table he passed some foul-smelling urine loaded with pus. The cystoscope showed general cystitis. On the left wall of the bladder was an area covered with dead white membrane, in the vicinity of which were some ecchymosed spots (point of exit of missile from bladder?). On the posterior wall was a punched-out circular aperture, rather less than the size of a threepenny-piece. Inside this circular area, which looked dark in colour, were some flecks of muco-pus and some small sloughs. On examination by the rectum no foreign body and no thickening could be felt. The patient had a slight evening rise of temperature, but was otherwise in good condition.

Major West was at first strongly in favour of suprapubic cystostomy. After consultation, however, we decided to begin with the less severe measure of washing out the bladder frequently and thoroughly, first with boiled water to get rid of the mucus and pus, and then with a weak solution of silver nitrate (2 to 10 grains to the pint). This alternate washing with water and nitrate solution was carried out at first twice and then once a day. Three days' treatment produced a great improvement, so that even at this early period the urine was almost clear. The patient continued to improve, and was discharged to England on June 13th, less than a fortnight after the commencement of this treatment, with his wound dry and his urine normal. His temperature had been normal for a week.

In this case foul-smelling urine was rendered sweet after a few days' irrigation. The patient will probably be fit to rejoin his regiment in a few weeks, whereas if suprapubic cystostomy had been performed his convalescence would have been much more prolonged. The foreign bodies were left, as it was thought that more damage might be done by delving in the pelvis than by leaving them alone, especially as the patient apparently suffered no inconvenience from their presence.

To sum up, I am of opinion that suprapubic cystostomy is not necessary in many cases of wounds of the bladder, provided that the latter can be kept clean and the external wound adequately drained. If there is likely to be much sloughing of the bladder walls, if there be severe and continuous primary or secondary haemorrhage, or if there be uncontrollable sepsis of the bladder, cystostomy will be the correct treatment. Cystostomy is performed not so much for any beneficial effect it may have upon the original wound, which must be dealt with on ordinary surgical principles, but in order to drain a badly infected bladder and to prevent the spread of infection to the kidneys. Extravasation of urine in concealed situations must be prevented by suitable incisions.

TREATMENT OF WOUNDS OF THE URETHRA.

The usual method of treatment in cases of wounds of the urethra seems to be that an attempt is first made to pass a catheter; if this succeeds, the instrument is tied in and the patient is sent to the base. Should catheterization fail, suprapubic cystostomy is performed.

Neither of these methods is, in my opinion, the best that can be done for the patient. Take the case with a catheter tied in first. An instrument cannot for long be retained in the urethra without causing urethritis. In a short time pus in seen oozing by the side of the catheter, and a dirty caked mass is found surrounding it at the meatus. The wound in the urethra, which may have been caused by a clean bullet, is now infected, and a slight injury perhaps is turned into a suppurating wound. But this is not the worst that may happen. The infection may extend back to the bladder and cystitis occur, or it may extend further still so as to involve the ureters and kidneys. I have seen all these things happen. The infection or additional infection of the wound of the urethra produces much greater infiltration than would have occurred otherwise, and the foundation of a severe stricture is thus laid. In addition to this, the catheter frequently becomes blocked, and it is not uncommon to find a full bladder with a blocked catheter effectually preventing micturition. Again, even in a few days, if the catheter is not removed, phosphatic deposit forms on the intravesical portion, the withdrawal of which excoriates an already inflamed urethra. The performance of suprapubic cystostomy is quite unnecessary, except perhaps in those rare cases in which blood finding its way back into the bladder forms large clots incapable of being evacuated. The treatment I suggest, and which is carried out in all cases referred to me, is as follows:

If the urethra is so damaged that either the patient is unable to void urine or is likely to have extravasation in attempting to do so, perineal section is performed. In all cases of doubt the same procedure is adopted. A dilator, a catheter, or any suitable instrument is passed down to the seat of injury, and, keeping strictly to the middle line,

the point of the instrument is cut down upon in the perineum.

Blood clot, irreparably damaged tissue, and foreign matter are removed, haemorrhage is arrested, and free drainage is established after thorough cleansing of the wound. The patient is now encouraged to pass his urine through the wound, hot compresses being used to relax his sphincter if necessary. If at first failure to pass urine should occur, it is better, in my opinion, to aspirate the bladder through healthy tissues above the pubes than to poke about in the perineal wound in the hope of finding the proximal end of the urethra or infect the healthy bladder by an instrument passed through a septic wound. When the sepsis has been controlled, dilatation, if necessary, can be carried out, and, later, plastic operations can be successfully attempted.

Here again the normal urine of the patient acts as an efficient cleansing lotion, and he flushes his wound from the depths outward every time he micturates. Treated on these lines cases of this sort heal with the greatest rapidity. The following two cases will illustrate some of the points I have tried to make.

CASE V.

Pte. J. W. H. was wounded on September 28th, 1915. A bullet entered the right groin in the region of the external abdominal ring and, passing obliquely across the pelvis, lodged in the left ischio-rectal fossa. A catheter was tied in at the front and the patient was passed on.

He was admitted to a base hospital on September 30th under the care of Captain Wolfenden. He was then in a toxic condition, though the temperature was only 99° and the pulse 100. He complained of pain and tenderness in the suprapubic region. No urine was passing through the catheter though the bladder was full. There was ecchymosis of the perineum but no extravasation of urine.

On October 1st the patient had a rigor, and Captain Wolfenden asked me to see him. We decided on perineal section. Captain Wolfenden accordingly explored the perineum, and found the bulbous urethra lacerated and a portion of the corpus spongiosum torn away. Unable to find the proximal end of the urethra, he opened the bladder above the pubis and drained it. The bullet, which had not injured the bony pelvis, was removed at the same sitting. The patient died from shock and toxaemia the same evening.

For a similar case in future I should suggest the following treatment: After injury, a perineal section should be done, so as to inspect the injured part, remove clots and tags, arrest haemorrhage, provide free vent for the urine so as to avoid extravasation, and thoroughly cleanse the wound, which should be left widely open. The patient should be encouraged to pass urine, and, if unable to do so, aseptic puncture of the bladder in the suprapubic region should be resorted to till micturition has been established through the perineum.

CASE VI.

Rifleman R. was wounded by a machine-gun bullet on February 17th, 1916. Blood flowed from the urethra after injury. There was a small, clear, circular entrance wound 1½ in. below and to the outer side of the left ischial tuberosity. The exit wound was on Nelaton's line, half-way between the great trochanter and the ischial tuberosity. The bullet had in its passage also made a figure-of-8 shaped wound in the perineum, close to the bulb. There was considerable ecchymosis of the perineum. The bullet had been extracted at the field ambulance. A No. 10 rubber catheter had been passed and tied in at the casualty clearing station.

On arrival at the base on February 18th, 1916, the catheter was found to be blocked, and no urine was passing through it. There was pus at the urethral orifice.

The catheter was removed, and I was asked to see the case with Captain Simpson. Perineal section, with treatment on the lines already indicated, was advised. Captain Simpson operated on February 19th and found the urethra divided as to three-quarters of its circumference, about one inch from the commencement of the bulb. He thought the case favourable for an attempt at suture of the divided urethra. The attempt failed, however, urine leaking freely on the third day. On February 23rd, nine days after receipt of the injury, leakage from the perineum had ceased; on February 29th the perineal wound was almost healed; and on March 1st the patient was evacuated to England with his wound quite healed.

In this case an attempt was made by Captain Simpson to re-form the urethra round a catheter. This will rarely be desirable or feasible with gunshot wounds under war conditions. In case such an attempt were made I should suggest suture of the roof, leaving the floor of the urethra quite free for drainage, and the avoidance of a catheter.*

I do not know if the views expressed in this paper will meet with general acceptance. They are only put forward to stimulate those who are dealing with cases such as I have described to consider each on its merits rather than adopt any hard-and-fast rule for all.

* An operation on these lines was suggested for stricture by a writer in the *British Journal of Surgery* more than a year ago.

A CASE OF CYST OF THE INTESTINE.

BY

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CYSTS connected with the intestine are rare, and, though usually found by chance at *post-mortem* examinations, may nevertheless be of occasional clinical interest and importance. They are found in newborn children and in the early years of life, but are quite likely to be met with in adults over thirty years of age.

Clinical History.

The subject of this communication was a baby 3 months old. It was admitted to University College Hospital under one of us (C. B.) on December 16th, 1915. The child was born at full term, when it weighed 8 lb., and was breast-fed till the age of 5 weeks. From birth it vomited a little after its feeds, the milk being returned unchanged. At the end of five weeks, this symptom becoming worse, the child was weaned and various kinds of foods administered without any relief to the vomiting. Wasting supervened after the first week. The bowels were from birth very constipated, being opened about once in four days until the end of the fourth week, when eight days elapsed on one occasion without an action occurring. The stools were otherwise normal. The vomiting, constipation, and wasting continued, and for a week previous to admission the bowels had not acted.

On admission the patient was a wasted female infant weighing 7 lb. 12 oz., and looked as if it would not live long. There was no general or local distension, neither could visible peristalsis be seen in the stomach or intestines. The liver could be easily felt. There was no tumour in the epigastric region, but a mass was palpable at the pelvic brim, which could be indented with the finger. The rectum was quite full of scybalous masses. The temperature was normal and the pulse varied from 108 to 135 beats per minute. There were no signs of disease in the heart or lungs. The child was not very hungry. It was put on feeds of cow's milk and water, and was given hyd. c cret. Olive oil enemata were administered.

Under this treatment the bowels acted from three to four times daily. The stools were green and very constipated. For the first five days the child vomited once a day, and for the next four days vomiting ceased, and the child appeared better. At the end of this time, however, the vomiting returned, the infant refused its feeds and died on January 1st, 1916.

Post-mortem Examination.

The body was emaciated and the abdomen considerably distended. The thoracic viscera showed no noteworthy changes.

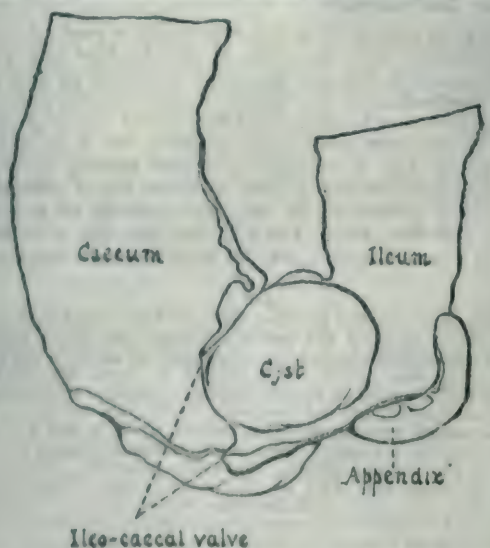


FIG. 1.—Diagram to show the relation of the cyst to the ileo-caecal valve.

The peritoneum was normal. The stomach and small intestine were considerably distended with gas, and the large intestine was empty and contracted.

Adhering to the terminal part of the ileum was a cyst, measuring 3 cm. by 2.5 cm., ovoidal in shape, with its long axis parallel with that of the bowel. (Fig. 1.) The cyst lay on the

mesenteric aspect of the ileum, between the layers of the mesentery, its cavity having no communication with the lumen of the intestine. Its wall was of considerable thickness in some places, in others thin and semitranslucent; its contents consisted of a clear, colourless, ropy fluid. The surface of the cyst and the adjacent coils of intestine were free from recent or chronic inflammation. The terminal portion of the ileum, as it coursed over the cyst, was flattened against the convex surface of the latter and stretched transversely; consequently the lumen of the bowel was linear in transverse section, and its opposed walls were held in contact firmly. On opening the bowel its lining was found to be slightly thinned where it lay over the cyst and in the adjoining portions of colon and ileum.

The mucous membrane was swollen, congested, and its follicles were enlarged. The cyst extended slightly beyond the lower limits of the ileum, its lower pole causing a low convex projection of the wall of the caecum just beyond the ileo-caecal valve.

Microscopical Examination of the Cyst Wall.

A section was taken from the thicker part of the cyst wall at a point remote from the ileum. Six distinct layers were recognizable in the section (Fig. 2); these were, from without

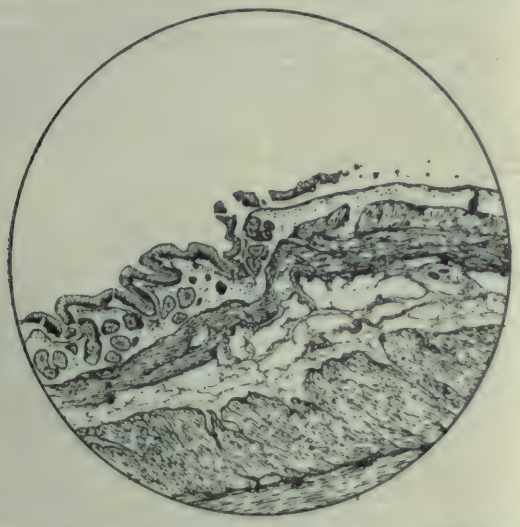


FIG. 2.—Diagram of section of cyst wall, showing the mucous membrane, which consists of a single layer of epithelial cells and a few tubular glands embedded in loose areolar tissue.

inwards: (1) A layer of loose areolar tissue containing large vessels and small lobules of embryonic fat, the mesenteric layer; (2) a layer of smooth muscle fibres cut longitudinally; (3) a layer of smooth muscle fibres cut transversely, of about the same thickness as the last layer; (4) a layer of loose areolar tissue containing thin-walled vessels; (5) a layer of smooth muscle fibres of about one-third the thickness of each of the other muscle layers, the muscularis mucosae; (6) mucous membrane, consisting of a loose cellular tissue covered with a single layer of columnar epithelium, and containing tubular glands in small numbers lined with epithelium similar to the surface epithelium. The surface was thrown into elevations and depressions, but well-formed villi were absent.

The characters described refer to the thicker part of the section. In the thinner parts the outer muscular layers were rather narrower; the muscularis mucosae was much narrower, broken up by fibrous tissue, and in places almost entirely absent; the mucous membrane was greatly reduced in width, had lost its glands, and in most places also its surface epithelium, and the elevations and depressions were almost obliterated.

From the pathological point of view the chief interest of this case lies in the evidence it affords of the origin of the cyst. Without a doubt it is congenital, and, further, it was originally a diverticulum from the intestine. The evidence for this statement is furnished by the facts that the cyst is lined by mucous membrane, and that its wall contains muscular layers similar to those of the intestine. This diverticulum became shut off from the interior of the intestine at an early stage of development, and its cavity

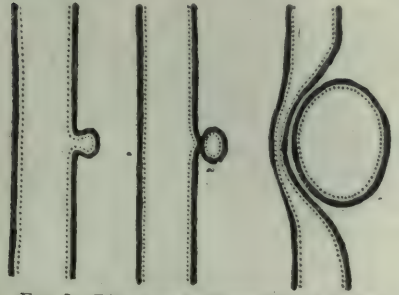


FIG. 3.—Diagrams to illustrate the development of the cyst from an intestinal diverticulum.

distended by the accumulation of mucus secreted by its rudimentary epithelium. As the cyst grew it projected into the lumen of the gut, causing partial obstruction of the latter. Fig. 3 shows the various stages of this process. The absence of meconium, and also of signs of infection of the cyst by micro-organisms, are due to the early closure of the mouth of the intestinal diverticulum.

Towards the end of the third month of fetal life the intestinal villi began to form as folds in the mucous membrane, giving rise to projections into the lumen of the gut, and at about the same time the covering epithelium between the villous elevations begins to sprout into glands, which burrow into the underlying tissue. If the mucous membrane were subjected to pressure at this period, such as would occur in the enlarging cyst, the villi would be prevented from forming, but the rudimentary glands would grow to some extent. Finally, the mucous membrane would become more flattened, and the glands would atrophy and leave a single layer of epithelial cells lining the cyst wall, which would eventually tend to disappear. The cyst, therefore, probably commenced to form towards the end of the third month of fetal life.

With regard to the nature of the diverticulum it is impossible to say whether it originally was the termination of the Vitelline duct in the intestine or an abnormal formation. The Vitelline duct projects from the free convexity of the bowel, but it is possible that by twisting and adhesion it might acquire such a position as to appear to have been intramesenterial from the beginning. Unless one adopts the latter view the diverticulum giving rise to this cyst must have been an abnormal formation.

The commonly accepted idea is that these congenital cysts originate from Meckel's diverticulum, the position of which is subject to considerable variation, and which is stated to have been seen within the mesentery. It is true that such cysts are in most cases situated at the usual site of Meckel's diverticulum; but they occur quite often at or near the ileo-caecal valve, more rarely in the jejunum, and a cyst has been described as communicating with the vermiform appendix.

The size of the cysts may vary from that of a man's head to that of a small body three-quarters of a centimetre in diameter. The cyst commonly projects from the free convexity of the bowel or is intramesenterial, but it may be submucous or in the muscular coat of the bowel. It is shut off from the cavity of the gut, but cases have been described in which its interior was connected with the lumen of the bowel by a canal. It may also be attached by a solid pedicle. The cyst has been found constricted in the middle into an hour-glass shape, and in one case a single submucous cyst was associated with an intramesenterial multilocular cyst. The wall of the cyst contains muscular tissue and the cavity is lined with mucous membrane more or less well developed, which occasionally may show well-marked villi in places or grow out into adenomatous polypi. Ciliated epithelium has been noted. The wall was described in one case as being calcified.

From the clinical point of view the case is of interest in that the patient showed symptoms of chronic intestinal obstruction and wasting as the result of the pressure of the cyst. These symptoms were not sufficiently definite to suggest operation, nor even to distinguish the disease from simple contipation and malnutrition so often seen in hospital practice in infants.

If the tumour had been felt or the symptoms been more definite, an operation might quite well have been performed, but the ultimate recovery of the child would have been doubtful.

A cyst has been described as of such a size as to obstruct delivery. Generally, however, these structures have been observed to give rise to intestinal obstruction, as in our case, which may be finally brought about through intussusception, and sometimes they have been felt as movable tumours in the abdomen with or without ascites. Torsion of the pedicle connecting the cyst with the gut has been observed giving rise to gangrene, and also perforation of the cyst and bowel with resulting peritonitis.

THE Journeymen Barbers' International Union of America has recently recommended that a sanatorium should be established, at an estimated cost of £200,000, for the treament of barbers suffering from tuberculosis.

THREE CASES OF GASTROPTOSIS TREATED BY GASTROPEXY (ROVSING).

BY
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THE three cases detailed below seem worthy of being placed on record for the following reasons: The patients were the subjects of well-marked gastroptosis, but (1) were males; it is stated that females are more commonly affected. (2) They were not neurasthenics—the usual type of patient in this disease. (3) Occupation appeared to be a predisposing factor in the causation of their complaint. They were all workmen who, over long periods, had, from the nature of their daily employment, to lift heavy weights, a considerable amount of strain being thereby put on their abdominal muscles and viscera. Case I worked in an iron foundry as a labourer, his main occupation consisting in lifting iron bars, weighing nearly a hundredweight, on to a trolley. Case II was employed in a wood yard, lifting heavy logs of wood on to a circular saw bench. Case III was a cloth inspector, and his work necessitated his lifting heavy rolls of cloth from one bench to another, the weight being borne on the upper part of his abdomen. (4) Great benefit has accrued from the operations, as reported in one case after three years and in another one year. The third case is comparatively recent.

CASE I.

A. B., aged 47. First came under observation in August, 1912, complaining of vague abdominal pains, indigestion, and distressing flatulence. Vomiting occurred every third day. Discomfort was most acute while at work, but as soon as he ceased work and went to bed he felt quite easy. There was some loss of weight. The abdomen was lax, but succussion could not be detected. The stomach percussion note was somewhat lower than normal, and over a somewhat wider area. No tumour or thickening at the pylorus could be detected on palpation. Various stomachic medicines and gastric lavage were tried, but with only modified success. Examination by *x*-ray screen after a bismuth meal showed, in the recumbent position, the shadow of the bismuth well below the umbilicus.

Laparotomy was performed by me in January, 1913. The stomach was found slightly dilated, and could be withdrawn from the abdominal cavity with considerable ease. No stenosis or thickening of the pylorus was present. Rovsing's operation was performed; three moderately strong silk sutures were introduced about 1 in. apart in one side of the wound, through skin, abdominal wall, and peritoneum; then carried through the outer coats of the stomach, nearer the lesser than the greater curvature, in a wavy fashion; the sutures were then brought through the other side of the wound from peritoneum to skin. The sutures were left untied until the layers of the abdominal wall had been separately sutured. The silk sutures were then secured over a roll of lint dipped in iodine spirit. The wound and silk sutures were not touched for eighteen days, and the patient was discharged on the thirty-second day following operation.

At the present time—three years after operation—he is in excellent health, has gained in weight, and follows his employment with no return of the stomach symptoms.

CASE II.

C. D., aged 41, was admitted to the Aberdeen Royal Infirmary in June, 1914. His illness began three years previously with a continual feeling of discomfort and fullness in the abdomen, with actually acute pain coming on from an hour to an hour and a half after food, the pain being generalized all over the abdomen. The pain and discomfort continued on an average for five days, and was then followed by vomiting of a large quantity of very sour stomach contents. Immediate relief followed the vomiting, the symptoms recurring, however, in the course of a few days. The vomited material consisted of a dirty fluid, nothing recognizable as food being observed. No history of haematemesis. The patient suffered much from eructations and borborygmi. Appetite good; constipation obstinate; no loss of weight. With rest and lavage his condition improved, and he was discharged at the end of July. He returned to work in August, but he became worse again, all the above symptoms returning in aggravated form. On readmission in November, 1914, the abdomen showed marked distension, with occasional peristaltic waves passing from left to right, below the umbilicus, pain being most acute during the peristaltic action. Percussion showed the stomach note to be much lower than normal, but there was no marked evidence of dilatation. A skiagram of a bismuth meal was taken by Major Levack, and showed the stomach shadow between the umbilicus and the pubis, the pylorus being markedly displaced downwards. This was very noticeable in screening the patient in the erect position. There was no evidence of dilatation.

Operation was performed by Mr. Scott Riddell in December, 1914. The stomach was found much prolapsed, and when brought outside the abdomen the greater curvature could be made to reach almost to the pubis. Gastropexy by Rovsing's method was performed, two supporting sutures being inserted. The parietal peritoneum and the surface of the stomach to be opposed to it near the sutures were scratched gently with a needle to promote adhesions. The patient was kept in bed in the recumbent position for three weeks and fed as in a case of perforated gastric ulcer. The patient made an excellent recovery, and when seen in December, 1915, was in excellent health, free from gastric symptoms, and had gained weight. He has now no difficulty with his bowels, and is able to perform his ordinary work without feelings of pain or discomfort.

CASE III.

A man, aged 51. Came under observation on October 13th, 1915, complaining of symptoms of chronic indigestion of many years' standing. His symptoms were, generally, very similar to those mentioned in Case II. Palpation of the abdomen revealed no evidence of tumour; percussion showed the stomach note to be lower than normal and to reach well below the umbilicus. A skiagram, after a bismuth meal, was taken by Major Levack, and the position of the stomach was seen to be midway between the umbilicus and pubis.

Rovsing's operation was performed by me, in the manner detailed under Case II. At the operation there was no evidence of pyloric stenosis or perigastric adhesions. The patient did well and left hospital, taking full diet without pain or discomfort, and expressing himself as better than he had been for many years.

I am indebted to Mr. Scott Riddell for permission to publish the notes of Cases II and III.

NOTE BY MR. SCOTT RIDDELL.

Senior Surgeon, Aberdeen Royal Infirmary.

The noteworthy points about these cases are: (1) The marked similarity of symptoms in cases of gastroptosis and gastrostasis from pyloric obstruction. (2) The marked assistance in diagnosis which can be got from skiagraphy after a bismuth meal, and particularly by screening and skiagraphy in the erect position; the lesser curvature in one of these cases was found well below the umbilicus. (3) The remarkable benefit which followed on the operation of gastropexy, and which appeared likely to be permanent. (4) The great ease and success with which Rovsing's operation can be performed as compared with Beyea's and other operations.

PERFORATION OF A GASTRIC ULCER OCCURRING IN THE SAC OF A LARGE CONGENITAL DIAPHRAGMATIC HERNIA.

BY
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DIAPHRAGMATIC herniae are rare, and the marked degree of the abnormality and the fact that death was due to rupture of a gastric ulcer and the difficulties in diagnosis lend special interest to the following case.

History.

The patient was a burgher, aged 56, who was taken ill while on active service in the German South-West African campaign. He had completed six months' service, and was apparently able to carry on the active and strenuous life of a burgher on commando. He had only a limited knowledge of English, and was in such pain when admitted to the surgical hospital at Swakopmund that details as to his illness were somewhat vague. For the last four years he had suffered from attacks of "liver," accompanied by pain in the hepatic region, with vomiting, but never any jaundice. During six months on active service he had felt well and fit for duty, but had occasional attacks of indigestion. He had complained for four days of severe pain in the abdomen, which pain became very acute fourteen hours before admission. Vomiting had been continuous since the acute onset of the pain. He had been constipated, but there was no complete obstruction, as the bowels had moved twice within the four days. The motions had been small, and passed after much straining. When admitted he was in great pain, in spite of which he walked into hospital and refused to lie down, remaining standing with the body bent well forward. He was with difficulty persuaded to take to bed, where he maintained this peculiar attitude of flexion until he died.

Condition on Admission.

The patient was a strong, well-developed man, having the appearance of one who had recently been leading an active life. Pain was complained of at the lower end of the sternum and under the ribs in front on the right side. The temperature was subnormal, 96°; the pulse 80. The abdominal wall was nowhere very rigid, nor were the abdominal respiratory movements much restricted. There was no abdominal distension. The liver

dullness was absent, except for a zone of 2 in. wide parallel to the costal margin and extending into the right flank. Above this and in the normal region of liver dullness the percussion note was tympanitic. Most puzzling signs were found when the thorax was examined. On the right side anteriorly a hyper-resonant note—tympanitic, in fact—was obtained from the costal margin as high as the lower border of the second rib; above this the percussion note became normal. Over this area of hyper-resonance the breath sounds were absent, but were present and normal at the apex. Posteriorly the hyper-resonant note extended from the costal margin to the seventh costal interspace, with deficient breath sounds over the same region; above this the lung appeared normal. No moist sounds were heard in any area.

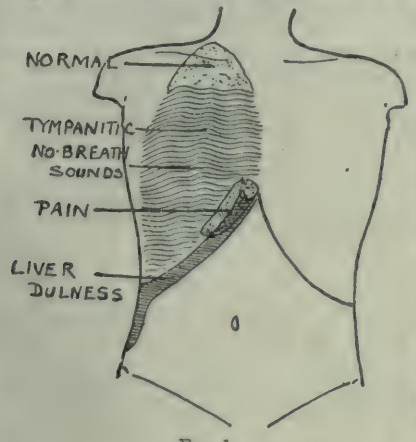


FIG. 1.

On the left side nothing abnormal was noted. The heart sounds were very faint; no apex beat could be seen or felt, nor could the outline of the heart be made out definitely by percussion. There was no jaundice. The urine was acid; it contained no albumin, pus, or blood.

The diagnosis was difficult. It was evident that there was an acute abdominal condition, but no satisfactory explanation of the lung signs could be arrived at. That a large diaphragmatic hernia was present was not considered. The question whether we should operate immediately for the acute obstruction was made doubtful by the lung signs. Did these point to the thorax being the primary seat of the acute illness? It was decided not to operate at once, and the patient rapidly grew worse and died with signs of acute general peritoneal infection.

Necropsy.

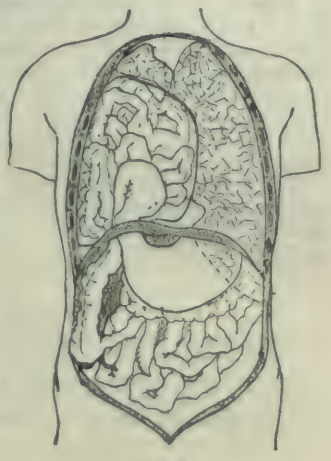
On opening the abdomen it was seen that recent general peritonitis was present and that a perforation of the stomach had taken place; it was not evident at first where this had occurred. It was found that half of the stomach passed up through a large opening in the diaphragm and occupied a huge hernial sac extending into the pleural cavity, and that the perforation had occurred within the sac at the pyloric end of the stomach. The ring of the hernial sac was situated on the right anterior portion of the central tendon of the diaphragm in front of the liver and measured 4 in. in each diameter. The margin was firm and tendinous with muscular fibres of the diaphragm blending with the tendinous ring anteriorly. The peritoneum became continuous with the serous membrane lining the sac. I was not able to satisfy myself that the right pleural and peritoneal cavities were thrown into one or whether the peritoneum had extended through the opening forming a true hernial sac. On passing the hand through the large ring the sac was found to extend upwards as far as the second intercostal space and an inch to the left of the left lateral sternal line, thus lying in front of the heart.

Laterally the sac extended to the costal wall, posteriorly to the vertebral column, except to the level of the seventh rib, above which the small rudimentary lung was situated. There was no lung between the sac and the antero-lateral aspect of the chest. The contents of the sac were: (1) Most of the omentum, (2) the pyloric half of a largely dilated stomach, (3) the first part and the upper portion of the second part of the duodenum, (4) the right half of the transverse colon starting from the hepatic flexure, and (5) portions of the small intestine (the exact length was not measured). All these organs were tightly packed into the sac and very firmly held at the ring. The parts within the sac were much congested and showed that a certain degree of strangulation was present. It was only with a certain amount of force that the contents could be withdrawn from the sac. On the stomach being pulled down a perforation was found situated on the anterior wall 1 in. from the pylorus and therefore lying within the sac. The perforation was due to a rupture of a gastric ulcer having all the characteristics of that lesion, and not of ulceration the result of acute strangulation. It was apparently of recent formation. The hernial sac contained pus, the inflammation of the peritoneum having evidently started within the sac and spread to the general peritoneal cavity.

The stomach measured 18 in. in its long diameter, and was greatly dilated. Near its middle was a constriction dividing the organ into two parts. The constriction was due to the hernial ring, so that the pyloric part of the stomach occupied a position within the sac. The transverse colon showed similar constriction bands, one at the hepatic flexure, and the other midway between its two extremities—evidence of their permanent position within the sac.

The right lung, situated at the apex of the right thoracic cavity, was small. Its lower margin extended in front to the second rib, and behind to the seventh. On the left it extended beyond the left lateral border of the sternum in its upper part about half an inch. It was about the size of a man's fist. It appeared healthy and functional. The left lung showed compensatory enlargement, as it filled the entire left pleural cavity, the costo-phrenic angle being completely occupied by the lung.

The heart was displaced upwards to the left and backwards, being at a depth of two inches from the posterior surface of the sternum. Between the sternum and the pericardium lay the right lung above, and below this a part of the hernial sac with its contents. The right margin was half an inch interior to the right lateral sternal line and the upper portion reached to the lower border of the first intercostal space on the left side. A diverticulum of the pericardium was found in its posterior aspect which extended for one inch to the right immediately behind the hernial ring. It was attached to the upper surface of the diaphragm, the opening looking to the left. It resembled the thumb portion of a rubber glove.


FIG. 2.

The liver was displaced downwards, the right lobe being elongated and resembling a Riedel's lobe; this part extended to the iliac crest with the ascending colon lying in front of it. The left lobe did not extend beyond the left of the mid line. The anterior border was pulled backwards, lying well under the dome of the diaphragm and behind the ring of the hernial sac. The whole organ appeared to have been tilted backwards, downwards, and to the right. It showed early cirrhotic changes. The gall bladder was filled with stones, but none were impacted in the common bile duct.

The kidneys and spleen were in their normal situations; they showed acute congestive changes, but appeared otherwise normal.

Few reported cases of congenital diaphragmatic hernia have been diagnosed during life. The signs and symptoms which would make one suspect that a diaphragmatic hernia was present are:

1. Restricted respiratory movement on one side of the thorax.
2. A tympanitic note on percussion with breath sounds limited in some part of the thorax. If the bowels which occupy the hernial sac contain contents, then no tympanitic note may be obtained.
3. The heart is usually displaced, the displacement, of course, depending on the relationship of the heart to the ring of the hernia.
4. Signs of intestinal obstruction if strangulation of the hernia occurs.
5. Borborygmi may be heard on auscultating the tympanitic ring.
6. The most certain sign is that obtained from *x* ray after a bismuth meal. The bismuth will show the position of the bowel above the level of the diaphragm.

A sign which in this case was of interest and which may be of some diagnostic value was the peculiar attitude the patient adopted. He stood, or sat up in bed, with the body bent well forward and the knees bent. He refused to lie down, stating that the pain was increased when he tried to do so. The attitude appeared to be one which most relieved the tension of the diaphragm.

The first four of the above signs were present in this case. The fact that perforation of the gastric ulcer had occurred within the hernia and that the resulting peritoneal inflammation was at first limited to that surface within the hernia would explain the want of rigidity of the abdominal wall muscles and also why the pain was more thoracic than abdominal in position when the patient was first seen. The free abdominal respiratory movements may also be thus explained. Certainly the clinical picture was not typically that of acute peritonitis resulting from a perforation of a viscus.

In the light of the *post-mortem* appearances, it was evident that had the patient been operated on when first seen the prospects of recovery would have been small. The contents of the sac were so large that it would have

been impossible to keep them from returning when reduced. The size of the ring precluded its obliteration by any method, flap or otherwise. Further, if drainage had been decided on it would have been necessary to drain the pleural cavity or sac (regarding these as identical in this case) as well as the abdomen. That the patient suffered from gall stones, of which there were a large number, added to the complexity of the case. The history suggests that the first event was incarceration of the hernia. The patient had pain four days before admission to hospital with some vomiting and constipation; these symptoms, on the other hand, may have been due to the gall stones. The very acute pain coming on fourteen hours before being seen would correspond to the perforation of the gastric ulcer. It was impossible from the *post-mortem* appearances to say what had been the start of the terminal illness, but they pointed strongly to incarceration and commencing strangulation of the hernia as being the first factor.

When the multiplicity of the pathological findings are considered, it seems extraordinary that the patient should have been able to carry on the active life he had for the previous six months. As a burgher he was constantly in the saddle. The case further emphasizes the fact that patients with congenital diaphragmatic hernia either die in early infancy or live well on towards old age.

As regards the treatment of hernia in this region, it has been found that in cases of strangulation no attempt should be made to repair the opening through the diaphragm, relief of the strangulated gut being all that is justified. The mortality is high.

The position of the opening in congenital diaphragmatic hernia is almost always behind the liver through that portion of the muscle which in the fetus corresponds with the pleuro-peritoneal canal in the posterior part of the diaphragm near the vertebral column. Most frequently the hernia is on the left side, but on whatever side it is situated, if well posterior to the central tendon of the muscle, an embryological explanation can be given, whereas in the case described the position of the ring does not fall into line with what we know of the development of the diaphragm.

The present case, owing to the position of the opening in the diaphragm, and apart from its clinical interest, appears to be an extremely rare abnormality.

INJURIES AND DESTRUCTIVE EFFECTS OF AEROPLANE BOMBS:

WITH SUGGESTIONS ON THE PRECAUTIONS TO BE TAKEN DURING HOSTILE AËRIAL RAIDS.

BY

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AND

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[The following observations refer only to bombs dropped from aeroplanes. They were made during a period of five months in various parts of France and Belgium antecedent to February, 1915, but their publication at that time was not deemed advisable.]

Types of Bombs.

The bombs the effects of which were observed were of two kinds:

(a) High Explosive Percussion Bombs.

The high explosive bombs weigh from 10 to 20 lb., and consist of a metal case ¼ in. thick, filled with high explosive only. It is presumed that no shrapnel bullets are contained in them, as we have never been able to demonstrate such either in the wounds or in the wreckage of property produced. By visiting the spots immediately after the explosions we have been able to secure various pieces of the bombs—for example, the handle, the base, and pieces of the casing of various size, as shown in Fig. 1.

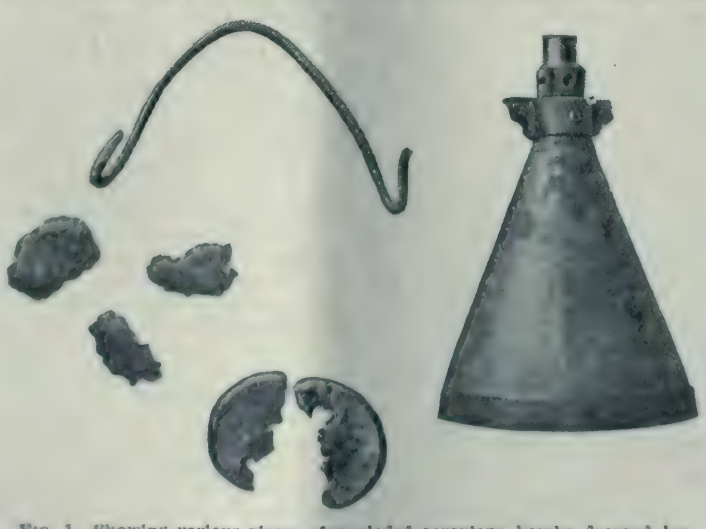


Fig. 1.—Showing various pieces of exploded aeroplane bombs dropped by German aviator.

The destructive effect is due to the high explosive and to the metal case being broken up into fragments of various sizes, which are propelled in all directions at tremendous velocity.

The bombs may be released from the aeroplane by hand, either over the side of the machine or through a hole in the floor of the fuselage, or by a special bomb-dropping device, by means of which the bombs are released by hand levers or foot pedals.

As the bomb leaves the aeroplane a pin is withdrawn, which allows a small metal propeller to unscrew itself; this sets the internal mechanism ready for explosion on contact. As a precautionary measure the mechanism is not set ready for detonation until the bomb has fallen about 200 ft. Fixed steel vanes keep the bombs steady on their downward flight. Sometimes these bombs fail to explode on percussion, and have been found intact.

(b) Incendiary Bombs.

The incendiary bombs used to set fire to collections of stores, etc., consist of a thin metal casing containing a medium soaked in some highly inflammable substance, such as petrol. A percussion device in the bomb ignites the inflammable contents.

Flight of Bomb.

Bombs are dropped from aeroplanes usually at a height varying from 4,000 to 7,000 feet. Below this the machine comes well within the danger zone from anti-aircraft guns.

The forward speed of the aeroplane determines the first part of the bomb's flight, which will be in a forward direction until gravity asserts itself, and then the course will be directed downwards. But from our experience we venture to make the statement that there is a certain amount of forward deflection, perhaps small, in the whole course of the bomb's flight. Lateral deflection in the bomb's flight may also occur, and this may be due to one of two causes. First, if the wind is across the aeroplane's path some lateral deflection of the bomb's flight must be expected, depending on the wind velocity and the height of the aeroplane from the ground. Secondly, if a bomb is released as the machine is being banked centrifugal action comes into play and will cause some lateral deflection.

A bomb was dropped from an aeroplane at about 6,000 ft. A cross wind was blowing and the bomb fell, as estimated by competent observers, at a spot 200 yards lateral to the aeroplane path.

A bomb was dropped from a height of 6,000 ft. and struck the front of a house in a narrow street. The house was struck at the level of the first floor; to do this the bomb must have had either forward or lateral deflection.

The accuracy of bomb dropping is thus influenced by many factors—for example, height of aeroplane from ground, its air speed, its ground speed, wind velocity, gravity, etc.; thus the chances of obtaining a direct hit on

a particular object, unless large ones, such as a collection of troops or transport, large buildings, massed shipping, etc., are rather small.

When a bomb is dropped it comes rapidly to earth with a peculiar hissing shriek, quite unlike the whistle of a shell. On explosion it sends up a cloud of smoke and débris about 30 ft. high.

Injuries.

These are much akin to the injuries produced by common high explosive shell. Death or more or less severe injuries may be due to the following causes:

From the Actual Shock of the Explosion.

That is the effect produced on the individual by the disturbance in the air, created by the sudden expansion of the contents of the shell.

(*a*) The shock may actually kill without producing any visible destruction of tissue.

Two civilians were found lying dead 5 ft. from a hole in the street made by a bomb. There was slight frothing at the mouth, but no wounds, fractures, burns, or any visible injuries.

(*b*) The explosion may blow off limbs, or shatter them severely, or cause multiple wounds. The traumatic shock in all these cases is very severe, and many cases never rally.

A number of civilians were standing round one of the Allies' aeroplanes when a bomb, which was being handed up by a mechanic to the observer, fell and for some unexplained reason exploded. Six people were instantly killed. All had compound fractures, some severely shattered limbs, whilst others had the whole or a portion of an extremity blown off. Curiously enough, the mechanic escaped with nothing more than a wound of the forehead, whilst the observer, who was thrown 30 ft. in the air, came down unharmed, except for slight wounds of face and arm, due to small fragments of the bomb. He suffered in no way from shock, and was able to walk into hospital unaided.

A bomb exploded 5 ft. from a Belgian officer. He sustained a compound comminuted fracture of the left leg and two deep wounds on the front of both thighs. The shock was very marked, and he died the same night. On opening up the thigh wounds, no fragments of bombs or shrapnel bullets were found. The wounds were due to explosive effect alone.

A bomb exploded a few feet from the following cases, the injuries received being due to explosive effect: A civilian, aged 40, had a wound exposing the muscles of the neck and trachea, and a compound comminuted fracture of the left leg. Amputation of the leg was performed, but he died shortly afterwards. A boy who had compound fracture of femur and severe shock never rallied, and died the same night.

From Flying Fragments of Bomb.

The pieces into which a bomb bursts are never very large, the largest being 2 in. by 2 in., whilst many are quite small. Persons standing within 30 ft. of the explosion are likely to be injured. Beyond that range the chances of escape are much increased, but a flying fragment may injure severely at 150 ft. from the explosion.

A civilian standing 30 ft. from a bomb explosion received a large wound in the abdominal wall from a flying fragment. Viscera protruded, and he died a few hours after admission to hospital.

A woman, about 20 ft. distant, had a perforating wound of thorax and penetrating wounds of abdomen and right thigh. She died on the way to hospital.

A man, about 40 feet distant, received a penetrating wound of abdomen. No exit wound discovered. He was operated on, but the fragment was not found at the time. He died later of general peritonitis.

A woman, 30 ft. distant, received a flying fragment in the left side of the chest. Further history unknown.

A woman, standing 30 ft. from a bomb explosion, received multiple wounds from small fragments as follows: Small penetrating wounds of left foot, left thigh, right arm, left breast, and left eyelid. A left metatarsal bone was fractured.

At a distance of 50 to 60 ft. from where a bomb exploded flying fragments entered a cellar (many of the Continental cellars, although underground, have part of the door, window, or grating above the street level) and wounded three people—

A woman received a wound on left breast.
A woman received a deep wound of thigh.
A child received a slight wound of breast.

From Burns.

Signs of burning and charring are rarely found alone, and are usually accompanied by other more serious injuries. When present they only occur to those in close proximity to the explosion.

A bomb exploded about 5 ft. from a soldier, shattering his left leg, fracturing the right tibia, cutting his lip and nose, and causing superficial burns all over the body. He died soon after admission.

A soldier in a stooping position a few feet from where a bomb fell had his left buttock blown off and the wound absolutely charred. This case did extremely well.

From Fumes.

Although we have no cases amongst our records it is quite possible that the fumes given off at the time of the bomb explosion might have a fatal or stupefying effect on those in the vicinity.

From Wreckage Displaced by Bombs.

The injuries thus received so far have been slight, and have been due to falling stones, bricks, mortar, etc. The usual aeroplane bomb is not sufficiently powerful to so wreck an ordinary house that the wreckage falling would cause severe injuries. Most of the injuries have been slight bruises, and no deaths have been recorded.

From Accidents.

These occur to individuals in their hurry to escape from danger from above.

A bomb fell in the narrow street of a French town, when a woman with a child in her arms (some 50 yards away) made a wild leap for safety, fell down some cellar steps, and crushed her child to death.

From Anti-aircraft Missiles.

During hostile aërial raids the air positively teems with metal from all kinds of anti-aircraft guns, and the danger to curious and ignorant onlookers from falling missiles is very great. It is surprising that so few have been injured from this cause, and the number of escapes have been truly wonderful. The base of a 75 mm. shell, weighing 3¾ lb., came down very close to one of our officers, and had it struck would have caused instant death. The missiles that are likely to return from the air during the defence are:

1. Bullets from rifles and machine guns. These come down with surprising velocity, sufficient to kill or injure severely. Some have been found imbedded in woodwork, and others with their noses turned or flattened, due to the tremendous impact on the ground.
2. Pieces of shell, of varying size, and shrapnel bullets from proper anti-aircraft guns.
3. Bases and pieces of common shell, solid shell, and unexploded shell.

Fig. 2 shows the base of a French 75 mm. shell and a large portion of a shrapnel bursting shell. They came down together with French mitrailleuse bullets in the outskirts of a town during a hostile aërial raid.

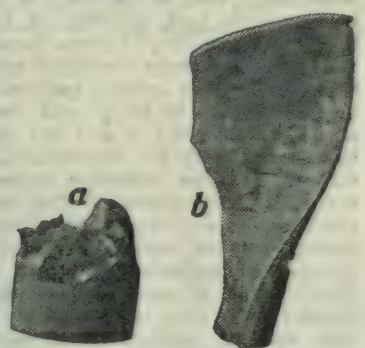


Fig. 2.—Showing anti-aircraft missiles, which came down in the outskirts of a town during a hostile aërial raid. *a*, Base of French 75 mm. shell. *b*, Large piece of shrapnel bursting shell.

Range of Bomb Fragments.

Our observations on the first series of bombs dropped showed that most of the fragments were driven upwards at about an angle of 30 degrees, so that an individual lying flat on the ground in the vicinity would probably escape unhurt. These bombs also made a fairly deep hole in the ground, as a rule about 2½ ft. deep. Latterly the bombs dropped have exploded so that the fragments have been driven along parallel to the ground, as well as upwards to an angle of 60 degrees. Bomb fragments have been found embedded in walls at a distance of 150 ft. from the explosion.

Destructive Effects.

These have been noticed on streets, houses, sheds, sand and shipping:

(*a*) *Streets.*—The hole produced is 2 or 3 ft. wide and 1½ to 2 ft. deep. Windows in the vicinity for

50 to 100 yards around are shattered. A plate glass window 40 ft. from a bomb explosion showed multiple stellate fractures, a frost-like arborescent appearance being produced. Wooden shutters and doors at 30 ft. distance have been perforated, whilst in others bomb fragments have been found embedded. Pieces have been driven along parallel to the ground in through (Continental) cellar doors and windows, injuring people within. A bomb bursting in the street would send fragments through the ground floor and first floor windows, but not through the masonry. Safety lies in keeping against the wall, indoors on the ground floor, out of the line of windows.

(*b*) *Houses.*—The usual 20 lb. bomb employed from an aeroplane will go through an ordinary roof and explode in the top room. We have not found one which has penetrated further. A wire splinter-proof netting would cause the bomb to explode outside, and only some fragments would probably come through the roof. Sand also acts as a good protective, but its weight precludes its use on most roofs.

A bomb came through the roof of an ordinary dwelling house and exploded in the top room, wrecking everything in it, but no fragments penetrated the floor below.

A bomb struck the projecting ledge of a house roof and burst, dislodging some tiles and bricks, blowing in the windows, damaging property in the upper rooms, and the fragments spent themselves in the street below, killing two soldiers who had taken protection in a doorway. Such doorways and passages afford little protection.

A bomb, with either a forward or lateral deflection, struck the front of a house and destroyed a good deal of the masonry, and wrecked furniture, etc., within. Fortunately no one was injured.

(*c*) *Sheds.*—The glass and wooden roof of a large shed (a hangar) was pierced by a bomb, which must have exploded just after entry. The fragments were driven downwards, perforating in many places a canvas covering, and killing two people below. No others were injured.

(*d*) *Sand.*—We have records of six bombs exploding on a sandy beach. The hole produced is usually 3½ to 4½ ft. wide and 1 to 2 ft. deep. Case fragments are found embedded in the sides of the crater. On explosion a spray of wet sand is carried laterally for a distance of 30 ft. Bags full of sand form an ideal protection on a bomb-proof shelter.

(*e*) *Shipping.*—A bomb fell on a barge, and, exploding, made a hole in it, causing it to sink rapidly.

Precautions to be Taken during Hostile Aërial Raids.

On head quarters being notified of the approach of enemy aircraft, warning signals should be given to the community, such as the firing of a gun, hoisting of a flag on the town hall, blowing of a ship's siren, use of a military rattle, etc. Orders should be given beforehand that all except those connected with anti-aircraft defence must seek cover indoors, preferably in basement cellars, or, failing these, on the ground floors, away from the line of windows. "Get in and get under" is the motto for safety. It must be remembered that it is extremely difficult for the onlooker below to gauge with any accuracy the position of the aeroplane relative to his position on the ground. The danger zones are, as a rule, immediately in front of, and lateral to, the approaching aeroplane; the areas of safety lie directly behind its flight. But it must not be forgotten that a well-banked turn may quickly alter the aeroplane's direction and so place an individual below in the danger area. Fire stations should be notified, and doctors, first-aid crews, and ambulances made ready on telephonic communication. School children should not be sent home from school but congregated on the ground floors out of the line of windows. If people flock into the streets to watch events, they are exposed to as much danger from falling anti-aircraft missiles as from the enemy's bombs, and needless casualties will ensue. On no account must unexploded bombs be handled or touched; a guard should be put over them and the nearest authorities notified. Houses that require to be specially protected should have a splinter-proof netting arranged over, and some feet above, the roof. This would cause the bombs to explode outside the roof, and only a few fragments would probably penetrate the roof. Sand in bags can be used if its weight can be sustained. As hospital ships must at times be in ports which are liable to aërial attacks, we recommend that such ships that have their wards directly under the upper deck should make use of a similar splinter-proof netting. In houses the best protection is afforded by underground cellars, especially those built under the footpath and not directly under the house. In Continental cellars, which are partly above the street level, people are safe if they keep away from the cellar window, door, or grating, as the case may be. The same applies to the ground-floor room of an ordinary house. Avoid upper rooms, windows, and doorways. In the street, passages and entrances to shops, etc., afford no protection, and are to be avoided. If a passage open at both ends is one's only shelter, it is better to take the centre of it and lie down.

The precautions to be taken in buildings where there are more or less large collections of people, such as factories, schools, works, barracks, etc., depend upon the size and type of the building. When there are upper stories the individuals should be collected on the ground floor, with the same precautions as for a house. When there are no upper stories and the building has a ground floor only—for example, a hangar or some hospitals—those locally in authority should see if there is in the vicinity another building affording protection. If so, arrangements should be made for occupying this on hearing the warning signal, and this should be practised and carried out as for fire drill, to avoid panic, especially so with school children. If no such safety building exists, the best measure to adopt is to build beforehand some type of bomb-proof shelter within the building. We have seen a very good one made in the large shed of a works from the available material present. The sides consisted of tins or drums containing sand or non-inflammable merchandise, the roof was of timber supported by powerful props, and on the top of this were placed bags of sand 1 ft. thick. This is almost certain, we think, to keep out all fragments of a bomb exploding, as it would, just inside the roof of the shed. Provision should be made for the interior lighting of all bomb-proof shelters, as a dark place crowded with people, who may be already in a high state of excitement, is conducive to panic. Inhabitants in towns subject to air raids paste broad strips of paper diagonally over the inside of their windows, thus preventing glass falling outward and injuring people below.

Aeroplanes, as well as airships, can and have been used on many occasions during this war for making aërial attacks by night. We have had the experience of two such enemy raids. A point worth remembering is that on a bright, clear, moonlight night an aeroplane is extremely hard to see, and almost everything is in the enemy's favour. The pilot can see well and cannot be seen; he can fly fairly low and thus make more accuracy in bomb-dropping.

AN APPLIANCE FOR USE IN SEVERE INJURIES OF THE UPPER EXTREMITY.

BY
GILBERT ARNOLD,
Temporary Captain R.A.M.C.

The difficulties in readily dealing in a satisfactory manner with severe gunshot wounds of the upper arm, elbow, and forearm, where there exist infected wounds communicating with a fracture, have led me to devise the splint or supporting apparatus which I am about to describe.

All surgeons engaged in war surgery are familiar with the practical difficulties encountered in the treatment of these cases. Broadly the main difficulties are:

(1) To immobilize the part in such a manner as to secure the fragments of a fractured bone in good position.

(2) To fit such an apparatus as shall, whilst resting and fixing the part in a favourable position, at the same time permit ready access to the wound with the minimum possible disturbance of the limb as a whole during the necessary wound treatment—for these cases require frequent irrigation and dressings.

(3) To fit an apparatus which is comfortable to the patient, and which permits him, if he is in bed, to change his position from time to time without pain.

In regard to (3) some of the appliances and methods one sees in use, whilst perhaps satisfactory from a mechanical point, leave the patient all the time in relative discomfo-

I employ a rectangular plate about 45 × 38 cm., usually a plate of perforated aluminium 4 to 5 mm. in thickness (*vide* Figs. 1 and 2). This plate, splint, tray, or supporting appliance can be fashioned from other material than



Fig. 1.

aluminium, provided the material selected is non-absorbent, readily cleaned, sufficiently rigid as not to bend in use, and light in weight. Fig. 4 is a drawing of a plate made from sheet vulcanite fibre, set in an aluminium frame to give the necessary stiffness.

Originally I used to fasten the arm to the perforated splint by means of flexible aluminium hooks moulded to the contour of the arm, the hooks being fixed in the plate by screwing on small nuts underneath the plate to their reduced projecting ends. In Fig. 1 a hook of this kind is seen between the thumb and index finger.

Mode of Use.

Figs. 1, 2, and 3 are drawings made from patients. Fig. 1 is that of a compound comminuted fracture at the upper and middle third of the shaft of the humerus, communicating with large discharging wounds on the inner and outer side of the arm. The sketch shows the usual way in which the arm rests upon the splint. It will be noted that one corner of the splint is fitted close into the axilla, and here the upper arm is secured to the plate by means of a fold of gauze passing through holes in the plate on either side of the limb just below the shoulder. Extension is obtained in part by the weight of the limb below the fracture, but is assisted by the tension of the pad and band at the bend of the elbow, which secures the arm to the lower posterior corner of the support. At this point I often employ an elastic band, but frequently a strip of ordinary bandage suffices. The hand and forearm are maintained in a position midway between pronation and supination. As shown in Fig. 2, a cushion in the axilla is interposed between the splint and the thorax, the cushion being kept in position by attachments which pass over the opposite shoulder. The plate and limb together are well slung up, as indicated in the drawings, and in the early stages of very severe injuries the patient should be in bed with the splint in an inclined position resting on a firm pillow. If there is a wound on the surface of the limb towards the plate the latter should be fenestrated at the corresponding area in order to allow the necessary frequent dressings to be done without removing the injured member from its supporting splint.



Fig. 2.

In the case of fractures of the forearm with shortening and displacement of the fragments, the splint is applied in the way already described, but extension and counter-extension will be required, and the splint affords an

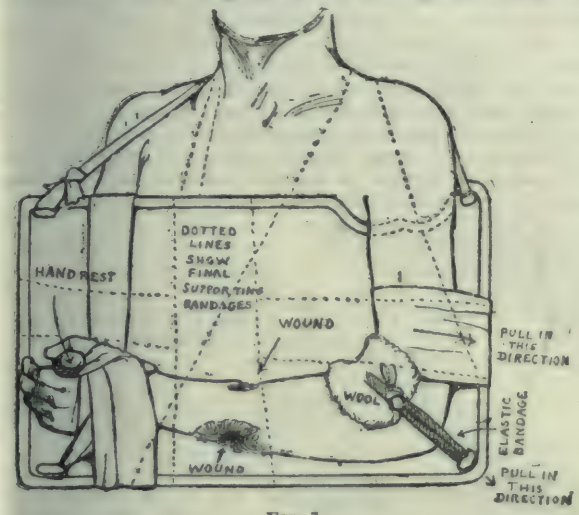


Fig. 3.

efficient and easy means for this. The hand is to be firmly and comfortably attached, using a starch bandage, to the post shown in Figs. 3 and 4, or alternatively a bracelet of gutta-percha fastened to the plate is made to encircle the wrist. The upper arm is then pulled directly backwards, and the elbow backwards and downwards as shown in Fig. 3.

This splint does, in fact, afford a very complete degree of rest to the entire musculature of the upper extremity, and that without being burdensome by any exaggerated restraint imposed, for whilst it provides very perfect immobilization, it opposes little restriction to movements of other parts of the body—a point on which the comfort of the patient depends so much.

I can confidently recommend this simple appliance as an instrument giving—to the patient—great comfort, and—to the surgeon—a great control of the situation. It enables the surgeon to apply correcting forces in any

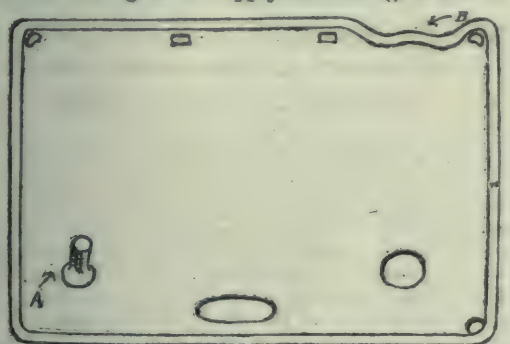


Fig. 4.—A, The hand is attached to this post if it is necessary to make extension on the forearm. B, Fits axilla here.

desired directions to meet the exigencies and special deformities of each particular case, for the margins of the plate and the perforations are so many fulcra for the effective application of power.

I am indebted to that excellent artist, Corporal Bernhard Hugh, Royal Flying Corps, for kindly making the drawings which illustrate this article whilst himself a patient.

THE convention of the Cremation Association of America will be held at Cincinnati on August 24th and 25th. Among the questions proposed for discussion is the advisability of adopting an insurance scheme to provide for the incineration of the bodies of deceased members. Dr. Hugo Erichsen of Detroit, who has been president for three years, announces his definitive retirement from that position.

A NOTE ON A SIMPLE METHOD OF REPAIRING DEFECTS OF THE SCALP.

BY

CUTHBERT WALLACE,

CONSULTING SURGEON, EXPEDITIONARY FORCE.

IT is now recognized that it is beneficial in many cases of gunshot wound of the cranium to cover up the exposed brain tissue. When there is a loss of scalp, and the loss is accentuated by excision of the wound, it is not always possible to bring the edges together. Lateral tension-relieving incisions have the disadvantage of leaving the bone bare. If the knife, in making the lateral cuts, is introduced at an angle to the surface the scalp is cut on the bevel, and tension is relieved without exposing the bone.

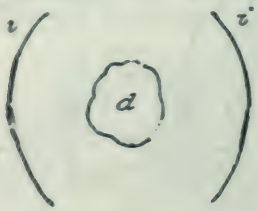


FIG. 1.—*d*. Defect; *i*, *i*, lateral incisions.



FIG. 2.—Cross section of scalp, with incisions made.



FIG. 3. — Flaps brought together.



FIG. 4.—*f*. Flaps sutured; *r*, *r*, raw surfaces.

The diagrams explain the method, which is applicable whether a large exploratory scalp flap has been used or not.

A SIMPLE METHOD OF PUTTING UP FRACTURES IN THE REGION OF THE ELBOW-JOINT IN THE FULLY FLEXED POSITION.

BY

LOUIS C. RIVETT, M.A., M.C.CANTAB., F.R.C.S.ENG.

FRACTURES in the region of the elbow-joint are nowadays universally put up in the fully flexed position.

The difficulty in maintaining the arm in this position must have occurred to most surgeons. If bandages are used, the hand frequently slips out of them and hangs limply across the front of the chest. If strapping is used, it is usual to find the whole limb and side of the chest smothered with strapping, and this is most uncomfortable for the patient.

Lately I have treated several cases by a simple, and, I think, a satisfactory method. Two strips of adhesive plaster are required, each about 1 ft. long and from 1½ in. to 2 in. wide. The first strip is used to maintain the forearm fully flexed upon the upper arm. It is so placed as to encircle the arm and forearm just below the fold of the axilla, and immediately above the wrist. This strip in no way interferes with the circulation, as it does not constrict the limb by encircling the whole arm. It should be sufficiently long to overlap about 1 in., and, if applied direct to the skin, it will not tend to slip down in the direction of the elbow.

The second strip is used to support the arm and hand, and is applied to the back of the forearm and hand, extending only as far as the first strip. The other end is then placed over the same shoulder and fixed to the back (somewhat as in Sayre's method of treating fracture of the clavicle). Figs. 1 and 2 will make this clear.

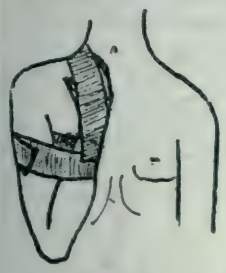


FIG. 1.

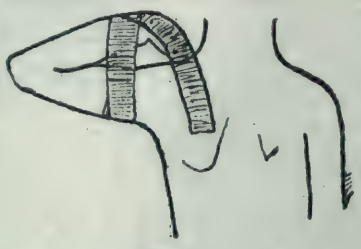


FIG. 2.

I have not found any tendency for the strapping to slip, and I am told that the children whom I have treated by this method are quite comfortable.

Dr. Stanley Melville's note points out a further advantage in the use of this over the usual method of putting up similar fractures.

Note by DR. STANLEY MELVILLE, *Radiologist to the Victoria Hospital for Children, Chelsea.*

It is very usual for a patient suffering from fracture in the region of the elbow-joint to present himself for *x*-ray examination with the limb fully flexed and fixed to the chest wall with adhesive strapping, and as likely as not with the elbow carried well across the chest wall. A satisfactory radiogram being impossible under such conditions, the advantages of Mr. Rivett's method were at once evident to myself. It is not necessary to remove or in any way disturb the strapping, as the arm can be swung out quite easily at right angles to the chest, and with absolute comfort to the patient.

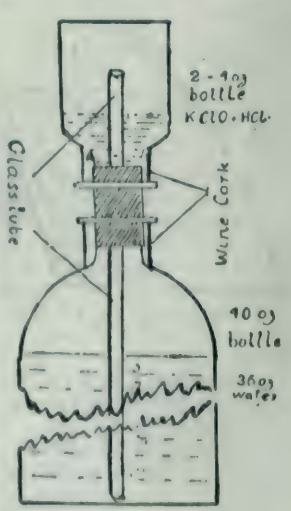
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

NASCENT IODINE TREATMENT OF TUBERCULOSIS.

THE nascent iodine treatment of tuberculosis having come into some prominence, the following may be of assistance to practitioners and dispensers in the dispensing of an otherwise objectionable and poisonous drug. It almost completely prevents the fumes of chlorine gas from escaping and causing certain symptoms of poisoning.

Take a 40 oz. stoppered bottle and charge with 36 oz. cold water. Prepare a smaller bottle (2 to 4 oz. capacity) with a neck of the same diameter as that of the 40 oz.; choose a sound wine cork which will fit both snugly, perforate for a glass tube, and cut a tube of such a length that, when connected, it will reach to the bottom of the 40 oz. and half the depth of the smaller bottle.



See that the fitting is correct, and that the two bottles can be connected easily and firmly.

Then charge the smaller bottle with 1½ drachms of powdered potassium chlorate; add 3 drachms of pure hydrochloric acid, and rapidly and carefully insert the short limb of the tube, avoiding the entrance of the effervescing mixture into the tube by sloping the apparatus and inverting it. Then plug the cork into the 40 oz. bottle, when gas will at once bubble up through the water. Leave the apparatus for three or more hours, when the reaction will be complete. Wash the residuum from the smaller bottle in the open air (or it may be added to the contents of the 40 oz. if it is desired to use the potassium chloride which remains).

This apparatus is simpler and cheaper than one with two corks and a bent tube. No air release is needed.

Nordrach, Bristol. EDWARD BIGG.

GANGRENOUS APPENDIX IN THE SAC OF A STRANGULATED INGUINAL HERNIA.

S. C., aged 73, was admitted to the County Hospital, Lincoln, on October 29th, 1915, with complete intestinal obstruction, due to a strangulated right inguinal hernia (she had had it for several years, but it had given her very little pain or trouble before this attack). The hernia was small, but very hard and tender. Herniotomy was performed soon after her arrival at the hospital; on opening the sac a few drops of pus were evacuated; they were found to come from the much swollen end of the appendix, which was perforated and quite gangrenous. This was tied and cleaned up, the sac laid fully open, the constricting ring nicked and dilated, and a tiny knuckle of small intestine, which appeared quite healthy though it was very tightly nipped, was returned into the abdominal cavity. As the appendix could not be pulled down any further the wound was extended upwards and outwards, until the junction of the caecum and appendix was visible. The latter (which was nearly six inches long and as thick as an ordinary fountain pen) was tied and cut off near the junction, the hernial sac was tied, cut off, and fixed high up in the canal, and the abdominal wound was carefully sewn up in layers (after the inguinal canal had been sewn up with kangaroo tendon), leaving a small opening with a drainage tube in at the lower end, as there had been suppuration there. The patient made an excellent and uneventful recovery.

E. MANSEL SYMPSON, M.D.Cantab., M.R.C.S.,
Lieut.-Col. R.A.M.C.(T.), 4th Northern General Hospital;
Honorary Surgeon, Lincoln County Hospital.

Reviews.

MILK.

As a bringer of health or of disease milk has received a vast amount of attention during the last few years, from both laymen and scientific workers. A reference to the activity of the National Clean Milk Society was made in the BRITISH MEDICAL JOURNAL of June 3rd, 1916, p. 799; here, too, a note was made on the milk problem in Indian cities. The Medical Research Committee (National Health Insurance) has recently had published an exhaustive monograph[1] on milk in all its hygienic relations, written by Dr. JANET LANE-CLAYPON, that is a veritable mine of information upon the subject, and is stuffed from cover to cover with facts, figures, and views bearing on every aspect of the milk problem. Lists of references to the literature are appended to each chapter, and seem to show that Dr. Lane-Claypon has neglected no available sources of information as to the physical, chemical, physiological, clinical, and economic properties of milk, both pure and contaminated. In addition, there are valuable chapters and tables dealing with such subjects as breast-feeding, the use of dried milk or heated milk for the nourishment of infants, the presence of pathogenic bacteria in butter and cheese, and the like. At the end of the volume are eight appendices on the subject of human milk, milk dépôts in England, and other matters. The book is well designed, clearly written, and full of information; it should be in the hands of all persons who are interested in the supply of pure milk, or in its usage without contamination or deterioration. It is a book for scientific workers and administrators primarily, but is so comprehensive in its scope and style as to be well within the grasp of persons without any knowledge of scientific technology. It may therefore be commended most warmly to the attention of a wide and heterogeneous circle of readers.

NEUROLOGY.

THE fourth edition of PURVES STEWART's admirable book on the *Diagnosis of Nervous Diseases*[2] follows the third after an interval of five years. It has grown a hundred pages in length, and there are many more figures in it than there were. The book is one that no neurologist can do without. It is not a textbook for students, yet the advanced medical student will find in it most illuminating discussions of groups of symptoms met with in everyday practice, with which to supplement his more formal knowledge of neurology. The present war has left its impress on the volume, for the author has been attached as consulting physician to H.M. Forces in the Mediterranean, and has been in a position to make numerous observations on organic war-injuries, to which he devotes a special chapter of 70 pages at the end of his book. We recommend it very strongly to all who have to deal with patients suffering from disorders of the nervous system.

Readers in search of a general introduction to the physiology of the nervous system, or physiological neurology as distinguished from the pathological neurology of nervous disease, may be advised to read *An Introduction to Neurology*,[3] by Professor C. J. HERRICK of Chicago. He deals with the subject on zoological lines, and holds in view the requirements of readers primarily interested in very various subjects—medicine, physiology, psychology, sociology, general education, and comparative anatomy, among others. His text therefore generalizes, and deals in principles rather than their practical applications. The reader finds himself presented with results and deductions rather than facts, and is naturally given little pabulum wherewith he may feed his critical faculties. There is a great deal to interest the medical student or practitioner in the book, which is well written and is illustrated by a number of diagrams and pictures borrowed from the standard works upon the subject.

A translation of Dr. ROBERT BING's excellent *Textbook of Nervous Diseases*[4] has been made by Dr. C. L. ALLEN, of Los Angeles, and should be welcome to students and practitioners of medicine in search of a readable and straightforward account of a very complicated subject. The book takes the form of thirty lectures, in which the disorders and diseases of the peripheral nerves, spinal cord, and brain are described; special lectures are devoted to such subjects as syphilis of the central nervous system, diseases of the ductless glands, the psychoneuroses, and the like. The various clinical pictures are clearly drawn, and plenty of space is given to such important matters as diagnosis, prognosis, and treatment; the text is not overburdened with microscopical and pathological detail. The illustrations are satisfactory; the translator has done his work well, and he has produced a sound American text. The book may be warmly recommended to those in search of a neurological textbook.

The eighth edition of Professor DANA's *Textbook of Nervous Diseases*[5] follows seven years after the seventh, which received notice in the BRITISH MEDICAL JOURNAL of May 15th, 1909. The eighth edition is smaller than its immediate predecessor, and shows more evidence of careful compression by its author; it is possible that the pruning-knife has been used even too severely, and that Professor Dana's brief and business-like text, while admirable for the information of the expert in nervous diseases, will fail to exhibit the arresting quality that lays hold of the ordinary medical student's attention and fixes in his mind the minutiae of nervous diseases. The various chapters of the book are arranged on the ordinary lines. At the beginning is a brief introduction to the subject and the methods of examining patients. Chapters on the diseases of the peripheral nerves, the cord, and the brain are followed by excellent descriptions of the various neuroses; exophthalmic goitre is included (Professor Dana misspells the name of its Italian discoverer, Flajani), and described as fundamentally due to "a loss of central nervous control." Professor Dana describes 176 diseases in the

[1] *Milk and its Hygienic Relations.* By Janet E. Lane-Claypon, M.D., D.Sc.Lond. Medical Research Committee Series. London: Longmans, Green, and Co. 1916. (Med. 8vo, pp. 356; illustrated. 7s. 6d. net.)

[2] *The Diagnosis of Nervous Diseases.* By Purves Stewart, C.B., M.D.Edin., F.R.C.P., Temporary Colonel A.M.S. Fourth edition, revised and enlarged. London: E. Arnold. 1916. (Med. 8vo, pp. 593; 285 figures. 18s. net.)

[3] *An Introduction to Neurology.* By C. Judson Herrick, Professor of Neurology in the University of Chicago. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 355; 137 figures. 7s. 6d. net.)

[4] *A Textbook of Nervous Diseases for Students and Practising Physicians, in Thirty Lectures.* By R. Bing, Dozent for Neurology at the University of Basel. Only authorized translation by C. L. Allen, M.D., Los Angeles, California. London: W. Heinemann. 1916. (Sup. roy. 8vo, pp. 495; 111 figures 21s. net.)

[5] *Textbook of Nervous Diseases, for the Use of Students and Practitioners of Medicine.* By C. L. Dana, A.M., M.D., LL.D. Bristol: J. Wright and Sons, Ltd. 1916. (Med. 8vo, pp. 642; 4 plates, 258 figures. 21s. net.)

volume, adding that 66 of them are common, 110 rare. The text is well illustrated. The author is a neurologist and psychologist of great practical experience, and the book may be consulted with advantage by senior students and by practitioners of medicine.

That the term "spasmodic asthma" serves in practice to cover a number of different clinical entities is a fact with which every practitioner of medicine must be familiar. Dr. BERKART has recently published a small book[6] in which he seeks to differentiate as "nervous asthma" one single variety of paroxysmal dyspnoea. He holds that in "nervous asthma" there exists at the time no mechanical obstacle (such as mucus or muscular spasm) in the air passages. The patient gives a history of rickets, and suffers from an endogenous neuropathy or functional disease of the central nervous system that is generally inherited, most frequently on the mother's side. The treatment should consist, in the case of children, in plain diet, a healthy life, and the avoidance of coddling. In all cases the so-called asthma cures should be used as little as possible; the attempt should be made to strengthen the patient's debilitated nervous system, and to give him something beyond his own sufferings to think about. Operations on the nose in these cases are of more than doubtful benefit. Dr. Berkart's book is well worthy of study by those who have to deal with that protean disorder asthma.

NOTES ON BOOKS.

THE seventeenth volume of *The Johns Hopkins Hospital Reports*,[7] appearing some five years after its immediate predecessor, contains eight original papers. Several of these have already received notice in the pages of the BRITISH MEDICAL JOURNAL, and all are contributions of real value to medicine, physiology, or pathology. The Johns Hopkins Hospital is to be congratulated upon the excellence of the work it continues to produce. The seventeen volumes of the *Reports* form a *monumentum ære perennius* of which any scientific institution might well be proud.

Mr. PRESTON'S guide to the Roller Bandage[8] is a complement to his booklet on the Triangular Bandage, already issued. Both have been written as guides to students of ambulance work, and form a very complete guide to the bandages commonly used in first aid to the injured and home nursing. The text is brief and clear; the line illustrations are excellent. Mr. Preston's little books should have a large sale; they deserve it.

In the course of some 149 pages, many of which are largely taken up by diagrams and illustrations, the authors of a *Vade Mecum d'électrodiagnostic et de radiodiagnostic*[9] endeavour, apparently, to cover the whole ground. Three main divisions are made. The first deals with electrodiagnosis; for instance, the electrical reactions of nerves and muscles, normal and pathological, electric diagnosis in gynaecology, the electro-cardiograph, and so on. The second part is devoted to the localization of projectiles; whilst the third part—in some 50 pages—professes to cover the whole ground of *x*-ray diagnosis. It is difficult to write a notice, or criticism, of a book of this description seriously; it is equally difficult to understand the authors' attitude in compiling such a book. It is stated in the preface that the intention is to appeal to electricians to jog their memories, and to medical men to indicate the precise information they may expect to get from electrical or *x*-ray diagnostic methods. If this be the sole intention, then perhaps the authors have succeeded; but *cui bono?* Page succeeds page of mere statement. All *x*-ray workers, and many surgeons, know something as to the *x*-ray possibilities in, say, the diagnosis of kidney and ureteral stone. All know the difficulties, the pitfalls, the many precautions which have to be taken in making the examination, the still greater care which has to be exercised in interpretation. How can all this be dealt with in a manner to be of any use in a book which dismisses the whole subject in a little over one page, in about 300 words? As a guide to a student going up for an examination, for the purpose of refreshing his memory by a series of headings as to the possibilities of a subject, this sort of thing may be of value; as a serious attempt to fill a blank in medicine or surgery it is not.

The title of Miss THURSTAN'S book, *The People who Run*,[10] is a literal translation of the Russian word for refugees. When in the summer and autumn of 1915 the Germans overran Poland and advanced into Russia, a large number of persons, country peasants and town dwellers, fled eastward, by train, by cart, many of them on foot. Their numbers are variously estimated at from three and a half to six and a half millions of all ages and many races, and the book gives some account of the efforts made to feed and house them, and to settle those who knew anything of agriculture on the land. The people found their way first to the big towns, and the work of collecting and distributing them was very difficult. Many of them had grown apathetic, most of them were indifferent to sanitary considerations, and epidemic diseases, especially measles, were rife. Gradually some sort of order was introduced, and in this some towns were much more successful than others. Kazan seems to have done best, but it is far in the interior, and the first sorting and the worst misfortunes had happened before the refugees reached it. The university students have done very well here. The "Great Britain and Poland Fund" sends money direct to the Russo-Asiatic Bank in Petrograd, but Miss Thurstan appeals for more volunteers from this country to give personal service. The offices of the fund are at 36, King Street, Covent Garden, London.

[6] *The Pathology and Treatment of the So-called Nervous Asthma.* By J. B. Berkart, M.D. London: H. Milford, Oxford University Press. 1916. (Demy 8vo, pp. 95. 2s. 6d. net.)

[7] *The Johns Hopkins Hospital Reports.* Volume xvii. Baltimore: The Johns Hopkins Press. 1916. (Roy. 8vo, pp. 526; illustrated.)

[8] *The Roller Bandage.* By H. M. Preston. With an introduction by J. Cantlie, M.A., M.B., F.R.C.S. London: T. Fisher Unwin, Ltd., and J. Bale, Sons, and Danielsson, Ltd. 1916. (Fcap. 8vo, pp. 122; 54 figures. 1s.)

[9] *Vade Mecum d'électrodiagnostic et de radiodiagnostic.* Par A. Imbert, M. Bull, et L. Mallet. Paris: J. B. Baillière et Fils. 1916. (Cr. 8vo, pp. 153, 55 figures. Fr. 2.50.)

[10] *The People Who Run. Being the Tragedy of the Refugees in Russia.* By Violetta Thurstan. London and New York: G. P. Putnam's Sons. 1916. (Cr. 8vo, pp. 184. 2s. 6d. net.)

THE MOVEMENT FOR THE STATE REGISTRATION OF NURSES: ITS PRESENT POSITION.

THERE was published in this JOURNAL in 1909* an account of the history, progress, and present position of the movement for the State registration of nurses. In that article an account was given of the chequered history of the movement for nurses' registration from October, 1887, when the subject was brought forward by the late Sir Andrew Clark; it also gave an account of the formation of the Royal British Nurses' Association in 1887, and of the Society for the State Registration of Trained Nurses in 1902, and of the separate bills brought before Parliament by each of these organizations.

In 1895, at the annual meeting in London, the British Medical Association unanimously adopted a resolution expressing the opinion that it was expedient that an Act of Parliament should as soon as possible be passed for the registration of medical, surgical, and obstetric nurses, and in 1904 the Annual Representative Meeting at Oxford adopted by a large majority a resolution approving the principle of the registration of nurses.

In 1905 application was made to the Board of Trade "for a licence of incorporation to a society named the Society for Promoting the Higher Education and Training of Nurses," all the applicants being laymen of influence. They held that as legislation for the State registration of nurses could not be looked for at any early date, something should be done to improve the organization of nursing. To this end they formed themselves into an association, whose objects, as stated in the articles, were:

1. To promote the higher education and training of nurses.
2. To promote unity of curriculum in the training of persons, intended for the nursing profession.
3. To recognize approved training schools.
4. To grant certificates of proficiency in nursing to persons who have passed prescribed examinations after training, and to grant certificates of training and proficiency in nursing to persons who have trained in recognized schools, and have passed prescribed examinations, provided that the society shall not grant titles or diplomas.

This application was opposed by the British Medical Association, the British Gynaecological Society, the Royal College of Surgeons of Ireland, the Royal British Nurses'

* BRITISH MEDICAL JOURNAL, vol. i, 1909, p. 417, and vol. ii, 1909 p. 1052.

Association, the Society for the State Registration of Trained Nurses, the Matrons' Council, the League of St. Bartholomew's Hospital Nurses, the Scottish Committee for Promoting the State Registration of Trained Nurses, the Irish Nurses' Association, the Registered Nurses' Society, Metropolitan Infirmary Matrons, the Central Hospital Council for London, and the London Hospital Nursing Staff, on the ground that

> The time had long passed when private persons should be allowed to group themselves together to carry out State duties. The medical profession was prepared to accept a system of registration which would supply it with the means of recognizing who was a properly trained nurse, but it would only accept State registration and not pseudo-registration by a private body, more especially one which consisted of laymen only.

On May 5th, 1905, the Board of Trade heard these objectors, and, on June 7th, informed them that the promoters of the proposal had requested consideration of their application to be deferred until the bills before Parliament had been disposed of.

In this same year, 1905, a Select Committee of the House of Commons, appointed in the previous year, reported on the subject, and recommended that

> A register should be kept by a central body appointed by the State, consisting of representatives of the medical profession, of training schools for nurses, of the public, and of matrons and nurses. This body should decide what persons should be admitted to the register and what evidence of training should be required. That there should be a separate register for registered asylum nurses; and that nursing homes should be registered.

In the same year the British Medical Association referred the subject to Divisions for their consideration, and in 1906 the Representative Meeting, held in London, adopted by 90 votes to 3 the following resolution:

> The meeting approves of the recommendation of the Parliamentary Select Committee that there should be State registration of nurses, and is of opinion that on any central council or board appointed the medical profession and the nursing profession should be adequately and directly represented, and that the representation of the medical profession on the Central Nursing Board should be at least one-half of the number of the members of that body.

The bills already referred to were introduced in the House of Commons in 1907 and the following year without making any material progress, but in 1908 the bill promoted by the Society for the State Registration of Nurses was introduced in the House of Lords, where it was passed, and was sent down to the House of Commons in November. This bill met the wishes of the British Medical Association.

It seemed absurd that separate bills should be promoted in Parliament, not materially differing from one another in principle, by different nurses' organizations; and a conference, convened by Lord Ampthill and others, was held on June 28th, 1909. It was attended by delegates of the Royal British Nurses' Association, the Society for the State Registration of Nurses, and the Society for Promoting the Registration of Nurses in Scotland, which had prepared a bill, introduced in March, 1909, for the registration of nurses in Scotland. This conference came to the following resolutions after two sittings (second sitting July 26th, 1909):

1. That State recognition can be satisfactorily carried out only by a single portal system for the United Kingdom, provided that the several parts of the United Kingdom be adequately represented, and that the principle of administrative decentralization be not necessarily excluded.
2. That under a single portal system nurses should be admitted to the register only after:

   (*a*) A three years' course of training with a definite curriculum prescribed by a Central Board conducted in recognized hospital nursing schools;

   (*b*) Having passed a uniform State examination conducted by examiners appointed by and under the supervision of a Central Board at suitable centres throughout the kingdom.

The conference then adjourned, and was resumed on January 25th, 1910, meeting by permission of the British Medical Association in the council hall of the Association. Meantime, however, other organizations had joined the conference, and in 1910 eight associations were represented, namely, the British Medical Association, the Matrons' Council of Great Britain and Ireland, the Royal British Nurses' Association, the Society for the State Registration of Trained Nurses, the Fever Nurses' Association, the Association for Promoting the Registration of Nurses in Scotland, the Scottish Nurses' Association, the Irish Nurses' Association. This conference held several sittings, at which the resolutions of the previous June and July were reaffirmed, the various bills referred to were discussed, and agreement was come to on principles; details were then worked out, so that before the last sitting a single bill had been drafted, and finally the conference resolved itself into a central committee, with Lord Ampthill as chairman, and with honorary secretaries and treasurer, for the purpose of promoting the passage of the bill through Parliament.

This bill—the Nurses' Registration Bill—was introduced in the House of Commons on March 1st, 1910, by Mr. Munro-Ferguson; it was reintroduced on February 27th, 1911, March 23rd, 1912, and March 18th, 1913, by Mr. Munro-Ferguson, and when he was appointed Governor-General of the Commonwealth of Australia, Dr. Chapple took charge of the bill, which he introduced on March 3rd, 1914. The introduction was opposed, and on a division 311 voted for the bill and 82 against.

This bill provided for the setting up of a general council for the register of nurses in the United Kingdom to form a register of nurses whose course of training and examinations it would regulate and supervise. The council would appoint examiners and inspectors, publish the register annually, and would be empowered to take proceedings against persons guilty of offences under the Act. The bill would give power to decide upon the suspension or removal from the register of the name of any nurse for any breach of the rules or for disgraceful conduct. The council would have power to recognize hospitals or institutions as approved training schools for nurses. Besides the general register of women nurses, the bill provided for a supplementary register of male nurses and a supplementary register of asylum nurses. It also made provision for the admission to the register of persons holding a certificate of training from institutions approved by the council or under the Local Government Board, or certificates from the Admiralty or the Royal Army Medical Corps, or producing evidence satisfactory to the council of training and of having been three years in *bona fide* practice as a nurse or employed as a nurse in a naval or military hospital.

The council would consist of twenty-one persons, three appointed by the Privy Council (one a woman), three medical practitioners appointed by the Local Government Board (one for each division of the kingdom), three medical practitioners appointed by the British Medical Association (one resident in England, one in Scotland, and one in Ireland), one medical practitioner appointed by the Medico-Psychological Association, one medical practitioner appointed by the fever hospitals recognized as training schools, eight registered women nurses (to be elected as direct representatives by the nurses on the register), one registered medical practitioner or registered male nurse (to be elected as a direct representative of the registered male nurses), one registered mental nurse (to be elected as a direct representative of the registered mental nurses). The title of "registered nurse" would be protected, and the bill provided penalties for its improper use.

It will be noted that throughout all the proceedings, culminating in the production of a new bill, the British Medical Association, in the person of its delegation of five members to the Conference and the Central Committee which the Conference appointed, took a foremost part.

In these circumstances an easy passage of the bill through Parliament might well have been hoped for, but the party that has always opposed registration, if not large in numbers, was strong in influence, and year after year blocked the bill, aided therein by the increasing pressure of Government business.

A large deputation representing all the societies affiliated to the Central Committee, and including representatives of the National Council of Trained Nurses of Great Britain and Ireland, and the National Union of Women Workers of Great Britain and Ireland, waited on the Prime Minister on April 28th, 1913. It was introduced by Dr. Chapple. On this occasion Sir Victor Horsley was spokesman for the British Medical Association. Later, for a similar purpose, to ask for Government facilities, a petition was presented to Mr. Asquith (July, 1914). But, owing to the pressure of public affairs, the Government could not undertake to father a bill unless it was practically an agreed measure.

On this situation the war burst, and the nursing profession, like the medical profession, dropped all controversial subjects in the preparations to meet the national emergency that immediately opened before them; but the question of nurses was, after seventeen months of war, made acute by the action of the Hon. Arthur Stanley, Chairman of the Joint War Committee of the Order of St. John and the British Red Cross Society, in launching a scheme for a college of nursing for the organization and governance of the nursing profession. The Central Committee, a fortnight after the issue of this letter, met in the Council Chamber of the British Medical Association and agreed to ask Mr. Stanley to receive a deputation from the Committee seeking information as to the nature of his proposals. There was thus initiated a series of interviews and conferences with Mr. Stanley and his advisers and supporters.

In the course of discussion a number of amendments were accepted by the representatives of the proposed nursing college. The chief of these provides for the appointment of the first council by the Privy Council, the Local Government Board, the British Medical Association, the Medico-Psychological Association, the nurse training schools, the Central Committee, and the Nursing College, in stated proportions, and for the admission to the register of nurses who can produce satisfactory evidence of training; after two years persons claiming registration must have had training under a definite curriculum, prescribed by the council, in the wards of a hospital or hospitals approved by the council. The proposal to insert a provision enacting the direct representation of nurses on the council does not appear to have been accepted. From the brief discussion at the Annual Representative Meeting (SUPPLEMENT, August 5th, p. 53) it will be seen that hopes are entertained that eventually an agreed bill may be evolved, and Dr. Verrall stated that the College of Nursing and the British Medical Association were agreed that there should be registration of nurses on lines which the nurses themselves could accept and approve. The Representative Body instructed the Council to consider the possibility of establishing by means of the proposed bill the general principle desired by the British Medical Association in respect to the State registration of nurses and to advise whether the Association would be justified in supporting the bill.

WAR PENSIONS AND GRANTS.

THE Parliamentary Secretary to the Local Government Board stated on August 14th, in reply to questions in the House of Commons, that he and the Vice Chairman of the War Pensions Statutory Committee had had an interview with the Lord Mayor of Liverpool, and that provisional arrangements had been made for a conference towards the end of September between the War Pensions Statutory Committee and the National Committee representing mayors and provosts throughout the country. If, however, it was found possible to get the committee together before that date, the Local Government Board would welcome an earlier conference. The National Committee is appointed to look after the local interests of municipalities and county councils. It desires especially to secure assurances that all supplementary pensions, grants, and allowances to disabled men and to widows, orphans, and dependants shall be borne by the State, and that in the distribution of these Government moneys by the War Pensions Statutory Committee there shall be no interference with the right of individuals in localities to make gifts in their discretion. It is stated that the National Committee find it necessary to take time to communicate with the different interests concerned, and to receive schemes and suggestions. The amount paid out by the War Pensions Statutory Committee to local committees on account of supplementary pensions, grants, and other allowances down to August 12th was £220,374.

Regulations.

The War Pensions Statutory Committee has issued "draft regulations (Part I) for grants to supplement pensions, grants, and separation allowances payable out of public funds and for other grants and allowances."*

* H.M. Stationery Office. To be obtained through any bookseller (Cd. 8306. Price 1d.

These regulations contain a number of definitions:

State pension means any pension in respect of disablement or death during the present war payable out of public funds to a disabled officer, sailor or soldier, or to his widow or dependant, and in the case of a widow or dependant it includes any pension or compassionate allowance in respect of a child but not a State educational allowance.

State educational allowance means an allowance granted out of public funds in aid of the education of an officer's child.

Supplementary pension means an allowance awarded by the Statutory Committee out of funds at its disposal in cases in which owing to exceptional circumstances the State pension appears to be inadequate.

Exceptional circumstances are defined as follows:

"Circumstances where the disproportion between the State pension, together with earnings or earning capacity and 'other income' on the one hand, and the *proportion* hereinafter specified of the 'pre-war income,' or 'pre-war dependence,' earnings and 'other income' on the other hand, involves special hardship—viz.:

(*a*) Permanent ill health (mental or physical) of the beneficiary or his or her incapacity for work.
(*b*) In the case of a widow, the fact of there being young children or an invalid child.
(*c*) In the case of dependants, their number.
(*d*) In the case of a totally disabled man, the fact of his requiring regular medical attendance and special care.
(*e*) Any other circumstances causing special hardship."

Pre-war income means the amount of average weekly earnings or salary received by the man, the regular net earnings of the wife, and any other member of the household eligible as beneficiaries, and "other income."

Other income means contributions from members of the family, or from tenants or lodgers in excess of the expenditure on them, and income from property or investments.

Pre-war dependence means the value of the support afforded to a dependant by an officer, sailor or soldier during the year preceding mobilization or enlistment in excess of the expenditure incurred on his account.

OFFICERS: SUPPLEMENTARY PENSIONS.

Widows.—Where, owing to "exceptional circumstances," the pension payable out of public funds to the widow of an officer seems to the Statutory Committee to be inadequate, a supplementary pension may be granted of such amount as when added to the State pension (excluding any educational allowance) earnings or earning capacity and "other income" shall not exceed in the case of a widow with no children 50 per cent. of the "pre-war income," or, in the case of a widow with children, 66.6 per cent. of the "pre-war income." In no case shall the supplementary pension when added to the State pension, earnings or earning capacity and "other income," make up a total in excess of £150 a year.

Dependants.—Where owing to "exceptional circumstances" the pension payable out of public funds to a mother or father largely dependent upon the deceased officer seems to the Statutory Committee to be inadequate, a supplementary pension may be granted of such amount as when added to the State pension, earning capacity, and "other income," shall not exceed 80 per cent. of the "pre-war dependence" or a sum of £112 10s. a year. Similarly in the case of sisters a supplementary pension may be given of such amount as when added to the State pension, earning capacity, and "other income," shall not exceed 66.6 per cent. of the "pre-war dependence," earning capacity and other income, or a sum of £75 a year, or where there are two or more sisters of £112 10s. a year.

Disabled Officers.—Where owing to "exceptional circumstances" the pension payable out of public funds to a married officer retired from service on account of total disablement seems to the Statutory Committee to be inadequate, a supplementary pension may be granted in respect of each of his children not exceeding £24 a year, provided that the amount of any such supplementary pension when added to the officer's State pension, earnings and "other income," shall not exceed the "pre-war income" of the beneficiaries, or in any case the sum of £187 10s. a year. In the case of an officer partially disabled a supplementary pension for each child may be granted of a sum not exceeding £20 a year, and the amount of any such supplementary pension, when added to the officer's State pension, earnings or earning capacity and "other income," shall not exceed the "pre-war income," or in any case the sum of £187 10s.

Disability from Disease.—A supplementary pension may also be given to a married officer retired in consequence of the present war and unfit for further service on account of disability not caused but aggravated by service.

General Conditions.—No supplementary pension will be granted in the first instance to a widow or dependant for a longer period than one year, and to a disabled man for a longer period than six months. At the end of the period the circumstances of the case will be reviewed by the local committee with the object of recommending whether such pension should be continued with or without modification.

These draft regulations are in force, but will be the subject of discussion at the conference between the Central War Pensions (Statutory) Committee and the National Committee of municipal authorities which it is now announced will be held on September 25th.

British Medical Journal.

SATURDAY, AUGUST 19th, 1916.

A VOICE FROM THE DEAD.

On August 15th we received a letter written by Sir Victor Horsley from the front, Mesopotamia, on July 5th, 1916—that is to say, some ten days before his death. He endorsed it to show that he did not wish it to be published as it stood, but that the information it contained was not confidential and was placed at the disposal of the Editor of this Journal. We feel, therefore, free to reproduce the facts and opinions therein expressed. The three main points of the letter are: first, that it was written in order that the case of the responsible medical officers in Mesopotamia should not be prejudiced, as he feared it might be, through the report of the Vincent Commission; secondly, that the appalling failures in the medical arrangements in Mesopotamia were due to the utterly defective transport; and, thirdly, that the failure was bound up with the question of the present extremely unsatisfactory relation between the financial department of the Indian Government and the medical services.

With regard to the first point some little explanation is necessary. Early this year the information in private letters from officers serving in Mesopotamia which had reached this country produced a very unfavourable impression amounting to a belief that a serious breakdown had occurred and was not being remedied. The Government of India, possibly in view of the debate in the House of Commons on the Army Estimates which was expected and in fact took place on March 14th, appointed a scratch commission to go to Mesopotamia and report. It consisted of Sir William Vincent, a retired member of the Indian Civil Service with judicial experience, and Major-General Bingley, an Indian staff officer recently appointed Quartermaster-General of the Army in India. Afterwards Mr. Ridsdale, a London business man who had done admirable work on the British Red Cross Committee in London, and who had gone to Egypt as its commissioner, was asked to go on to India and Mesopotamia and join the commission. He, however, arrived at Basra, the Mesopotamian base, after Sir William Vincent and General Bingley had completed the taking of the main evidence.

Sir Victor Horsley stated in his letter that last March the Commander-in-Chief in India told him that he had appointed a "medical commission." This turned out to be this commission of three. The public will be able to estimate the value of the findings of this "medical commission" consisting of members possessing no medical knowledge and one of them an officer who can hardly fail to have been biassed in favour of the department which it is now admitted has been the sole cause of the breakdown—that is to say, of the department responsible for transport. Can the absurdity of such a mode of procedure fail to strike any thinking man? Were a commission to be appointed to inquire into a failure in judicial procedure would want of training in law be a qualification for serving? In a public inquiry into a failure in naval operations would ignorance of seamanship be a necessary qualification? In adjudicating on a dispute between capital and labour would a want of experience of labour conditions be a reason for the choice of the adjudicators? Must it ever be in the case of medical matters that only those who know nothing about them should be appointed judges? But this is what first the Government of India and now the Imperial Parliament has done.

The Secretary of State for India stated on August 14th that the report of this Indian (Vincent) or "medical" commission is not to be published, but is to be submitted to the Statutory Commission set up by the special Act of Parliament passed at the beginning of this month with Lord George Hamilton, a former Secretary of State for India, as chairman. It consists, in addition to the chairman, of five members of Parliament, a sailor, and a soldier. It has power to enforce the attendance of witnesses, to examine them on oath and to compel the production of documents, and may delegate any two of its members to make inquiries and to take evidence abroad. Parliament, therefore, intends that it shall make a very thorough inquiry. Its reference is wide, but it is instructed to give its first attention to questions affecting the provision for the sick and wounded, and to report the results of its inquiry on these matters as soon as they are completed.

Nevertheless, though its first duty is to inquire into medical matters, it contains no medical member.

When considering allegations of defects in medical arrangements of a military force the distinction between the administrative and the executive must constantly be kept in mind. The senior administrative medical officers are responsible for the general medical arrangements, the provision of drugs and medical appliances, the establishment of hospitals, and the proper utilization of transport, which is provided by other military departments. With regard to these matters we are not in this country at present in a position to form any definite opinion, but it should be remembered, as we pointed out recently, that under the system by which the army is administered the Medical Service does not supply its own transport. It is, in fact, responsible only for personnel—surgeons, orderlies, and nurses—and for the supply of drugs. It must get its transport, trains, and ambulances on the line of communication, hospital ships and barges from other army departments, and its responsibility only begins after the transport has been provided. As to the work of the executive officers, the medical officers actually engaged in the treatment of the sick and wounded and in minimizing their sufferings during the purgatory of their transport down the Tigris, there is only one opinion expressed by all the officers and men who have passed through their hands—namely, that they have worked in the most splendid way, entirely forgetful of self, constantly striving not to be discouraged by the want of drugs and appliances, the absence of anticholera outfits, or the need to give an intravenous saline injection out of a teapot—deficiencies all due, as Sir Victor Horsley wrote from Amara on June 7th, to "financial terrorism in times of peace." What has been said, and is being said, by returned soldiers is fully borne out by the statement made in the House of Lords on August 15th by the Under Secretary of State for India.

With regard to Sir Victor Horsley's second point—

the total failure of the transport arrangements—he wrote that the whole of the terrible failures in Mesopotamia "are due to the non-provision of transport. There never has been in this country adequate transport for food, and there never (until March, when our solitary hospital steamer arrived) has been any medical transport whatever; nothing but the foulest store barges and steamers used on their return journey to the base to carry the sick and wounded."

Information from other independent sources in our possession proves that he rather understated than overstated the case, and there is now no attempt on the part of the Government of India or of the War Office to deny the truth of the allegations.

It is disquieting to be told, as the country was told last week by the Secretary of State for War, that, though installations for sterilizing water had been provided on many of the vessels already on the spot, they are only now being fitted to the remainder, that filter barges are only now being sent, and that water supply tanks on various points on the river are only now being provided. He added that on all new boats ordered in the United Kingdom arrangements for securing an adequate supply of proper drinking water have been made, but it must have been known to the Intelligence Department of the Government of India before even the first part of the expedition started that the river water was not safe, and that if the troops drank it unfiltered or unsterilized, cholera, diarrhoea, and dysentery would ensue—as they have.

The peculiar conditions of the navigation of the Tigris and Euphrates, shallow rivers with channels constantly changing, and requiring special types of boats, do not appear to have been appreciated by the Government of India or the military department responsible for transport—the Quartermaster-General's department. Suitable boats were not available in India, and perhaps the most damning proof of incompetence and want of foresight is the fact that the necessary hospital ships and barges are now still under construction in this country. Mr. Asquith stated on July 18th that two inquiries into transport in Mesopotamia had been made, one into the river navigation, and the other by an officer sent out by the War Office in March to inquire into the questions not only of river but of railway transport, the facilities for it, and the means of accelerating its completion.

The very guarded answers made by the Secretaries of State for War and for India to questions in the House of Commons within the last few days as to whether the arrangements for the supply of medical necessaries and suitable drinking water for the troops engaged in the Mesopotamia expedition are now adequate are tantamount to admissions that the arrangements are still far from satisfactory. Mr. Lloyd George stated, on July 20th, that the Army Council had become responsible for transport and supplies, as well as for directing operations, and on August 9th he said that all demands for drugs, medicine, bandages, and other medical appliances had been supplied, and that, as the general officer commanding had repeatedly been told to ask for all he wanted, the Army Council was satisfied that sufficient supplies were now available on the spot. We are not sure what meaning is to be attached to the phrase "on the spot." If it refers to the base at Basra, it does not necessarily imply any great improvement on the conditions existing three or four months ago, for it is admitted on all hands that the great difficulty has been transport.

We are not at present in a position to discuss Sir Victor Horsley's third point—namely, the unsatisfactory relations between the Finance Department of the Government of India and the Indian Medical Service. The Statutory Commission which has now begun its inquiry may throw much light on the matter, but we are rather given to understand that the cheeseparing policy of the Finance Department is not exercised against the medical services only, but that every branch of the armies in India suffers from the same cause. The story of the Mesopotamia expedition is not calculated to remove this impression. It was undertaken with a very small force, insufficiently provided and without transport either for moving supplies or for evacuating the wounded, and apparently without any adequate machinery for supplying the troops with safe drinking water. In consequence of the resistance encountered, the force had to be largely increased, but the Government of India did not rise to the occasion. What has happened seems to prove that the task was beyond its resources or its administrative capacity.

THE CONTROL OF EPIDEMIC INFANTILE PARALYSIS.

The severe epidemic of infantile paralysis—or acute anterior poliomyelitis, to give the disease a more descriptive title—that now prevails in New York has not unnaturally given rise to a certain degree of anxiety in our own country also. During the last two months this epidemic has caused the death of some 1,400 children in New York, the mortality being about 25 per cent.; comparatively few adults have been attacked. Quarantine regulations are now being widely enforced in the neighbouring districts, and children under 16 years of age, we read in the *Times*, are forbidden to travel, to the vast inconvenience of holiday-makers. The public health authorities in New York are only too familiar with epidemic infantile paralysis, for the disease is always present and always more or less active in that cosmopolitan town. They are endeavouring to limit the epidemic by the isolation or quarantine of the most susceptible part of the population—that is to say, of the children. No more effectual way of dealing with the situation is known.

The disease is one that has been studied with great success during the last few years in America, more particularly by Flexner and his pupils, to whom we owe many of the recent discoveries made as to its etiology and the way in which it may be communicated from one person to another. The great advances made in this regard during the last five or six years may perhaps be shown by a brief history of the disease. It was first isolated as a distinct entity from the mixed mass of paralyses affecting children by von Heine in 1840, receiving the name "spinal paralysis of children"; naturally there could be no exact knowledge of its pathological anatomy at this early date. Two or three decades later Prévost and Vulpian, Charcot and Joffroy, and others described accurately the microscopical lesions that could be found in the spinal cords of patients dying of the disease. In 1890 Medin, taught by the study of a Swedish epidemic of infantile paralysis, extended our knowledge of its various clinical types, particularly in the symptomatology of their initial stages. Further advances were made by Wickman in 1905 and the

succeeding years, particularly so far as the epidemiology of the disease is concerned. Many other physicians and pathologists could be mentioned as having cleared up various obscure points in connexion with infantile paralysis, or, as it is sometimes termed, Heine-Medin's disease, or the Heine-Medin-Wickman disease; its bacterial cause was looked for with great persistence, and between the years 1898 and 1907 was identified by a number of observers, quite wrongly, with various cocci cultivated from the cerebro-spinal fluid of patients who had or had died of the disease. Fuller experience, however, proved that errors had been made here, and in 1911 Römer summed the matter up correctly when he said that the true bacterial cause of the disease was still unknown. Both cultural experiments and experiments on animals had failed to reveal it. Yet the seasonal and epidemic incidence of infantile paralysis and the inflammatory character of the lesions observed in it *post mortem* made it certain that some living and transmissible virus was the cause of the disease.

So far as its transmissibility was concerned, Landsteiner and Popper have shown that certain apes—hamadryads and macaques—could be infected with a disease indistinguishable from infantile paralysis, as we see it in children, by inoculation with an emulsion of the spinal cord of patients dying of the disease. The virus was found to be a filter-passer, and to survive preservation in glycerine for many months. In 1912 Kling of Stockholm succeeded in recovering the virus from washings from the mouth, nose, trachea, and small intestine of fatal cases of infantile paralysis. But the actual microbe causing the disease remained unknown until 1913, when it was isolated, grown on artificial media, and carefully described by Flexner and Noguchi. The success of these investigators where so many others had failed is to be attributed to their discovery of a suitable culture medium. Growths were made anaërobically under a layer of paraffin, in a solid agar medium containing sterile unfiltered ascitic fluid, or brain extract and sterile rabbit kidney. Minute colonies of the virus were obtained, composed of globular or globoid bodies averaging in young cultures 0.15 to 0.3 μ in size, arranged singly or in short chains or masses. Third generation cultures from human tissues, and cultures in the fifth generation from the tissues of experimentally infected monkeys, were found to produce typical acute anterior poliomyelitis in experimental animals.

At the present time, therefore, we are in the possession of a good deal of positive knowledge with regard to the pathogenesis and epidemiology of infantile paralysis. The virus producing the disease has been isolated, cultivated, and employed for the transmission of the disease to experimental animals in investigations that have proved invaluable and indispensable for the increase of our knowledge of its spread among human beings. The virus has been found in the naso-pharynx of human carriers of the disorder, who though they have never apparently suffered from it themselves, yet are capable of transmitting it to others. The virus has also been found in the alimentary tract of patients and experimental animals with infantile paralysis, a fact which may explain why it is that a gastro-intestinal upset sometimes precedes and appears to be the cause of an attack of infantile paralysis. The virus has been proved to reach the patient's central nervous system, in which its main pathological action is exerted, by travelling along peripheral nerves—the sciatic, the nasal nerves, the optic nerves and tracts, for example—to the spinal cord or brain as the case may be, and this is to be regarded as the normal mode of infection in poliomyelitis; gross infection of the blood stream with the virus may also suffice to infect the brain. Evidence has been adduced to show that certain flies, particularly *Stomoxys calcitrans*, the common stable fly, may act as carriers of the disease. In addition the virus has been found on clothes, handkerchiefs, and toys used by patients in the acute stages of infantile paralysis. The careful examination of washings from the mouth or intestine have shown that human beings may remain carriers of the virus for as long as six months. According to Kling, quarantine for infantile paralysis should last at least a fortnight—in New York it now lasts for ten days or thereabouts, we are told—though it is clear that no certainty attaches to any fixed period in this connexion. There is reason to believe that the great majority of adults and many children may be infected with the virus without being a penny the worse for it, either because the virus is enfeebled or because the resistance of such individuals is high. Thus it is probable that every patient acutely ill with the disease has in his immediate environment a number of mild and abortive cases of infantile paralysis that escape observation or detection and diagnosis, and also a still larger number of perfectly healthy people who are all carriers of the infecting agent and therefore potential sources of infection to others. It would seem as if all these persons developed a relatively high degree of immunity to the virus, a fact which may explain the comparative immunity of European towns or villages visited by epidemics of infantile paralysis to the occurrence of further epidemics during the next few years. In fact, as with cerebro-spinal meningitis, the number of the carriers of the infection may be much larger in infantile paralysis than the number of the victims of an epidemic of that disease.

At the present time the notion that infantile paralysis is a disease spread by flies to any great extent is somewhat blown upon. It is believed that susceptible human beings pick it up by contact with other human beings who are carriers of the virus. No other method of transmission has been put forward with any great weight of evidence behind it. Hence the isolation of contacts and cases of the disease appears to be the only method of preventing its spread. No trustworthy method of disinfecting the carriers appears to be known; it would be interesting to find out how far chloramine spray, mentioned on page 229 of the last issue of the British Medical Journal, would prove effective in the disinfection of the naso-pharynx here. It must be remembered that the British epidemics of anterior poliomyelitis during the last few years have all been small epidemics—for example, those in Norfolk, Suffolk, Staffordshire, Birmingham, and elsewhere during the years 1911 and 1912. In Scandinavia, Central Europe, and America the recent epidemics have been large, the numbers of cases running into thousands, and not being limited to the tens or exceptional hundreds of our own local outbreaks of the disease. Possibly the British climate is less well suited to the virus; possibly our population is more immune to its invasion. Be this as it may, medical men will look forward with interest to see the steps taken by the Local Government Board to minimize the possibility of the introduction of fresh carriers of the virus of infantile paralysis into this country, and to control the spread of the disease should it chance to assume grave epidemic proportions. Here, at least, the Board will be without historical precedent to guide them.

THE OBLIGATIONS OF THE PROFESSION TO DISCHARGED SOLDIERS.

THE effect of the return to civil life of a large number of men discharged from the army, more or less disabled or damaged in health, not only on the administration of the insurance scheme, especially medical benefit, and the duties of panel practitioners, but also on private and on hospital practice, is difficult to estimate, but there can be no doubt that it will be very considerable. Attention has been directed to the point from time to time by many medical bodies. One aspect of it engaged the attention of the Annual Representative Meeting of 1915, and the matter was briefly considered at the Annual Representative Meeting last month, when it was reported that strong representations had been made to the Insurance Commissioners as to the disturbance of the probable sickness incidence of insured persons owing to the withdrawal of healthy lives by enlistment, with the probable return of unhealthy lives into the insured class at a later day. The Council considered that beyond collecting information no further action should be taken at present, but the Chairman undertook that the matter should not be lost sight of once the war was over. There are those, however, who believe that, in view of the great uncertainty as to the duration of the war, and the number of men who are already being returned to civil life, it may become necessary to give close attention to the matter at an early date.

Statistics of the number of men actually discharged from the army on account of disabilities due either to wounds or to lost health are of course incomplete, but it would appear that, excluding men who have undergone amputation, or whose sight has been lost or seriously damaged, and those who have become insane, classes for whom special provisions are made, some 30,000 sailors and soldiers had been discharged down to the end of May, 1916. Since then it is reasonable to suppose that the number discharged from the army owing to the results of injury or disease has greatly increased, for taking a period of from six months to a year as that during which a man is retained under military medical treatment after his wound or breakdown in health, the estimate above mentioned would have reference to a time when the army engaged in the field was very much smaller than it is now. It is useless to conjecture what the number will be by the end of this year, and still more uncertain is the total number of men who will have been discharged disabled within six months after the end of the war, whenever that may be. Of the men so discharged during and after the war probably some 90 per cent. will be insured persons. Save for those cases, so far very limited in number, for which provision is made by the military or civil authorities for special treatment, all of these men will have a legal claim to be treated by panel practitioners, and there is a suggestion that some arrangement will be made by which the remaining 10 per cent. shall also be treated through the insurance organization.

The questions which arise, therefore, concern all members of the medical profession, whether panel practitioners or not, and whether consultants, specialists, or general practitioners.

One of the duties of the Statutory Committee on Pensions established under the Naval and Military War Pensions Act, 1915, is to make provision for the care of disabled sailors and soldiers, officers and men, after they have left the service. This is also one of the duties imposed on local Pensions Committees. The Parliamentary Secretary to the Local Government Board stated, during the debate in the House of Commons on August 8th, that 191 local Pensions Committees were already at work, and that the total number which ought eventually to be constituted was 259. A local Pensions Committee is appointed in accordance with a scheme drawn up by the council of the county or borough or urban district with the approval of the Statutory Committee, and 249 schemes had been approved on August 8th. A scheme must provide that at least the majority of the local Pensions Committee shall be appointed by the council of the county or borough or urban district, and for the inclusion of women and representatives of labour. It must provide also for the substantial representation on the local committee of persons who have, within the area, either as members of the Soldiers' and Sailors' Families Association, or the Soldiers' and Sailors' Help Society, or otherwise, been performing functions similar to those to be performed by local committees under the Act. A county Pensions Committee may appoint district committees, and local and district committees may appoint special subcommittees for special purposes, and in particular a special committee, which must include representatives of employers and of labour, for the care of disabled officers and men. The most important functions of the local Pensions Committees will be to advise the Central Pensions Committee on the allocation of pensions or grants or allowances, and to provide for the health training and employment of disabled officers and men after they have left the services. We have no information as to how these committees are usually constituted, but there does not appear to be an obligation—certainly there is no statutory obligation—that the local Pensions Committees should contain any representatives of the medical profession, although, in view of the duties of these committees with regard to disabled men, this would appear to be a reasonable provision. The Central Pensions Committee itself does not contain any representative of the medical profession, and the Disablement Subcommittee, which the Central Pensions Committee has established in accordance with the Act, is almost entirely lay; in fact, so far as any public announcement has been made, only one surgeon has been nominated to serve on it. This committee will presumably have to settle matters of principle, including many matters in which medical considerations must arise, so that it would undoubtedly have been a great advantage to the country and to the disabled men had the Disablement Subcommittee contained within itself a larger body of medical and surgical opinion. It seems to us even more important that the local Pensions Committees, local Disablement Committees, and district Pension Committees should contain an adequate number of medical members. These committees will have to deal more or less directly with individuals. They will have, for example, to consider what steps should be taken for their health and training; the first entirely, and the second in large measure, are, as we pointed out last week, matters on which no real advance can be made unless medical considerations receive due weight. The point will not be met by the appointment of medical referees, as seems to be the bright idea of some local authorities. That must result in fumbling administration and consequent injustice.

We confess to a great deal of sympathy with the general thesis of the letter by Dr. Rowland Fothergill published elsewhere this week, which we take to be that it is not too early for the medical profession to attempt to forecast the position in which it will find

itself after the war. The questions which arise affect every aspect of professional life, from the sick-room to the laboratory. They include the treatment of the poor law patient, of the insured person, and of the person who before the war was uninsured, many of them because they were earning incomes which took them out of the class to which compulsory insurance applies. They concern all members of the medical profession whether panel practitioners or not, and whether private general practitioners, consultants, specialists, members of the staffs of voluntary hospitals, teachers, or laboratory workers. It is a case in which all must pull together. But the profession needs information, and the British Medical Association, at the instance of the Annual Representative Meeting, has appointed a special committee to report to the Council on the steps which can and ought to be taken. This preliminary report, it is expected, will be ready for the meeting of the Council next October, and as a result a wider inquiry may then be instituted.

COCAINE IN PROPRIETARY REMEDIES.

In an article in our last issue dealing with the new regulations restricting the sale of cocaine and opium, we pointed out that a most unfortunate fault in these regulations is the exception of proprietary medicines from the operations of the clause requiring that the total quantity of cocaine ordered in a prescription shall be specified. As matters stand at present, proprietary articles containing more than 0.1 per cent. (one part in a thousand) of cocaine can only be sold on the prescription of a medical man, who is thus apparently expected to prescribe preparations which contain unknown but possibly large quantities of cocaine. From information received since the above article was written, it appears that, in some cases at least, proprietors of secret remedies containing cocaine are now recommending their customers to apply to their own medical man for the required prescription, apparently labouring under the impression that the medical profession will be quite willing to assist in maintaining a traffic which it has always regarded as a serious danger to the public. In one particular instance in which a member of the profession properly and with some natural indignation declined to play this part, the vendor of a nostrum containing cocaine is said to have remarked that in the event of the patient being unable to obtain his doctor's signature to the prescription a local chemist would be able to get it signed, a statement which can only be regarded as an unwarranted slur both on the good name of the medical practitioners and the pharmacists of the locality. From the above it is quite evident that, under existing conditions, the medical profession is placed in an extremely invidious position. Further, it seems clear that if nostrums containing cocaine are sold at all it will be impossible to exert any effective control of the quantities of cocaine distributed in this manner. We would invite the serious and early attention of the Home Secretary to this illogical exemption of proprietary articles from a stipulation which is enforced in the case of standard remedies of known composition prescribed by medical men.

THE DISCOVERER OF THE PILTDOWN SKULL.

Mr. Charles Dawson, who died at Lewes on August 10th, at the comparatively early age of 52, made the most important discovery of fossil man which has ever fallen to the lot of any one in Europe. In the opinion of experts the gravels of Piltdown Common, in the county of Sussex, were among the least likely deposits in Europe to yield such a discovery. It is highly probable that experts would have continued to think so had the quiet, solid, professional, and ingenious clerk to the Uckfield bench of magistrates not been, in his leisure hours, a keen student of the geology of the Weald. Long before he burst into fame through his discovery at Piltdown he was well known to professional geologists for the new fossil types he had discovered in the more ancient formations of the Weald. In the right sense of the term, his "find" at Piltdown was not the result of a fortunate stroke which might have happened to any one. Mr. Dawson had been interested for many years in the problems broached by Mr. Benjamin Harrison of Ightham and the late Sir Joseph Prestwich—the problems of "eoliths"—whether or not they were of human workmanship. A deposit of gravel, which has neither interest or significance to most men, becomes to men like Mr. Dawson a possible chapter of history. A search is made in the gravel, not only for possible eoliths, but for remains of extinct animals, which will afford a clue to the date at which the gravel deposit was formed. Hence, in 1908, when he found a country road being mended with a kind of gravel which was new to him, he followed up its source to a pit on Piltdown Common, and his first question to the workmen was as to fossil bones, so as to gain a clue to the age of the gravel. The pit yielded both fossil bones and eoliths, and he at once realized its importance. He saw that some of the fossil bones seemed to have a human appearance—an appearance which at once reminded this country lawyer and antiquarian of the Heidelberg jaw, the oldest human fossil bone which had then been found in Europe. It will thus be seen how little Mr. Dawson's discovery had to do with chance. There could have been then in England very few men with a sufficient knowledge to appreciate the nature and importance of all the facts which lay before him at Piltdown. To the workmen the facts, which signified so much to Mr. Dawson, meant nothing. To them all was road metal. Mr. Dawson was a splendid type of that great class of men who give the driving power to British science—the thinking, observant amateur. Without that class to serve as scientific scouts we could make little progress in our knowledge of the past. We are also certain, from what we know of him, that he would have been hurt to think his claims to fame rested entirely on the discovery of those remains out of which Dr. Smith Woodward reared the new human genus of Eoanthropus; he himself would have laid emphasis on his geological discoveries in the Wealden formations, his discovery of the natural gas at Heathfield (now used to light the station and hotel there), and on his invention of special bullets for the destruction of Zeppelins. He was also a keen sportsman, as well as a lover of all records and documents of the past.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.[1]

Dr. Bradley's new instalment of the *Oxford English Dictionary* runs *Stead* to *Stillatim*, and between these termini the words inherited from early English are very numerous and few of them are typically medical. At the same time the medical meanings of simple common terms are faithfully chronicled. Thus under steel there comes the definition "iron as used medicinally; chalybeate medicine," and this explanatory paragraph follows: "In early practice iron or steel filings were sometimes administered internally; another mode of exhibition was to give the water in which iron or steel had been quenched when red hot, or had been allowed to remain for some days. The ordinary notion was that 'iron' and 'steel' were different medicines, with similar but not identical therapeutic effect. Steel is now used in untechnical language for any chalybeate medicine, perhaps especially

[1] *A New English Dictionary on Historical Principles.* Vol. ix, St-Th. Stead—Stillatim. By Henry Bradley, Hon.D.Litt. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay. Oxford University Press. Humphrey Milford. July, 1916. Price 2s. 6d. net. (60c.)

iron chloride." The little used terms, salt of steel, flowers of steel, and sugar of steel are also defined and illustrated. Although many of the words are thus of old English origin there are some of Greek etymology, and not a few of them are medical. Thus, from *στέαρ*, fat or tallow, come steapsin, stearate, stearic, steariform, stearin, stearo (in combinations), stearoid, stearone, stearoptene, steato (in combinations), steatoma, steatosis, and that curious racial pathological state, steatopyga or steatopygy of the Hottentot Bushmen of South Africa. Again, the Greek word, *στενός*, narrow, has its little English family of terms, such as stenobregmate, stenocardia, stenocephaly, stenocrotaphy, stenostomatous, and stenosis itself. Stenonian, as applied to the parotid duct, has, of course, quite another origin, coming as it does from Stenonius, the latinized name of Nikolaus Stensen, the Danish anatomist, who first described the structure; indeed it is also known as Steno's or Stensen's duct; *στέρνον* and *στῆθος*, both meaning breast or chest, give origin to a whole group of well-known medical terms, such as sternad, sternal, sternebra (any one of the segments of the sternum, each corresponding to a pair of ribs), steriform, sterno (in combinations), sternum, stetho (in combinations, such as stethocardiograph), stethoscope (the first illustrative quotation given bears the date 1820, and in 1861 Albert Smith defined it as "a curious instrument, something like a toy-trumpet"), and stethoscopy. From the Latin *stercor- stercus*—dung—come some words of ill omen, such as stercoraceous, stercoraemia, stercorin, and stercorolith; whilst from sternutare—to sneeze—are derived sternutation, sternutatory, and sternutative, and the *Dictionary* gives a possible explanation of the saying, "Bless you," to any one who sneezes. Sthenia comes from *σθένος*—strength—and is opposed to the more common term asthenia. Sthenic was the name applied by Dr. John Brown (1735–88) and his followers to diseases characterized by a normal or excessive accumulation of "excitability" or vital power in the system. Sterile and sterilize are not, of course, essentially medical terms; but it is interesting to find that the particular meanings "free from micro-organisms" and "to render free from micro-organisms" go back to 1877 and 1878, when they were used by Tyndall. The current part of the *Dictionary* stops just short of stillborn, and it will be a matter of curiosity to some to learn the definition of that word to which Dr. Bradley's researches lead him.

THE BOARD OF SCIENTIFIC SOCIETIES.

On the initiative of the Royal Society a Board of Scientific Societies has been established to promote the co-operation of those interested in pure or applied science; to supply a means by which the scientific opinion of the country may, on matters relating to science, industry, and education find effective expression; to take such action as may be necessary to promote the application of science to our industries and to the service of the nation; and to discuss scientific questions in which international co-operation seems advisable. The board at present consists of representatives of twenty-seven scientific, including technical, societies. The regulations give power to add to this number, and to appoint as members of subcommittees individuals who are not necessarily connected with any of the constituent societies. An Executive Committee has been appointed, consisting of Sir Joseph Thomson, O.M., President of the Royal Society (Chairman), Dr. Dugald Clerk, F.R.S., Sir Robert Hadfield, F.R.S., Mr. A. D. Hall, F.R.S., Professor Herbert Jackson (Honorary Secretary), Sir Alfred Keogh, K.C.B., Sir Ray Lankester, K.C.B., F.R.S., Professor A. Schuster, Secretary of the Royal Society, Sir John Snell, Professor E. H. Starling, F.R.S., Lord Sydenham, G.C.S.I., F.R.S., and Mr. R. Threlfall, F.R.S. The first meeting of the Board was held on July 20th, when questions relating to scientific, educational, and industrial matters were under consideration, with a view to taking effective steps for co-ordinating the work carried out at present by a number of independent bodies, or initiating action in the case of other matters of national importance.

BRITISH PRISONERS IN SWITZERLAND.

Two new contingents of British prisoners of war arrived in Switzerland on August 12th; they numbered together 862—74 officers and 788 men. One contingent went to Mürren and the other partly to Chateau D'Oex and partly to Leysin. They had a most cordial reception from the Swiss people at all parts of their journey after crossing the frontier. The contingent which went to Mürren was received there by Captain Lopart, the chief medical officer of the district, and by the British Minister, Mr. Grant Duff, who paid a heartfelt tribute to the extraordinary kindness and hospitality shown by the Swiss to every one in distress during the war. The Swiss, he said, were a nation of soldiers, who had a natural sympathy with men who had suffered while fighting for their country, and the whole Swiss people had shown that there was a nobler thing than military glory, and that mercy still existed in the world. The contingent which went to Chateau D'Oex was welcomed there by the President of the Swiss Reception Committee. Speeches made there by Mr. Galland, British Consul at Lausanne, and by Colonel Vansittart dwelt on the warmth of the reception that the British prisoners had met with alike in the German- and the French-speaking parts of Switzerland. When the offer of hospitality was made by the Swiss Government it aroused a strong feeling of gratitude in this country and also in France. The manner in which the Swiss people, by the spontaneous cordiality of their reception, showed that their Government had truly interpreted their sentiments has deepened and broadened our sense of the debt we owe to our kindly friends in the mountain republic. All prisoners transferred to Switzerland under the arrangements now existing are examined by a Swiss medical commission before being despatched, and the British Government has proposed that this commission should visit Great Britain and Germany every quarter.

MEDICAL CARE OF SOLDIERS' FAMILIES IN GERMANY.

It would appear that the arrangements for the free treatment of soldiers' families made early in the war have worked smoothly except in Berlin. Apparently even before the outbreak of the war the chief magistrate of Berlin stipulated that poor law medical officers (*Armenaerzte*) should treat free of charge the families of soldiers referred to them by the military bureau. This duty was conscientiously fulfilled in spite of great difficulties, but at the time of the diphtheria epidemic in the autumn of 1915 the strain became too great, and protests were raised by the medical profession. A series of meetings were held and attempts made to negotiate with the civil authorities with a view to some readjustment of the original arrangement. But the chief magistrate seems to have adopted a high-handed, uncompromising attitude. Though it was decided by the representatives of the medical profession that the original agreement should not be renewed, provision was made for the continued care of soldiers' families till a new and more satisfactory settlement could be effected.

LOCAL SCHEMES UNDER THE VENEREAL DISEASES ORDER.

A DEPUTATION from the Representative Body of the British Medical Association was introduced by Sir Clifford Allbutt to the President of the Local Government Board on August 15th, and discussed with him certain points relative to the schemes which local authorities are to draw up for the prevention and treatment of venereal diseases. The deputation represented strongly the opinion of the Association

that to place the medical representatives on the local consultative committee after the scheme had been framed by the local authority, would be to waste the experience of the profession, which should be used by the authorities at the time when it would be most beneficial—namely, in moulding the details of the scheme. The deputation met with a sympathetic reception from Mr. Long, who expressed his strong desire to act in this matter thoroughly in accord with the medical profession. We hope to publish a report of the proceedings, together with the memorandum presented to Mr. Long on behalf of the British Medical Association, in our next issue.

Medical Notes in Parliament.

Mesopotamia.

On August 9th Sir John Jardine asked whether the river craft used for conveying the troops up and down the Tigris and Euphrates had proper appliances for securing uncontaminated drinking water, and whether sufficient supplies of drugs, bandages, and other medical appliances had reached the troops on the lines of the two rivers. The Secretary of State for War (Mr. Lloyd George) replied that sufficient time had not elapsed since the War Office assumed responsibility for an appreciable change to have been effected in the situation as a direct result of that change of responsibility. The Army Council did not claim that all had yet been done which should be done, and would be done, but on all new boats ordered in the United Kingdom arrangements for securing adequate proper drinking water had been made. Filtration barges were being sent, and supply tanks would be provided at various points. As regards vessels already on the spot, an installation for sterilizing water recommended by the D.M.S. and the late Sir Victor Horsley had been provided on many ships, and would be fitted to the remainder; two tanks holding forty gallons for cooling purposes had been fitted on each vessel. A large number of hospital river steamers and barges had been ordered. All demands for drugs, bandages, and other medical appliances had been supplied, and as the general officer commanding had repeatedly been told to ask for all that was wanted, Mr. Lloyd George said he was satisfied that sufficient supplies were now available on the spot.

In reply to Sir H. Craik, Mr. Chamberlain stated on August 14th that the matters dealt with in the report of the Committee consisting of Sir William Vincent, General Bingley, and Mr. Ridsdale, appointed to inquire into the medical arrangements and transport in Mesopotamia must, in view of the appointment of the Statutory Commission on the operations in Mesopotamia, still be considered as *sub judice*. It would be submitted to the Statutory Commission but would not be published. In addition to criticisms of the Indian military organization—a matter now engaging the serious attention of the Government—the Vincent Commission mentioned certain officers by name as having a grave responsibility in connexion with the state of affairs disclosed by the investigation. For various reasons the Commission was unable to examine any of these officers in person, but they would no doubt be examined by the Statutory Commission, by which their cases and the measure of their responsibilities would be considered. The officers named had vacated their positions, and new appointments had been made to the posts formerly held by them. In reply to Sir Edward Carson, Mr. Chamberlain said that he was aware that everything was not yet satisfactory in Mesopotamia. Though the difficulties of transport had not yet been wholly overcome, and could not be wholly overcome for some little time, he believed that matters were very much improved. The new Director of Medical Services in India had gone to Mesopotamia on his way to India, and had dealt with defects he had found. It was believed that everything possible was now being done to set things straight.

The Under Secretary of State for India stated in the House of Lords, on August 15th, that the Secretary of State had asked him to say that special recognition was given in the report to the very valuable services rendered by the officers and men of the Royal Army Medical Corps and the Indian Medical Service, who, under unspeakable difficulties and with very inadequate staff and equipment, did what they could to mitigate the suffering of their fellow countrymen.

War.

Troops in Salonika.—In reply to a question by Mr. Shirley Benn, on August 10th, the Financial Secretary to the War Office read the following extract from a letter, dated July 26th, from Sir Courtauld Thomson, British Red Cross Commissioner in Macedonia:

> Another striking change here is the progress that has been made in the hospital accommodation and arrangements. I have been in all your general hospitals and many of the casualty clearing stations and field ambulances, and the standard of efficiency seems very high. I have been much impressed by the officers commanding. It is a pleasure to see the pride they take in their own unit and their keenness to try and make it the best of its kind. The last three weeks have been a great strain on every one, but the medical service have risen splendidly to the occasion.

Mr. Forster added that there had been a good many cases of malaria in the Struma Valley, but their number was now lessening.

Nerve-shaken Soldiers.—The Parliamentary Secretary to the Local Government Board, Mr. Hayes Fisher, said that questions in the House of Commons with reference to pensions and grants, and with regard to medical treatment of disabled soldiers and sailors, should be addressed to him as representing the War Pensions Statutory Committee. That committee was considering the question of institutions or some alternative treatment for uncertifiable nerve-shaken soldiers. Under the arrangements made by the War Office such men were retained in military hospitals as long as they required specialist medical in-patient treatment.

Women Doctors in Military Employ.—In reply to Mr. Dickinson, on August 14th, the Financial Secretary to the War Office said that women doctors employed upon foreign service under the War Office would be entitled to receive the same pay and allowances as male doctors similarly employed.

Pensions for Deaths from Disease.—Mr. Grant, on August 14th, asked if the scale of pensions for deaths due to such diseases as cholera, which were incidental to the conditions of campaigning in Mesopotamia, would be on the same scale as pensions appertaining to death on the battlefield or from wounds, and if not, what was the explanation of the difference. The Financial Secretary to the War Office said that the regulations with regard to pensions followed the recommendations of the recent Select Committee in maintaining the specially high pensions which had been granted for a century to the widows of officers killed in action.

Medical Attendance on Munition Workers.—In a written reply to Mr. Macmaster, the President of the Local Government Board has stated that every effort was made to provide suitable medical and nursing services in munition factories. Special arrangements were made with regard to workers in explosive and filling factories, and in other dangerous occupations; and in connexion with these further steps were under consideration. It was obvious that the means for obtaining these services were affected by the demands of the military and naval authorities and of the civilian population.

British Prisoners of the Turks.—In reply to a question by Colonel Yate, on August 14th, Lord Robert Cecil said that the main cause of uneasiness felt as to the treatment of British prisoners of war by the Turks was their refusal to allow them to be visited by American officials, which appeared to be due to the perversity, or worse, of the Turkish Government. The arrival of a considerable number of British prisoners at various places of internment had been heard of, and some private messages received from them were, it was understood, of a reassuring character.

Industrial Poisoning.—The Under Secretary of State for the Home Department stated on August 3rd, in reply to Mr. Anderson, that the number of cases of lead poisoning reported under the Factory and Workshop Act for the six months ending June, 1916, showed a slight decrease; unfortunately there had been a considerable increase in the number of cases of anthrax, and this, he was advised, could only be accounted for by the fact that owing to the heavy demand manufacturers had used all kinds of material. There was reason to hope that the Departmental Committee appointed to investigate the problem of prevention would put forward effective proposals. The fact that the notification of toxic jaundice—namely, jaundice due to tetrachlorethane or certain other poisonous substances used in explosive works—was only made compulsory for the first time this year was the chief reason for the apparent increase in the number of reported cases of poisoning, while the number of persons employed in the factories concerned had been constantly increasing. In reply to a question by Mr. Rowlands, on August 7th, Mr. Brace said that there had been a considerable decrease in the number of cases; satisfactory dopes free from tetrachlorethane were now available in sufficient quantity, and the War Office and Admiralty had directed their contractors to use only approved dopes of this kind.

THE WAR.

WARM ETHER.

THE use of warmed ether is not new. The principle entered with the construction of the Roth-Draeger anaesthesia appliance, which attained some popularity at University College Hospital and elsewhere about ten years ago. The idea has also had advocates in America, where, despite the fact that the administration of anaesthetics has been denied the position of a speciality, all allied questions have received a great deal of study, thanks largely to the influence of Crile.

But both the principle and its adoption are comparatively new on the Flanders front, and the impression so far created is worth noting.

The use of warm ether was introduced soon after the beginning of the present year by the anaesthetist of one of the casualty clearing stations (Captain G. Marshall), under the influence of experiments at Guy's Hospital (Dr. F. E. Shipway). It was taken up soon afterwards at a neighbouring unit dealing with the same class of case (patients requiring severe operations and already partially collapsed), spread to a good many like units along the front, and is now being tried at more than one base hospital.

It was claimed that patients went under more easily, could be kept under with a minimum of anaesthetic, recovered quickly, and showed a lessened tendency to vomiting and bronchial effusion; inquiry at other hospitals where it has been tried leaves the impression that these claims are not unjustified. It is better to speak only of impressions, for at no time and nowhere is it easy to obtain really scientific data as to the comparative value of any special method of administering the commoner anaesthetics, and out here it is especially difficult. There are great differences in the character of the injuries necessitating operation, as also in the time that elapses before the cases reach a hospital. Furthermore, of any two cases which superficially appear strictly comparable, one may have been lying for hours in wet mud and therefore be already on the verge of bronchial trouble, which would have developed whatever anaesthetic or means of administering it were used.

The appliances that are being used are alike only in the fact that they all aim at securing that the temperature of the ether which reaches the patient's mouth and nose shall be above that of the ether which still remains in the receptacles. Some aim also at warming any chloroform vapour which may be used in the first induction of anaesthesia or during the progress of the case, and others even make the same provision for the administration of oxygen, but it may be doubted whether this refinement is necessary. The amount of chloroform required to maintain anaesthesia is so small and its evaporation rate so low, that its cooling effect on inspired air must be very slight. The absorption of heat by oxygen on its expansion in the quantities in which it is used in anaesthesia also appears to be immaterial.

But the conditions in respect to ether are quite different. When it is given (as is usually the case out here) by the open method, the quantity required to produce and maintain satisfactory anaesthesia is considerable, and the rate of evaporation and consequent heat absorption so great, that the moisture on the lint or face mask which is being used may be converted into spicules of ice or snow. In other words, the patient is being made to inspire through an open mouth and at a moment when his heat regulating centres are temporarily paretic, air which, having passed through an ice filter, is in itself in the neighbourhood of zero Centigrade.

To substitute for this the inhalation of air which, although ether-laden, is not much below body temperature, can hardly be anything but a gain from the point of view of avoidance of bronchial irritation and shock; more especially if the general advantages of open ether are simultaneously secured.

To extemporize a machine which will effect this substitution is not difficult. The aim is to make certain of bringing into the mask on the patient's face a vapour, not a liquid, and there are several ways in which this can be done. In the case of chloroform it can be done simply by blowing air through chloroform; in the case of ether by blowing small quantities of ether-charged air or liquid ether into a tube immersed in hot water. In the tube the liquid ether expands and reaches the face mask as a dense vapour.

The requisites are an ordinary wire or Schimmelbusch mask with a cover of flannel or lint, some glass piping and india-rubber tubing, an earthenware jar, a fairly wide-necked ether container, a large cork, and a Higginson's syringe or other equivalent of an air pump. Two pieces of glass pipe, one long enough to reach the bottom, are passed through the cork of the ether bottle. The one is connected to the Higginson's syringe by a piece of india-rubber tubing, and the other to a long piece of similar tubing which, after being coiled inside the earthenware jar, ends under the cover of the mask.

This is the machine in about its most elementary form. It is put into action by filling the earthenware jar with hot water and giving the Higginson's syringe a squeeze as often as the condition of the patient requires. On each squeeze there passes into the immersed coil a certain number of droplets of ether, which are there instantly expanded by the surrounding heat and reach the face mask as a warm vapour.

The machine can be improved by various slight modifications. Thus, it is better to fit the earthenware jar as well as the other bottle with a cork through which pieces of glass tubing have been passed. To the lower ends of these tubes are fastened the ends of the india-rubber tubing which is to be used as an immersion coil and to the upper ends the pieces of tubing which connect this coil with the face mask and ether bottle respectively.

It is also useful to make the vapour tube end in a piece of hollow metal soldered to the wire of the mask. A piece of silver catheter, three or four inches long, fulfils this purpose well, especially if there be bored in it a few extra openings.

There is also, perhaps, some advantage in making the tube between the ether bottle and the Higginson's syringe so long that the latter can lie on the floor under the head of the operation table. In that position it can be pressed from time to time by the anaesthetist's foot, his hands thus being left entirely free. The best hot water container on the whole is one of the vacuum jacketed flasks in common use for keeping fluids warm, but unless the operations generally undertaken are very prolonged an ordinary earthenware jar, such as those in which chemical salts are supplied, does just as well. Finally, to keep the whole appliance compact, it is useful to stand the bottles in a wooden tray with sides a few inches high.

Any one who wishes to make a preliminary test of the kind of effect that will be produced by the apparatus described has only to attach a small funnel to a foot-long piece of india-rubber tubing, and hold the end of the latter in the closed fist. If a little ether is then poured into the funnel the palm of the hand first gets wet, then cold. If, however, the middle of the tube is allowed to dip into a basin of hot water, the palm is not wetted, but warmed. This experiment represents the quality of the effect of the appliance quite accurately, but exaggerates its quantity.

The construction of an appliance which will warm the chloroform as well as the ether is equally simple, indeed, almost identical, but involves the use of certain additional material which may not everywhere be ready to hand. These are a couple of three-way tube-joints, one to join the air pump to the entry tubes of the ether and chloroform bottles respectively, the other to connect their exit tubes with the immersion coil. Unless one of these joints is provided with stopcocks, compression forceps must be used to regulate the current of air; otherwise the ratio of ether to chloroform in the vapour reaching the mask will depend mainly on the height at which the two fluids stand in their respective bottles.

Any copper worker can make three-way joints, but they are to be found ready to hand at the chest-piece ends of most binaural stethoscopes, and in two-way metal catheters for washing out the bladder. Best of all is the top of a broken aspirator, since it has the desired stopcocks.

From the foregoing general description one or two details of some importance have been omitted.

Theoretically it does not matter to which of the two glass pipes in the ether bottle the air-pump tubing is attached, since in either case what reaches the mask will be a vapour not a fluid. Practically, however, the difference is great. If the air-pump tube is attached to the shorter piece of glass pipe the resulting vapour is far too strong.

The length of the tubing between the immersion coil and the mask should just suffice to allow the latter to be placed easily on the patient's face—say 6 in. If it is too long and the temperature of the operating room is low the vapour has time to recondense to some extent.

Finally, as regards the question of making the appliance warm chloroform as well as ether, though the theoretic advantages are small, some of those who have had much experience in the matter claim that there is full compensation for the extra trouble involved in making such a machine. If the chloroform as well as the ether is driven through the immersion coil, it is very much easier to maintain the anaesthesia at the precise level desired and to avoid unintentional variations. This equability is a very great advantage when the operations are prolonged and the vitality of the patient is low.

THE TREATMENT OF GUNSHOT FRACTURES OF THE UPPER THIGH.

Professor v. Ruediger has published an article on this subject,[1] based on the experience during its first six months of the War Hospital in Brunn, of which he is the surgeon-in-chief. The total number of cases admitted into the hospital was 4,175, and the number of deaths was 41. Among the cases admitted were 138 of compound fracture of the upper part of the thigh, and he criticizes very severely the condition in which they arrived at the hospital. In many cases, instead of extending to the chest the splints did not include the pelvis, and commonly, whether of metal or plaster-of-Paris, reached only as far as the fold of the buttock, so that their weight favoured displacement of the fragments. He condemns the failure to remove plaster-of-Paris splints when the men were admitted. It was excused on the ground that it was difficult to deal with from 400 to 800 cases arriving at one time by night transport, but the spread of lousiness had led to a general order that all plaster bandages, as well as other dressings, must be removed as soon as the patient arrived in hospital.

Although in peace he had been in the habit of employing plaster-of-Paris for the treatment of fractures of the thigh he strongly advocated extension in the treatment of war cases, and when the skin would not tolerate adhesive plaster he used a transfixion pin.

He combats the contention, which he attributes to Perthe, that reposition of the fragments must give way to treatment directed against the infection, maintaining that reposition and true alignment of the limb favour free drainage and the natural processes of defence and cure. His conclusion in this connexion is that all cases of compound fracture of the upper part of the thigh should be transported as quickly as possible to a stationary hospital in which they can remain for at least six or eight weeks immobilized in extension.

The general impression given by the article is that the field treatment and transport of cases of fractures of the thigh in the Austrian army has in the past been defective. V. Ruediger concludes by directing special attention to the following points:

1. The necessity for using a good method of fixation in the first instance.
2. The large number of cases which have been sent in with horrible appliances (*Schrecklichen verbanden*).
3. The urgency of educating the medical officers in better methods.
4. Better methods of transport.
5. That fractures of the thigh should be sent to stationary hospitals as soon as possible.
6. That extension from the beginning is the best treatment.
7. That plaster may be used later after the bones have begun to unite.

[1] *Wien. klin. Woch.*, May 16th, 1916.

AUSTRO-GERMAN EXPERIENCES.

The German Soldier's Rations and Clothing.

In the field the daily ration is calculated to yield at least 3,000 calories, 500 of which are provided by albuminous substances. On long marches, and when work is heavy, the ration includes 150 grams of albumin, 100 grams of fat, and 500 grams of carbohydrates. For light work this ration is reduced to 120 grams of albumin, 56 grams of fat, and 500 grams of carbohydrates. The usual ration consists of 375 grams of fresh or salt meat, or 200 grams of smoked meat (sausages, etc.); 125 grams of rice, or 250 grams of peas, beans, or lentils; or 60 grams of dried vegetables; or 150 grams of preserved vegetables; or 1,500 grams of potatoes; or 1,500 grams of equal parts of greens and potatoes; salt 25 grams, coffee 25 grams, tea 3 grams, and sugar 17 grams.

These figures are used as a rough guide, considerable latitude being allowed to commissariat officers. The ration of 750 grams of bread has been found to be too generous, and 650 grams have proved to be ample in the trenches, and even a ration of 500 grams has been found sufficient under certain conditions. When he thinks it necessary, a commander may double the coffee ration or order 0.1 litre of brandy for each man. When meat is not procurable, the bread ration is raised to 1,000 grams; and when the supply of bread is short, it may be supplemented by increasing the meat ration, particularly in a hostile country where a large stock of commandeered fresh meat is to hand.

Every article of clothing of the German soldier has to pass expert criticism before being accepted. The control under which boots in particular are manufactured is very rigorous. It begins in the tanneries, where officers with special training are employed to supervise the various processes. As a rule, the use of oak bark is ordered for the tanning of leather for soles, and rapidly tanned leather is not passed for this purpose. It is claimed that the German top boot has proved during the war superior to ordinary boots with puttees and leggings, which do not keep deep mud out so effectively.

Nephritis.

At a meeting of the German Medical Society of Prague[1] Dr. F. Pick drew attention to the relation of nephritis among soldiers to the season. Between September, 1914, and April, 1915, he saw only 3 cases among a total of 1,711 medical casualties; but between May and November, 1915, he saw 35 cases of nephritis. A curious feature of these cases was the small amount of albumin compared with that of the blood in the urine. Even in early cases there was only 0.2 to 0.4 per cent. albumin, whereas in almost every case there was severe and persistent haematuria, with serious exacerbations after dietetic or other indiscretions. In nephritis under other conditions haematuria usually disappeared long before there was an appreciable reduction of the albuminuria. In other respects there was little difference between the nephritis of war and peace. Dr. Pick's cases ran a benign course, none terminated fatally, and the only case of uraemia observed reacted satisfactorily to venesection and bromine. In the absence of hypertrophy of the heart and a rise of blood pressure, he regarded the nephritis as focal, not diffuse. The excretion of potassium iodide was prompt (seldom more than thirty hours). Only in three cases had the nephritis been preceded by typhoid fever, and in no case was there a definite history of sore throat. A previous history of nephritis was obtained only in two cases. Diplococci, streptococci, staphylococci, and saprophytes were all found in the urine, but not the colon bacillus. The only complaint made by every patient was of exposure to severe wetting; and Dr. Pick was inclined to regard infection, combined with severe wettings, as the principal cause of nephritis in soldiers. Even when every symptom had vanished, he regarded these patients as unfit for further active service.

A Scarlatiniform Rash following Typhoid and Cholera Inoculation.

In June and July, 1915, Professor W. Frieboes[2] observed 10 to 12 cases in which inoculation against typhoid fever and cholera was followed by a rash simulating that of scarlet fever. Indeed, in artificial light, the appearance of the rash was exactly that of scarlet fever; but in daylight it was distinguished by its dusky red colour and a faint yellow tint. The desquamation characteristic of scarlet fever was wanting, and the patients were again quite fit for duty in five to ten days. This outbreak was limited to soldiers who had been inoculated a little earlier—usually three to four weeks—against typhoid fever and cholera. Between July and November there were no new cases, but after November, 11 similar cases cropped up, in every case three to four weeks after inoculation. Mild or abortive

[1] *Muench. med. Woch.*, February 1st, 1916.
[2] Ibid., February 15th, 1916.

forms of this rash were also observed. In the most severe cases vomiting, fever, and bronchitis occurred; but even when the rash was most marked there was always a background of white skin, giving a marble-like appearance to the part affected. Professor Frieboes thought the typhoid vaccine, rather than the cholera vaccine, was to blame.

OBSCURE RHEUMATIC PAINS AMONG SOLDIERS.

Commenting on the difficulty in distinguishing between the true pain of rheumatism and the fictitious pains of the war-weary soldier, Dr. M. Matyas[1] has described a sign which has frequently guided him to the diagnosis of true rheumatism. During fourteen months' service at the front he was consulted by an almost countless number of patients whose principal complaint was of severe pains which were almost unbearable in the evening, and which became still worse at night. He found the temperature in the evening normal—36.7° C. or 36.8° C.; but when he took the temperature at night he was astonished to find in many cases that it was as high as 37.1° C., 37.5° C., and even 38° C. He suggests that though there is no such thing as a "pain-thermometer," the clinical thermometer, frequently used, will often in these obscure cases distinguish the patient from the malingerer.

TREATMENT OF WOUNDS OF THE TESTICLES.

Dr. Levy[2] has found the conservative treatment of wounds of the testicle unsatisfactory; it is not sufficient to apply a first dressing and to trust that immobilization will prevent infection and suppuration. Following Professor Ritter's advice, he makes a rule of giving a general anaesthetic as soon as the patient is admitted to hospital, cutting off all infected tissues, and washing the wound thoroughly. The first step is to trim the wound of the skin by cutting away its edges. The track of the wound is then opened up completely, the contaminated tissues are cut away with scissors or a knife, the resulting haemorrhage is arrested, and the whole wound washed with warm saline solution or soap and water. The tunica vaginalis is then closed, but the wound is left open.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN JULIUS HENRY BEILBY, R.A.M.C.(T.F.), is now reported as having been killed in action on April 23rd. He was formerly reported as missing, after a cavalry skirmish on the Egyptian frontier, in which a troop of the Worcestershire Yeomanry got cut off from their horses and captured (BRITISH MEDICAL JOURNAL, May 6th). He was the second son of the late J. H. Beilby, of Edinburgh, and was educated in the medical schools of the University and Royal College of Surgeons, Edinburgh, graduating as M.B. and C.M. in 1889, and afterwards studying at Vienna. After acting as resident physician of the Royal Hospital for Sick Children, Edinburgh, he went into practice at Perry Hall, Bromsgrove, where he was surgeon to the Bromsgrove Cottage Hospital, and certifying factory surgeon. He was medical officer of the Worcestershire Yeomanry (Queen's Own Worcestershire Hussars), in which he attained the rank of captain on September 5th, 1914.

Captain Henry Rylands Knowles, R.A.M.C., was killed in action early in August, aged 26. He was the son of Dr. Knowles, of Heysham Cottage, Heysham, and was educated at Barnsley Grammar School and at Leeds University, where he graduated as M.B. and Ch.B. in 1914. He took a temporary commission as lieutenant in the R.A.M.C. on September 14th, and was promoted to captain on completion of one year's service. He went to the front early in 1915, and was attached to the Royal York and Lancaster Regiment.

Temporary Lieutenant Benjamin Richard Roberts, R.A.M.C., was reported killed in the casualty list published on August 8th. He was educated at Queen's College, Galway, and at the Royal College of Surgeons, Edinburgh, taking the Scottish triple qualification in 1898. After serving as a civil surgeon in the South African war, he settled in practice at Braamfontein, Johannesburg, where he was medical officer of the Central South African Railways.

Killed.

Captain D. H. D. Wooderson, R.A.M.C. (temporary).

Died of Wounds.

Captain Richard Molesworth Dennys, who has died of a wound received during the recent advance, was the only son of Mr. and Mrs. E. A. Dennys of Coleherne Court, S.W. He was educated at Winchester and St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1909. On the outbreak of war he offered his services to the British Red Cross and the R.A.M.C., but being informed that there were no vacancies, accepted in October, 1914, a commission as temporary lieutenant in the Loyal North Lancashire Regiment, being promoted to captain in the following December.

Wounded.

Captain G. J. Fraser, R.A.M.C. (temporary).
Captain C. H. Wood, New Zealand Medical Corps.
Lieutenant S. J. Cowell, R.A.M.C. (temporary).
Lieutenant H. R. Felton, R.A.M.C. (temporary).
Lieutenant B. Graves, R.A.M.C. (temporary).
Lieutenant P. J. Lane, R.A.M.C. (temporary).
Lieutenant C. W. Sharp, R.A.M.C. (temporary).

Missing.

Surgeon-Probationer Gerald S. Freeman, R.N.V.R., H.M.S. *Lassoo*, August 13th.

Prisoners of War.

A list of sixty-eight officers taken prisoners at Kut was published on August 12th. In it were included the names of six officers of the Indian Medical Service, two of which, Major E. A. Walker and Lieutenant N. Jafar, do not appear to have been given in the previous lists.

DEATHS AMONG SONS OF MEDICAL MEN.

Hartigan, Rev. J. Austin, aged 32, military chaplain serving at Mesopotamia, died in the No. 1 British General Hospital at Amara on July 16th. He was the fourth son of the late Dr. J. T. Hartigan, of Tarbrook, Croom, and has three brothers serving with the colours.

Hudson, Athol, Second Lieutenant New Zealand Expeditionary Force, son of Dr. Hudson, of Nelson, New Zealand, recently reported as "missing, believed killed," aged 34. He was educated at the Waitaki Boys High School and at Victoria University College, where he took the B.Sc. and a national scholarship in chemistry, also gaining the New Zealand Rhodes Scholarship for 1915. He enlisted in the first New Zealand Expeditionary Force, which captured Samoa, and on his return got a commission in the 9th Reinforcement. He held the long distance running championship of New Zealand for one mile and three miles, and the light-weight boxing championship of his university.

Hurd-Wood, John Graham, Captain, son of the late John Hurd-Wood, M.D., of Farnham, killed August 4th, aged 48. Before the war he was in the Army Motor Reserve; in October, 1914, joined as interpreter with the rank of lieutenant, and was promoted to captain in January, 1915. He was serving as staff-captain in an infantry brigade when killed.

Johnstone, Edward James, Private Royal Scots, aged 20, son of J. J. Johnstone, M.B., Tillicoultry, killed in the attack of July 1st. He was educated at Dollar Institution, and had only begun his training as a civil engineer in Edinburgh when his sense of duty caused him to enlist.

Kennefick, Edward Hammerton, Captain Essex Regiment, killed in action on July 7th, was the son of the late Dr. Kennefick and Mrs. Kennefick of Auburn, Clonmel, and grandson of the late General Hammerton, C.B., who served with the Essex Regiment through the Peninsula war and commanded it at Waterloo. His only surviving brother, Captain J. H. Kennefick, is now at the front with the Essex Regiment.

Miller, Henry William Watson, Second Lieutenant Royal Highlanders (Black Watch), youngest son of W. H. Miller, M.D., of 51, Northumberland Street, Edinburgh, killed July 31st, aged 20.

Roberts, R. W. Vaughan, Lieutenant Liverpool Regiment, eldest son of Dr. Vaughan Roberts, J.P., of Bhaenau Festiniog, killed July 30th, aged 24. He was educated at Oswestry Grammar School and at Haileybury, and was a prominent member of the Ramblers Football Club and of the Liverpool Northern Cricket Club. At the beginning of the war he enlisted as a private in the Liverpool Scottish, and in May, 1915, received a commission in the Liverpool Regiment, after serving in the ranks in France from November, 1914.

Roberts, William Lawton, Royal Warwickshire Regiment, third son of Dr. R. Lawton Roberts, of Ruabon, North Wales, died of wounds on July 30th, aged 22. He was educated at Bromsgrove School, and was subsequently articled to Messrs. Wragge, Holliday, Godlee, Barrow, and Horton, solicitors, at Birmingham. He enlisted soon after the outbreak of war in

[1] *Münch. med. Woch.*, February 15th, 1916.
[2] *Ibid.*

the Royal Warwickshire Regiment, and served about ten months in France.

Usher, Isaac W., Lieutenant Royal Irish Regiment, aged 20, killed while leading his platoon in a dashing attack against a strong enemy position, was the son of Dr. Isaac W. Usher, J.P., of Dundrum, co. Dublin.

Wood, Philip, Captain 89th Punjabis, youngest son of the late Brigade Surgeon John Wood, died in hospital as a prisoner at Baghdad, date unknown, of wounds received at Kut on March 11th. He was born on January 19th, 1883, got his first commission on May 8th, 1901, joined the Indian army on November 4th, 1902, and became captain on May 8th, 1910. He had held the post of double company commander in his regiment since June 5th, 1914, and was a member of the force under General Townshend which surrendered to the Turks at Kut last April. He had qualified as an interpreter in Chinese in 1909, and in Japanese in 1911.

Medical Students.

Webster, Edward Mackay, Second Lieutenant Royal Berkshire Regiment, only son of the late William Webster of Blackheath, was killed instantaneously while in charge of a working party on July 31st, aged 25. He was educated at Tunbridge School and at Guy's Hospital, where he was studying medicine.

White, Gerald John Davis, Second Lieutenant Royal Irish Regiment, previously reported wounded and missing, is now reported to have been killed in action on July 6th. He was the youngest surviving son of Chancellor White, Vicar of St. Bartholomew's, Dublin, and was a second-year medical student at Trinity College, Dublin. Having passed through Sandhurst with credit, he joined the Royal Irish Regiment in August, 1915, and went to the front in March last.

NOTES.

A Motor Field Operating Theatre.

In the Journal of November 28th, 1914, in some Notes on a Visit to the West Front, Sir William Collins, who had been a consistent advocate of the motor ambulance since 1902, said "a motor vehicle fitted up as a field theatre or surgery would be of immense service in securing the earliest practicable attention to wounds, thus reducing the number of those infected and offensive arriving at the base." Different views have been entertained by authorities as to the advantage of a field operating theatre on a motor chassis, but we understand that the Wounded Allies Relief Committee, of which Lord Swaythling is chairman, adopted the suggestion of Sir William Collins, and is about to present a very complete motor field surgery or operating theatre to Italy. The vehicle is mounted on a 4 ton 25-h.p. chassis, with pneumatic tyres, twin for the back wheels. Behind the driver's seat is the entrance to an annexe or cab, fitted up with sterilizers for water and instruments, instrument cupboard and drawers, lotion jars, and storage for drums of sterilized dressings, etc. By a sliding door entrance is obtained to the theatre, which is 9 ft. 6 in. long, 6 ft. 6 in. wide, and 6 ft. 8 in. high. A copper sink is in the near front corner, over which taps for water and lotions are fitted. The back has folding doors which open full width, and steps with easy gradients permit the entrance of stretcher bearers. There are no unnecessary interior fittings, space for the surgeon and anaesthetist and assistants being specially kept in view. Illumination, by day, is by top lights of wire glass, and for night work two electric 100 c.p. lights are provided, and a plug for a movable hand lamp. For ventilation the roof lights open and close by an easy mechanism, and there are louvred sides and electric fans. For stretcher cases requiring dressing or minor surgery four upright stanchions are adjustable to the floor to receive the stretcher poles, but for more elaborate surgery a metal operating table is provided. The floor is of sheet lead, and can be swilled and squeegeed, all angles are rounded, and the interior is painted enamel white. Anaesthetist's and dressing tables and stools are provided, and can be firmly secured during locomotion. Tanks for petrol and for 80 gallons of water are furnished, and special care has been taken to make the theatre dust-tight when in motion. A canvas cover is provided to screen light and keep out wet and dust. This vehicle is, we are informed, the first of its kind to be put on the road, and it is evident that much care and thought have been devoted to its construction. We understand that the cost will run into four figures.

The Canadian Army Dental Corps.

A report was published recently of the work of the Canadian Army Dental Corps during the nine months July 15th, 1915, to March, 1916. The number of dental operations performed during this period was 201,610, including 66,079 extractions, 86,887 fillings, 15,304 treatments, 10,898 dentures, 10,710 prophylactic treatments, and 11,732 devitalizations. Among the patients were 392 officers.

Canadian Casualty Command.

By Order in Council a Canadian Casualty Command has been established as a regular branch of the Canadian Expeditionary Force to administer all matters relating to the medical attention required by disabled members of the Canadian Expeditionary Force who have returned from the front, to their pay, and to questions of discipline. This work has been under the direction partly of the Military Hospitals Commission and partly of the Militia Department, and the new arrangement will result in the centralization of the various questions arising in connexion with returned convalescent soldiers. It is announced that Lieutenant-Colonel Sharples, of Quebec, who has been in charge of the dépôt there for returned soldiers, will be given charge of the new command. Units will be established in each military division of the Dominion.

Canadian Red Cross.

The Canadian Red Cross has made the following grants to French organizations: £2,000 to the Société de secours aux blessés militaires, £2,000 to the Association des Dames françaises, £2,000 to the Union des femmes de France, £2,000 to the Fédération nationale des mutilés, £2,000 to the Oeuvre de secours aux réformés No. 2, £2,000 to the various associations for the relief of the blind. In addition to these gifts of money, 5,000 cases of dressings and clothing have been distributed among the French hospitals and 15 motor ambulances have been sent for the use of the French army. The Laval Hospital, an annexe of the Canadian-French sanitary formation established at the hippodrome of Saint-Cloud, is a gift of the Canadian Government. The personnel consists of members of the faculties of medicine, pharmacy, dentistry, and law of the Laval University, Montreal. There are 200 volunteers and 70 nurses. The chief of the medical staff is Lieutenant-Colonel Le Bel.

Surgeons Wanted.

Field Hospital Units for Southern Russia.

The Joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem in England is shortly dispatching two field hospital units for service in Southern Russia. We are asked to state that there are still vacancies for two surgeons in these units, and the Committee would be glad to receive immediate offers from surgeons who are willing to proceed abroad and are able to do so under the present War Office regulations. Application should be made, if possible in person, at 11 o'clock any morning, at 83, Pall Mall, Room No. 93, or by appointment at other hours.

England and Wales.

The District Nursing of Measles and Whooping-cough.

The Central Council for District Nursing in London held its annual meeting in February last, and in its report[1] a scheme was put forward for the adequate nursing in the patients' homes of measles, German measles, and whooping-cough by local district nursing associations acting in concert with borough councils. The advantages claimed for the plan were twofold. It was thought that economy would be fostered by making contracts with local authorities and that efficiency would be ensured by the fact that every case would be brought under the purview of the medical officers of health in the respective areas. A further report from the Central Council has recently been issued, indicating the present position, reporting past progress, and suggesting future proceedings.[2] It would appear that little has as yet been done to give practical effect in the metropolis to the powers conferred on sanitary authorities by the Notification of Measles Order. Some progress, however, has been made, and details with respect to eight districts are presented in an appendix to the report. Local authorities, already burdened with numerous calls for money for public purposes, have been deterred by the prospect of added expense, but it is thought that costs may be greatly reduced by systematic management.

A very important decision has been reached, after full consideration and consultation with competent authorities,

[1] *Vide* British Medical Journal, March 4th, p. 357.

[2] Further Report on District Nursing of Measles, etc. Westminster: P. S. King and Son, Ltd. 1916. Price 1d.

that "district nurses with suitable training and special instruction may be safely trusted to undertake measles cases in the course of ordinary work."

The irregular incidence of epidemic disease renders it desirable that a system of interchange should be established rather than that a permanent staff of nurses should be maintained. As there does not seem to be any probability of obtaining State aid, it is suggested that voluntary effort and private charity must be looked to for help in the near future, if no adequate arrangements can be made with local authorities.

Under the Order, the medical officer of health is empowered to ascertain the home conditions in every notified case of measles, and he would be able to judge whether the services of a nurse were required, and if a definite agreement were made with the local nursing association such services could be promptly rendered. As regards remuneration, no general agreement has been reached, nor does the Council appear to think it expedient to establish a definite rate. The eight instances quoted in the appendix show that there is considerable divergence of practice upon this point.

The Manchester Lock Hospital.

Much concern has been expressed by the friends and supporters of the Manchester Lock Hospital as to the effect which the recent scheme of the Local Government Board for the treatment of venereal diseases will have on it. The part of the scheme which is most likely to affect the hospital is that which provides that the clinics for venereal disease shall not be so separated from the general clinics as to disclose to the public that any particular patient is being treated for some form of venereal disease, the Local Government Board being convinced that from the wish to keep their misfortune secret sufferers might be deterred from going to special hospitals like the Lock Hospital. Evidently, as things are at present, it is hardly possible for patients attending the Lock Hospital to hide the general nature of their disease. On the other hand, the supporters of the hospital ask, Would not the sufferer prefer a special hospital where all the patients are similarly treated? At present there is evidently a good deal of doubt whether any part of the Government grant will be paid to hospitals treating venereal disease only. The Manchester Lock Hospital treats yearly about 250 in-patients and over 7,000 out-patients, and if it is not eligible for participation in the Government grant, it will clearly suffer in competition with the town council's scheme approved by the Local Government Board, and it may be necessary to form some sort of amalgamation with some general hospital. It has done excellent work in the past, and it would be a pity if some place were not found for it under the scheme.

Scotland.

Proposed State Purchase of Liquor Businesses.

The Liquor Trade Finance Committee appointed to advise the Government on the methods and principles on which compensation should be awarded should the Government decide to obtain control of the liquor trade in Scotland by purchase and to prohibit the retail sale of spirits, with or without wines, while permitting the sale of beer not exceeding a certain alcoholic strength, has reported. It states that, whereas in England the brewers are owners of nearly all public houses, so that purchase of the breweries would give the Government possession of most of the houses, in Scotland this is not so, and the Government would have to deal with about 6,700 persons who hold public-house licences and with about 3,400 grocers. By the legislation of 1913 the principle of local option is in force in Scotland till 1920, and the committee suggests that a lump sum based on an estimate of the annual profits of the trade might be agreed upon as compensation. The committee considers also that it would be necessary to extinguish the licensed grocers' trade in liquor. It assumes that the State would not undertake hotel and restaurant businesses, but that hotels and inns which depend mainly on drink would have to be taken over. The committee does not recommend the purchase of the Scottish distilleries nor of wholesale businesses. It is pointed out the diminution or prohibition of the sale of spirits might be expected to lead to a very considerable increase in the sale of beer, which is sometimes twice as profitable as the sale of spirits; a publican would therefore not be entitled to anything like the amount of his profits on spirits by way of compensation. With regard to wines, the committee suggest that the only basis of compensation would be the actual loss of profits, but it would not recommend the paying of any compensation to clubs.

Ireland.

Dublin Castle Red Cross Hospital.

Sir William Fry, Acting Chairman of the Committee of Management of the Dublin Castle Red Cross Hospital, asks us to make the following correction of a statement contained in a paragraph published in our issue of July 8th, p. 58:

Captain H. V. Stanley, R.A.M.C., was stationed at Dublin Castle Hospital during Easter week in charge of stretcher parties, and did not take over charge of the hospital owing to the illness of the Resident Medical Superintendent until Sunday, April 30th, and not on Easter Monday, as implied in this report. The Resident Medical Superintendent (Dr. W. K. Carew) was in full charge of the working of the hospital during the entire week of the rebellion, namely, from Monday, 24th, till Monday, 30th, and worked strenuously day and night, until the day when peace was declared, when he fell ill from overwork and want of rest.

Canada.

The Medical Council of Canada.

The fourth annual meeting of the Medical Council of Canada took place at Ottawa on June 6th and 7th, under the presidency of Dr. R. J. Gibson, of Sault Ste Marie, Ontario. Among those present were the honorary President, Sir Thomas Roddick, of Montreal, the Hon. Dr. Thornton, Minister of Education in the province of Manitoba, and the Hon. Dr. Brett, Lieutenant-Governor of the province of Alberta.

Reviewing the work of the Council during the four sessions of its existence, the President said that the number who had registered under the ten-year clause had been less than had been expected, but had increased during the past year. The number of candidates sitting for the examinations had declined, but this no doubt was due to the war. He hoped that other provincial boards would follow the example of Saskatchewan, which now accepted only the certificate of the Medical Board of Canada. The ten-year clause referred to provides that any medical practitioner who has been licensed, or has received a certificate, in any province prior to the date of the constitution of the Council, and has been in active practice for ten years, may apply for registration without further examination. The question of reciprocity with Great Britain was brought up but no action was taken, as such an arrangement is impossible until reciprocal relations have been established between Great Britain and each of the provinces of Canada. Alberta is now the only province that has not entered into reciprocal agreement with the Medical Council of Great Britain.

An extract from a letter from a member of the staff of the Canadian general hospitals was submitted to the council, asking that the necessity of giving members of the Canadian Army Medical Corps the privilege of returning to Canada after one year's service be impressed upon the Canadian authorities. The matter was brought to the attention of the Minister of Militia by the Executive Committee, which was informed that if individual application were made such permission would be granted. The Executive Committee also took up with the Minister of Militia the question whether graduates of recognized American medical colleges would be given medical commissions in the American Legion, consisting of Americans who have enlisted for active service with the Canadian Expeditionary Force or similar units, on the same footing as Canadian graduates, and was informed that equal facilities would be granted to American graduates for

service with the American Legion or similar units, provided such graduates were fully qualified and of good standing.

Notice was given by Dr. J. C. Connell, Dean of the Faculty of Medicine of Queen's University, Kingston, that at the next meeting of Council he would introduce the following resolution:

> Whereas it is desirable that this Council shall apply its resources towards the elevation of the standards of medical education in Canada: Resolved, that a scholarship be established to be awarded to the candidate making the highest total of marks in each of the examinations held by the Council, the amount of the scholarship to be sufficient to permit the holder to spend at least a year in professional studies abroad, the direction of these studies to be under a committee of the Council.

Dr. R. E. Walker gave notice that he would introduce a resolution to the effect that a special committee be appointed by the Council to inspect and report upon the various medical schools and universities actively engaged in the teaching of medicine.

The election of officers for the year 1916–17 resulted as follows: President, Dr. W. W. White, of St. John, New Brunswick; Vice-President, Dr. E. P. Lachapelle, of Montreal; Registrar, Dr. R. W Powell, of Ottawa.

THE COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO.

At the annual meeting of the Council of the College of Physicians and Surgeons of Ontario Dr. Edmund E. King, of Toronto, was elected president for the council year 1916–17.

Several matters of importance came up for consideration, among them the attitude to be adopted by members of the college towards the provisions of the Ontario Temperance Act, it being resolved that "inasmuch as the Government has imposed upon the medical profession the working out of the Ontario Temperance Act, the council desires to impress upon the profession at large the necessity of adhering to the Act with dignity and decorum." The council adopted the report of the special committee appointed to consider the advisability of establishing a system of licensed midwives in the province of Ontario, which recommended that conditions in the province did not demand the institution of such a system. It was decided that a request should be forwarded to the Militia Council asking that rank and compensation more in keeping with the services rendered be accorded officers of the Canadian Army Medical Corps. The report of the Education Committee was adopted. It recommended, *inter alia*, that the question of uniform matriculation standards be taken up when the Canada Medical Council has issued its report; that the fifth year of the medical course shall be wholly and exclusively academic; that graduates in medicine of such foreign universities as shall enjoy recognition from the College of Physicians and Surgeons shall not be required hereafter to attend a full winter session of lectures and clinics in a Canadian medical college before offering themselves for the college examinations; that the present summer sessions at Queen's University and the University of Toronto be regarded as a full academic year, the college to hold its usual autumn examination early in December to accommodate candidates completing their studies at that time.

THE MEDICAL SOCIETY OF NOVA SCOTIA.

The sixty-third annual meeting of the Medical Society of Nova Scotia was held at New Glasgow on July 5th, 1916, under the presidency of Dr. Kennedy. The officers elected for the year 1916–7 were—President, Professor D. Fraser Harris, of Dalhousie University, Halifax; Vice-President, Dr. Sinclair Miller, of Stellarton; Secretary-Treasurer, Dr. J. R. Corston, of Halifax. The committee on the Copwell Library reported that it had been decided that the library was the property of Dalhousie University, which was to house it, but that the Nova Scotia Medical Society were trustees for the funds, out of which the salary of the librarian and the books purchased were to be paid. The late Dr. Copwell bequeathed his library and the interest on a sum of money to the society and the Halifax Medical College conjointly. When the college was absorbed by the university, the question arose whether the library became the property of the university, and the matter was submitted to legal decision. The library is to be managed by a joint committee consisting of representatives of the university and the society.

Correspondence.

TREATMENT OF THE MAIN NERVES IN AMPUTATIONS.

SIR,—I wish briefly to draw attention to a subject which I feel sure has not received the notice its importance demands. It does not much prolong the time taken in an amputation if the main nerves are drawn well out of their fascial envelopes and an inch or more of them cut away with sharp scissors. The leaving of the nerves "long" in a stump, to be entangled and pressed upon by scar tissues, is responsible for those painful "neuralgic" stumps which are at once a source of intolerable suffering to the patients and of despair to those who have to fit them with artificial limbs. Furthermore, the primary dressings, if the main nerves are not left in the stump, are far less painful. This is a matter of no small moment in the many amputations now done through septic tissues, where the flaps do not heal easily, where subsequent cicatricial tissue is very dense, and where packing of the stump with salines or other applications has to be resorted to. In all the amputations of the leg and upper extremity shortening o the main nerves is very important. In the case of the thigh the sciatic nerve retracts, as a rule, and does not give trouble. In amputations of the leg, especially by the long external flap (Farabœuf's method), the anterior tibial nerve, if not removed, is actually laid across the end of the bones! In the amputations of the arm I have in the past seen the greatest trouble from nerve involvement in the stump.

I have only recently operated upon a case of "neuralgic" stump near the shoulder by resection of the main nerves above. I found the median and ulnar nerves swollen, inflamed, and doubtless terminating in the "bulbous" ends so familiar to pathologists. This operation was successful, but the unhappy patient had suffered excruciating pain, and had actually contemplated suicide. I have seen a considerable number of such cases in past practice. I am not aware that the "shortening" of the main nerves is prominently alluded to in the textbooks on operative surgery; I now have not access to the modern works. But I venture to present this practice, which I have adopted for many years, to the consideration of the surgeons employed in the present war.—I am, etc.,

A. MARMADUKE SHEILD,
Consulting Surgeon to St. George's Hospital.

August 15th.

THE CHEMIO-THERAPEUTICS OF MR. McDONAGH.

SIR,—I am charged by Mr. McDonagh with not having read his research work nor repeated his experiments on serum, and he says that if I had sufficiently studied his writings I should not have criticized his theoretical views in the way that I have done. I have now devoted careful attention to his Hunterian Lectures, *Links in a Chain of Research on Syphilis (Oxidation and Reduction)*, given in March of this year. It is justifiable to assume that this book gives a correct statement of his work and theories, so far as it is to be found in published form. The references in the following letter are to the pages of this book. Unfortunately the references to the experimental facts on which a considerable number of his assertions are said to be based are not given. But if he will give these, I shall be prepared to look them up. I have not, however, time to read the whole of his work nor to repeat his experiments, and must be content with the *Links*.

This book is rather like a bad dream after an undigested meal of physical chemistry, and it has caused me much trouble in attempting to understand what the meaning is. While numerous passages might be selected which would be seen at a glance by a chemist to be contrary to fact, it is not to be expected that all readers of this JOURNAL possess a similar capacity. Naturally, they must devote their attention to things of more importance in their work. When Mr. McDonagh describes phenomena that are well known and found in textbooks, the meaning is perfectly clear. It is only when he gives his own ideas that statements are made to which I find it difficult to attach a definite signification, and I must ask his pardon if I have misunderstood them. This difficulty is partly due to his use of words in a sense which is not only different from the usual one but is sometimes unintelligible.

Permeability is used by physiologists in reference to the properties of the cell membrane which regulate the passage of substances into and out of the cell, but Mr. McDonagh applies it to molecules (pp. 60 and 76). It is said to be increased by carboxyl groups (p. 117) but no evidence is given. Perhaps it is intended to express the power of passing through the cell membrane, and it must be admitted that a word to express this property is required.

Electrolytic dissociation is spoken of (pp. 45, 62, and 101) as happening *to* ions, whereas these are really the result of it. The word "ionized," with reference to electrolytes in solution, means the same thing, but Mr. McDonagh uses it in a way that puzzled me considerably until I realized that a protein with foreign ions adsorbed on its surface is called by him "ionized" (p. 101).

Adsorption is a much misused word, but it ought only to be understood to express condensation at interfaces between phases, and is therefore a property of surfaces only. The statements that active oxygen is necessary for it to take place (pp. 46 and 107), and that the action is catalytic (p. 52), show that Mr. McDonagh attaches some peculiar meaning to the word, but what this meaning is I am unable to make out. I accept his disclaimer that increased size of particles is not understood by him to mean increased adsorption unless the number increases also. But my mistake is justified by the statement (p. 35) that in order to prove that the adsorptive capacity of the lipoid-globulin particles is greater in syphilis, it is only necessary to show that these particles are larger. Sometimes Mr. McDonagh's adsorption is chemical combination alone. Thus, on p. 136, the sulphur in amino-thio-benzene is said to be in "a more powerfully adsorbed state" than when in the ortho-position as regards the amino-group. Although credit is claimed for not inventing new names, it would surely have been better to do so rather than to give a peculiar and confusing meaning to those in use.

The basis of Mr. McDonagh's theories is the supposed presence in the blood and in the syphilitic parasites of "lipoid-globulin particles" or molecules, together with the changes in their distribution and quantity. These particles are said to form an "oxidase-reducase" system, and their behaviour as oxidizing and reducing enzymes is said to explain not only chemio-therapy in general, but also histological staining reactions, immunity, and anaphylaxis. It is therefore of essential importance to examine the experimental evidence for these properties of the lipoid-globulin particles. Mr. McDonagh states that his theories "follow simply and logically" from "ascertained facts," and are "deduced from established chemical and physical facts" (p. 199). But in his book we continually meet with statements of a highly questionable character given without experimental evidence or reference to published work. While many of these statements are clearly due to misconception, others may possibly be true, but as yet incapable of experimental test, since we do not know the method to adopt. Nevertheless, all these statements are, sooner or later, referred to as "facts." Let me give an example. On p. 178 we find "Fever means an increase of hydroxyl ion concentration and therefore more oxygen. . . . Reduction is only a means of increasing oxidation, as it forms the peroxide necessary for the oxidase system." The next sentence proceeds, "In view of these facts," etc. Perhaps the extraordinary chemical equation given on page 140 is one of the facts:

$$RSSH + 2H + 4OH = RS + RSH + 2H_2O_2 + H$$

The footnote on p. 152 is an interesting example of logical deduction:

> Intramine injected into the urethra causes a great increase of soluble phosphates and carbonates in the urine. . . . These are the salts which regulate the hydrogen ion concentration of the external phase; therefore this observation proves beyond doubt that intramine acts on the oxidase-reducase system.

It is quite possible that adsorption compounds between lipoids and proteins exist in the blood and tissues, but to assert that they have oxidizing and reducing properties requires more proof than Mr. McDonagh has been able to give. When I used the word "selected" in speaking of this theory which makes oxidation and reduction the key to so many different problems, I had in my mind the probability that the phenomena in question would turn out to be dependent on other less complex and obscure factors. I admit that I did not express my meaning very clearly, but the ease with which even experienced chemists and physiologists can go astray in this region led to the remark. In point of fact, all the evidence that I can find for the view is of a very unsatisfactory nature. On p. 19 it is said that peroxides and peroxidases form part of the system. If so, it would undoubtedly act as an oxidizing enzyme. But no evidence is given, and on looking up the paper by McDonagh and Mackenzie Wallis I find it stated that they could not detect the presence of an oxidase or peroxidases in the particles. The only other evidence is the behaviour towards certain dyes. Unna's view that it is possible in this way to locate places of oxidation in cells is assumed to be true, notwithstanding the fact that Drury has shown[1] that no conclusions of this kind can be drawn. The adsorption of dyes is not dependent on active oxygen. There is no evidence that adsorption *in corpore* differs so fundamentally from other forms, such as that of carbon dioxide by charcoal. McDonagh and Mackenzie Wallis appear to regard dried films as living, even after treatment with alcohol. The reducase properties of the particles are equally devoid of proof. Certain reactions to dyes are again brought forward, but those given depend rather on the sign of the electrical charge of the particles. The explanation of this confusion will be seen presently. The other evidence amounts to the existence of unsaturated carbon atoms in the lipoids of the complex. But mere reducing power does not justify the attribution of catalytic properties as a reducase. Oleic acid itself is not a reducase. My search has not resulted in the discovery of any further evidence for the oxidase-reducase properties of the lipoid-globulin particles. Mr. McDonagh says that he does not suppose that they act at the same time as an oxidase and a reducase. He must surely have changed his opinion, since I can attach no other meaning to the "fact" given on p. 197, "the adsorptive power of the active oxygen in the oxidase-reducase system is more marked than that of the active hydrogen." Also on p. 198, reference is made to "those lipoid-globulin particles which are richer in active hydrogen than in active oxygen."

It gradually became clear to me in reading the *Links* that the author regards as identical the three things represented by the symbol OH, namely, the alcohol radicle in organic compounds (p. 22), hydroxyl ions (p. 22), and hydrogen peroxide (p. 139). This latter is represented as OH + OH (p. 22). On p. 16 the OH group is stated to have reducing properties, so that many things can be accounted for, if we are prepared to accept these statements on Mr. McDonagh's assurance. Among other things, we see how the chemical equation given above has been made out, and why the reactions to dyes due to hydroxyl ions are put down as reductions.

Now we know that in the course of certain reactions oxygen or hydrogen appears in a form particularly active in oxidation or reduction. All that we can say as to their nature is that their chemical potential has been raised by the supply of energy, so that they are able to oxidize or reduce substances which the ordinary forms of these elements have no power to do. But active oxygen is not necessary for all oxidations, although this is stated on page 171. Atmospheric oxygen has a sufficiently high oxidation potential to combine with pyrogallol, as every photographer knows. We do know, however, that active hydrogen is not the same as the hydrogen ion, as Mr. McDonagh believes (pp. 21 and 140). Nitric acid is an oxidizing agent, although it contains hydrogen ions in abundance. Similarly, we find active oxygen regarded as identical with oxygen ions (pp. 139 and 179). The globulin component of the particles is probably an amphoteric electrolyte and able to afford, under appropriate conditions, either hydrogen or hydroxyl ions, but this by no means gives it the properties of an oxidizing and reducing enzyme.

It is obvious that the clinical value of new remedies does not depend on theories as to their mode of action. But I am convinced that the acceptance of Mr. McDonagh's views without better evidence than that given will do much harm both to the theory and practice of therapeutics, in addition to the waste of time involved in attempts to work out further developments of the theories. Before passing to details, I must refer to a startling statement on p. 121. It is said that for two substances to be

[1] *Proc. Roy. Soc.*, 88 B, p. 166.

"absolutely chemically the same, it is necessary that they should be prepared in exactly the same way." This presumably means that "ferrivine" is only to be accepted as such when prepared under Mr. McDonagh's direction.

"Intramine" is a member of the large class of compounds which contain sulphur in organic combination. They have, as a rule, reducing properties, and hence the use of intramine by Mr. McDonagh. But we have seen how little basis there is for his oxidase-reducase theory. A case reported by him on p. 150 is interpreted as showing that an organic arsenic compound, galyl, owed its efficacy to the fact that its oxidative action was brought out by the previous administration of intramine as a reducing agent. But a much simpler explanation would be that intramine is useless, galyl of value. The reason why certain metals are powerfully toxic, others comparatively innocuous, is still obscure, but it is certainly not a question of valency, at all events in the sense used on p. 130, because that implies electrolytic dissociation. The nature of organo-metallic compounds does not seem to be appreciated by Mr. McDonagh. The metal is in organic combination, in direct union with carbon. Such compounds are not electrolytically dissociated with the formation of metallic ions. It is a matter of some difficulty even to suggest a reason for the great activity of certain metals when combined in this way. It may be that the function of the organic part of the molecule is to facilitate passage through the cell membrane and the presentation of the metal, not in the ionized state, to sensitive components of the cell. The use of the terms "toxic" and "non-toxic" with regard to remedies is apt to lead to misunderstanding. We require a substance which is toxic to the parasite, harmless to the patient. But we are unfortunately as yet ignorant of the necessary chemical and physical properties. I fear that Mr. McDonagh's theories will not help us.

Iron is comparatively non-toxic, although in certain forms powerful as a catalyst for oxidations. In organic combination, as in haemoglobin, it seems particularly inert. But are "ferrivine" and "aluvine" organic compounds of iron and aluminium? The names given on pp. 146 and 147, "tri-para-amino-ferric-benzene sulphonate," and so on, suggest that iron is in similar organic combination with the benzene nucleus as is arsenic in salvarsan, but when the formula is examined, it is seen to be neither more nor less than the iron salt of sulphanilic acid. As such, it is not to be expected that it would have any special action different from other ferric salts. Since the name, manganese sulphanilate, is used on p. 144, the form of the chemical name given above may have been used in mistake, but it is nevertheless liable to give a wrong impression. Such compounds would be electrolytically dissociated with the production of ferric or other metallic ions, but it is not true, as Mr. McDonagh states (p. 167), that such dissociation is necessary for therapeutic action. If this were so, organic arsenic compounds would be useless.

The only conclusion that I can come to is that, whatever the "lipoid-globulin particles" may be, they are not an "oxidase-reducase system," and I have grave doubts as to their having any importance whatever. The assumption that oxidation and reduction play a part in the action of antisyphilitic remedies is founded on this, and equally devoid of evidence. Much better support for his theory must be brought forward by Mr. McDonagh unless he is prepared to give it up.—I am, etc.,

University College, London. W. M. BAYLISS.

JUNG'S PAPERS ON ANALYTICAL PSYCHOLOGY.

SIR,—To my mind, your reviewer treated Dr. Jung's book with great moderation. I can fairly say that I am familiar with the writings of both schools, and so far from realizing how deep the cleavage is between him and Freud, I consider it about equal to the difference between Tweedledum and Tweedledee. The cleavage rests, says Dr. Constance Long, primarily on the meaning of the symbolic language of the dream, and the cleavage is analogous with primitive thinking, and Jung sees in the cleavage an attempt to comprehend and point out the further psychological development of the individual, and thus a prospective import is added to the retrospective value of the symbol. It is my density, no doubt, but this is all Greek to me. Dreams and the symbolic language of the dream may be as important as Freud and Jung make out, but it seems to me a mistake to use this symbolic language in waking life.

Dr. Constance Long quotes Jung as saying that when a marriage is crippled, the cause of the unhappiness always lies in a too firm attachment to the parents. They explain that by a too firm attachment they mean an incestuous passion. I do not know what a crippled marriage is, but if it means an unhappy marriage, it seems a pity not to call it so. Jung's assertion needs proof. It needs proof the more that it is opposed to the universal experience of the human race. Dr. Long says we must seek the proof in the unconscious itself. She must pardon me, but she is putting the boot on the wrong leg. It is not for us to seek the proof anywhere. She and Jung make the assertion, and whoso makes an assertion, on him lies the burden of proof. It is for them to prove their assertion if they can, not to send others to find it in the unconscious, or anywhere else. Up to the present they have produced nothing that can be called evidence, let alone proof. Until some evidence is produced, the thing is not worth examination—it is not worth attention.

Dr. Long is good enough to furnish us with a definition of consciousness. She says it is that of which we are aware (that is to say, conscious) at a given moment. I am afraid a definition of a term in terms of itself is not much use. It would be more to the purpose if she would give us a definition of the unconscious, and tell us if it means anything beyond the uncleanly.

I agree that it is not surprising that there should be misunderstandings. When assertions are made, some of which are unintelligible, others are in flat contradiction of experience, and all are offered without a vestige of evidence, it is likely that there will be misunderstanding.—I am, etc.,

Parkstone, Dorset, Aug. 13th. CHAS. A. MERCIER.

THE SOLDIER'S HEART.

SIR,—In the recent discussion on soldier's heart it was stated that the administration of iodine was conducive to hyperthyroidism. According to my experiences this statement is not correct. During the early months of the Gallipoli campaign I was in charge of the enteric ward in a military hospital, and at that time prescribed iodine in about eighty cases of typhoid and paratyphoid B with excellent results, as the mortality was *nil*. It was usually given in 3 m doses thrice daily and increased by 1 m daily until 8 m was reached, and continued frequently for two and three weeks, according to the severity and nature of the symptoms. In those days, when the cases of paratyphoid B were more severe than now and the clinical symptoms were not so well understood—a subnormal pulse, frequently as low as 48, was the rule—the remarkably slow rate was attributed by some to the iodine.

I have also given this drug in minute doses, frequently repeated, with belladonna in extreme cases of dysentery, accompanied by hiccough, vomiting, and involuntary motions, with satisfactory results, and without observing any circulatory disturbance.

It may be of interest in this connexion to point out that in Trentino, where every third person one meets suffers from goitre, it is very seldom that any appreciable disturbance of the circulation is noticed.—I am, etc.,

T. GERALD GARRY, M.D.,
Cairo, July 22nd. Major (temporary) R.A.M.C.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—Dr. Power makes a demand for the exemption of the dispensary medical officer "from the necessity of becoming the unpaid attendant, or the slave, of every handywoman in the locality, while she exercises her *execrable traffic in the lives of parturient women*" (italics not in original), and goes on to say, "The Medical Charities Acts in Ireland provide fully-trained midwives, whose services are given free. . . . The Midwives Act which is necessary in Ireland is one that would compel parturient women to avail themselves of those trained women."

While it is impossible to compel parturient women to employ trained midwives, it is not impossible to make an effort to induce them to do so by supplying a sufficient number of trained midwives and by making it an offence for an untrained or uncertified woman to attend childbirth.

This last condition is secured by the Midwives Act enacting that "an uncertified woman shall not attend women in childbirth otherwise than under the direction of a registered medical practitioner." The uncertified woman is not given any legal status or a licence to attend childbirth under the direction of a doctor: the patient must be the patient of the doctor, not of the uncertified woman. Under the statute it is held that the patient is the patient of the person who undertakes or engages to conduct the confinement whenever it occurs.

The law forbids an uncertified woman to conduct a confinement as a midwife; if in defiance of the law she does undertake to conduct confinements, and on getting into difficulties sends for a doctor, what is the position of the doctor?

As his first duty is to the patient, he must answer the summons and provide for the emergency. If time permits he should inform the uncertified woman that she is a criminal in the eyes of the law, that he cannot assist her to do what the law says she may not do; he should dismiss her and replace her by a certified midwife. In such circumstances the dispensary medical officer can: (1) Requisition the district midwife; (2) if there is no district midwife, or if she is not available, he can himself make temporary arrangements for another midwife, or requisition the relieving officer to do so.

Under the Medical Acts any practitioner who assists, by his presence or otherwise, any uncertified woman to act as if she were certified, is liable to have his name removed from the *Medical Register*. It therefore appears to me that the Midwives Act and the Medical Acts meet the "demand" made by Dr. Power for the exemption of the dispensary medical officer becoming the "unpaid attendant or slave" of the handywoman.

The Midwives Act specially exonerates "any person rendering assistance in a case of emergency." "Covering" implies an arrangement or regular practice of acting in such way as to enable the uncertified woman to do what the law forbids.

Now arises the question whether there are enough trained midwives in Ireland.

Dr. Power says that in Ireland "there are enough trained midwives, if only their services were availed of." I do not think the facts justify this assertion, because: (1) There are still fifty-four dispensary districts in which no midwife has yet been appointed under the Medical Charities Acts; (2) the Local Government Board has hitherto been satisfied with one midwife in each dispensary district. The average area of a dispensary district in Ireland is 42 square miles; some are 60, 70, 80, and a few even 100 square miles, so that, though the population is thin, it is quite impossible for one woman to do all the work, and in some areas two, three, six, or more midwives might be required. Undoubtedly there may be some districts with more than one midwife, and districts with midwives in private practice.

May I briefly explain the Local Government Board regulation for the attendance of maternity cases—under the Poor Law?

Those requiring attendance may requisition it either by (1) requisitions sent direct to the midwife, who must send for the doctor under certain prescribed conditions. (2) Requisitions presented to the doctor. In these cases the doctor cannot send the midwife to represent him; "the ticket casts on the medical officer full and undivided responsibility." He must visit the case in the first instance, and only after he has satisfied himself that the case is one of natural labour can he hand it over to the midwife.

In the fifty-four districts where there are no midwives appointed the dispensary medical officer must conduct all, and in the large districts with an insufficient number of midwives nearly all, the maternity cases or leave them for the handywoman.

It is this want of trained midwives that gives the handywoman her chance and gives the medical practitioner the great trouble Dr. Power complains of in "trying to undo the mischievous work of the infection-bearing untrained monthly nurse" or handywoman.

Presumably Dr. Power will agree with those who consider the work of the dispensary medical officer would soon be considerably reduced by increasing the number of trained midwives.

I remember one of the objections urged against the extension of the Midwives Act to Ireland in 1902 was that it would interfere with the midwifery fees of the dispensary medical officer.

I rejoice that the proposed extension now has such an able advocate as Dr. Power's letters show him to be, and hope Parliament will be induced to accept such amendments as will meet the objections he raises.—I am, etc.

Enniskillen, August 13th. L. Kidd.

Sir,—In answer to Dr. J. Power's question, "I should like to know from Sir F. Champneys what is the difference between an untrained woman, apart from her legal status, registered on the Midwives' Roll, and the woman who will, unknown to the doctor, practise in mostly all cases as a midwife in the guise of what he describes as a *monthly nurse*," I reply that between the two women there is this difference:

The first is subject to instruction, to discipline, and to supervision by the local supervising authority; the second is a criminal who is amenable to the law.

For the success of a Midwives Act a conscientious local supervising authority is essential, and the co-operation of medical men will be of the greatest service.

The loss of life and health to mothers and infants has roused the national conscience to a large extent; what is wanted is a determination to see this set right on the part of local supervising authorities and of the medical profession.—I am, etc.,

London, S.W., Aug. 15th. F. H. Champneys.

Sir,—As the representative of the Irish Committee of the British Medical Association on the committee to consider the proposed Midwives Act for Ireland may I intervene in the correspondence now taking place in your columns?

In order to prevent any misconception of my position I may say that I am in favour of the Act, but that I am thoroughly acquainted with the objections to it of my friend Dr. Power and others, and that I think every reasonable precaution should be taken to meet them.

Dr. Power need not fear that the proceedings of our committee will be conducted *in camera*, but I am sure that when he realizes that there is no possibility of any Act except a non-contentious one going through Parliament at present, that an important Government department must be consulted and its views ascertained, and that up to the present only one meeting of the committee has taken place and it has not yet had an opportunity of meeting that department, he will himself be prepared to admit that the time is not yet ripe to ask the opinion of the profession on the measure. That is a matter which will have to wait until something definite can be placed before our colleagues; but what I am anxious to obviate is the growth of a prejudice against the Act among the profession before they have realized its real meaning and the methods by which that meaning is to be translated into practice.

Dr. Power and the committee are absolutely at one in the object which they propose—the banishment of the unskilled attendant from the lying-in couch. Dr. Power would secure this object by making it legally obligatory on every woman to avail herself of the services of a trained midwife. Apart from the fact which was brought before our committee that in a number of dispensary districts in Ireland there is no trained midwife, I do not think that in the present day a House of Commons could be induced to pass such a clause, or, if that miracle were to happen, I do not see how, especially in country districts where the midwife must often have long distances to go, it could be enforced; the patient would often have to choose between going without assistance at all or taking the nearest that was available.

The method of securing the same object which the committee proposes is to make it illegal for any woman who is not registered to attend a lying-in woman for gain. It never will, I suppose, be possible to prevent a neighbour from lending a hand in a case of emergency, but we hope to make it impossible for her to do so from any motive but charity and neighbourly feeling. Now comes, of course, the crux of Dr. Power's objection to the scheme. The "registered" woman need not, under the Act, be a "trained" woman—at least, at first. Dr. Power accuses

us of throwing a cloak of "registration" over every septic, ignorant, and objectionable Sairey Gamp in Ireland, and in a sense he is right. I am sure that our committee would prefer to do what Dr. Power would himself do, and prohibit every untrained woman from practice at all, but again we had to consider what will pass a House of Commons, whether British or Irish, and when we remembered that the House permitted every quack to register under the Medical Acts, every untrained tooth-puller under the Dental Act, and every handywoman in England under the English Midwives Act, we could not venture to hope for a more enlightened policy in regard to Ireland. There are, however, two bright spots which Dr. Power might contemplate. One is that once the register is established none but trained women can be admitted to it, and death and the advance of years will gradually purge it of its untrained members. This, I know, does not greatly appeal to Dr. Power, who prefers the bird in the hand. Our committee hopes to enable him and every dispensing doctor, if not to grasp the bird, at least to put salt on its tail. I suppose the cardinal sins of the handywoman are neglect of aseptic precautions, drunkenness, and delay in summoning a doctor in difficult cases. These faults will not be amended by putting her on a register, but once on the register she becomes subject to supervision. If she is reported to the Midwives Board for these or other offences she is liable on conviction to be removed from the register, and once removed she can no longer attend a lying-in woman except under penalty of a considerable fine—exactly the position in which Dr. Power wishes to put her. In Scotland the supervision is carried out by the medical officer of health for the county. That office in Ireland is non-existent in many counties, but every dispensary doctor is medical officer of health for his own district, and I am sure that if Dr. Power were granted similar powers to that of a Scottish county medical officer, the district of Ardfinnan would soon be cleared of every infection-bearing untrained "monthly nurse." We see no prospect of instantaneously putting the handywoman out of practice. We believe that in the Act we have a means of gradually putting all but trained nurses out of practice and of very rapidly getting rid of the more dangerous untrained women by the process of removal from the register.

I know that many dispensary doctors view this measure with alarm as they believe it will result in a great increase of their work, due to the desire of the untrained registered woman to safeguard herself by calling in the doctor even to perfectly normal cases. That has not, I believe, been the case in Belfast where a local midwives' register has been in force for some time. Even should it occur as a temporary phenomenon in the country generally, our committee hope that provision will be made in the Act for suitable remuneration to be paid to the doctor for increased work.

As regards the fear expressed by some that assistance given by a doctor in a case where an unregistered nurse is in attendance might be regarded as "covering," I think I am quite correct in saying that unless it could be shown that the doctor had an agreement with the nurse by which he was to be called in in case of necessity no charge of "covering" would lie against him.—I am, etc.,

Belfast, Aug. 15th. R. J. Johnstone.

THE OBLIGATIONS AND CONSEQUENCES OF THE WAR TO MEDICAL AND ALLIED SCIENCES AND THE HONOUR AND INTERESTS OF THE MEDICAL PROFESSION.

Sir,—Every medical practitioner who has given thought to the subject must have felt profound anxiety as to the future of his profession as a consequence of the world-wide war, and must have asked himself what will be its status at the end of the present stage, during the reconstruction period, and afterwards.

At the present moment the Government is forming innumerable committees, many of which have a reference so broad with regard to economics after the war that it is bound to include subjects having reference to public health. Professions, trades, and churches at the moment are reconsidering their position in the empire, and are endeavouring to solve the problems affecting the well-being of their members under the new conditions being created. Also we see social workers and bodies taking the opportunity now offered them, whilst the attention of most is attracted to other things, to push their pet schemes for what they consider to be the improvement of the British race.

The medical profession should realize that it cannot expect any longer to live in splendid isolation; it has become involved in imperial affairs; its individualism and watertight compartment life is gone; as a duty to itself and the empire it must enter more and more into active co-operation with those engaged in the readjustment of social conditions, not looking at problems from the self or class interest point of view alone.

Before the war, on all sides and in many nations, persons and groups of persons were loudly proclaiming that they had discovered *the* problem the right solution of which alone could be expected to bring about an improvement in the economic conditions, and that the only solution was the one they so loudly advocated. Thus we had advocates of equality of the sexes, equality of capital and labour, nationalization of the land, decentralization of government, education, insurance, better housing conditions, temperance. Then came the war, and this babble ceased, but now, already recovering from this world-wide shock, the various advocates, reorganizing their forces, are again up and about; only they now support their hobby by the plea of public health in one form or another. The State, its hands full with other problems, keeps its "importunates" quiet by legislating by regulations; and in a day appear comprehensive medico-sociological schemes—which would have been once the work of weeks or months—that directly affect the public health and indirectly the interests of the medical profession. The public has no time to consider them. It is only necessary to mix up sentiment and sense in the right proportion and then to plead "reconstruction of the empire" in order to break down all opposition. The medical profession is not consulted; a third scattered over the world on imperial service, and the remainder over-busy coping with the home work, finds itself unprepared, inarticulate, often caught unawares by advocates in its midst, and unable to protect itself or the interests of medicine. Proposals are launched which bear on the face of them the impress of lack of knowledge of whence we came, how we came, and what we are (biology), and which are indifferent to the national temperament (psychology)—a not uncommon failing in social reformers.

Believing as we do that public health is one of the pillars on which the British empire will be borne, it is time that the medical profession were up and doing, faced as it is by new conditions. But will the profession unite; have we men with imagination and enthusiasm; are leaders available; will the profession be loyal to such if they are found? Seeing what is going on we can take it that the strife after the war will be just as keen and devastating as the war itself; the reconstruction period will be long, being preceded by further necessary destruction. Many ideals will have to go; cherished habits and customs will be swept away. Unless the profession by intelligent anticipation takes a clear and well-defined line of action on main questions it will find itself just as much at a discount during these periods as it seems to be now. Then public health will suffer, and in so suffering its progress will be retarded. One of the obligations of the profession will have been declined by it.

The public requires educating in matters of public health. It is the medical profession's duty to do this. At once certain statements can be made which the public should be educated to accept.

If medicine and the allied sciences are to make any progress then the profession must be consulted and should retain its freedom. Again, without the approval and cordial co-operation of the medical profession any scheme affecting public health is doomed to languish and will probably fail of its object. On the other hand, we must recognize that unless united the profession cannot expect to be consulted or considered; and thus, failing to protect its own interests, can be of no use to the public at large. How this union is to be brought about is therefore the immediate problem for the profession. Recognized as being individualists, often autocratic, the means for our undoing are in our midst. No league, union, or association to the exclusion of other such bodies should be looked to at this stage as the one to be called on to act. To ignore the existence of each other will only be courting defeat later.

It is time that representatives of all such bodies, scientific and medico-political, were called together in order to see whether they can unite to save the situation. The interests at stake are imperial; the profession must be willing to think and act accordingly.

This union is also a necessity in order that the profession may meet its obligations to its own members. The upheaval of the last two years has placed a third of the profession outside its usual grooves of work. It can be taken as a certainty that many, for various reasons, will never return to them. This fact is a source at once of strength and of weakness—of strength, because many will be free and willing to carry to all parts of the empire the advantage of their education and so help to the improvement of public health wherever they may be; of weakness, because many others may find themselves compelled to look at positions offered which even they themselves recognize are not compatible with the dignity of an honourable profession. It is for those at home, united in one representative body formed to deal with such problems, to safeguard the interests of both of these; by so doing the profession will protect itself and the highest ideals of medical and allied sciences.

The advocacy of the capabilities of any one body to deal through its existing or newly formed committees with the imperial obligations already arising shows a loyalty that is praiseworthy, but it should be recognized that, however assiduous may be the work of a few, it will be a failure in convincing public opinion that such-and-such a line of action is desirable in such-or-such a contingency unless it is supported by the approval of those who cannot be said to be in any way personally interested in the problems, as well as by those whose work in universities, colleges, hospitals, medical politics, and public health has already received the stamp of public approval. The experience gained through many years by associations, unions, and societies formed for medical practitioners will prove of untold value if cheerfully put at the disposal of those now elected to deal with the new conditions arising in the profession and the British empire.

The British Medical Association, at its recent Representative Meeting, referred the following resolution to the Council:

> That a special committee be formed . . . to consider what steps should be taken to organize public opinion, as also the medical profession, for the advancement of medical and allied sciences, and to maintain the honour and interests of the profession in view of the obligations and other consequences likely to result from the war.

It is to be hoped that no time will be lost in commencing the necessary initial investigation of the problems involved.

It is open to all to help, in one or other way, to begin this work, and to ensure that the foundations which must be laid are true and just. Few, however, will live to see the result of the work; but all can hope that, when the British empire is reorganized the medical profession will find that its share in that work is recognized, and itself represented, honoured, and actively co-operating in all parts of the empire in maintaining the ascendancy of a healthy British race willing to undertake the tremendous obligations now being placed on it.—I am, etc.,

E. ROWLAND FOTHERGILL, M.B.,
Temp. Captain R.A.M.C.;
Member of Council and of the Representative Body of the British Medical Association.

Eastern Command Depôt,
Shorncliffe-on-Sea, Aug. 6th.

*** At its meeting on July 29th the Council of the British Medical Association appointed the following to be a committee to report to it as to the best method of dealing with the resolution quoted above by Captain Fothergill: Chairman of Representative Meetings, Chairman of Council, Mr. Domville, Captain Fothergill, Mr. Brackenbury, Dr. A. T. Campbell, and Dr. John Gordon.

HOSPITAL TREATMENT OF VENEREAL DISEASES.

SIR,—In the report of the discussion on the treatment of venereal diseases at the Representative Meeting the brief abstract makes me say what I certainly did not intend. The word "than" has dropped out. I pleaded strongly that it was better that this work should be done at the hospitals, in spite of the objections we felt, rather than that fresh whole-time officials should take over another branch of medical practice. We have seen the State official gradually getting a large part of the tuberculosis, fever, and other work, and if some such plan as the present cannot be worked we may have a medical officer for venereal diseases in every district, and other sections of our practice will follow. Such a result might rival the wretched German system which Woodhall tells us of in his day, where each city appointed for life a few officials who had the entire monopoly of surgery, whereas in England every capable man was free to practise provided he gave full proof of his skill and knowledge.—I am, etc.,

Clifton, Aug. 14th. G. PARKER.

EMOLUMENTS OF OFFICERS OF R.A.M.C. SPECIAL RESERVE.

SIR,—It occurs to me that the following figures may be of interest to others. I have recently completed two full years of active service at home and abroad. As a Special Reserve R.A.M.C. officer I had already been trained for my duties and was also required to give my services immediately on mobilization. I had received three retaining fees each of £20—not an extravagant allowance considering that I had to leave my practice without even an opportunity to introduce my patients to a deputy. I wish to compare my receipts during the two years from army sources with that of an hypothetical temporary lieutenant, R.A.M.C., who should have performed exactly the same duties but who, of course, was not already trained, left his practice at his own convenience, and had had no retaining fees.

My total receipts, including allowances for travelling and every other sort of payment, were £877 0s. 6½d., which works out at 24s. a day. (About £600 of this was taxed before receipt, so that I did not actually handle this sum.) The temporary officer would have received for the same duties £997 13s. 11½d.—that is, 27s. 3d. a day.

Deducting from both allowances for equipment on mobilization, for travelling and for extra duty (for example, as surgeon, in charge of hospital, etc.), the two sums would be £786 3s. 0½d. and £926 16s. 5½d., or 21s. 6d. and 25s. 4d. a day. Roughly, my extra experience and extra readiness has cost me £120.

Not very long ago Mr. Tennant stated in the House of Commons that there was not much difference in the pay of Special Reserve (and Territorial, who are similarly penalized) officers. I find £60 a year quite an appreciable difference, and venture to think that most medical men will share that view.

I am aware that you have more than once expressed your opinion that officers in my position were not well treated, but as the question of what each actually does get is complicated by the allowances each may draw, I venture to hope that you may find room for this letter.—I am, etc.,

CAPTAIN R.A.M.C.(Special Reserve).

August 8th.

Obituary.

MR. MORTON ALFRED SMALE, consulting dental surgeon to the Royal Dental Hospital and to St. Mary's Hospital, London, died on August 4th at the age of 69. He was the second son of Mr. William Hurst Smale, and was born in London in August, 1847. He was educated at the Philological School, and studied afterwards for his profession at St. Mary's Hospital and the Royal Dental Hospital. He obtained the L.D.S. of the Royal College of Surgeons of England in 1876 and became a Member in 1878, having received the diploma of L.S.A. in 1877. Mr. Morton Smale was appointed dental surgeon, first to the West London Hospital, and then to the Westminster, and lastly in 1891 to St. Mary's, holding the latter appointment until 1907. He became honorary secretary of the British Dental Association, but declined the office of president both of that association and of the Odontological Society. It was largely through Mr. Morton Smale's energies that the new Royal Dental Hospital was built. In his early professional career he took an active share in the discussions of the Odontological Society of Great Britain. Of special interest were his observations on the use of cocaine in dentistry. He first employed it in 1884 and published his original experiences in the *Westminster Hospital Reports* for 1885. He wrote also on mechanical dental contrivances, such as operating

chairs, saliva injectors, and special instruments for crowning. The most important literary work associated with his name is the volume on *Diseases and Injuries of the Teeth*, originally prepared in conjunction with Mr. J. F. Colyer, who when the third edition was required took over the entire work still known and popular under the modified title *Dental Surgery and Pathology*. Mr. Morton Smale was elected president of the Dental Section of the British Medical Association at the Leicester meeting in 1905, and conducted with great discretion the discussions of several papers of high importance. Eight years later he was made president of the Stomatological Section of the International Medical Congress in 1913. He held for twenty years from 1884 the office of Dean of the Royal Dental Hospital, and was for twelve years examiner in dental surgery to the Royal College of Surgeons. He was also a member of the Board of Studies in Dental Surgery of the University of London.

Dr. Frederick Churchill, who died recently at his residence in Kensington, aged 73, was the son of Mr. John Churchill, J.P., of Wimbledon, and studied medicine at the University of Edinburgh and St. Thomas's Hospital. In 1867 he became M.R.C.S.Eng. and M.B., C.M., and L.M.Edin.; in 1871 he took the diploma of F.R.C.S.Eng., and in 1873 the degree of M.D.Edin. was conferred upon him with honours. He became surgical registrar to St. Thomas's Hospital, and resident medical officer at the York Road Lying-in Hospital. Dr. Churchill was for many years in practice in South Kensington, and was long surgeon to the Victoria Hospital for Children, Chelsea. He wrote a memoir of considerable merit on mechanical distortions of the spine, which was published in the Journal (vol. i, 1871, p. 638). It was based on an instance of curvature of the spine dependent upon an inequality in the length of the lower extremities, and associated with hypertrophy of the right patella. He was also the author of a book on face and foot deformities.

Dr. William Ward Leadam died on July 14th at his residence, Inverness Terrace, W., aged 79. He had been a Member of the Royal College of Surgeons of England for fifty-eight years; in 1860, two years after he took that diploma, he received the degree of M.D.Edin. and took the gold medal. For a time he was assistant surgeon to H.M. convict establishment, Portsmouth, and afterwards surgeon to H.M. Consulate in Siam. He practised for many years in Gloucester Terrace, Hyde Park, and long held a leading position in that part of London, making many friends both among the profession and the public. He was a man of sterling character, and withal genial and hospitable.

Dr. Samuel M. Brickner, an associate editor of the *American Journal of Surgery*, to which he contributed largely on subjects connected with his speciality—obstetrics and gynaecology—died on May 5th at Saranac Lake, at the age of 49. He edited, from its foundation till his death, *The Medical Pickwick*, a magazine probably unique among medical journals, in which he wrote articles—historical, humorous, and biographical—showing a wide range of knowledge and a cultivated literary taste. He had decided talent for verse, and many of his poems appeared in lay papers. Some of these, notably "To R.L.S.," written for the dedication of the monument to Robert Louis Stevenson at Saranac Lake, "The Antivivisectionist," and "The Red Cross Nurse," were widely quoted in the general press.

Dr. William Corsar Anderson, a member of the Dundee Branch of the Association, died on July 26th at his residence, King Street, Dundee. He was the son of the Rev. Dr. Mark Anderson of St. Andrews, and was educated at Clifton College and the universities of St. Andrews and Edinburgh. In 1892 he took the diplomas of M.B. and C.M.Edin. After holding for several years the appointment of assistant medical officer in the Fife and Kinross Asylum, Cupar, Dr. Anderson settled in Dundee ten years ago, and soon acquired an extensive practice. He became very active in ambulance work, and was lecturer to the East Station team, which a few years ago won the challenge shield. Dr. Anderson had been in failing health for the last two years, yet almost to the very end he attended to his public and private professional duties.

Dr. Elias Jones Roberts, late of the East Indian Railway, died at Portledge House, Newbridge Hill, Bath, on August 2nd, aged 94. He was born on February 29th, 1822, and educated at Edinburgh University. He graduated M.B.Lond. in 1852, took the diploma of M.R.C.S. in the same year, and that of M.R.C.P. in 1860. He was for many years in the medical service of the East Indian Railway, stationed at Asansol, in Bengal, but retired so long ago that probably there are few, if any, Europeans in that country who remember him.

The Services.

INDIAN MEDICAL SERVICE.

The open competitive examinations for admission to the Indian Medical Service have, as has already been announced on several occasions, been suspended during the continuance of the war; such appointments as may be absolutely necessary are made by nomination of the Secretary of State, who is advised by a selection committee. Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the Service can be obtained from the Secretary, Military Department.

EXCHANGES.

Captain (Temporary) R.A.M.C., in field ambulance, France, desires exchange. Home station preferred. — Address No. 3200, British Medical Journal Office, 429, Strand, W.C.

Captain R.A.M.C., at present in medical charge corps troops, requires exchange, hospital preferred, in or near London.—Address No. 3196, British Medical Journal Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), in provisional unit, desires exchange with medical officer abroad in casualty clearing station, hospital dépôt, ambulance train (home or abroad), or hospital ship. Failing these he would be glad to hear from any one in artillery who does not wish to go abroad, or M.O. in hospital abroad.—Address No. 3198, British Medical Journal Office, 429, Strand, W.C.

Medical officer serving with field ambulance in Egypt wishes to arrange transfer with other officer at present serving at home (rank, lieutenant or captain).—Address No. 3197, British Medical Journal Office, 429, Strand, W.C.

Medical officer with unit about to proceed to the front wishes, with permission of Director-General of Medical Services, to transfer to any other post with reasonable likelihood of remaining in this country.—Address No. 3199, British Medical Journal Office, 429, Strand, W.C.

Medical News.

Lord Justice Pickford has been added to the Dardanelles Commission.

Mr. Arthur Barker, Professor of Surgery at University College, London, who died on active service at Salonica, left property of the gross value of £12,243.

Of the 748 past and present students at St. Thomas's Hospital Medical School who have entered the navy and army services, 620 joined since the commencement of hostilities; 24 have died on service, 56 have been mentioned in dispatches, and honours have been conferred upon 27.

Provincial readers will be amused to learn that it has required several months of newspaper agitation, and an appreciable expenditure of parliamentary time, to give the Home Secretary the courage to make a regulation which will enable him to prohibit the use of cab whistles in London during the hours of the night.

Before the war German chauvinism found an outlet in scientific compilations purporting to give abstracts of papers by the entry after the title of many papers by British or French men of science of the words "Nothing new." At present the British Press Bureau writes after the German accounts of the results of their Zeppelin raids, "Nothing true."

Madame Paul Brouardel, widow of the distinguished professor of medical jurisprudence who was dean of the Paris Medical Faculty, has accepted the presidency of the War Medical Assistance Fund. The daughter and pupil of the famous painter Lapierre, she is herself an accomplished artist. She gave a collection of her water-colour sketches of landscapes to be sold for the benefit of the wounded, and within a few days £920 was added to the fund, which on July 1st amounted to more than £20,800.

A SPECIAL hospital for 250 Canadian soldiers suffering from injuries or disorders likely to be benefited by treatment at Buxton, given by the Canadian Red Cross, was opened by the Duchess of Devonshire on August 11th. Colonel Charles Hodgetts, Commissioner of the Canadian Red Cross, presided. Major-General Sir Sam Hughes paid a tribute to the admirable work done by women for the Canadian Red Cross Society; it was, he stated, practically run by them. Surgeon-General Carleton Jones accepted the gift on behalf of the Canadian Medical Service, and Major Guest, the Commandant, said that the experience of the treatment given in Buxton during the short time the hospital had been at work had been most satisfactory. The Duchess also paid a visit to the Devonshire Hospital, where over 200 military patients are now under treatment, and to the V.A.D. hospital.

THE nineteenth annual meeting of the Medical Library Association took place at Detroit on June 12th, and at Ann Arbor, Michigan, on June 13th. The Canadian libraries represented were the McGill Medical Library, Montreal, and the Academy of Medicine, Toronto. Among the points under discussion was the arrangement of bibliographical material; it was suggested that all references should be given uniformly, according to the year, volume, and page; and that instruction in the use of the various indices and bibliographies would be of practical value to the medical worker. Another subject discussed was the difficulty experienced by libraries in securing copies of reprints, and authors were asked to be more generous in this respect to the various libraries of the association. A resolution was passed asking that the third series of the *Index Catalogue* of the Surgeon-General's Library should be printed, as the discontinuance of the series would be a great loss to the libraries and the medical profession.

THE *Tropical Diseases Bulletin* for June 15th, 1916, contains notes on the laboratory reports from Jamaica and Khartoum. The chief interest of the report of the Jamaica Government bacteriologist, Dr. H. H. Scott, lies in the investigation of the so-called vomiting sickness. He brings forward strong evidence to show that this disease is really due to poisoning by the fruit of the ackee, and that it is not a bacteriological entity as was originally supposed. The report from Khartoum deals with research work carried out at the Wellcome Tropical Research Laboratories during the year 1915. It is edited by Dr. Chalmers, the director, and contains work upon streptococcus infections, amoebic dysentery, skin diseases, kala-azar, beri-beri, etc. There is also a chemical section, in which Messrs. Beam and Freak point out that in hot countries like the Sudan blood stains alter more rapidly than in more temperate climates; in consequence the Teichmann test has been largely abandoned and a new test devised which is equally applicable to blood stains, whether fresh or old, as well as to stains partly removed by soap and water or mixed with earth, or to old stains on rusty iron which have been exposed to strong sunlight for several days.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2331, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2330, Gerrard. (3) MEDICAL SECRETARY, *Mediocre Westrand, London*; telephone, 2331, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

NOCTURNAL DYSPNOEA ASSOCIATED WITH NASAL OBSTRUCTION.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: It must be the lot of any one who examines many chests to find numerous instances of nocturnal dyspnoea associated with nasal obstruction; the most interesting are those in which the obstruction consists in developmental defects rather than that produced by chronic inflammatory action. The sudden onset after a spell of sleep is common to both sorts; but in the former, with, say, a deflected nasal septum as the cause, the asthmatic attacks do not commonly come on during the day. Indeed, for a more or less prolonged period there are no physical signs to be discovered in the day to account for the nocturnal dyspnoea; and very often the case does not come under examination until more frequent and more severe attacks compel more serious attention to symptoms and signs.

A typical case is a boy of 10 or 11 years of age, presenting some deflection of septum and thickening of the middle turbinate mucous membrane resulting from the hereditary deformity. The facies is quite different from that of the adenoid patient, mouth-breathing not being of necessity present. Examination of the chest reveals retraction of both apices, as a rule, and engorgement of the superficial veins back and front. Prolonged expiration is not marked, at any rate between the attacks; and moist sounds may be almost absent. But the respiratory function is very poor, and the chest soon becomes emphysematous, and the patient gradually debilitated.

It is difficult to persuade the friends that the deformity is the cause of the trouble, because of the absence of attacks during the day; and the situation is not eased when the medical attendant is not able to explain this apparent anomaly. It does not help much to say that there is a close connexion from a developmental point of view between the brain, nose, and lungs, and that inhibition plays a large part in our daily and nightly carrying on.

The urgent question is, What's to be done to remedy the complaint? To say, as is commonly done, "that the lad will grow out of it," does not mend matters, and as a rule results in the transfer of the patient to another practitioner or sentences him to another round of quack nostrums and practices. The surgeon who does these things says that an operation to remedy the deformity of a growing nose is not very successful; and one can readily understand how difficult it is to prevent Nature reverting to the original model.

Much additional damage to the chest will result by waiting until the patient arrives at his sixteenth or seventeenth year, and one more individual is added to the number of candidates for pulmonary tuberculosis.

Meanwhile, what is to be done for the growing lad? for all parties concerned soon tire of the periodical use of the cautery—a practice in itself not very cheering or promising. What procedure is there in these circumstances that can vie with enucleation of the tonsils and scraping away of the adenoid vegetations in remedying a somewhat similar condition?

LETTERS, NOTES, ETC.

ATTENDANCE ON SOLDIERS BY CIVIL MEDICAL PRACTITIONERS.

LAST June several correspondents complained that they were unable to obtain payment from the War Office for services rendered as civil medical practitioners. Other correspondents said that they had had no such difficulty, and a Major R.A.M.C. suggested that possibly those who had failed to receive payment had not complied with all the regulations of the Royal Pay Warrant. The following letter from an acting medical officer appears to show that delay may still occur, even when all official requirements have been fulfilled:

> At a very early period of the war civilian surgeons of mature experience were earnestly appealed to to act in place of those who had been called away. I was appointed to a famous Territorial regiment, and made ducks and drakes of my private practice in order to fulfil my military obligations. Every bit of red tape in the way of "indents," "forms," and what-not has been attended to in strict accordance with official instructions, but do what I will, write as I will, I cannot get my dues paid to me. I have examined well over a thousand recruits, for which service so far I have not received a farthing. I have administered many hundreds of antityphoid injections, and performed the most multifarious duties, and yet over fifteen months' pay and fees are still outstanding. I am told that there are very very many civilian officers in the same plight as myself. Why should a number of hard-working officers be kept waiting for twelve, fifteen, and even seventeen months for their pay? Cannot something be done to end a glaring injustice?

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A PREHISTORIC WAR WOUND.

BY
LIEUTENANT LIONEL F. WEST, R.A.M.C.
With Note by
ARTHUR KEITH, M.D.,
CONSERVATOR OF MUSEUM, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

In connexion with certain trenching operations there were brought to light the remains of an ancient British warrior who fought and suffered from a very grievous head wound some 3,000 years ago. In severity it rivals wounds suffered by our soldiers in the present war. The nature of the wound can be best realized from the annexed sketch of the forehead by Dr. Keith. It is not difficult to realize the manner in which the wound was produced or to picture the subsequent sufferings of the victim. In the Neolithic and Bronze periods the favourite weapon was the celt or battle axe, pointed at one end, flattened and sharp at the other. The wound seems to have been produced by the pointed end of the celt, which fell upon the supraciliary ridge over the left orbit with such a force that it sunk clean within the skull, leaving a sharp-edged hole, about ¾ in. (20 mm.) in one diameter and ½ in. (12 mm.) in the other (Fig. 1, c). The shivering force of the blow fissured the left supraorbital region in such a manner that the external angular process (A) and the supranasal region (B) were partially separated from the rest of the forehead. The injury was not immediately fatal for there are signs of repair all round the wound. In the supranasal region there is abundant evidence of osseous repair attended by suppuration. A sinus leads into the frontal air cell, which had apparently been laid open and become infected. The edges of the primary wound are smooth and even, from absorption and from the deposit of new bone. The most remarkable and puzzling condition is seen at the outer end of the primary wound in the region between A and E. Here the bone has been absorbed or scraped away until the edges of the fissure, extending across the left side of the forehead and reaching the temporal region, are reduced to fine edges. The thinning affects merely the outer table and diploë of the bone; the inner table has not been absorbed. The absorption of the bone in the region A E is, as I have said, puzzling. It may be due to the efforts of the surgeon who attended the case, for we know that in the Neolithic and Bronze periods trephining or scraping was frequently resorted to. On the other hand, the absorption in this area may have been due to the application of some protective contrivance which exerted pressure on the underlying bone.



FIG. 1.—Drawing of frontal region of prehistoric skull. A, External angular process. B, Supranasal region. C, Primary perforating wound. D, Sinus leading to frontal air cell. E, Part which has been attenuated either by scraping or by absorption.

In any case the warrior evidently lingered on for months; the outer end of the wound extended over the third left frontal convolution. As will be seen from Dr. Keith's note, this ancient British warrior—a slim, short man—died young, and very probably from sequelae following his wound.

The discovery was made in the following manner. In a lonely spot on the Wiltshire Downs, near the site of a prehistoric camp or fort, during the making of some modern trenches, human bones were discovered. News of this reached Lieutenant-Colonel R. H. Hall, R.A.M.C., who asked me to go and investigate the circumstances. I went, accompanied by Captain Lovatt, R.A.M.C., and Lieutenant Sweetman, R.E.S.

We found that from a long section of trench 6 or 7 feet deep it had been decided to make an offset at right angles. This offset was carried down to the level of the floor of the main trench, which was cut through a layer of soil about 10 inches thick, and then through solid undisturbed chalk. After proceeding some 10 feet along the offset a place was exposed where the upper 4 feet was composed of soil containing human bones. There was a step of about 2 feet of solid chalk, undisturbed, below the soil which contained the bones. Much of this deep soil had been thrown back in the trench for complete removal later. We set to work and carefully passed through a fine sieve the whole of the soil which was lying in the offset and the deep layer of soil. We found many human bones in fragments. Our labours exposed an oval shaft sunk into the chalk to a depth of 4 ft.; it was 3 ft. 9 in. long and 2 ft. 9 in. wide. From the position in which we found the skull, the body had been flexed, chin to knees, laid on its left side, head to north, feet to south facing east, back to west; these bearings were taken by compass. The floor was of undisturbed hard chalk; the overlying soil was about 10 in. thick as shown in all the sections of trenches thereabouts.

The skull was fairly complete, but very soft and friable when found, and of a yellow colour, which changed on drying to a chalky whiteness. This is also true of the rest of the fragments. Judging from the condition of the teeth, the whole of which were found in the upper jaw, we had found the bones of a man well under 30 years of age. Confirmation of the age was found in the scarcely yet obliterated epiphyseal lines in certain of the long bones.

When we came to fit together the "jig-saw puzzle"-like pieces of the skull a very remarkable feature was observed. Over the inner third of the left orbit was an oval opening, ¾ in. long (horizontally) by ½ in. wide, the edges of which were rounded and smoothed off by a healing process; this opening was continued outwards for a further ¾ in., the bone being irregular and very much thinner. Much new bone was thrown out round the opening over an extensive area, and in the centre of the frontal bone, just above the nasal bones, was a deep pit, suggestive of prolonged suppuration and necrosis. After an examination of the fragments it does not require much imagination to picture our warrior taking part in a hand-to-hand combat with stone weapons in which he got the worst of it. A blow from a stone battle-axe, such as we associate with men of his time, "gets home" on his forehead, exactly on the spot where a right-handed man would expect a well-aimed blow to fall on an opponent's head, perforating the frontal bone and depressing the skull. Thus, poleaxed, he should have died at once; at the least he must have been placed immediately *hors de combat*. It would only be reasonable to infer that the victor thought his work complete, or we should not have found the healed margins of the wound and evidence of suppuration and new bone pointing to a lingering death at some later period.

For how long did our warrior lose consciousness after the injury? Did he ever recover it, or, having recovered it, what symptoms persisted? What of the sight of the left eye? What treatment or remedies were applied? The answers to all these questions can only be speculative; yet one of the fragments of bone found in the grave was about 1½ in. square, not human, but part of the orbital portion of the left malar bone of an ox, with the outer table of one of the edges quite rubbed down to the cancellous tissue! *Similia similibus curantur?* Possibly even then a belief. Also the shell of a "moor snail" was found. Had this also any supposed healing virtue? A few flint chippings, showing man's handiwork, were also found along with the bones, but nothing that could be called an instrument of any kind.

Associated with the remains was a small quantity of material, not unlike thin sheets (⅛ in.) of "hair and lime plaster." Could this be the remains of a shroud?

A fragment of one rib possesses a remarkably well developed unciform process.

NOTE BY DR. KEITH.

It was fortunate that one with so sharp an eye as Lieutenant West was at hand when the discovery was made, for it would have been easy for a casual observer to have overlooked the nature of the cranial fracture. I have shown the flint flakes found with the remains to Mr. Reginald Smith, of the British Museum, but they are not sufficiently characteristic to give an accurate date for the burial, which may be assigned to any point of a period extending from the Neolithic almost to Roman times. The posture of the skeleton and a comparison with other discoveries of a like nature lead one to assign it to the Bronze period, or perhaps a late Neolithic date. As Lieutenant West has inferred, the skeleton is that of a young man; his epiphyseal lines have just closed; his teeth are unworn. They are massive teeth, showing a slight degree of irregularity in implantation and a certain degree of contraction of the palate. Contraction of the palate, so common in our modern population, is unknown amongst the ancient British. Nor is Lieutenant West's warrior an exception; the contraction is only apparent, not real, for it is due to the massive teeth being implanted on a palate of more than average dimensions.

As regards head-form, Lieutenant West's warrior has the character of the British of Neolithic period. The skull is comparatively a small one: its maximum length is 184 mm.; its greatest width 136 mm.; its cephalic index 74—long-headed. The height of the vault above the ear-holes 120 mm.; the cranial capacity 1,420 c.cm. From the femur and other bones the stature is estimated to have been about 5 ft. 2 in. (1,658 mm.). The bones are remarkably slim; those of the thigh and leg show extreme flattening. Details of all of these characters will be placed on record in the *Journal* of the Royal Anthropological Institute. The remains may be inspected at the Museum of the Royal College of Surgeons.

ON THE SALT PACK TREATMENT OF INFECTED GUNSHOT WOUNDS.

BY

J. E. H. ROBERTS, M.B., B.S., F.R.C.S.,

AND

R. S. S. STATHAM, M.D., M.R.C.S.,

TEMPORARY CAPTAINS R.A.M.C.

THE method of dressing wounds with a firm pack of gauze and sodium chloride tablets, devised by Colonel H. M. W. Gray, C.B., combined with a preliminary free excision of the wound and lacerated and infected tissues, has in our hands given results which have effected revolutionary changes in our methods of treatment. During the last twelve months it has gradually supplanted other methods of treatment, until now we employ it in the majority of cases. At first we regarded it with suspicion and used it but half-heartedly; finding, however, that wounds dressed in this way became clean at least as speedily as those treated by other methods, and that the general condition of the patients improved owing to undisturbed sleep, increase of appetite, and absence of mental apprehension of frequent painful dressings, we ended by becoming complete converts to the method.

The operative details in connexion with a wound naturally vary with the site, nature, and degree of infection of the wound.

For example, wounds of the buttock by shrapnel ball or shell are invariably laid open in their whole extent. If there are separate entry and exit wounds they are joined by an incision dividing the glutei down to the track between them. Foreign bodies are removed and the necrotic tissue lining the track excised. Bleeding points are tied with catgut, and after examination for bony or visceral lesions a salt pack is applied. Such a wound is often ready for suturing within ten days to a fortnight.

Wounds of Limbs.

The superficial wound if small is excised so that it will admit a finger. The full extent of the wound is then determined as far as possible by digital examination, and unless essential structures are involved the whole area is laid open, all pockets being exposed to the end. Foreign bodies, including pieces of cloth and blood clot, are carefully searched for and removed, and all necrotic tissue cut away with scissors until a freely bleeding surface remains. If the deep fascia or superficial muscles tend to come together and close the mouth of the wound sufficient tissue is excised to ensure that, when the salt pack is in place, the mouth of the wound will be widely open. A conical wound not requiring the use of drainage tubes is thus produced.

Where there exist entry and exit wounds and their junction would involve the sacrifice of essential structures, such as a large motor nerve, two conical excisions with their apices meeting in the centre of the track may be made and a pack applied at each end.

In all cases side tracks and pockets are opened up so that they may be packed to the bottom. Where a fracture exists, fragments, unless small and completely detached, are not removed. These proceedings are not really so heroic as at first sight may appear, for, first, most of the muscle excised is infected, and secondly, it has been shown that muscular tissue even though not infected has lost its striation and contains haemorrhagic areas for a considerable distance around a gunshot wound. Such muscle will not regain its function and will ultimately be replaced by fibrous tissue. Fascia and tendinous structures are badly supplied with blood and invariably slough when exposed in infected wounds. They should be cut away at the primary operation. On the other hand, the sheaths enclosing intact muscles should not be unnecessarily opened. When infection is confined to a single muscle it is sometimes advisable to remove the whole belly in its sheath, for instance, the rectus femoris or one of the hamstring group. Thrombosed veins should be dissected out to their full extent and excised.

With the exception of iodine for the skin we do not apply any antiseptic to the wound.

The wound having been thus prepared the salt pack is applied in the following manner. A piece of plain gauze, four to six layers thick, is lightly wrung out of 5 per cent. salt solution and carefully laid in the wound so that it is in contact with the whole of the surface. Care should be taken that this sheet of gauze is sufficiently large to cover the whole surface of the wound. If several smaller overlapping pieces are used, small spaces in which pus collects form at the lines of junctions and there is also great danger of the pieces being displaced when the rest of the packing is inserted, thus leaving bare surfaces. When the wound is a deep one the gauze lining is carefully carried down by the fingers within it to the deepest recesses of the wound. No spaces should be left, as they rapidly fill up with pus. A few 40 grain tablets of salt* are now placed in the deepest part of the wound, or, if the wound is flat, placed on the surface of the gauze about an inch apart. The interior of the gauze-lined wound is now firmly packed, somewhat in the manner of the old-fashioned petticoated tube, with a roll or long strip of gauze moistened in the same way. This strip is carried alternately from one end of the wound to the other and numerous tablets of salt are laid between the successive layers. A handful of tablets should not be thrust in all together, as when they dissolve a cavity is formed. For a wound 4 in. long by 3 in. deep ten to twenty tablets would be used. When the pack becomes flush with the skin surface a few more layers of gauze are applied and over that a thick wool dressing, composed of at least three layers, completely encircling the limb. The whole is then firmly bandaged, so that the surface of the wound is kept in intimate contact with the pack, and all spaces which tend to form are obliterated. Really firm pressure should be used both in applying the pack and in bandaging. The elasticity of the thick wool dressing distributes the pressure and effectually prevents anaemia of the wound surface and congestion of the limb below.

Where a compound fracture is present it is not usually possible to avoid leaving spaces between and around the fragments of bone, and therefore in such cases, after placing the lining sheet of gauze, a large rubber tube is introduced down to the fracture and the remainder of the gauze and tablets packed around it. This serves to prevent the tracking of pus along the bone. A hole cut in the lining gauze allows any discharge to gain free access to the tube.

* These tied up in convenient numbers in small gauze bags may be sterilized along with other dressings in the autoclave.

We have frequently packed on to exposed main arteries, such as the femoral, brachial, and subclavian. In no case has the vessel given way, but we have been careful to interpose a rather greater thickness of gauze than usual between the hard tablets and the vessel. If a salt tablet comes into direct contact with the tissues it causes a necrotic area a little larger in diameter than itself, but quite superficial, its depth being not more than a millimetre. This is really of little importance, as it disappears by the next dressing, but is better avoided. It appears to be quite safe to pack on to exposed surfaces of bone.

During the first twelve to twenty-four hours a copious exudation of serum occurs, soaking the gauze, wool, and bandage. After this no further exudation usually takes place, and, if the dressings are inspected during the next four or five days, they are generally discovered to be quite dry. As soon as the outer layers of the dressing become moist a packing of fresh sterile wool is placed outside without removing the bandage.

It is important that the wound should be kept at rest. In large wounds of limbs we employ a splint, but in smaller wounds the nature of the dressing, with its firm bandage and the fact that the serum-soaked outer gauze dries into a hard mass of the consistency of a starch bandage, renders a splint unnecessary.

After dressing, morphine tartrate grain ¼ is usually given, as most patients complain of pain for a few hours. In many cases, however, the pain is quite slight, and no analgesic is necessary. In the few cases in which pain has persisted exposed sensory nerve endings have been discovered, and these may be cut short under novocain. Successive dressings become less painful, and after the second an analgesic is usually unnecessary. A rise of temperature and increase of pulse-rate usually follows the manipulations, but unless these persist after twelve to twenty-four hours no apprehension need be felt.

In the behaviour of the temperature and pulse the cases fall into three main classes. In the larger number the temperature and pulse-rate fall to normal on the second day and remain so, except for temporary slight rises following the first dressings.

In another class the pulse-rate comes down at once, but the temperature comes down by lysis, taking four or five days to reach the normal. In a comparatively small number of cases, although the pulse-rate remains below 90, the evening rise of temperature may persist for one or two weeks, although the wounds when dressed appear clean and free from retained pus.

The pulse-rate and general condition of the patient is a much better index of the well-being of the wound than the temperature.

After a few days the outer dressings may acquire a very offensive odour. This is due to decomposition in the dressings themselves, and if they are removed the wound is found to be perfectly sweet. The outer dressings are more offensive than the inner. At one time we changed the outer dressings when they began to smell, leaving the packing in the wound untouched. The objection to this is that it is difficult to change the outer dressings without disturbing the deep pack. We then used various substances, such as sanitas powder, potassium permanganate, and eupad powder, thickly dusted on the dressing immediately beneath the outermost layer of gauze. All these diminish the odour. With Dakin's chloramine-T powder, which we are now using, all odour is practically abolished. Mixing chloramine-T tablets with the salt tablets in the deeper dressing was found to be unsatisfactory, as it did not prevent the smell.

The Normal Favourable Course.

The course of events in an ordinary, fairly severe, infected wound of the soft part is as follows: After excision and packing the dressing is untouched for five or six days; the wound is then dressed, usually under an anaesthetic. In the majority of cases the pack is now loose, and the dressing comes away as a whole. The surface of the wound is covered with a yellow fibrino-purulent exudate, with here and there a few small yellow sloughs where damaged muscle or aponeurosis has been incompletely removed. A small amount of creamy yellow "laudable" pus is seen in the wound, quite different in appearance from the original brownish stinking anaërobic pus. If the surface of the wound is swabbed, some of the exudate is removed, exposing a readily bleeding surface underneath. The muscle is no longer oedematous and does not project beyond the skin surface, which is quite healthy and shows no sign of surrounding inflammation. The skin is swabbed with iodine and a fresh salt pack is applied, smaller in dimensions than the primary one. The pressure of the wound surface against the gauze pack is re-established when the firm bandage is applied. This dressing is changed in another five or six days and the whole surface of the wound is now seen to be covered with brilliant red, easily bleeding granulation tissue, all sloughs having separated. If some areas are not yet clean, another pack is inserted, otherwise the wound may be brought together with strapping or may be sutured. The majority of wounds of soft parts are ready for closure within three weeks. Some have been closed as early as the tenth day. The time which is required before a wound is in a fit state to close varies in accordance with the nature of the tissues exposed. Thus muscular tissue rapidly becomes clean. Tendinous and fascial sloughs take longer to separate. Pieces of dead bone take so long that it is inadvisable to close a wound complicated by a fracture.

Indications for Changing the Pack.

Indications that the wound is not doing well and that the pack must be changed are:

1. A continuously rising pulse-rate.
2. Increasing oedema in the limb.
3. Sudden onset of severe pain. This generally means spreading gas infection.
4. A persistent *rise* of temperature for which no other cause can be found.
5. A change for the worse in the patient's general condition in cases in which a raised temperature has persisted from the beginning.
6. Oozing of pus from under the edge of the dressing. This is generally due either to the dressing having been left unchanged too long, or having been too loosely applied.
7. The dressing must be reapplied when the pack has become loose from diminution in the circumference of the limb as oedema disappears.

Some Other Details.

Where the innermost layer of gauze is found to be firmly adherent to the wound surface it is not removed, but a new pack is applied within it. If it is removed bleeding is caused, the protective barrier is broken down, and a rise of temperature takes place.

When once the wound is granulating healthily it is not advisable to continue the salt pack, as the granulations become exuberant, pale, and oedematous. If the wound cannot be closed, any of the simple dressings should be applied.

Occasionally a wound becomes sluggish, even during the separation of sloughs. A change from the salt pack to a dressing of gauze soaked in pure glycerine usually causes a rapid change for the better. Where a wound is not doing well with a salt pack, and a pure streptococcal infection is present, the use of a 1 per cent. salt solution as a wet dressing, continuous irrigation or bath will sometimes be found to effect an improvement.

Conclusions.

The salt pack has given very good results with flush amputations and in excised joints. It appears to be of great value in field ambulances and clearing stations, as in time of stress it may be impossible to renew dressings for two or three days. Those cases we have received from clearing stations in which the treatment has been thoroughly carried out have arrived in excellent condition, and contrast very favourably with those treated by other methods. Cases treated by eusol irrigation, however clean they may be when leaving the clearing station, often have their wounds in an unsatisfactory state on arrival at the base twenty-four hours later.

Our advocacy of this method of treating wounds is based entirely on our clinical experience, and we do not in this place advance any theories to explain its action. It is based originally on the well-known work of Sir Almroth Wright.

Cases.

The following cases are given as examples of different types of wounds. The list might be extended manyfold:

CASE I.—*Wounds of Right Leg and Left Thigh: Gas Infection of Both Wounds.*

Pte. B., admitted May 25th, 1916. Small superficial entry wound in left calf running deeply in, with a tube in it. Calf greatly distended and bubbling with gas, skin bronzed. In front of outer side of left thigh was a wound the size of a shilling; great oedema of muscles, stinking pus and gas oozed out.

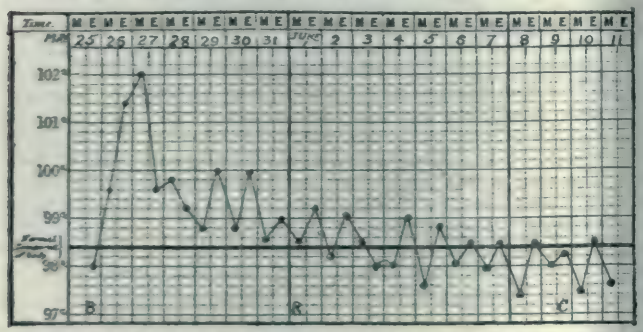


CHART 1.—CASE I. B, On admission, operation, morphine gr. ¼. R, Re-packed. C, Redressed; strapped.

Operation.—Wound in calf of leg laid widely open—much infected muscle cut away and a cavity 6 inches long down to the bone left and packed with salt and gauze. The left thigh treated in same way. Patient collapsed, jaundiced and vomiting; put on "dangerous" list. May 26th, 1916: Temperature 102°, but pulse 86 only. Still vomiting. *B. perfringens* grew freely from pus. May 27th: Great improvement; temperature 99.2°; eating well. June 1st: Repacked for first time; much cleaner. June 9th: Redressed; quite clean and granulating; wound strapped. June 13th: Sent to England practically healed. (See Chart 1.)

CASE II.—*Wound of Thigh: Gas Infection.*

Pte. W., admitted May 11th, 1916, with deep wound on outer side of left thigh. A tube had been put deeply into muscles of thigh, where it was tightly grasped by swollen muscle. Thigh much swollen up; very tender and bronzed. Tube removed, and much stinking gassy pus came away. Wound excised freely. Gauze and salt pack applied. May 14th: Comfortable; thigh now not swollen; much smaller, so that bandages and pack are loose. Repacked without anaesthetic. May 19th: Redressed; wound clean and granulating. Strapped across and sent to England next day. (See Chart 2.)

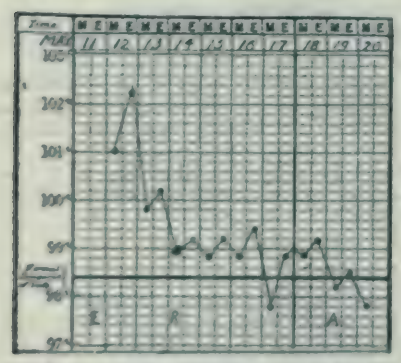


CHART 2.—CASE II. E, Operation; packed. R, Repacked. A, Redressed.

CASE III.—*Wound of Left Buttock.*

Pte. C., admitted April 28th, 1916. There was a penetrating wound of left buttock, with entry and exit wounds at upper and lower margins and a space between of 7 in. Great oedema and redness. April 29th: Track laid open in its full length. Full of foul pus and necrotic tissue. The wound was about five inches deep in the centre when all muscles were divided. Firm salt pack applied. May 2nd: Redressed; cleaner; *B. pyocyaneus* present; repacked. Temperature to 101° each night, but pulse keeps about 90. May 6th: Repacked. May 12th: Pack out; clean and granulating; strapped across and to be dressed daily. May 14th: Sutured with deep stitches; small bit of rubber tissue drain at angle. May 20th: Good union; stitches out. Corner where drain was, not quite healed. Rest of wound entirely healed. Corner strapped. To England. (See Chart 3.)

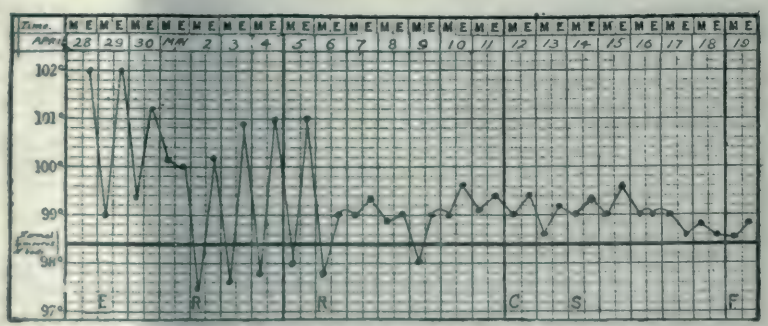


CHART 3.—CASE III. E, Operation; packed. R, R, Re-packed. C, Re-dressed; strapped. S, Sutured. F, Stitches taken out.

CASE IV.—*Shell Wounds of Leg and Arm: Gas Infection.*

Pte. S. Two wounds outer side of leg; gassy herniating muscle; whole limb from foot to knee swollen to nearly twice the size of its fellow. *Wound of Forearm: X* ray shows two pieces of shell in arm and two in leg. May 27th, 1916: Immediate operation; wounds of leg excised and enlarged; much sloughing muscle tissue excised. One foreign body removed through lower wound; the upper piece of shell through a counter incision on inner side of leg. It had passed through tibia and fibula. This wound also was made conical. Numerous half-inch incisions into subcutaneous tissues were made all round the leg from foot to knee. Salt packs to all three wounds. Wound of arm not badly infected. Shell fragment removed; salt pack. May 31st: Repacked; wounds covered with yellow slough. June 5th: Repacked; oedema gone, wounds cleaner. June 12th: Repacked; upper leg wounds looking cleaner; some slight oedema in lower wound. June 15th: Put on daily glycerine dressings, as granulations were looking pale. The deeper part of wounds closed and wounds almost flat. June 20th: Sent to England.

CASE V.—*Wound of Thigh: Septic Thrombosis of Saphena Vein.*

Pte. R. March 9th, 1916: Admitted to eye wards. Right eye blind; much chemosis; wound of lower lid; septic wound of right thigh. March 12th: Transferred to surgical division. Wound below eye reopened; piece of shell removed from below and behind globe. Entry wound on outer side of thigh excised. A conical excision of infected sloughing muscle down to femur. The track passed behind the bone. Two pieces of shell removed through a counter incision on inner side of thigh. Femoral artery not felt. Salt packs to both wounds. March 17th: Right eye excised as orbital cellulitis persisted. Wounds of thigh dressed; some more sloughing muscle removed. The internal saphena vein was thrombosed, and contained pus from within an inch of the saphenous opening to near the knee. It was tied at both ends and dissected out. A deep branch under the deep fascia was thrombosed and was removed. Salt-pack dressing. March 20th: A small haemorrhage occurred into a wound on outer side of leg. Clot turned out, and bleeding point in muscle tied. Wounds cleaner; packed. March 30th: Repacked; wounds granulating. A few small tendinous sloughs to separate. April 6th: Repacked; wounds quite clean and granulating. April 20th: The patient was sent to England, the wounds now being small, and rapidly closing.

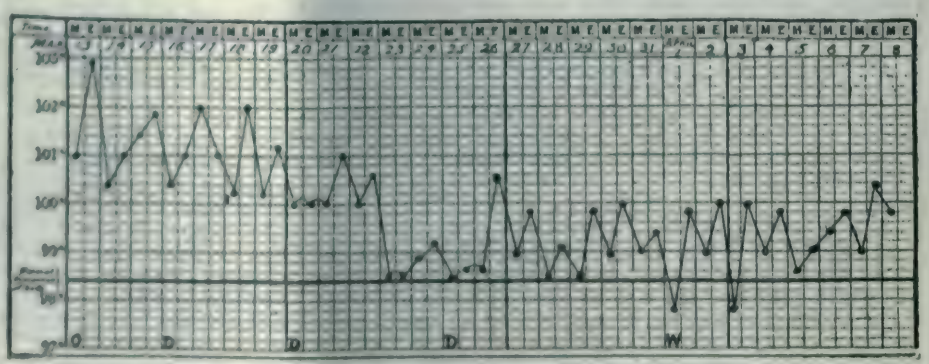


CHART 4.—CASE VI. O, Operation. D, D, D, Dressed (anaesthetic). W, Dressed without anaesthetic.

CASE VI.—*Shell Wound of Thigh.*

Pte. B. March 13th, 1916. Very offensive wound through back of lower end of thigh between femur and hamstrings. No vessel or nerve injured. Entry and exit wounds enlarged. Much sloughing muscle excised, two funnel-shaped wounds meeting behind femur being thus made. A piece of shell was found and removed. Salt packs to both wounds. March 16th: Dressed under anaesthetic. More sloughing muscle excised.

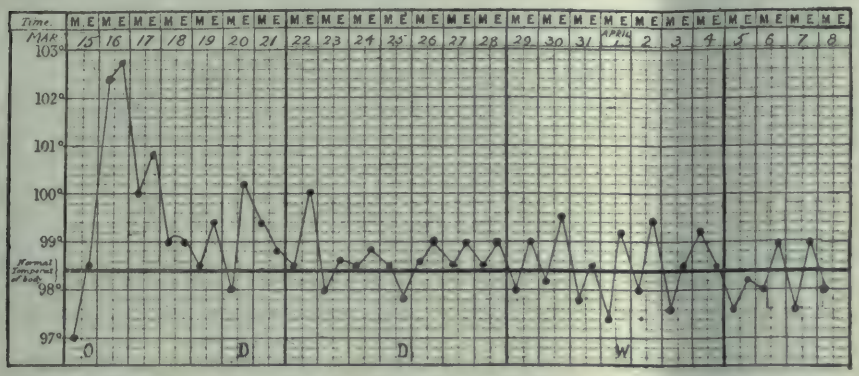


CHART 5.—Case VIII. O, Operation. D, D, Dressed (anaesthetic). W, Dressed without anaesthetic.

Salt pack. March 20th: Dressed under anaesthetic; wounds quite clean. March 25th: Dressed wounds covered with healthy red granulations and much smaller. Redressed on April 1st, 4th, and 8th. Sent to England with wounds almost healed. (See Chart 4.)

CASE VII.—*Compound Fracture of Humerus and Rib.*

Pte. G. December 28th, 1915. Wound of arm enlarged. Sloughing muscle excised down to fracture of middle shaft of humerus. Wound 4 in. long. Bone not much comminuted. Salt pack and Delbet splint. Wound of chest wall also excised and part of fractured tenth rib removed. Wound of arm was redressed about every five or six days. It rapidly became clean, and patient went to England on February 6th, 1916, with firm union of bone and a small superficial granulating wound. The bullet, which was not seen in the skiagram of the chest, was afterwards discovered under the skin of the loin, and removed under novocain. The temperature and pulse-rate remained normal after the first few days.

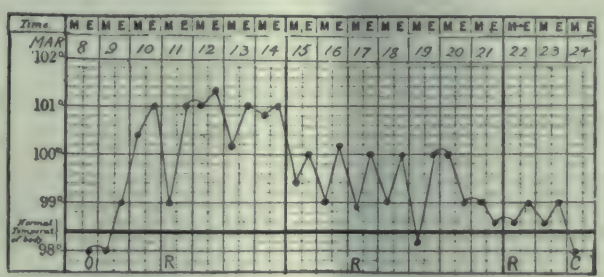


CHART 6.—Case XI. O, Operation. R, R, R, Repacked. C, Redressed; strapped.

CASE VIII.—*Perforating Wound Buttock to Groin: Femoral Artery Exposed.*

Pte. F. March 15th, 1916. One wound on inner side of thigh just below scrotum, one on outer side of buttock. Both about ½-in. in diameter and exuding stinking pus. Immediate operation. Both wounds freely opened up; large cavity beneath wound on inner side with femoral artery exposed in its roof. Outer wound revealed sciatic nerve partly divided. Wounds salt-packed after excision of all sloughing muscle. Foot put on splint at right angle as paralysis of all leg muscles was complete. March 20th: Repacked; yellow pus. March 25th: Repacked; wounds covered with bright red granulations. April 1st: Dressed without anaesthetic. April 8th: Sent to England with wounds rapidly closing. (See Chart 5.)

CASE IX.—*Wounds of Thigh: Femoral Artery Exposed.*

Pte. S. March 5th, 1916. Septic wound of left groin 3 in. long. Superficial wound excised. Track passed backwards for 4½ in., deep to the adductors. Common femoral artery exposed but not injured; some sloughing muscles excised; salt pack. A second wound on outer side of thigh with septic herniating muscle was excised; wound penetrated vastus externus; salt pack. March 10th: Wounds repacked. Yellow pus instead of dark brown anaërobic pus. March 15th: Repacked; wounds granulating and clean. April 8th: Patient sent to England, wounds rapidly closing after strapping.

CASE X.—*Compound Fracture of Ulna and Radius: Gas Infection: Thrombosis of Median Basilic Vein.*

Pte. I. March 25th, 1916. Three septic wounds, one in antecubital fossa, one on inner and one on outer side of forearm. Rubber drainage tubes protruding, tightly gripped by herniating gassy muscle. Much swelling and oedema. *X* ray showed fracture of both bones not involving elbow-joint. Ulnar anaesthesia and paralysis.

Operation.—Wounds opened up, median basilic vein thrombosed and removed. Gangrenous muscle excised; salt pack to all wounds. Put up in Thomas's arm splint fully supinated. The ulnar nerve was seen to be bruised and partly frayed. April 1st: Dressed; no spread of gas; yellow pus. April 7th: Repacked, wounds much cleaner. Some red, easily-bleeding surfaces seen; still some sloughs. April 14th: Repacked, wounds clean. April 20th: Redressed without anaesthetic. Wounds clean and much smaller. May 6th: Sent to England with wounds nearly healed; bones uniting.

CASE XI.—*Aneurysm of Posterior Right Tibial: Compound Fracture of Left Tibia.*

Pte. C., admitted March 8th, 1916. Right leg enormously swollen and brown; no pulse at ankle, small wound on front of leg. Wound explored at once. Piece of shell removed, and huge mass of clot and pus found in calf of leg; very offensive; an arterio-venous aneurysm of posterior tibial was ligatured and removed, and a large posterior excision of muscle performed. Salt pack. Left leg put up in splints. Shell fragment removed from between ends of tibia. Salt pack to fracture with small tube in centre of pack. March 11th: Pack loose; removed and replaced; cleaner; less swollen. March 17th: Repacked; cleaning rapidly. Fracture in good position. March 22nd: Repacked, now granulating fast; still a few sloughs. March 24th: Redressed and strapped. Sent to England three days later. (See Chart 6.)

CASE XII.—*Compound Fracture of Humerus, Involving Elbow-Joint.*

Pte. S., admitted April 19th, 1916. Arm was enormously swollen above and below elbow. There was much comminution of lower end of humerus, and the tissues were full of foul pus; a big tube had been thrust through the bony fragments. Fingers moved well, and no sensory changes detected. An attempt was made to save arm; wounds enlarged each side of arm and loose fragments of bone removed; much pus let out. Salt-packed with a tube down to fragments on each side, inside the inner gauze. Put up abducted on Thomas's splint with extension. April 27th: Slight haemorrhage, repacked, very clean; more fragments of bone removed and small vessel tied. Temperature 101.4°, pulse 92. May 4th: Repacked; cleaner; temperature 101°, pulse 84; has had temperature up to 101° or 102° each night; pulse keeps about 90. May 10th: Repacked;

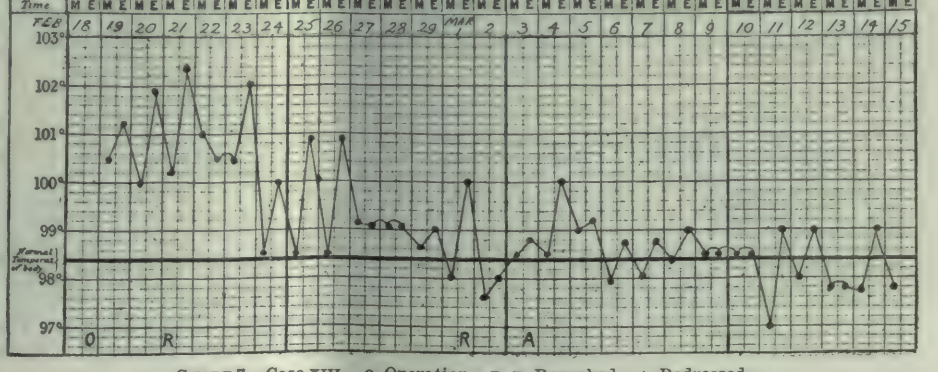


CHART 7.—Case XIII. O, Operation. R, R, Repacked. A, Redressed.

arm became oedematous; pus let out of hand and forearm from small wound there. Was repacked every four or five days, and by June 1st temperature and pulse both normal. Joint now bent at an angle, and hand supinated. June 10th: Temperature 100°, pulse 100; small pocket of pus opened over olecranon; temperature and pulse became normal. Arm looks very well,

and elbow is firmly ankylosed; fingers move, and arm is apparently going to be useful. Still in hospital on daily dressing, and granulating fast.

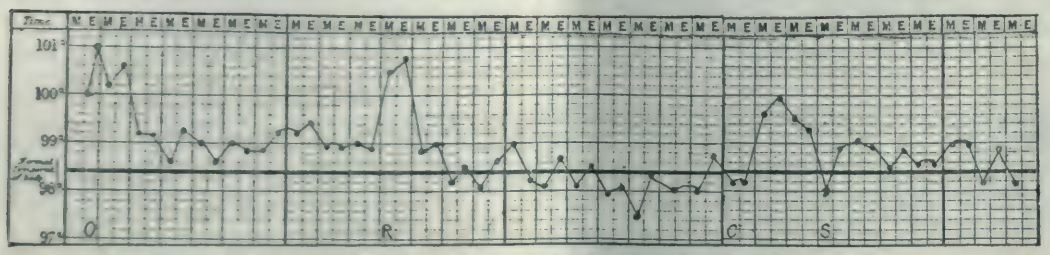


CHART 8.—Case XIV. O, Operation. R, Repacked. C, Redressed; strapped. S, Sutured.

CASE XIII.—*Compound Comminuted Fracture of Humerus: Gas Infection.*

Pte. C., admitted February 18th, 1916. Very severe comminution of middle of humerus for about 2½ inches; tissues full of foul pus, skin bronzed and crepitant to a small extent. Exit wound behind was laid widely open, some loose fragments of bone removed. Salt-packed. Entry wound enlarged, and packed down to the bone. Put up in extension with complete abduction. February 21st: Repacked, a little cleaner; "arm looks hopeless owing to comminution of bone." March 1st: Redressed first time for nine days. Wound quite clean; strapped across; to be dressed and strapped daily. March 14th: To England. Wound very small, union becoming firm. (See Chart 7.)

CASE XIV.—*Compound Fracture of Clavicle and Scapula.*

Pte. L., admitted with large very septic wound over left scapula. The outer third of clavicle and the upper edge and all the inner two-thirds of the spine of the scapula were blown away. The spine of the third dorsal vertebra was fractured. The brachial plexus and the subclavian vessels were exposed, and the artery was beating in the bottom of the septic cavity. The wound measured 8 inches by 6 inches. The wound was cleaned up under an anaesthetic, and a large salt pack applied firmly. The patient was so collapsed that 20 ounces of saline was given intravenously. *B. perfringens* grew freely from pus. Next day much better. On the third day temperature and pulse were normal, and he had no pain. On the tenth day the pack was removed. Wound was much cleaner, and granulating in places; still some sloughs adherent about edges of fractured bones. Repacked as before; slight temperature reaction. Pack removed eleven days later, wound quite clean and granulating. It was drawn together by strapping, and dressed daily with lotio rubra. Four days later the wound was sutured; the skin was approximated over the inner half of the wound, but the outer and upper half could not be united owing to loss of skin. It healed rapidly, and the patient went to England with the wound over his scapula and clavicle filling in fast. (See Chart 8.)

CASE XV.—*Compound Fracture of Humerus involving Shoulder-joint.*

Pte. R., admitted with wound over apex of right shoulder. X rays showed that head of humerus was in three fragments, and a long piece of shell lying in centre of bone, with a long fissure fracture of shaft. The whole joint was full of pus. Head of bone excised just below tuberosities, and piece of shell removed. The resulting cavity was packed with salt tablets and gauze. June 1st, 1916: Repacked; clean and red. June 8th: Repacked; filling in rapidly. June 13th: Redressed; now on daily dressing as cavity is rapidly obliterating. Can move arm a little. Has never had any pain in joint.

CASE XVI.—*Fracture of Femur: Gas Infection.*

Pte. S., admitted March 20th, 1916, with an enormous gaping wound of outer side of thigh. All the external muscles with half the hamstrings and half the anterior muscles of thigh were blown away. The wound was roughly cubical, about 5 in. each way. The femur was shattered, and about 2 in. were completely missing. The surrounding tissues were gassy and necrotic. Owing to the fact that the femoral vessels were intact, and also the sciatic nerve, and that his ankle movements were good, we decided to try and save the leg, although the attempt seemed hopeless. The necrotic tissue was cut away and a pack applied, loose fragments of bone being removed. March 23rd: Repacked; more to outer side of wound still necrotic and gassy; more cut away and repacked. March 27th: Repacked; cleaner. He was repacked every four or five days for five weeks, and then the wound became sluggish; put on to glycerine dressings and improved rapidly. May 15th: Several pieces of bone removed. Put up in Thomas's splint with plaster of Paris bandages with ends of bone apposed, and wrapped over wound. About 2 in. shortening at most. May 20th: Healing rapidly. May 23rd: Sent to England in good general condition.

CASE XVII.—*Wound of Left Leg: Severe Gas Infection.*

Pte. H. This case is included to show the failure of a pack dressing. The whole of the calf of the left leg was infected with pus and gas—skin bronzed and crepitant. June 9th, 1916: Laid freely open, salt-packed. June 11th: General condition much improved; no swelling of thigh. June 14th: Sudden great pain in leg; temperature 101°, pulse 104; thigh swelling, foot going black, leg again full of gas. Is vomiting, and looks yellow. Circular no-flap amputation; salt pack applied. Amputation was performed 3 in. above knee; fat there looked yellowish-green and oedematous. Cultures from fat grew streptococci, but no gas. June 15th: Very comfortable. June 20th: Redressed for first time; surface of stump quite clean; repacked. Pulse has averaged 80 to 90. No pain; general condition good. Temperature reaction to 102.8° after dressing; pulse 92. June 25th: Redressed. Extension strapping to skin. Stump entirely covered with red granulations. (See Chart 9.)

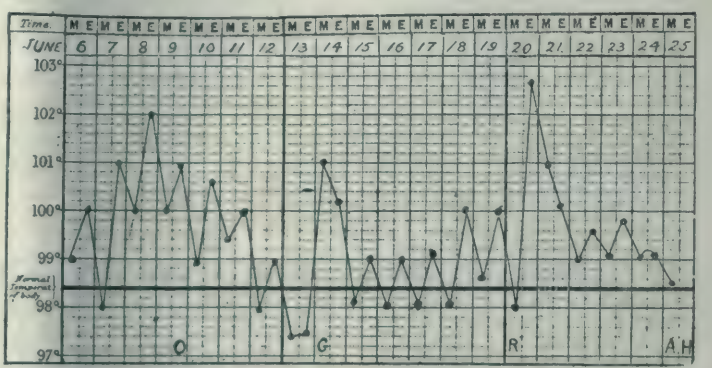


CHART 9.—Case XVII. O, Operation. G, Amputation. R, Repacked. A, Redressed. H, Extension on stump.

A PLEA FOR IGNORING "LAUDABLE PUS" IN THE TREATMENT OF SEPTIC WOUNDS.

BY

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EXPERIENCE has taught us that the presence of pus in a well-drained septic wound is certainly no impediment to healing, whilst the disturbance necessary for its frequent removal retards the process of repair.

Having started as confirmed sceptics ourselves, and having passed through all stages of doubt, it is easier to appreciate the difficulties that other people will have in overcoming the prejudice against the formation of pus and the accompanying smell associated with "infrequent dressings." It is not difficult to prove that the presence of pus, if not under pressure, gives rise to no ill effect to the patient. Cases have been left considerably more than a week without change of dressing, and during that time the temperature and pulse remained normal and the patient's appetite rapidly improved.

The mental relief to the patients due to the knowledge that painful dressings are to cease is very great indeed. In the acute stages it is much more difficult to realize the necessity for absolute rest to the inflamed tissues, and this is unobtainable except in the absence of frequent dressings. The difficulty here arises from the fact that the patient has already a high swinging temperature and rapid pulse so that the disturbance due to the dressing is not so obvious on the temperature chart. The accompanying charts show, however, that the temperature and pulse,

although possibly very alarming in the first few days after the operation of drainage, soon settle down without any dressing being changed.

It will be clearly understood that there are certain cases which call for special treatment; for example, some septic arms and legs are opened up and put straight in saline baths. These cases, however, are outside the object of the present paper; likewise wounds of the head and thorax; but, after nine months of trial, we have adopted the following general line of treatment in the majority of septic wounds.

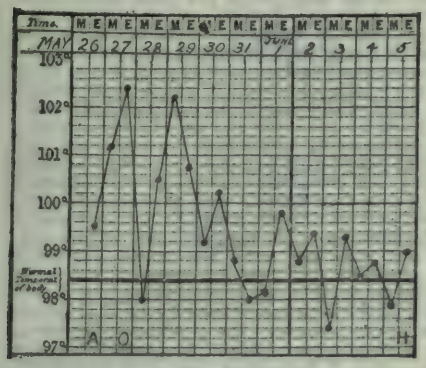


CHART 1.—Case I. A, On admission. O, Operation. H, Dressed and sent on hospital ship.

General Plan of Treatment.

The patient is taken to the theatre and the wound thoroughly opened up, foreign bodies removed, and all blood clots washed out of the wound with some antiseptic such as eusol. It is then packed with gauze, in the folds of which are numerous saline tablets, and a moist dressing placed on the outside. In the case of large wounds the limb is immobilized by some kind of splint, even if there is no fracture of bone.

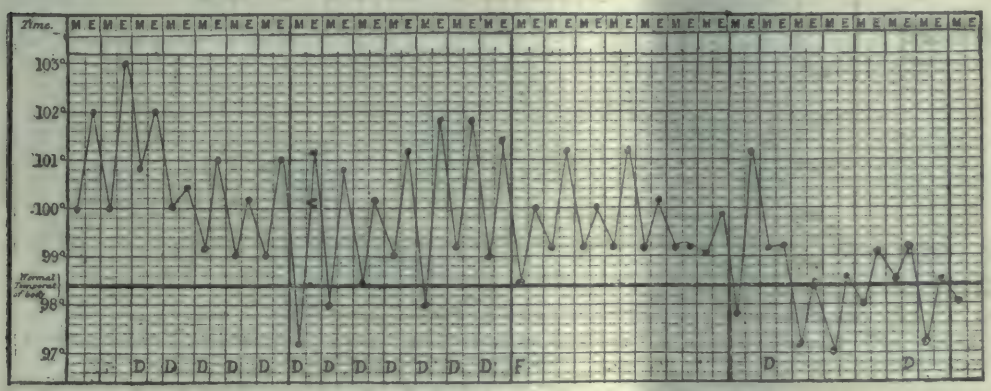


CHART 2.—Case II. D, Dressed. F, Dressed under anaesthetic.

In our experience it is advisable to leave the patient for about a week without changing anything except the outside dressing, which after the first few days becomes soaked with purulent discharge. During the first three or four days the temperature and pulse are often unpleasantly high, and it requires great self-restraint not to dress the case. At the end of the week the temperature and pulse have generally subsided, and when the wound is dressed it will be found that the gauze is no longer adherent and the plugging comes away without difficulty, being soaked in a thick pus. The wound is then gently irrigated and healthy well-formed granulations are seen everywhere.

After this we change the dressings rather more frequently in order to approximate the surfaces of the wound by the use of plaster strapping or in suitable cases by secondary sutures. In most cases the extent of the pack is reduced at each dressing, while the same equable pressure is maintained by slightly tightening the external bandages.

Signs Justifying Change of Dressings.

What, then, are the signs to justify the change of a dressing in the acute stage? The most important sign is—

Increase in swelling and oedema. This means that the original drainage operation was not sufficiently drastic.

The *pulse-rate* at this stage is also valuable, as a persistently rising pulse points to the same cause.

Increase in pain and tenderness are of some significance, but a rise of temperature in itself is of very little value.

Pocketing is indicated in the chronic stages by a step-ladder rise in temperature and pulse, with increase of tenderness. Recently one of us (A. J. W.) has been trying tight bandages in these chronic cases where there is a tendency to this complication, in order to approximate the walls and obliterate the cavity of the pocket. The results of such treatment are distinctly promising.

To sum up, then, a change of dressing in the acute stage is only justifiable for purposes of investigation to see where further drainage is necessary. In the chronic stages a change of dressing should be carried out in order to approximate the walls of the wound, or to open a pocket of pus which is under pressure.

Various criticisms and objections, mostly based on theory, have been offered to this line of treatment.

1. *Smell.*—This can be avoided to a large extent by changing the outside packing (if this does not involve the disturbance of the limb or patient) and by putting large quantities of "eupad" between the layers of wool.

2. *Absorption.*—Many people consider that if pus is present deleterious absorption of toxins must take place. Of this, however, there is not a scrap of evidence, provided that the pus is not under pressure.

3. *Pocketing.*—It is difficult to disprove such criticism, as pocketing takes place under any line of treatment, but in our opinion this complication arises less frequently now than it did a year ago before we adopted the principle of "infrequent dressings."

4. *Haemorrhage.*—Secondary haemorrhages are liable to occur in any septic wounds near an artery, more especially if the vessel had been previously injured. The only method of preventing this complication is to do away with conservative surgery and to amputate every septic limb.

5. *Skin Irritation.*—Occasionally, where the wound is in a position of pressure, such as wounds of the back, the skin does become slightly irritated by the purulent discharge, but this can easily be remedied by changing the outside dressing rather more frequently.

6. *Delayed Healing.*—The evidence, in our opinion, points to the fact that a wound which is undisturbed undoubtedly heals more rapidly than one in which the granulating surface is torn open every day by the removal of adherent gauze.

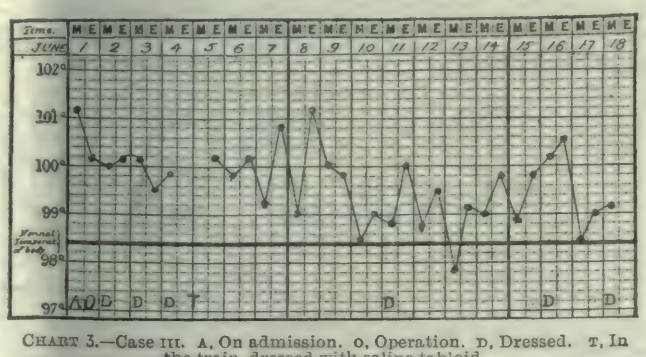


CHART 3.—Case III. A, On admission. O, Operation. D, Dressed. T, In the train, dressed with saline tabloid.

We do not wish people to think that we claim invariable success. Like most, we have had a few cases which became rapidly worse in spite of all our efforts. It is unnecessary to publish charts illustrating those cases.

Finally, we should like to state that this line of treatment is not founded upon any theory, and therefore should not be rejected on purely theoretical grounds, but should be given a fair practical trial.

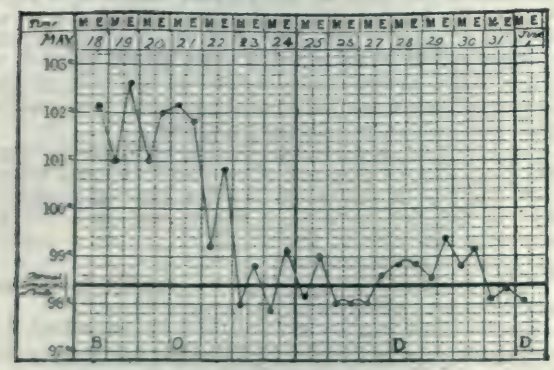


CHART 4.—Case IV. B, Bath (saline). O, Operation. D, Dressed.

CASE I (Chart 1).—The patient was admitted with a deep wound of the thigh with no exit. The temperature two days after admission—that is to say, four days after the patient was wounded—rose to 102.6°. A large tracking abscess was found in connexion with a piece of shell. The foreign body was removed and the wound widely opened up and a dependent incision made, and the whole wound packed in the usual way with soloids and gauze. When this case was dressed for the first time after operation several Swiss medical officers were present. After noting the normal temperature and pulse recorded in Chart 1, they were surprised to find the dressing and wound soaked with pus, and still more to see beneath this a surface covered with healthy granulations.

CASE II (Chart 2).—An officer, suffering from a large flesh wound of the thigh. For some time he was dressed daily, and then left for seven days. The patient himself was very willing to put up with the slightly unpleasant odour in order to escape the painful dressing. It will be noticed that the temperature and pulse at once became more steady.

CASE III (Chart 3).—Compound fracture of tibia and fibula. The wound extends from an inch above the ankle to two inches below the knee. In this area the whole of the front of the leg was blown away, leaving only the posterior half of the tibia and the fibula, both of which were comminuted, and the calf muscles. The tibia looked just like a broken gutter from a roof. The pulse and temperature were so good that it was decided to make it a test case and see whether the orthopaedic surgeons in England would consider it possible to do anything with such a limb. When the patient left for England the whole surface was covered with healthy granulations.

CASE IV (Chart 4).—A patient who had a large wound of the upper arm. It was treated by baths for three days and then further drained and packed with salt and gauze. When dressed at the end of seven days granulations were found to be perfect.

CASE V (Chart 5).—Compound fracture of ulna and radius. The dressing was offensive to the patient. In this case the wool was not impregnated with eupad. The chart is typical of minor injuries.

CASE VI (Chart 6).—On admission to hospital this patient was suffering from a septic discharging wound on the right buttock and beneath the left scapula, with other minor injuries. On account of formation of an abscess in the back with rise of temperature and pulse, he was put under an anaesthetic and the wound explored. A foreign body was removed from the buttock and the wound freely drained with gauze and soloids. The abscess cavity was opened up from end to end, and a track leading from the lower excision was explored and found to lead to a foreign body at the level of the fourth lumbar vertebra. This foreign body did not show on the *x*-ray screen. It was removed by an incision directly over it, and this incision also drained with soloids and gauze; the patient was then placed on a water bed. On the fifth day the superficial dressings were changed on account of the objectionable smell. The skin surrounding the wound was treated with ointment spread on lint on account of the superficial inflammation. The deeper dressing—that is, gauze drains—was not removed until the ninth day after operation. On the eleventh day another dressing was performed because of the unsatisfactory temperature and pulse. The wounds were packed with gauze soaked in normal saline solution. Two days later, however, the chart records being still unsatisfactory, it was resolved again to anaesthetize the patient and seek for cause of continued rise of temperature. This proved to be another foreign body in a small wound below the right scapula, round which an abscess had formed; the removal of the foreign body and free drainage of the abscess were followed by an immediate improvement, and on discharge from this hospital all the wounds, although freely bathed in pus, were granulating healthily. This case illustrates, first, the necessity of free drainage, and secondly, that if the cause of a further rise in temperature cannot be discovered by means of an ordinary dressing an anaesthetic should be given and a thorough search made.

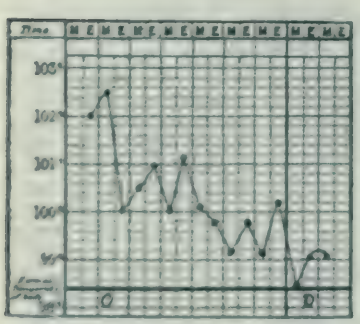


CHART 5.—Case V. O, Operation. D, Dressed.

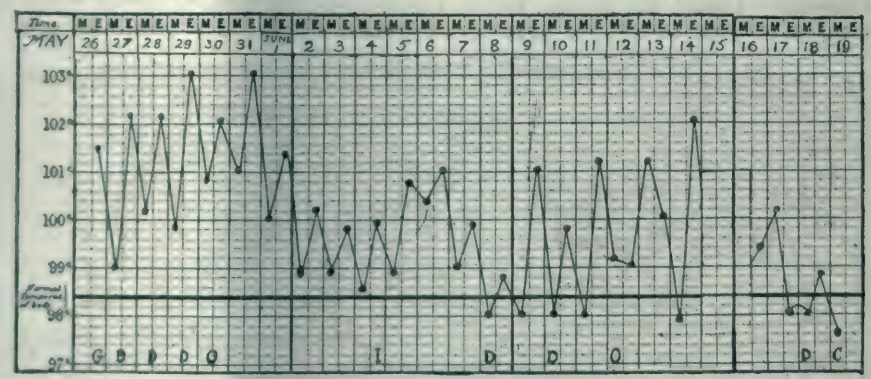


CHART 6.—Case VI. G, Dressed on admission. D, Dressed. O, Operation. I, Outer dressing changed. C, Sent to England.

CASE VII (Chart 7).—This patient is still in hospital, and although his chart is not very remarkable, the rapidity with which a filthy sloughing wound became covered with healthy granulations was astounding. The patient was admitted with a wound in the lumbar region without an exit. In the left buttock there was a large-sized entrance wound and a corresponding exit wound in the right buttock. *X* rays showed a foreign body near the transverse process of the fourth vertebra.

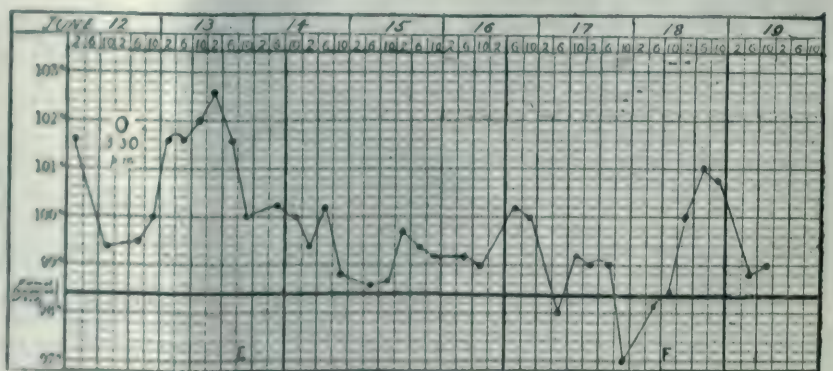


CHART 7.—Case VII. O, Operation. E, Out on balcony. F, Dressed under anaesthetic.

In the upper wound the spine and laminae of the vertebra were found to be fractured, and were removed, together with a foreign body. Next the two lower wounds were joined by a long incision. It was then found that the lower part of the sacrum and coccyx were damaged, and had to be excised. Large pieces of slough and khaki were removed, and the whole wound packed with

gauze and soloids. On the sixth day the patient was dressed under an anaesthetic. The old wound had been transformed into a granulating surface, as mentioned above, but the temperature, as is so often the case, rose after the dressing.

SECONDARY INFECTIONS OF JOINTS IN ACUTE MEDICAL AILMENTS.

BY

LIEUT.-COLONEL G. H. EDINGTON, R.A.M.C.(T.F.).

SECONDARY infections of joints may occur from wounds or other surgical lesions in the neighbourhood or in a distant part of the body, or they may occur as a complication in medical cases. It is with the latter group that I propose to deal, but I would like in passing to mention examples of the others.

Joint Infections Secondary to Wounds or other Surgical Lesions.

These cases fall into two classes:

1. A wound in the neighbourhood of but not primarily involving a joint becomes septic, and the process spreads directly into the joint. One of the best examples of this is a septic wound or abrasion on the dorsum of a finger, over an interphalangeal joint. The bursa may become involved, in which case septic arthritis, followed by ankylosis, will most probably ensue.

2. Joints may become the seat of pyaemic infection, the primary lesion being in a distant part of the body. As an example of this there occurs to me the case of a young lad I saw some years ago, and in whom removal of enlarged turbinal bones was followed by pyaemic infection of wrist and knee joints.

Secondary Joint Infections in Medical Cases.

It is, however, with joint infections which occur as a complication in medical cases that I am immediately concerned. Several examples have come to my notice within the last few weeks in this hospital, and form the basis of the following remarks.

CASE I.—*Bronchopneumonia, Pneumococcic Abscess of Knee, and later Pneumococcic Abscess in Buttock.*

Pte. B., aged 20, admitted to a medical ward under the care of Captain De Boer on March 15th, with cough and pain in chest. Examination showed bronchopneumonia, chiefly in left base. Two days later complained of pain in right knee, which began to swell. Subsequently whole limb became swollen. Needle withdrew from joint some turbid fluid which showed pneumococci in film and in culture. He was transferred to surgical division, where joint was opened and drained. One month later large abscess formed in left buttock; pus contained pneumococci.

It was not possible to obtain a history of the date of onset of the pulmonary condition, but it was several days before admission to hospital. The joint condition was a complication rather than a sequela, successive consolidation of different areas of lung tissue being noted during the healing of the joint lesion.

There was nothing in the history to suggest any reason for the implication of the joint in the infection.

CASE II.—*Coxitis (Streptococcic); Empyema (Pneumococcic).*

Pte. H., aged 28, was operated on for empyema of left chest on March 9th, the pus showing micrococci encapsulated. The empyema had followed post-influenzal pneumonia, during the third week of which he began to have pain in the right leg. At time of operation on the empyema there was some fullness and pain in right hip, and extension was applied to limb. Ten days later there was fluctuant swelling occupying Scarpa's triangle and lower part of iliac fossa. Pus drawn off by syringe showed streptococci in film and in culture. The abscess was opened, and the cavity found to correspond with lower part of iliacus muscle, extending downwards and inwards behind femoral vessels. No gross communication with hip-joint discovered, but signs of coxitis were unmistakable, and left no doubt as to origin of the abscess.

The pathological relationship of the coxitis to the empyema is at first sight somewhat obscure. But primary suppuration of a joint is so uncommon that we are justified in considering it in the present case to be directly related to the chest condition, in which there was probably a mixed infection.

There was nothing in the history to explain the joint implication.

CASE III.—*Suppuration in Knee-joint during Alleged Cerebro-spinal Fever.*

Chief Officer T., aged 31, was admitted from another hospital to the isolation ward, under Lieutenant N. S. Gilchrist, on March 20th, with history of headache and fever beginning fourteen days previously. The condition had been diagnosed "cerebro-spinal fever," and turbid fluid obtained by lumbar puncture. The fluid did not contain any meningococci, but antimeningococcal serum had been injected. He did well as regards general symptoms, but the left knee had become swollen, and the condition was regarded as metastatic.

On the patient's admission to the isolation ward Lieutenant Gilchrist did not find any signs of meningitis. He aspirated the knee and withdrew thin purulent fluid containing many pus cells and a few scattered extracellular Gram-negative diplococci; culture failed. The following day aspiration was repeated and the fluid again showed many pus cells, but no organisms in film. Culture gave chains of streptococci, and many weakly Gram-positive bacilli not corresponding morphologically with any known pathogenic organism.

A history of gonorrhoea two and a half years previously was elicited, and there was doubt as to whether the knee condition was not a late sequela of gonorrhoea. As there were during his stay in isolation ward no signs of cerebro-spinal fever, he was transferred on March 27th.

We have here three cases in which joint infection occurred secondarily to a medical condition, and the points which come up for discussion are: (1) Symptomatology; (2) the exciting cause of the joint implication; (3) its influence on the course of the disease; (4) prognosis; and (5) the treatment of the joint condition.

1. *Symptomatology.*—It is not my intention to spend time on the symptomatology of synovitis, either general or with special reference to individual joints; I would, however, very briefly refer to the joints affected in the cases just mentioned.

In a patient suffering from an acute ailment such as pneumonia the occurrence of pain in a joint demands investigation. In the case of the knee inspection alone is often sufficient, the filling up of the natural hollows of the joint being an early feature. In the hip, however, marked swelling in the early stage is unlikely, and careful examination of this joint should be made. If coxitis be unrecognized in the early stage and allowed to go untreated, it may be found later that subluxation has taken place.

2. *Exciting Cause.*—It is usual to explain the implication of the joint as a metastasis occurring in a part whose natural power of resistance has been lowered; and in support of this explanation trauma is usually invoked. I do not deny that diminished power of resistance has allowed of a successful microbic attack; but even if such be admitted, it does not bring us much, if any, nearer to an explanation of the occurrence. We are still facing the problem of what has caused the lowering of the resisting power of the part.

In none of the cases related above was there any history of an injury to the joint; this is important when we bear in mind the very human tendency to hark back. It has always seemed to me that the story of precedent injury, frequently trifling, of which so much is made when viewed in the light of subsequent events, often rests on a slender foundation. We meet with it in acute cases, and also when investigating cases of tuberculous joint disease.

Even if we assume that secondary implication of a joint points to severity of the primary infection—large dose, or particularly virulent strain—we have still to answer the question as to the choice of location of secondary infection. Here we are in most cases thrown back again on theory. In the cases just given I am not able to throw any light on the causation.

3. *Influence on Primary Disease.*—It seems to me that the occurrence of joint infection must have an appreciable effect on the course of the disease. It may or may not be evidence of severity of infection; but it undoubtedly adds to the patient's sufferings, and imposes an additional tax upon his powers of recovery. Further, the special treatment of the joint lesion often imposes on the patient a degree of immobilization not only irksome, but, in the case of chest affections, harmful by increasing the risk of hypostatic congestion of the lung.

4. *Prognosis as to Joint.*—The prognosis with regard to the joint depends on the degree of infection and consequent reaction of the articular tissues. For example, arthritis involving the cartilages spells as a rule ankylosis; while synovitis, especially where the effusion is not purulent, may be followed by fairly complete restitution.

5. *Treatment.*—The joint must be kept at rest, attention being paid to the position of the limb. As a rule, pain causes the patient to avoid movement of the affected limb; but while Nature teaches him so much she does not go far enough, and it will usually be found that the position adopted is faulty. Such a fault is serious, and if not corrected will lead to contracture of muscles, requiring prolonged after-treatment. Should ankylosis occur, permanent deformity, with greatly impaired function of the limb, will result. In consequence of softening of ligaments, faulty position may end in pathological subluxation, with incurable deformity. The hip-joint is best kept at rest by extension weight and pulley. This prevents flexion of the joint, and takes strain off the capsule, thereby minimizing the risk of subluxation. The knee should be put up on a straight posterior splint; the elbow at right angles; the shoulder in abduction.

If distension by effusion occurs, aspiration, repeated if necessary, should be employed; if effusion be frankly purulent, drainage of joint is called for. Any operative procedure must be carried out with strict antiseptic precautions. It is necessary to emphasize this point, as observation shows me that the presence of pus seems to some minds to indicate that antiseptic precautions may be ignored. It should not be forgotten that to secure an aseptic result in a case of abscess is a proof of surgical skill greater than that required for the successful termination of a case of abdominal section.

I do not syringe out the cavity, but content myself with inserting a rubber drainage tube of suitable calibre. The discharge which comes from the tube drains into an abundant dressing of antiseptic gauze, over which is placed absorbent wool, and the whole secured with bandage. The gauze which I use is Lister's double cyanide, damped with carbolic watery lotion (1 in 20) and not otherwise sterilized.

No passive movement should be undertaken till the wound is healed, or, in the event of no operative measures having been required, till inflammatory signs have subsided, and then the utmost gentleness is necessary in order to minimize the risk of exciting a recrudescence. It must be borne in mind that the absence of signs of inflammation does not assure absence of pathogenic microbes; and well-meant efforts may set agoing a fresh attack of joint mischief.

My experience of vaccine treatment is too limited for me to express an opinion.

Discussion.

In the discussion which followed the reading of the paper before a medical meeting in a military hospital abroad the following remarks were made:

Colonel TUBBY (Consulting Surgeon, E.E.F.) said that in addition to its occurrence in pneumonia, secondary arthritis occurred in a number of diseases. He instanced diphtheria, dysentery (and in passing referred to a note on dysenteric arthritis by Captain Moorhead, R.A.M.C., in the BRITISH MEDICAL JOURNAL, March 25th, 1916), erysipelas, measles, scarlet fever, variola, typhus, typhoid, malaria, and Malta fever.

If it were realized that a joint cavity was in many ways comparable to a lymphatic sac, it would be easy to comprehend the implication of joints in diseases of infective origin. In health the synovial membrane secreted sufficient fluid to lubricate the joint surfaces. In disease the conditions entirely changed. A profound vasomotor disturbance was set up in the abundant vessels of the perisynovial tissues, and an extensive osmosis took place into the joint, converting it from a sac whose surfaces were closely approximated into a bag filled with fluid. In some diseases this fluid contained the causative microorganism, in others it was believed toxins only were formed, the products of bacteria in the synovial fringes and perisynovial tissues. Research on this point was necessary, because toxins should not be expected to set up purulent changes in the effusion. The difference in the amount of exudation appeared to depend upon the fact that many joints were not supported by muscles, and in some instances, such as the knee, elbow, and ankle, were practically subcutaneous. There was therefore very little resistance, mechanically, by the tissues to effusion, and its presence was evident at an early date—an important point in diagnosis and treatment. The absorption of effusion in superficial joints was often slow because they lacked, as in the hip and shoulder, the continual pressure effects of deep and powerful muscles. When, however, in these last-named joints an effusion persisted, it often became purulent, and ankylosis was a common result. The character of the effusion depended upon the exciting cause and the time it persisted.

Four conditions were found in joint infections: (1) slight synovitis; (2) fluid effusion; (3) the foregoing, with infiltration of perisynovial tissues; (4) destruction of cartilages. Prognosis was good in (1) and (2), doubtful in (3), and bad in (4), with this exception, that recovery in pneumococcic cases was often good, even if pus had formed, provided the case was recognized early and incisions made.

He referred particularly to bone and joint affections in typhoid fever, and suggested that similar lesions might occur in paratyphoid. Typhoid fever was frequently followed by lesions of spine, ribs, or tibia, and by arthritis. Of late years the lesion of the spine had attracted a deal of attention. It began in the medullary part of the bodies, and spread to the discs and joints. It came on during convalescence, and resembled Pott's disease, but was much more acute, a boss forming in two or three weeks. It was very amenable to treatment, rest in bed with the spine supported on a pillow causing, in nine to ten weeks, disappearance of the boss. The natural curve reappeared and function was restored in about nine months.

The surgeon must beware of sudden subluxation from softening and lengthening of ligaments. He was in favour of draining the knee-joint by opening from behind over the condyles after dividing the inner and outer heads of the gastrocnemius.

Major CHOYCE, R.A.M.C., believed that the pneumococcal variety of arthritis was much commoner than was generally recognized, not only as a secondary complication of definite pneumococcal infections, but also in certain of the exanthemata, etc., in which the presence of the pneumococcus would not be expected unless specially looked for.

Writers had usually classified the cases into primary and secondary; but really all cases were secondary to some distant focus, although that need not necessarily be in the lungs. The condition was a pyaemic manifestation due to settlement of pneumococci travelling in the blood from some focus such as the ear, throat, or lungs.

In children the arthritis was often of the so-called primary variety, in that it was not associated with pulmonary disease, though probably in a large proportion of the cases there was pneumococcal infection of the ear. In adults it was rare to find the lungs quite clear, even in the so-called adult primary type—that is, where the disease was not associated with lobar pneumonia.

All degrees between the slightest and the most severe occurred. If primary cases were defined to mean those in which definite lobar pulmonary pneumonia did not precede the arthritis, it was convenient to describe five clinical types, namely:

1. The ordinary "primary" case seen in children, often in infants. The child was apparently well, but might have otorrhoea, when an effusion rapidly appeared in one large joint—usually knee, shoulder, or hip. The overlying skin generally, but not always, became red; the patient's temperature rose to a moderate degree and showed a daily swing between about 99° and 101° or 102°. The child resented handling or movement, but the general and local disturbance was obviously less than occurred in streptococcal or staphylococcal articular infection.

2. The "primary" case seen in adults was rare, but more severe than in the child. Exquisite pain and tenderness, resembling that of acute rheumatism, might be present, but here again the constitutional symptoms were less than would be expected from the pyarthrosis. Careful examination and inquiry would generally elicit some evidences of pulmonary involvement, often abortive. He mentioned the case of a man admitted with pleuritic pain and slight local signs of bronchopneumonic type. These rapidly cleared up, but within two days he had pneumococcal arthritis of the right shoulder. In turn, at intervals of two days, the left hip and right knee became involved. The shoulder and hip cleared up with rest, etc., without surgical interference, but the knee-joint did not improve. It was aspirated and characteristic thin green odourless

fluid withdrawn. Temporary improvement was followed by recrudescence, and aspiration with washing out of the joint through two hollow needles was adopted. As this did not suffice, the joint was opened, a quantity of coagulated material washed out, and the wound closed. Improvement was slow but steady; bacteriological examination of his blood revealed the continued presence of pneumococci.

3. The so-called adult "secondary" type was severe and dangerous. It usually arose after the crisis of severe lobar pneumonia, but might occur earlier, and it might involve more than one large joint. After the crisis the temperature rose again, and the joint became hot, tender, full and painful on movement. In other cases the local signs were subacute, but the complication proved too much for the enfeebled patient, so that the prognosis of this type was always grave.

4. The variety in which the articular condition was but an expression of a general and overwhelming pneumonic toxaemia was rare. Intoxication might be so rapid and so profound that the patient neglected to draw attention to his joint at all. Such cases were always fatal. The temperature chart might show a plateau arrangement; in the other types the temperature swung daily between 99° and 103°.

5. A fifth variety sometimes seen had a more gradual onset, ran a slow, persistent, but ultimately favourable course, and was difficult to diagnose from tuberculosis.

Etiology.—Neither sex nor trauma seemed to have any causative influence. The disease was much commoner in infancy and childhood, and became progressively rarer as age advanced. It was relatively frequently associated with exanthemata.

The joint affected was usually the knee, shoulder, or hip—usually one of them, but sometimes all three. In mild cases the synovial membrane and subsynovial tissues alone were affected; they were reddened, juicy, and infiltrated. Frequently the periarticular tissues were oedematous and infiltrated. In bad cases the cartilages and bones might be eroded, and there was then danger of resulting limitation of function and even of ankylosis. The pneumococcus seemed to die out early in the synovial fluid, but could then sometimes still be found in the perisynovial tissues.

The fluid contained in the joint varied from a turbid, greenish, odourless serum to a thick débris containing fibrin that might be blood-stained in severe cases.

Local Treatment.—In mild cases rest alone sometimes sufficed, but aspiration was often necessary, and in many cases initiated a cure. It might be advisable to introduce two needles and to flush through with normal saline. If the inflammatory signs progressed, the joint should be opened, washed out, and closed; if that failed, drainage should be established, but the tubes removed at the earliest possible date lest secondary infection from the skin should occur. Movements, both passive and, later, slight active ones, should be instituted at an early date.

Before closing (Major Choyce continued) I should like to mention two other cases of secondary infections of joints at present in No. 19 General Hospital, which, though not pneumococcal, yet seem to me interesting. The first, a sergeant, is an object lesson on the dangers attendant on the use of beautiful gold American dental bridges. This man came in with a subacute arthritis of one knee with great effusion and pain and some elevation of temperature. In searching for a cause, we, of course, examined his beautiful set of teeth. At the edges of the bridges there was a blue line. So, having gained his consent, I removed £20 worth of work. Underneath was a collection of débris with the most appalling stench, which quite convinced the patient of the truth of my statement that it is practically impossible to keep bridges clean. His knee is now rapidly clearing up—effusion and pain have gone, and movements are returning.

The other case has caused me much speculation as to its etiology. The man was admitted with typhoid, which began with a good deal of bronchopneumonia. Then he developed staphylococcic pyelitis of one kidney, and this was followed by arthritis of one knee and hip. The effusion in the hip was sterile; that in the knee yielded staphylococci on bacteriological examination, and the same organism was found in his blood. The typhoid had been bacteriologically proved. Therefore he had both enteric and staphylococcal pyaemia. Is it possible that the second organism gained access to the blood through a typhoid ulcer? I am glad to say that the patient recovered sufficiently to be sent to England.

DEATH AFTER NITROUS OXIDE-OXYGEN AND SPINAL ANAESTHESIA.

By WILLIAM E. ROBINSON, M.D.Oxon.,
ANAESTHETIST TO THE WEST LONDON AND ROYAL WATERLOO HOSPITALS.

Until I read the fatal case reported by Dr. W. J. McCardie in the British Medical Journal of July 22nd it had not occurred to me that there was a possibility of death from the continuous use of nitrous oxide gas and oxygen, so safe has it always seemed to me and so excellent a friend as an accompaniment to a spinal anaesthetic when the patient is nervous or likely to be subjected to the inconvenience of the Trendelenburg position during the operation. Yet following close on Dr. McCardie's case I have a similar fatality to report, occurring in my hospital practice on a particularly hot July afternoon.

The patient, a woman aged 45, had suffered from metrorrhagia for two years and was admitted to the Royal Waterloo Hospital for hysterectomy.

She was a fat, unhealthy-looking subject, very anaemic and very nervous. She had never enjoyed good health, having had many attacks of bronchitis. Her heart was apparently of normal size, but of this one could not be sure owing to the size of the breasts. The heart sounds were normal; there were no adventitious sounds. The pulse was small, rapid, and thready. It was not a nice case for a general anaesthetic, but one in which, in my opinion, an intraspinal injection followed by continuous gas and oxygen would give an excellent anaesthesia for the operation and a quick recovery afterwards. No morphine had been injected previously to the operation. At 3.15 p.m. I injected 0.6 c.cm. of stovaine (Billon), a solution composed of 10 cg. stovaine in 1 c.cm. of normal saline.

The anaesthetic acted almost at once, and at the same time the patient became even more pale; she was extremely nervous and begged me to give her something to send her to sleep. At 3.25, ten minutes after the injection of stovaine, I commenced giving gas and oxygen. This I give in an ordinary gas bag, into which are two tubes—one for oxygen and one for gas. After one bagful of pure gas, I turn in oxygen and gas and then start rebreathing. In this way the patient is quickly anaesthetized, and continues unconscious and of a good pink colour. The mixture in the bag I change about every five minutes. In the present case the bagful of gas was more than enough to anaesthetize the patient. I went further than usual—that is, to jactitation—but the admission of oxygen quickly relieved her, and she commenced the regular snoring breathing one is accustomed to.

The patient had meanwhile been got ready for operation; I therefore gave the signal for starting and the patient was turned into the Trendelenburg position. At the first incision the patient's blood was noticed to be extremely watery in appearance—a very pale red.

At 3.30—exactly fifteen minutes after the injection—the patient vomited. This vomit was due to the stovaine, evidence of toxicity which invariably comes on at the same time after every injection, and which usually passes off leaving the patient a little faint, but nothing more; when this period is over, I have never seen any further cause for anxiety in a subject anaesthetized in this way. The mask was removed from the patient during the vomiting, and she became partly conscious. The vomit over, I restarted the gas and oxygen, and the patient breathed beautifully, was a perfectly good colour, and apparently everything was as it should be. At 3.40, whilst the uterus was being pulled up from the pelvis, the patient again vomited. I again removed the mask and wiped out the mouth, but this time her breathing did not recover; she made a few swallowing movements, and that was all. Her colour was perfectly good; her pupils partially dilated. There was no obstruction by vomit in the larynx.

I immediately felt for heart beat, but there was none. Strychnine was at once injected, ether was poured into the abdominal cavity, and the heart was massaged through the abdominal wound.

Attempts at artificial respiration failed to arouse any response. It was clear the patient had died from syncope during the attack of vomiting, death occurring just under half an hour after the injection of stovaine, and after twenty minutes of gas and oxygen, during which there had been one break.

Post-mortem Examination.

Dr. R. C. Jewesbury reported as follows: Right lung adherent to chest wall; bases of both lungs congested. Heart large and very fat; walls extremely flabby and soft; no valvular disease. Liver very fat, weighing 58 oz. Uterus weighed 2 lb., showing a large fibroid in its anterior wall. Brain and other organs healthy.

Reviewing this case, it seems to me that the stovaine was not directly responsible for death, for the time limit when its toxicity gives cause for anxiety (fifteen minutes) had passed. The vomiting had ceased and the patient was apparently perfectly well and breathing regularly and deeply under gas and oxygen for ten minutes after this vomiting had ceased. The second attack of vomiting apparently caused the fatal attack of syncope; this vomiting was, I think, still due to stovaine, as I have seen other cases vomit a second time from this. Yet never has this second vomit been accompanied by the faintness which invariably accompanies the onset of the toxic symptoms of stovaine. It has always been in my experience more of the nature of a regurgitation—this, of course, in cases when no other anaesthetic but the spinal has been used. Shock from pulling up the uterus I consider out of court. The anaesthesia was perfect, and all sensory nerves must have been blocked.

This leaves us, therefore, with the nitrous oxide gas as more directly the cause of death. No doubt the patient's heart was acutely dilated on the induction to anaesthesia by the gas; this she recovered from, as her regular breathing and good colour showed. But, owing to her anaemic condition, the oxygen was not able to enter into her tissues to any great extent, and the nitrous oxide gas therefore acted on her heart muscle, causing it to fail at the critical moment, when, owing to the act of vomiting, there was again increased intrathoracic pressure and so a dilated right side.

Dr. Dudley Buxton throws out this conjecture in his criticism of Dr. McCardie's case, and from what I saw in my own I think he is undoubtedly right. We should, then, be guarded in our choice of gas and oxygen, for, though perfectly harmless in the majority of cases, yet given much anaemia there is a risk in adding it to a spinal anaesthetic.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF WOUNDS BY NASCENT OZONE.

THE treatment of wounds by nascent ozone is a method which has been in use for some time. Several years ago, on the advice and under the direction of Dr. Stoker (London), I treated by ozone, with complete success, a case of ethmoidal, antral frontal suppuration, in which a prominent rhinologist had advised a radical operation.

In August, 1915, when in temporary charge of a barge and tent hospital in France, I treated several wounds by this method, and in some instances the effects were extraordinary. After a very few applications the wounds, previously very septic, began to be more healthy, the discharge became much less viscid and fetid, and healing commenced.

The method of producing ozone is simple. Oxygen is passed from a cylinder through an "ozonizer." The latter consists of a glass tube containing inside it another glass tube, round which are wrapped copper wires. The copper wires are connected to a coil, accumulator, and rheostat, the latter graduating the strength of the current. As the oxygen flows through the tube and comes in contact with the wires it picks up two molecules and emerges as ozone. By means of tubing and metal Eustachian catheter it can then be applied to the wound.

I am convinced that the method is of wide application, and every nook and cranny of a deep wound can be reached in a way that no liquid antiseptic can possibly do.

Jedburgh. JOHN JEFFREY, M.B., F.R.C.S.E.

A CASE OF ABDOMINAL OR BILOCULAR HYDROCELE.

THE following case is a good example of abdominal or bilocular hydrocele, a condition of comparative rarity.

A patient in one of the ankylostomiasis wards of the C.M.S. Hospital at Old Cairo was found to be suffering from double hydrocele. The left sac communicated with an abdominal cyst like tumour, the size of a small football, occupying a large part of the abdomen, its uppermost limit reaching a level slightly above the umbilicus. Communication between the scrotal sac of fluid and that in the abdomen was free. On palpating the one swelling, a fluctuation impulse was conveyed to the other, and pressure on either sac caused the other to increase in tensity.

The patient, an Egyptian peasant, aged about 30, spoke of having had a swelling on the left side of the scrotum since boyhood; he referred it to an injury sustained by a slip down the muddy bank of a small waterway. He, however, suffered little inconvenience until four years ago, when the swelling on the left side of the scotum began to increase, being followed ere long by a sensation of weight and pressure in the lower part of the abdomen; and eventually by the appearance of an abdominal tumour, which enlarged rapidly, eventually incapacitating the patient for agricultural work. The hydrocele on the right side also commenced about four years ago. After the patient had undergone a course of treatment for ankylostomiasis, the following operation was performed:

An incision about 3½ in. long was made over the swelling on the antero-lateral aspect of the left side of the scrotum, and the hydrocele sac was delivered from the wound after having been separated from its coverings. The neck of the sac was also freed as much as possible by introducing a finger into the inguinal canal and breaking down the adhesions by digital dissection. The isolation of the scrotal portion of the hydrocele, without rupturing it, was found to be a somewhat delicate process, as the sac was almost transparent and extremely thin in several parts; but to facilitate the removal of the abdominal portion it was regarded as important to guard against the escape of the fluid contents. A vertical incision was then made 1½ in. to the left of the middle line of the anterior abdominal wall, about 4½ in. long, its lower end being about an inch and a half above the crest of the pubis. Skin, superficial fascia, and the anterior sheath of the rectus were incised, the rectus muscle retracted towards the middle line, and a like incision made in its posterior sheath. The anterior parietal peritoneal layer was then opened, and also the posterior layer. These two membranes were lying in apposition, the posterior layer having been gradually pushed forward by the growing tumour, the space between obliterated by pressure, and the abdominal contents pushed upwards. The abdominal locule of the hydrocele was thus found to be retroperitoneal, which, judging from reports on several other examples of the condition, is usually the case. The upper sac was freed as far as possible in every direction, the adhesions yielding easily to blunt dissection, except at one or two points. The hydrocele was tapped with a trocar and cannula, the greater part of the fluid contents removed, and the puncture tied. Slight traction and sponge dissection sufficed to complete the isolation of the upper sac, which, after the remaining fluid had been displaced, was drawn through the inguinal canal and delivered through the scrotal wound.

The fluid removed measured 90 oz. It was very rich in cholesterine. On separating the vas deferens, which stretched over a large portion of the tumour, it was found to be extremely elongated, and likewise the vessels supplying the testicle. Moreover, as the blood supply of the latter seemed deficient, it was decided to remove it with the hydrocele.

The two layers of peritoneum were repaired with silk sutures, those of the rectal sheath with catgut, and the skin and superficial fascia of both abdomen and scrotum with silkworm gut and horsehair. A small drain was inserted in the scrotal wound and left for twenty-four hours. Primary healing took place and uninterrupted recovery.

The right hydrocele was dealt with some days later, the sac being excised in the usual way.

I was assisted in the operation by my colleague, Mr. R. B. Coleman.

F. O. LASBREY, M.B., Ch.B.Edin.,
P.M.O., Church Missionary Society's Hospital, Old Cairo, Egypt.

DR. FREDERICK CHURCHILL, of Cranley Gardens, South Kensington, left estate valued at £23,032, the net personalty being £22,701.

THE New York State Legislature has passed a bill providing that all pupils in the public and private schools of the State of 8 years of age and over shall have not less than twenty minutes of physical training every day.

Reviews.

HABIT IN RECOVERY FROM INJURIES.

The second medical congress on accidents to workmen, which was held in Rome in 1909, offered a prize for an essay on "l'accoutumance aux mutilations," that is to say, the value of habit and practice in making up for the structural deficiencies left by the injuries. The prize was awarded in June, 1914, to Dr. Julliard, privat-docent in Geneva, and his essay is now published in a well illustrated volume.[1] Having been written before the war it was concerned with accidents in civil life, but the author has added a few pages on war injuries, founded on his experience as surgeon to a military hospital at Lyons. This section is fragmentary, and consists chiefly of records of a number of interesting cases.

The value of the book resides in the first two parts, which altogether occupy some 240 pages. There is a short, but useful, historical introduction, dealing mainly with the experience of Germany and Switzerland. Dr. Julliard then proceeds to consider factors in the production of functional adaptation to the new conditions due to the injury and the means by which recovery may be hastened. He insists on the advantage of early resumption of active exercises, and very strongly maintains that the best of all active exercise is work which the injured person was in the habit of doing before the injury. He excepts conditions in which there is evidence of definite inflammation; in such cases immobilization is essential, but they form the minority, and in the large majority the disability is due to what Dr. Julliard calls "residual symptoms." He enumerates them as follows: "Circulatory troubles, oedema, hyperaemia, stasis, etc.; nervous disturbances, such as hyperaesthesia, motor derangements, stiffness, ankylosis (more or less complete), atony, muscular atrophy, diffuse thickenings, fixation of tendons, etc.; trophic disturbances, thickening of the epidermis, etc." In such conditions the greatest benefit is derived from anything which favours the circulation, diminishes the impressionability of the nerve terminals, makes the ligaments and tissues more supple, and strengthens the muscles. "Nothing for this purpose is equal to the accomplishment of some sort of work, with its necessary efforts and contacts. No orthopaedic treatment is equal to this, because it is a biological treatment. When a workman one of whose members has been injured begins to work again he at first takes great care of the injured part. He makes up for the loss of its action by making the uninjured parts work for it. The injured part only begins very gradually and insensibly to take its share. . . . Little by little the salutary effects of the efforts made by the injured part is seen, and the result is the better because the effort is made with a useful object in view. Active mobilization of the part, the most potent treatment for the 'residues' of injuries, the great regenerator of the circulation, of suppleness and of strength, cannot be better attained than by the exercise demanded by the work to which the injured man has been accustomed." Dr. Julliard relates some remarkable instances of restoration of working power, drawn partly from his own experience and partly from official records. In a separate chapter he gives an analysis of the decisions of the German imperial insurance office as to the effect on earning power of a variety of injuries, and in another his own views on this matter.

The second part of the book deals in detail with the application of the first part to particular trades, and here again he quotes cases of men engaged in various occupations, but chiefly carpenters, cabinet-makers, and tinsmiths, who have been able, as judged by the wages they earned, to work as efficiently after as before the loss of fingers and other serious injuries; it is made clear that such results can only be attained when the man himself is eager and determined.

Although Dr. Julliard has little to say about gunshot wounds, his book makes its appearance at an opportune moment, for it deals with principles applicable to injuries however produced.

[1] *L'Accoutumance aux Mutilations.* Par Charles Julliard. Privat-Docent de Chirurgie à la Faculté de Médecine. Genève and Bale: Georg et Cie. Paris: Félix Alcan. 1916. (Med. 8vo. pp. 264; 148 figures. Fr. 8.)

SOME OBITER DICTA.

In the preface to his book on *Post-mortem Examinations*,[2] Dr. Wadsworth, Coroner's Physician of Philadelphia, expresses his confidence that "being somewhat in advance of the common level of *post-mortem* thinking and practice will not seriously injure its usefulness to all real students"; and states "that, in view of the variety and extent of his experience, he has not thought it necessary to avoid speaking with authority on his subject." It is a pity, therefore, that his pages are marred by many cynical generalizations, often in bad taste, about his professional brethren. Thus, on p. 28, he writes: "It is unfortunate that medical men come from the mass of the people rather than from some specially angelic tribe, for they bring with them all the characteristics of the outer world, and are therefore not always to be trusted." Again, on p. 136: "For years special ablations are done before surgeons are taught to hold their hands until they know what functions they are meddling with." Again, on p. 316: "I often wonder why it is necessary to have any lower conception for the medical profession than we have for what we regard as inferior arts." On p. 327, in speaking of what he conceives to be the functions of the duodenum, he says: "Now when the surgeon chops the duodenum he sometimes ignores these simple little matters, which not infrequently is good for business but very unpleasant for the patient." On p. 134 he complains that we are far too prone to explain scars on the skin as sequelae to a chancre. "Doubtless," he says, "alcohol and syphilis are responsible for many conditions, but the tendency to forget the little physiology one knows and attribute, often absurdly, all findings to these two savors more of the menstruating sex than of true science." Dr. Wadsworth's own authoritative utterances often take the form of unsupported statements. Perhaps the most remarkable are on pp. 132 and 133: "One does not find atrophic gastritis in a person with large thick lips. Nor does one give atropin in large doses to a person with yellow hair or cap the teeth of persons with red hair."

Nearly three pages are devoted to the importance of the neck. "The neck," we are told, "is a singularly neglected part of the body—neglected, in fact, by nearly every one, from the very clean young man, who develops boils when the collar grinds in the dirt, to the specialist, who fails signally when he tries to tell you about the hyoid bone"; and, further, "the mere fact that executions have been for ages carried out by operating on the neck shows how generally its importance has been recognized by the non-medical part of the world." The author has some original views about the cerebral circulation. He holds that the internal carotid arteries in their intracranial course clearly "massage the optic nerves by their pulsations, which appears to be a most important matter in the prevention of stasis in these nerves," and also that the relation of the pituitary body to them is more than suggestive of a regulator mechanism. In a book on *post-mortem* examinations many of the author's generalizations seem out of place. They merely obscure his subject.

A perusal of the work does not leave a clear impression of how the author considers a *post-mortem* examination should be made, but it would seem that it must not be in accordance with accepted teaching or recognized textbook description. The author scorns anatomical nomenclature as useless jargon, and considers many anatomical illustrations wrong, fanciful, and misleading. He has therefore been at great pains to prepare special photographs of sections of the body as it really is. The result is failure. The pictures are so overcrowded with detail as to be hopelessly obscure, even with the aid of the skeleton outlines provided to some of them.

Many, after reading this book, will agree with the author that some of his views are too radical to look well in print. Perhaps his long training in "cutting cases" has been responsible for his ruthless section of infinitives; such an effort as "to so far as possible point out" is an example. This is not a book for any one devoid of a sense of humour.

[2] *Post mortem Examinations.* By W. S. Wadsworth, M.D., Coroner's Physician of Philadelphia. Philadelphia and London: W. B. Saunders Co. 1916. (Roy. 8vo, pp. 598; 303 figures. 25s. net.)

A CHAMPION OF THE PAST.

DR. JAMES J. WALSH is well known by several works dealing with medical history, the relations of science, especially medicine, to the Church, and the general state of knowledge and art in the Middle Ages. In *The Century of Columbus*[5] he discusses the results achieved in every field of intellectual and social activity in the hundred years from 1450 to 1550. The work is divided into three "books," the first of which is devoted to the arts, the second to deeds, and the third to words. The arts include architecture, music, books and prints, and wood and metal engraving. Under the head of deeds come the discovery of America, explorations and empire building, the Reformation, the Renascence, and the fruits of a new spirit in physical science, medicine, and surgery. The book of the words gives an account of the revival of letters. Professor Walsh has covered the whole field of human endeavour with a learning at once adequate and accurate. It is impossible in a brief notice to discuss so encyclopaedic a book in detail. We can only say a few words on one or two subjects that may be considered to be of special interest to our readers.

The author gives a glowing account of the mediaeval hospital and of the skilled attention and tender nursing which the sick in it received. There is abundant evidence that the love of beauty showed itself in the designing of hospitals as of other buildings, especially in Italy, and the works of surgeons of the Renascence give proof of their knowledge and experience. But even on these *summa cacumina* there is often a darkness that can be felt, and on the lower levels medical practice was a compound of ignorance, superstition, and barbarism. Dr. Walsh quotes Sir Thomas More as saying that the arrangements in hospitals were so complete that practically every one who was sick preferred to be cared for in them rather than at home. But this was in Utopia. Dr. Walsh has no wish to mislead, for he quotes the whole passage from More's famous book. An unwary reader, however, might easily take it as a statement of fact. More was an early advocate of the municipalization of hospitals. That there was clinical teaching in the Middle Ages we know from pictures in medical books where doctors are shown demonstrating to students.

Dr. Walsh says that in the period of which he writes there were schools for the higher education of women in all the important cities of Italy. He believes that the educated women of the Renascence were model wives and mothers, who looked after their homes and designed and often made their own dresses, bought beautiful books, encouraged illuminators, embroiderers, and needleworkers, and in every way helped to give opportunities for the artist and craft worker. Dr. Walsh, in his eagerness to prove his thesis, seems to us here to rest his case on an obvious fallacy. The women he speaks of were very great ladies with abundant means and leisure for the cultivation of their minds and the promotion and patronage of art. What he does not prove is that feminine education was diffused among the classes who had to earn their own living, and that women were economically independent owing to this, as they are becoming at the present day. He is comparing two entirely different states of things. It is, of course, well known that, particularly in Italy, there were women teachers in the universities, even of such subjects as anatomy, but they were quite exceptional; they are remembered because they were exceptions.

Mediaeval medicine and surgery are treated in a very interesting way, the literature being surveyed and brief but adequate accounts given of the men who contributed to the progress of the healing art. Dr. Walsh succeeds in showing that the Middle Ages were by no means so "dark" as the good conceit we in these modern days have of ourselves has too readily led us to believe. On the other hand, his zeal as a champion of the past has, we think, betrayed him into exaggeration. We can heartily commend the book as a brightly written review of one of the interesting periods in human development. It contains eighty-nine photographs of portraits and other paintings, buildings, and various objects illustrating mediaeval life, which add to the beauty of the volume.

[5] *The Century of Columbus.* By James J. Walsh, K.C.St.G., M.D., Ph.D., LL.D., Litt.D. (Georgetown, St. D (Notre Dame). Catholic Summer School Press, New York. 1914. (Roy. 8vo, pp. 420; 89 illustrations. 3.50 dols., postage paid.)

NOTES ON BOOKS.

DR. HALE WHITE'S *Materia Medica*,[4] now in its fifteenth edition, first came out in 1892. It possesses all the virtues possible in so small a book; it is well arranged, clearly and concisely written, and filled with useful information. It contains many hints on the prescription and administration of drugs that show the hand of an experienced physician. The present edition has been adapted to the new issue of the *British Pharmacopoeia* that came out at the end of 1914; this involves the inclusion of some thirty new drugs, and the exclusion of nearly a hundred old ones. Room has not been found for Dr. Dakin's new and efficient antiseptic chloramine. Dr. Hale White is to be congratulated on the vitality of his book no less than on the rapid exhaustion that lays low each successive issue.

Sir DYCE DUCKWORTH'S address on "The ordained limits of women's action in Christian society,"[5] written in well-balanced phrases and inspired by soundly conservative views of the place that should be taken by both women and men in the life of the world, contains a great deal of good advice that cannot be too often repeated. The two sexes are distinct; each has its special gifts, its special capacities, its special dignities. The author indicates the lines along which women's education and women's work should proceed, noting how greatly the sphere of women's activities has been enlarged by our experience of the war.

A lecture on *How to Keep Fit*,[6] delivered by Sir THOMAS ANDERSON STUART, Dean of the Medical School of the University of Sydney, to soldiers at a military camp, gives an admirably simple and practical account of elementary hygiene for the army. Microbes, flies, rest and sleep, the skin, the hair, the feet, boots, clothing, fresh air, water, food, alcohol, tobacco, and other all-important topics are touched upon, and sound advice suitable for the man in the street is given in brief and forcible style. The pamphlet may be warmly recommended to officers and others who have to give informal instruction to our soldiers in these all-important matters.

[4] *Materia Medica, Pharmacy, Pharmacology, and Therapeutics.* By W. Hale White, M.D.Lond., M.D.Dub.(Hon.), Lieutenant-Colonel R.A.M.C.(T.). Fifteenth edition. London: J. and A. Churchill. 1916. (Fcap. 8vo, pp. 724. 7s. 6d. net.)

[5] *Women's Place in the World.* An address delivered by Sir Dyce Duckworth, Bt., M.D., LL.D., F.R.C.P. London: Jarrold and Sons. 1916. (Cr. 8vo, pp. 32. 6d. net.)

[6] *How to Keep Fit: A Lecture to Soldiers.* By Sir T. Anderson Stuart, M.D., LL.D., D.Sc. Melbourne: A. J. Mullett, Government Printer. 1916. (Fcap. 8vo, pp. 36.)

MEDICAL AND SURGICAL APPLIANCES.

An Electric Probe.

THE CAMBRIDGE SCIENTIFIC INSTRUMENT COMPANY has made an electric bullet probe which it is believed will be of value in locating foreign bodies in a wound. In principle it is related to a telephone probe, to which it is objected that it is difficult to distinguish between the sound caused in the telephone when the probe strikes a foreign body, and the continuous noises which are at all times heard in the receiver. In the new probe contact with the foreign body is shown by the deflection of the galvanometer, which is the most important part of the appliance. A fine metal probe and a contact wire of the same metal are connected by flexible leads to the galvanometer. The contact wire is placed in the edge of the wound in good contact with the tissues, and the probe is employed in the usual way. Since both are of the same metal there is no difference of potential between them when they are inserted in the wound, and therefore no deflection of the galvanometer. As soon as the probe touches some other piece of metal in the wound a voltaic cell is formed, of which the metal foreign body constitutes one pole and the contact at the edge of the wound the other, the blood being the electrolyte. Consequently, a current flows through the galvanometer and deflects the pointer which swings across the scale. The galvanometer is strongly made and portable, and it is very sensitive; a very small piece of metal causes an obvious deflection of the needle. The probes are made in various thicknesses and are interchangeable. The probes and contacts and the portions of the leads which may come near the patient can be sterilized. The outfit with two probes and connecting leads costs £9 15s. We are informed that the instruments have been tested in several military hospitals with satisfactory results.

British Medical Journal.

SATURDAY, AUGUST 26th, 1916.

SCIENCE AND COMMERCE.

In commenting on the report of the National Physical Laboratory for 1915–16, *Nature* recalls the serious anxiety caused to those responsible for the supply of optical munitions by the shortage of suitable glass at the beginning of the war, for the industry of optical glass production had tended more and more to become a German monopoly. With the aid of a grant from the Privy Council Committee for Scientific and Industrial Research, a number of inquiries were instituted. So far the main work has been directed to the production of satisfactory pots, since one of the principal difficulties in the manufacture of optical glass lies in the choice of suitable material for the pots in which it is made. Similar work on heat-resisting materials, and generally on the behaviour of the rare earths and other substances at high temperatures, is of great importance in a large number of industrial processes, but for such work a technological laboratory on a large scale is needed, and will, it is hoped, be provided. Other research on chemical and other glasses has been done during the year by the National Laboratory, as well as by other institutions. The work is of the utmost national and scientific importance, and our scientific contemporary expresses the hope that the committee will spare no effort "to ensure that it is actively continued and extended, and that in the future no risk shall be run of this fundamentally important industry passing into foreign hands."

The committee is in a good position to achieve the first object, and the acquisition of scientific knowledge and the perfecting of technical methods will make the attainment of the second possible, but it will not do more; commercial organization is necessary, and also probably State action. As an example of what happens we may say that we had occasion a short time ago to make some inquiries as to a particular kind of glass, and found that though its formula was due to British research, and though it had been and perhaps is still being made in this country, commercial control was in the hands of foreigners.

The position with regard to the production of fine chemicals and synthetic drugs and the commerce in them is very similar to that in which the authorities of the National Physical Laboratory found the manufacture of optical glass. In commenting, in the Journal of August 12th, on the resolutions adopted by the Annual Representative Meeting recommending medical practitioners to avoid using drugs made in Germany or Austria if identical substances manufactured by ourselves or by our Allies can be obtained, and instructing the Council to bring to the notice of the Government the possibility of guaranteeing protection to firms willing to lay down plant to manufacture drugs and chemicals made in Germany before the war, we pointed out that while it was probably the opinion of the majority of chemical manufacturers that some form of Government assistance by tariff or otherwise was necessary, yet a considerable degree of co operation among manufacturers is a more fundamental requisite for the establishment of the manufacture of synthetic drugs on a sound commercial basis.

It is probably owing to the resolutions of the Annual Representative Meeting and this comment on them that Dr. Sidney Barwise, Medical Officer for Derbyshire, has sent us a copy of a pamphlet on economics and the war[1] which he published last May. Dr. Barwise refers to the resolution adopted by the Chambers of Commerce of the United Kingdom, "that the strength and the safety of the empire lie in ability to produce what it requires from its own soil and factories," and compares it with a famous pronouncement of Alexander Hamilton during the American War of Independence: "Every nation . . . ought to endeavour to possess within itself all the essentials of national supply. These comprise the means of subsistence, habitation, clothing, and defence. . . . The possession of these is necessary to the progress of the body politic; to the safety as well as to the welfare of the society. . . . To effect this change, as fast as shall be prudent, merits all the attention and the zeal of our public councils; it is the next great work to be accomplished."

Far be it from us to enter upon the thorny controversy as to free trade and tariff reform, which excites a degree of bitterness in the extreme champions on either side difficult for persons of scientific training to understand, but we are entitled to call attention to the effect on the nation's health and virility of the exodus from country to town, due in part at least to the depression of agriculture and the fact that peasant proprietors in Great Britain are so few as to be negligible in any general view. One result of the fiscal policy of Germany has been to keep the people on the land and to encourage small freeholders; in thirteen years one and a half million acres were thrown into small holdings. A similar fiscal policy in France has had a similar result. Before the passing of the Méline tariff law of 1892 France imported 441 million francs' worth of agricultural produce; ten years later she was exporting an excess of 152 million francs' worth, peasant proprietors had increased and the tide of population was set back from the town to the land. In thirty years the import of cereals into Great Britain more than doubled while the population increased by less than a third. In the same issue of *Nature* as that from which we have already quoted there is a note on a recent report by Mr. T. H. Middleton, Assistant Secretary to the Board of Agriculture. He shows that it is not an empty boast to say that on each hundred acres of cultivated land Germany feeds seventy people, while Britain can only feed forty-five. According to this report, the two chief factors in the recent remarkable development of German agriculture are a settled economic policy and a well-thought-out system of agricultural education; coupled with these is the belief of the German farmer that he was essential to the community and that his land should not be allowed to go out of cultivation. Mr. Middleton states that the chief immediate cause of the increased productivity of German soil is the increase in use of artificial manures; twice as much nitrogen, one-third more phosphate, and five times as much potash are used in Germany as on an equal area of our cultivated land. The reason Mr. Middleton gives for this failure of the British farmer is want of education, but he thinks that this defect in our educational system is

[1] *Never Again. A Plea for a National Party with a National Economic Policy.* By Sidney Barwise. Derby: Harwood. (Price 6d.)

being remedied. There are, however, undoubtedly other causes, which might more quickly be removed, for the depression which has affected British agriculture during the last seventy and especially the last thirty or forty years.

MALARIA IN FRANCE.

RATHER more than a year ago we discussed the probability of any considerable outbreak of malaria in Flanders and France, and expressed the opinion that though certain conditions rendering it possible undoubtedly existed any considerable outbreak was improbable. The conditions which made it possible were the existence of *Anopheles maculipennis* in Flanders, and in many places in France, and the presence of Indian troops, among whom would undoubtedly be found some persons carrying the haematozoon. Among the conditions recorded as unfavourable to any large outbreak was the expectation that there would be no sufficient spell of warm weather. No outbreak occurred, but a certain number of cases were observed and were recorded in our columns by Lieutenants Reid and Humphreys and by Captain MacCormac. All the cases occurred towards the end of August or the beginning of September.[1]

The problem is now receiving some attention in France, and the Academy of Medicine has appointed a commission—consisting of MM. Laveran, Blanchard, Roux, Wurtz, and Mosny—to report on the prevalence of mosquitos in Paris and other parts of France. The suggestion arose out of a paper read by M. Wurtz, in the course of which he said that persons residing in certain parts of Paris had this summer been greatly annoyed by mosquitos, though as the insects belonged to the genus *Culex* they were not capable of transmitting infectious diseases. Professor Blanchard took up both points. He did not admit that *Culex* was incapable of transmitting diseases, and gave the discussion a wider scope by asserting that *Anopheles maculipennis* still existed all over France, and even in the suburbs of Paris. He recalled the historical fact that the larva of *Anopheles* was first described by Joblot in 1754 from a reservoir actually in Paris. He pointed out that malaria was at one time very widespread in France, and that though it had become uncommon it might reappear if circumstances favouring it were allowed to arise. Paris, he said, and the whole of France was in varying degrees in the condition called by the Italians "paludism without malaria," that is to say, the *Anopheles* existed but not intermittent fever. If an old malarial patient who supposed himself to be cured went to reside in a place where *Anopheles* persisted he might be the means of starting an epidemic, for though he no longer had febrile attacks, his blood might contain the gametocytes and would therefore be quite capable of infecting the insects, and they would infect mankind. At first probably the number of persons would be small, but the circle would be ever widening, and presently the disease would become epidemic. Professor Blanchard did not insist on the element of time introduced by this argument, but it is easy to see that it may be a factor of great importance. As an instance of what might happen even in Paris, he said that some years ago a female *Anopheles*, which had apparently survived the winter, had been found in the laboratory of the Colonial Museum in Paris, and that another had been observed at the Institut Pasteur early last April. M. Vaillard, after mentioning the cases recorded by British medical officers as having occurred on the Flanders front, went on to point out that among French colonial troops, from West Africa, Indo-China and Madagascar, and among colonial workers employed in munition factories there would be many chronic cases of malarial infection which would serve as reservoirs of the virus, and that *Anopheles* persisted in a sufficient number of places in France to give grounds for fearing a recrudescence of malaria in places formerly affected and its extension to others previously immune.

M. Mosny added the interesting statement that since the arrival of the colonial troops a number of centres had already been found to be in existence in France, and that in particular the Paris, Lyons, and Mediterranean Railway Company had had to deal with a large number of cases among men employed in the marshy country near the mouths of the Rhone. In a paper contributed to a later meeting of the Academy, Professor Étienne of Nancy gave particulars of a small recrudescence of malaria in the neighbourhood of that city of which he had obtained evidence. The patients came from the valley of the Seille, a sluggish, muddy river, often overflowing its banks, which runs a course close to the frontier and falls into the Moselle near Metz. *Anopheles maculipennis*, he stated, was known to occur in this valley, but he had not met with any case of malaria in the hospitals at Nancy since 1888, nor, with one exception in 1907, had he heard of any authentic cases until January, 1915. Since then he had observed six cases in which the clinical diagnosis was malaria, verified in two by the finding of the haematozoon (schizonts) in the blood; it was found also in the case observed in 1907, at Nomeny in the valley of the Seille. Of the cases under his own care one was quartan, three tertian, one continuous, and one remittent. They all occurred in January, February, or March, 1915 or 1916. One case had been bitten by many mosquitos during the fine days at the end of January and the beginning of February, 1916. As to the others, Étienne thought it possible that they had been bitten in the autumn, but that the disease did not show itself until some other trivial affection allowed it to develop and produce marked symptoms. The patients suffered from symptoms attributed to rheumatism before the true character of the disease declared itself. At about the same time a number of old malarial patients, colonial or African, suffering from recurrent attacks, were admitted into hospital in Nancy. He does not think it clearly proved that an attenuated form of malaria may not have persisted in the valley of the Seille before the war, but concludes that the facts suggest that if this be the case the anopheline mosquitos have recently been infected by a more virulent strain of haematozoon derived from chronic cases among the colonial troops.

It may be interesting to recall that fifteen years ago Nuttall, Cobbett, and Strangeways investigated[2] the geographical distribution of *Anopheles* in relation to the former distribution of ague in England, and showed that the disappearance was not due to the extinction of mosquitos capable of harbouring the parasites of malaria; they found *Anopheles*, indeed, in parts of England as to which they could obtain no record of the occurrence of ague at any time in the past. *Anopheles* occurred, however, in greatest number in low-lying land containing many ditches, ponds, and slowly flowing water suitable for its habitat and corresponding to the districts where ague was formerly prevalent. They concluded that the occurrence of ague is not a matter of the geographical distribution of *Anopheles* as much as of its numerical

[1] BRITISH MEDICAL JOURNAL, 1915, vol. ii, pp. 605, 906.

[2] *Journ. of Hygiene*, vol. i, p. 4.

distribution, and expressed their belief that their observations would explain the occasional occurrence of ague in out-of-the-way places, without making it necessary to assume that malaria-bearing mosquitos had been freshly imported, for, given suitable conditions of temperature and the requisite number of *Anopheles*, a malarious subject coming from other parts might well infect the local insects, which in turn would spread the infection to healthy persons.

THE PRESCRIPTION OF PROPRIETARY REMEDIES CONTAINING COCAINE.

We have already on several occasions called attention to the unfortunate exception in the Regulation as to the prescription and sale of cocaine which made a special and, as we believe, wholly unnecessary concession to the vendors of proprietary medicines. The Regulation requires that cocaine shall be supplied only upon the written prescription of a doctor, and dispensed only by a person legally authorized to dispense such prescription, and further requires that the prescription must be dated and signed by the doctor, with his name, address, and qualifications, be marked "not to be repeated," and must specify the total amount of cocaine to be supplied on the prescription. The exception is that "where the medicine to be supplied on the prescription is a proprietary medicine it shall be sufficient to state the amount of the medicine to be supplied." The Regulation is understood to have been made because the habit of taking cocaine was spreading, and the evils of cocaine addiction were serious. The effect of the Regulation in bringing the sale of cocaine under control is diminished by the exception quoted. The amount of cocaine in a proprietary medicine is not, in the majority of instances, known to medical practitioners invited to prescribe such proprietary preparations. This is the case in respect of a certain "asthma remedy," the proprietors of which are issuing to persons who apply to them for the preparation draft printed forms for its prescription by doctors. Examples of these forms are in our possession. The preparation has, as a rule, been prescribed by the patient for himself in consequence of representations as to its efficacy as advertised by the proprietor, and before Regulation 40 B was made it was probably obtained by the very large majority of such persons, if not by all, without any medical prescription. Medical practitioners are now asked to give their express sanction to the continued use of a preparation containing an unknown quantity of cocaine, a drug which they have not prescribed to the patient on their own initiative. The objection of practitioners to prescribe preparations the composition of which is not made known, or to sanction their use, is general and, we believe, deeply rooted. The profession now has an opportunity of showing the strength of its conviction. The British Medical Association has done an enormous amount of work to give effect to what it believed to be the conviction of the profession. It procured the appointment of the Select Committee on Patent Medicines, and it is prepared on the first suitable occasion to do all in its power to further legislation recommended by that committee. If the profession now falls into the trap laid for it the strength of the demand for legislation for the control of secret remedies must be greatly weakened. We are quite aware that practitioners may be placed in an extremely difficult and invidious position in resisting the urgent solicitations of a person who has become accustomed to use cocaine for the relief of asthma or other conditions, but the profession has now a chance to live up to its principles by declining to prescribe remedies of which the formula is not disclosed, though the manufacturers may now be under the necessity of stating that a particular remedy contains cocaine. It is quite true that the action of the Home Office in making this exception is weak and illogical, but it has afforded to medical practitioners an opportunity of showing that they do not suffer from these defects, that they are wiser and stronger than our rulers, and ready, even at some personal inconvenience, to act in what they believe and know to be the best interests of the country.

WEST AFRICAN FEVERS.

The fourth and final report of the Yellow Fever Commission has been issued.[1] The Commission was appointed by the Colonial Office in January, 1913, to study the nature and relative frequency of the fevers occurring among Europeans, natives, and others in West Africa, especially with regard to yellow fever and other non-malarial fevers in that country. The Commission held seventy-four meetings, including several laboratory ones, and also interviewed various people from abroad on the subject. Unfortunately the war greatly hindered its labours, and as a matter of fact has led to its early demise. Still, during the three years for which it existed, it collected much useful information, and has brought this together in an easily accessible form. Three earlier volumes containing reports received from appointed investigators and others have been issued at various times, and two of these were noted in the Journal of March 18th, 1916. The final report (that now under consideration) is divided into five parts—Part I deals with the work of the Commission; Part II deals with the occurrence of various fevers other than yellow fever among natives and Europeans in West Africa; Part III is devoted to yellow fever; Part IV contains suggestions for further research and in regard to quarantine, the general conclusions at which the Commission have arrived, and also references to the services of investigators and others; Part V consists of appendices. The first general conclusion of the Commission is that the following fevers, other than yellow fever and malarial fevers, are met with on the West Coast of Africa—namely, typhoid, paratyphoid, pappataci fever, and (possibly) undulant fever and seven days' fever, and possibly also dengue fever in a sporadic form, but that there is no evidence of the occurrence of widespread epidemics of any of these fevers in recent times. We would point out, however, with regard to the statement that undulant fever may "possibly" occur on the West Coast of Africa, that cases from that area have been published on at least two occasions. The second conclusion is that malarial fever is the most widely spread of the fevers met with in West Africa. With regard to yellow fever, the conclusion is that it is endemic in the British and other dependencies on the West Coast of Africa, but no sufficient evidence has been obtained of its occurrence in the Republic of Liberia. The number of cases diagnosed in the British dependencies as yellow fever has not, it is stated, exceeded 60 in any one year during the last six years, nor 180 in all; but the Commission is of opinion that many more cases have occurred, and that probably the continuous presence of the disease is maintained by the existence of endemic foci and areas or otherwise, rather than by its almost universal prevalence amongst the native population. The native population is not immune to yellow fever, although, as a rule, when attacked, the natives suffer from a milder type of the disease than the Europeans. The Commission states that the nature of the virus of yellow fever remains unknown, and that there is no evidence that the disease has been brought to West Africa during recent periods from outside Africa. The Commission finds that epidemics of a disease have occurred in other parts of Africa presenting some features of a character similar to those met with in yellow fever, and that in these epidemics the mortality amongst the natives appears to have been much greater than

[1] Yellow Fever Commission (West Africa). London: J. and A. Churchill. 5s. net.

usually now occurs when natives of the dependencies on the West Coast are attacked by yellow fever. Further, the Commission has found evidence that a disease of uncertain nature, known to the natives by various names, as, for example, bayloo, uto enyin, or yellow eyes, prevails in certain dependencies, usually at a distance from the coast, but states that knowledge of the diseases, other than malaria, common amongst the natives, both children and adults, inhabiting the "bush," is very defective. Finally, the Commission points out the importance of a vigorous enforcement of anti-mosquito measures against all mosquito-borne diseases.

PITUITARY EXTRACT IN DIABETES INSIPIDUS.

OUR ignorance of the functions of the pituitary body was unlimited until it was first studied by Schäfer and Oliver in 1895. In 1901 Magnus and Schäfer found that extract of the infundibular or posterior lobe of the gland acted as a diuretic, and in 1905 Herring and Schäfer proved that this extract dilated the renal arteries while constricting the other arteries of the greater circulation. At the present time many pituitary preparations are on the market—proprietary drugs made for the most part from the posterior part of the gland—and the literature dealing with them is very extensive; their names are many, including hypophysin, pituitrin, infundibulin, and pituglandol. These extracts have been employed in the treatment of anuria or diminution of the renal secretion of urine, apparently with success. The polyuria which follows operative manipulation or disturbance of the posterior lobe of the pituitary body has been particularly remarked by Cushing, who is inclined to attribute many cases of either transient or lasting polyuria to increased secretory activity of the hypophysis. There can be no doubt, therefore, that polyuria is one of the effects of exhibiting pituitary extracts in both health and certain diseases. Oddly enough, its effect in diabetes insipidus is precisely the opposite, as was pointed out by Francesco of Venice in 1913. This author quoted two patients passing six or eight litres of urine a day, in whom pituitary extract reduced the urinary output to the more moderate figure of one or two litres a day. Rosenfeld has recently[1] put on record two cases of diabetes insipidus in which subcutaneous injections of 0.5 gram of pituglandol much reduced the output of urine. The particular interest of his communication lies in this, that in one instance the concentration of the urinary sodium chloride was much increased when the polyuria disappeared under the influence of the drug, while in the other case it was unaltered. The first patient, a well nourished woman of 38, passed some five litres of urine daily while on a diet containing little sodium chloride. The pituglandol injections reduced the urinary output to from one to two litres a day, while the percentage of sodium chloride in the urine rose from under 0.1 per cent. to 0.2 or 0.3 per cent., the latter figure being reached when more of the salt was added to the diet. The second patient, a man with cystitis, hypertrophy of the prostate, and renal disease, who was passing from five to seven litres of urine daily, passed a smaller amount of water while treated with pituglandol, without exhibiting any increase in the sodium chloride concentration, but rather the reverse. In the first patient administration of the drug by the rectum did not lessen the polyuria; she was a case of primary polydipsia, no doubt, or, as Rosenfeld puts it, of symptomatic polyuria, for the addition of common salt to her diet did not increase the secretion of urine. The second patient, however, exhibited primary polyuria, or true diabetes insipidus. Rosenfeld had evidence to show that his kidneys were incapable of secreting a more concentrated urine. Rosenfeld also quotes a third patient, a soldier, passing five or six litres of urine a day, on whose polyuria hypophysin and pituglandol were almost without influence. The conclusion reached is that these extracts influence polyuria by acting on some urinary (or polyuric) centre in the floor of the fourth ventricle; the centre diminishes the polyuria by increasing the capacity of the kidneys to secrete a concentrated urine. This action of pituitary extracts is but transient, lasting in favourable cases for only a few days.

[1] *Berl. klin. Woch.*, 1916, liii, 533.

VOLTAIRE AND VENEREAL DISEASE.

VOLTAIRE naturally found in venereal disease a subject for the satiric touch which he applied to everything, divine and human. But beneath the lightness of his manner there was always a real sympathy with suffering. The references to syphilis in his works are almost innumerable, but the *loci classici* are in *Candide* and *L'Homme aux quarante écus*. In the former he almost revels in his account of the consequences of the poisoned joys which Pangloss found in the arms of Paquette. Candide meets his old master, professor of "metaphysico-theologo-cosmologo-nigology" (the "nigo" in this ultra-Teutonic monster of word formation we take to be a playful disguise of *nigaud*), "all covered with pustules, his eyes lifeless, the end of his nose eaten away, his mouth awry, his teeth black, speaking with a throaty voice, tormented by a racking cough, and spitting out a tooth at every effort." The unlucky philosopher, although confessing that the pleasures of paradise had been followed by the tortures of hell, still clung to his doctrine that all was for the best in the best of all possible worlds. Syphilis, he argued, was a necessary and indispensable ingredient in its composition, for "if Columbus had not caught on an American island that disease which poisons the source of generation, which often hinders generation, and which is evidently opposed to the great end of Nature, we should not have chocolate or cochineal." Pangloss goes on to describe how the disease had spread throughout Europe, especially in those great armies composed of honest mercenaries who decide the destinies of states; it might be assumed that when thirty thousand soldiers fought in pitched battle against an equal number of men there were about twenty thousand on each side afflicted with the pox. In *L'Homme aux quarante écus* Voltaire again dwells on the part in the spread of the disease played by armies. He relates the piteous story of two girls living in a village where nothing was known about syphilis and where "people made love with the security of innocence" till troops were quartered there, when at once sin brought suffering into the little paradise. Severe as the disease was in the eighteenth century, the treatment, according to Voltaire, was almost as destructive. The abuse of mercury cost Pangloss an eye and an ear. The heads of the girls were swollen like balloons for six weeks, they lost half their teeth, their tongues stuck out "half a foot," and they died of chest disease within six months. The surgeon-major of the regiment said that the parliament of Paris was the first to make an ordinance for the suppression of syphilis; this was in 1497, when all persons suffering from the disease were forbidden to stay in Paris under pain of the rope. But as it was not easy to get legal proof of the guilt the ordinance had no effect. He added that the scourge instead of abating was spreading everywhere. Nor was it becoming less dangerous. Asked whether there was any means of suppressing the contagion, the surgeon-major said the only way would be that all the princes of Europe should form an international league as in Godfrey de Bouillon's day. A crusade against syphilis would be much more reasonable than those against Saladin and the Albigenses. It would be much better to combine in a war against the common enemy than to be continually watching for an opportunity of laying waste each other's countries and covering the fields with corpses. Dr. Dubois-Havenith, who called attention to this passage of Voltaire in a communication made some years ago to the Medico-Chirurgical Society of Brabant, said that

the organizers of the two international congresses held at Brussels with the participation of all governments of the world to study the prophylaxis of venereal disease believed that the first idea of such international action had come from Professor Wolff of Strassburg. But Wolff had been forestalled by Voltaire, whose suggestion, which had remained a dead letter for more than a century, was revived at these conferences. Voltaire's view that armies are potent factors in the diffusion of syphilis is said to have found confirmation in the present war. At a recent meeting of the Académie de Médecine, Gaucher stated that his observations had convinced him that in France and the other belligerent countries, syphilis was twice as prevalent as before the outbreak of hostilities. Brocq had already uttered a note of warning on the same subject. Among the many projects for the betterment of the world after the war not the least useful would be to extend the international crusade against the insidious disease which is sapping the health of the men and women who are to repeople a devastated world.

DENTISTRY IN THE GERMAN ARMY.

At a meeting of surgeons and dentists held a few months ago in Berlin, Generalarzt Schultzen gave an account of the organization of the dental service in the German army. The work fell into two main divisions—the treatment of wounds of the jaw, which was the most important, and the everyday treatment of soldiers' teeth, including the making and fitting of artificial teeth, to render the men fit for active service or employment on war duties. The incidence of wounds of the jaw had, he said, far exceeded expectations, with the result that five dentists had to be attached to each army corps, although, under an arrangement made in 1907, only one dentist was provided for each. Dentists were appointed to military hospitals where adequate facilities were provided for skilled work, and were employed also to a certain extent nearer the firing line, when the fighting assumed a stationary character. In fracture of the jaw, the primary object of the dentist was to immobilize the fragments in order that the patient might be sent on at once to a special jaw hospital at home, where extensive operations could be undertaken. About 1,000 dentists were employed by the army on the lines of communication and at home. The organization had worked smoothly. It had been hoped that, owing to the supervision and treatment of school children's teeth, the teeth of the recruit would be found on the whole to be sound. But between the school age and the military age there was evidently time enough for neglect of the teeth to provide plenty of work for the army dentist.

THE IMPERIAL CANCER RESEARCH FUND.

The annual report for 1915–16 of the Imperial Cancer Research Fund shows that the effect of the war has been still further to curtail the activities of the laboratory. Only the director (Dr. J. A. Murray), Dr. Cramer, and three laboratory attendants are left out of a total permanent staff of twelve. The laboratories have also lost the services of two Japanese medical men who had been working for some time in them. The director has undertaken to report on pathological specimens sent from France in connexion with the medical history of the war, and the arrangements for the preservation and transmission of these specimens are stated to be working satisfactorily. The offer of Dr. Miles Johnston, of Ramsgate, who is over military age, to assist the director has been accepted. In accordance with the practice of the committee to afford material for research for investigators in other laboratories, animals inoculated with tumours have been supplied to Dr. J. C. Mottram and Dr. S. Russ, of the Middlesex Hospital Cancer Research Laboratories, to Dr. A. Paine, of the Cancer Hospital Research Institute, and to Mr. S. G. Shattock, at St. Thomas's Hospital. An offer has been accepted from Dr. F. C. Wood, Director of the George Crocker Special Research Fund, to take over various duplicates from tumour strains and to continue their propagation, so that in the event of any damage to the laboratories by air raids the strains should not be lost. The effects of the war are reflected also in the short report of the director, which summarizes briefly the papers published during the year. A preliminary account has been published of the transplantable guinea-pig tumour now being propagated in the laboratory. This growth, which in the primarily affected animal had the structure of an ordinary lipoma, has become rather more cellular on continued propagation. The cellular changes leading to the appearance of fat in the tumour cells show this to be a true differentiation, and not a degeneration, and are initiated by alterations in the mitochondria or Altmann granules. Experiments have been carried out to test the validity of the explanation of the phenomena of the Abderhalden reaction by the absorption of the antiferment of the serum. It was found that the relative richness of the serums of the dog, rabbit, guinea-pig, rat, and man in antitryptic substance corresponded with the results of Dr. Bulloch's experiments, and that the prepared Abderhalden substrates adsorbed the antitryptic substance from the serum powerfully. The explanation, therefore, harmonizes satisfactorily with both sets of observations.

ATTENDANCE ON DEPENDANTS OF SAILORS AND SOLDIERS.

The Naval and Military Dependants (Medical Treatment) Committee, of which the Duke of Devonshire is chairman, announces that the scheme for providing free medical treatment, including medicines, to dependants of soldiers and sailors has come to an end. At its inception the National Relief Fund Committee undertook to bear the cost of the medicines provided under the scheme, but the duties of that fund relating to naval and military distress have now been transferred to the Central War Pensions Statutory Committee, which does not see its way to provide the funds necessary for the continuance of the scheme. The Duke of Devonshire therefore states that his committee has no option but to discontinue it. A circular letter containing this intimation is about to be addressed to the individual doctors who have taken part in the scheme, and in it the Duke of Devonshire expresses the thanks of his committee for the services rendered in connexion with the scheme. The demands, he goes on to say, upon the services of members of the medical and pharmaceutical professions involved by the scheme have been considerable, and the value of the services have been enhanced by the fact that they have been given during a period of extreme pressure. The Duke expresses the committee's appreciation not only of the generous spirit which prompted the professions to offer their gratuitous services in connexion with the scheme, but also of the manner in which they have co-operated with each other and with the committee to ensure the smooth working of the scheme. The Duke has also addressed a letter to the British Medical Association, thanking it for the active part it took in connexion with the scheme, the preliminary arrangements for which in themselves, he says, necessitated considerable labour on the part of the Association, while in addition substantial assistance has at all times been forthcoming from the Association in matters connected with the scheme. The Duke concluded by conveying to the Association the thanks of the committee for the assistance so readily given to it in its administration of the scheme.

THE MESOPOTAMIA INQUIRY.

THE first sitting of the Statutory Commission to inquire into the operations in Mesopotamia was held at the House of Lords on August 21st, under the presidency of the chairman, Lord George Hamilton. The Commissioners have announced that in view of the extremely private nature of the documents and of the oral evidence which will be taken, its meetings will be conducted in private. The Commission began by taking the evidence of Major-General Sir Edmund Barrow, Military Secretary to the India Office, who gave a general survey of the history of the Mesopotamia expedition. His evidence was not concluded on the first day. The Commission sat again on August 22nd, and thereafter adjourned for a fortnight "in order to master a number of documents prior to taking up the medical side of the inquiry." In the House of Commons, on August 22nd, Mr. Gwynne asked what arrangements were made for the provision of drinking water for reinforcements arriving in Mesopotamia, and whether it was the case that in many instances men went to the nearest pool and drank water, the result being that they contracted cholera and enteric or other fevers. The Secretary of State for War, in his reply, said that he assumed that so obvious a precaution against disease as the provision of proper drinking water had been taken.

WE regret to announce that Dr. T. G. Brodie, F.R.S., Professor of Physiology in the University of Toronto, died suddenly in Hampstead on August 20th.

Medical Notes in Parliament.

War.

Medical Students.—On August 21st Mr. Snowden asked what the present policy of the War Office is as to the calling up of medical students for military service; and if students are now permitted to continue their course of training for the medical profession? Mr. Forster replied as follows: Under the present arrangements medical students in their fourth and fifth years, including those third year students who passed a professional examination at the end of March, 1916, are not called to the colours, provided they are enrolled in an Officers' Training Corps. Where such students are not attested an exemption is required from the tribunals, but the military representatives support applications by such students. As the hon. member is doubtless aware, full-time students in universities and university colleges and teaching establishments recognized by the Board of Education who are not passed as fit for general service are not at present called to the colours, and arrangements are proposed by which second and third year medical students in this class who are at present serving shall be allowed to return to their professional studies.

Treatment and Training of Discharged Disabled Soldiers.—Major Astor asked the Chancellor of the Exchequer on August 17th whether, in view of the fact that under Section 3 (1) (*f*) of the Naval and Military War Pensions Act Parliament has placed on the Statutory Committee the duty and responsibility of making provision for the health and training of discharged disabled soldiers, and in view of the importance that suitable medical and surgical provision should be made available without further delay for the large number of men already needing special treatment over and above what the ordinary general practitioner can give, it is to be understood that the £5,000,000 recently promised to that committee from the Exchequer is to be available towards these purposes or whether the necessary expenditure of the committee in carrying out this duty is to be provided from the Exchequer in some other manner; and, if so, how and when. Mr. Hayes Fisher (who has been deputed to answer questions affecting the War Pensions Statutory Committee) replied as follows: "It is not the intention that the £5,000,000 (though calculated on the estimated cost of pensions) shall be earmarked to the payment of pensions, and the Statutory Committee will have power to expend it on any other of their statutory functions."

Medical Examination of Recruits.—Mr. Edmund Harvey asked, on August 16th, whether any detailed physical standard had been issued to the various army medical boards to ensure that cases should be dealt with on uniform principles, and in particular whether any instructions had been issued to secure a uniform method of dealing with organic diseases, such as diseases of the heart. The Financial Secretary to the War Office said that the physical standard was fixed for each of the categories, and that this standard was determined by the nature of the duties assigned to the particular category. Apart from this, conferences were from time to time held to secure co-ordination between the work and practice of the different boards. The Deputy Directors of Medical Services of commands were responsible for inspecting from time to time the work of examining recruits.

Hospital Ships.—In the course of a reply to a question as to the transport of sick and wounded officers granted leave to England from Mesopotamia, the Financial Secretary to the War Office stated that it was not possible to provide hospital ships in Egypt to meet the Indian hospital ships, and that patients from India had to be transferred to hospitals in Egypt until they could go on. There had been a shortage of hospital ships in the Mediterranean lately owing to the heavy requirements arising from the operations in France, but this has now been remedied.

Antityphoid Inoculation.—Mr. Chancellor has asked a question in which he implied that men who refused to submit to antityphoid inoculation were subjected to constant bullying and insult by army medical officers and regimental colonels, and that inoculation had produced a great deal of debilitating sickness. Mr. Forster in a written reply, on August 21st, said that he had not heard of the bullying mentioned nor of any dissatisfaction, nor that inoculation produced a great deal of debilitating sickness unless the slight reaction which was not unusual was so described. Inoculation was not compulsory, but its benefits had now been so completely proved that the vast majority of officers and men availed themselves of the opportunity of escaping enteric fever.

Alcohol Rebate to Hospitals.—In supply, on August 15th, a sum of £10,000 was voted to meet grants to voluntary hospitals in respect of duty on spirits. The grant is intended to reimburse hospitals for payment of duties made in respect of spirits contained in or used in the preparation or manufacture of tinctures and other articles which contain spirits.

Asylum Accommodation.—Sir William Byles asked a question on August 21st as to the amount of overcrowding in asylums, whether any further reduction was proceeding or was in contemplation, and what was the present proportion of doctors to patients in the county asylums which remained available for the care and treatment of their original inmates. Mr. Brace said that the amount of overcrowding varied in different asylums, but expressed as an average it might be stated to be 17 per cent.—that was to say, there were 117 patients in wards which were normally intended for 100. The number of beds by which the total accommodation of county and borough asylums in England and Wales had been reduced by the use of certain asylums as war hospitals was 15,750. No further reduction of accommodation was now proceeding or in contemplation. The present proportion of doctors to patients in the county and borough asylums in use as such was 1 to 390.

Epizootic Abortion.—In the course of a reply to Sir J. Spear, Mr. Acland said that the Board of Agriculture hoped that the arrangements for the supply of vaccine from the Board's laboratory for the vaccination of cattle against epizootic abortion would be complete at no distant date. A certain amount of vaccine was obtainable at the present time on application to the Board's office.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on August 9th. Since the last committee meeting on June 8th the books of the society have been audited by Messrs. Crewdson, Youatt, and Howard, and the following cash statement issued:

Cash Account from December 1st, 1915, to June 30th, 1916.

Receipts.	£ s. d.	*Payments.*	£ s. d.
December 1st, 1915—To balance as per last account	15,608 12 0	June 30th, 1916—By relief	2,562 11 10
		,, clothes	57 0 10
		,, administration expenses	12 9 3
			2,632 1 11
June 30th, 1916—Donations	305 8 5		
Interest received ...	528 3 10	Balance at bank, £1,946 12 3	
		Treasury Bills at cost, £11,864 10 1	13,810 2 4
Total	£16,442 4 3	Total	£16,442 4 3

The donations lately have been few and small, apart from a (second) generous gift of £100 from the Society of Apothecaries. The total sum now received, including donations, interest on deposit, and interest on Treasury bills, amounts to £19,508 13s. 2d. The sum of £300 is being sent monthly to Belgium. Four such amounts have already gone, and receipts have been received for three. There is always a certain amount of delay in the receipt of these documents. The expenditure in other directions has been low, only £44 2s. having been spent on relief, £20 7s. 4d. on clothes, and £7 6s. on the repairing of instruments.

THE WAR.

THE FIXATION OF EXTENSION APPLIANCES.

ON occasional visits during the past few weeks to one of the base hospitals the writer has had opportunities of observing the value of a means of attaching extension to limbs which was introduced at this hospital by one of its surgical specialists (Major M. Sinclair) some little time ago, but does not appear to be familiar elsewhere.

The distinctive features of the method are that union between the extension band and the limb is obtained by means of a substance which is applied primarily to the latter instead of to the former, and that this substance, unlike either gutta-percha or resin, is mainly of animal origin and hydrophilic.

This substance consists of 50 parts each of common glue (or gelatine) and tap water *plus* 2 parts glycerine and 1 part each of calcium chloride and thymol.

The glue thus formed is used in the following way: After being warmed in a hot water bath to a suitable temperature—that is to say, until it is quite fluid—it is painted with a large brush, or applied with the hands, on the parts of the limb to which adhesive plaster would ordinarily be fixed for the purpose of attaching an extension device. A fourfold strip of dry gauze is then pressed upon the painted part of the limb and a very thin covering of cotton-wool is spread on the top to absorb any glue that may pass through the meshes of the gauze. Finally—though this is not absolutely necessary—the limb is bandaged to keep the gauze in place until the composition has had time to become quite solid, this usually taking five or six minutes.

Gauze fixed to a limb in this way enables tension to be applied quite as effectively as any form of strapping, yet does not seem to irritate the skin; also, although the limb undergoes no preliminary shaving the gauze can be removed without any pain.

The explanation of these effects seems to be partly physical, partly chemical. In the first place, the pull on the skin set up by the gauze is much more evenly distributed than that of strapping, because the union of the liquid glue with the skin is much more intimate than that effected by bringing into contact with the skin the sticky surface of gutta-percha or other adhesive plaster. In the second place, the composition being chemically hydrophilic it allows the natural transpiration of the covered skin to proceed unchecked.

A further considerable advantage of the method, though not one which, surgically speaking, is of any importance, is that it is a much less expensive process than that of using gutta-percha or equivalent strapping. At present prices sufficient gutta-percha strapping to make a leg stirrup seems to cost about 4s.

There is, of course, a definite object in each constituent of the substance in question. The thymol, for instance, serves to cover the odour of the gelatine, the calcium chloride increases its hydrophilic properties, the glycerine prevents it becoming brittle.

Foot Extension.

The success of the method described has led in its turn to the introduction at the same hospital of a means of keeping up extension in cases in which the soft tissues of the leg are so damaged as to offer no suitable surface for fixation by strapping or its equivalent. To meet the needs of such cases Robert Jones applies the extension to a wooden footpiece or sole, which is attached to the foot by a laced piece of leather shaped like the upper of a boot. This plan well secures the immediate object in view, but it is found out here that if the extension has to be maintained for any considerable time there is a strong tendency for the skin over the tendo Achillis and the instep to become sore. Consequently it has become the practice at the hospital in question to fix the foot to the footpiece in the following way:

A number of bands, each about half an inch wide, are cut out of flannel and folded on themselves so as to form a series of loops. A small metal D or ring is next inserted into each of these loops and the free ends of each band are then glued perpendicularly to the skin of the foot in such fashion that the rings or D's form a kind of fringe projecting just below the edge of the sole, and extending from the heel to the level of the toe-joints along its inner and outer sides. The bands may be cut in the first instance all the same length, but subsequently must be sufficiently shortened to give each of them a good grip on the foot without reaching the skin over the instep and middle line. Seven or eight loops on each side of the foot and one at the middle of the heel extending upwards to just below the attachment of the tendo Achillis usually suffice. As soon as the glue has become quite solid (within five minutes) the extension footpiece is placed against the sole of the foot, and fixed to it by passing a series of flannel laces through the opposite rings. As much extension as is desired can then be applied and maintained without pain and without irritation of the skin.

Other Uses.

It is obvious that the composition and gauze mentioned may be applied in any condition in which adhesive plaster would otherwise be used for the same purpose, but one additional use to which it is put at this particular hospital may be mentioned. In cases in which it is desired to prevent foot-drop, but to leave the ankle-joint freely mobile, it is used to sling the foot from a gallows which is attached at an appropriate level to the Thomas splint employed, and has legs projecting downwards so as to keep the splinted limb from touching the bed.

In the course of this note it has been indicated that the adhesive power of the composition described is equal to that of any ready-made plaster. This is an understatement, for the adhesive power is so great that in fractures of the thigh the limb can be extended to its natural length when desired by pulling on pieces of gauze which are glued only to the condyles, and touch the limb nowhere else. Nevertheless it can be removed as stated without pain, for if necessary the composition can rapidly be reliquefied by the application of a fomentation.

This composition, in short, is a real glue, and not, like that of Heusner, a strong resinous varnish. Being a true glue it is easily burned; when it has to be heated, therefore, its container must always be placed in a water bath. Any ordinary saucepan will serve. Preliminary shaving of the limb is superfluous.

THE GERMAN MEDICAL CONGRESS IN WARSAW.

(Continued from p. 28.)

TYPHUS FEVER.

IN opening a discussion on typhus fever, Professor Brauer[1] gave a comprehensive survey of the pathology and course of the disease. It was of importance, he said, that the skin should be thoroughly cleaned at the onset of the disease so that the subsequent rash and scaling might be closely observed. Bradycardia and arrhythmia were common during convalescence owing to organic injury to the muscles of the heart. An examination of the blood was of little diagnostic value, and during the status typhosus complete insomnia and stupor, or a tremor of the whole body like that of multiple sclerosis or of paralysis agitans, were common. The most important sequel was gangrene of the feet. The disease was also sometimes accompanied by other infections such as influenza, recurrent and typhoid fever. When the Central Allied Powers entered Serbia the epidemic had died out except in remote hamlets and mountainous districts.

Relation of the Louse to Typhus.

Professor Jürgens maintained that typhus was now well within the control of man. It could be conveyed from one person to another only by the agency of the louse, but the processes occurring between infection and the outbreak of the disease were still unknown. He asserted that the louse could become infected by man only during the acute stage of the disease; during the incubation period, and again during convalescence, infection from man to the louse did not occur. He argued that the parasites of typhus reached a certain stage in their evolution in the human blood, and that their further evolution was completed only in the louse, attaining in that animal a stage capable of again infecting man. The louse was the most usual mode of

[1] *Muench. med. Woch.*, May 23rd, 1916.

infection, although it had not been proved that other modes did not exist. He related an instance in which patients suffering from typhus, after being freed of their lice, had been kept in barracks with healthy persons. The disease did not spread, although the epidemic continued its course unaffected outside the barracks. The high mortality from typhus in Serbia was largely due to exhaustion, hunger, and exposure, as well as to diphtheria, of which there was an epidemic at the time.

The Biology of the Louse.

Professor Hase, in speaking of the great powers of resistance of the louse to chemical and physical agents, recalled the fact that it could live for three to four days at a temperature 5° C. below freezing. The nit survived the action of a 5 per cent. solution of formol for twenty-four hours, and it required an hour for hot formalin vapour or a 3 to 5 per cent. solution of kresol soap to kill it. The louse and its eggs were, however, most sensitive to heat. It could absorb only warm, circulating blood. Not every bite was noticed, nor was every bite successful. The process of sucking blood often lasted hours, during which the louse was completely insensitive to the amputation of its feelers and legs. The record number of lice removed from one person at once was 3,800. Many persons became so used to the bites of the louse that they no longer noticed them.

Munk said that the duration of the fever was almost the same in every case, irrespective of its severity. The great fall in the blood pressure explained the livid discoloration and the changes observed in the rash in the worst cases. Disturbances of the speech were frequently observed as a result of muscular weakness; trismus and severe contractions of certain groups of muscles also occurred.

The Infecting Organism in Typhus.

Toepfer stated that he had, independently of Rocha-Lima, observed certain bacteria-like bodies in lice, infected by keeping them on the skin of patients suffering from typhus, but not in more than 500 others. During the first days the lice contained no parasites, after the fourth day some of them were infected, and after the seventh and eighth days all the lice were severely infected. With these lice he succeeded in provoking a characteristic febrile reaction in guinea-pigs resembling that observed when they were inoculated with patients' blood. Rocha-Lima gave an account of the micro-organism *Rickettia provazekii*, which he associated with typhus. Stempel described certain spindle-shaped, brown structures, scarcely as long as 2 μ, which he had found in the intestines of infected lice after making serial sections and staining by Giemsa's method. He thought these bodies represented protozoa, not decomposition products of the blood cells. He had found similar bodies in the leucocytes in typhus. Schittenhelm said that during an attack of typhus the total number of leucocytes was at first normal or raised. The eosinophile leucocytes first declined, then increased in number, whereas the polymorphonuclear leucocytes first increased and then slowly decreased in number. Of the cases among civilians, more than 50 per cent. occurred in persons between the ages of 12 and 20. Gruber said that he had observed on the second or third day of the disease, after a sudden rise of the temperature, a fall lasting one day. From the report it would seem that Gruber was not aware that such a fall of temperature is usual in the early stage of typhus, although it does not commonly occur so early as the third day, on which the first acme is commonly reached. Gruber also said that later, in the status typhosus, notably after the tenth day, there might be attacks of apnoea (*Atempausen*), during which sugar was demonstrable in the urine.

Diagnosis and Treatment of Typhus.

Rostoski said that the method of hyperaemia described by Dietsch was useful in deciding whether a patient had recovered from typhus or not. After hyperaemia had been induced, pigmented patches again became cyanosed, and appeared at points where they had previously been invisible. Paraesthesia and anaesthesia of the hands sometimes continued for months after convalescence. Zülzer stated that he had found the spleen and liver enlarged early in the disease, and had demonstrated this phenomenon in persons otherwise healthy, but in contact with patients suffering from typhus. In some abortive forms there was a rash, but no fever, and it was possible that these forms represented an intermediate stage in the life cycle of the infecting organism. The enlargement of the spleen and liver was rapidly reduced by quinine. Kyrle and Morawitz described a method of diagnosis by excising a piece of skin invaded by the roseola. The characteristic changes in the blood vessels of the skin could be demonstrated within forty-eight hours. One speaker had found the intravenous and intramuscular injection of serum taken from convalescents of no value, but another said that the intravenous injection of 60 to 80 c.cm. of this serum was beneficial. He was also favourably impressed by the action of large doses of urotropine.

TYPHOID FEVER.

The discussion on this subject was opened by Professor v. Krehl, who said that every recent case of typhoid in the army had developed in spite of inoculation. Relapses seemed to be more common in war than in peace, and enlargement of the spleen frequently persisted in war-time, even when the patient seemed otherwise to have recovered completely. The enlargement of the spleen was greater than was usual in peace. The treatment of typhoid fever with killed or devitalized typhoid bacilli was still on its trial, as was also treatment with the serum of convalescents and with albumoses.

Generalarzt Hünermann said that the vaccine used for typhoid inoculation was the Pfeiffer-Kolle, which was heated up to only 53° to 55° C. Inoculation was repeated six months later. Although many million injections had been given, there had been only a few mistakes, and not a single death. The inoculation caused enlargement of the spleen lasting several weeks, changes in the microscopic appearance of the blood, and a positive Widal reaction, which lasted for months, and in a few cases for a year. Inoculation undertaken during the incubation period did no harm, and the course of such cases was mild. The number of cases of typhoid fell at once when inoculation was carried out, and even at its worst in December, 1914, the disease was still fourteen times less prevalent than in October, 1870. In December, 1915, there were occasions when both armies, and the population of a large town, had not a single case of typhoid fever. In the summer of 1915 there were numerous cases of dysentery, but none of typhoid fever, thanks to inoculation. In the Medical Service there were not half so many cases for every thousand cases of typhoid fever treated as in time of peace; and this was, no doubt, due to the inoculation of every member of the Medical Service. The mortality had fallen from 9.6 per cent. among the uninoculated to 6.6 per cent. among patients inoculated twice, and to 2.6 per cent. among patients inoculated more often. The course of the disease among the inoculated was often so mild that it was difficult to diagnose, and the contrast between the inoculated and uninoculated cases in the same district and at the same time was most striking. Inoculation had also reduced the proportion of cases in which bacilli were still discharged after convalescence. Inoculation was regarded as effective for six months.

(To be continued.)

THE RED CROSS AUXILIARY HOSPITALS FOR OFFICERS, BRIGHTON.

THESE hospitals, situated on the sea front at the eastern end of Brighton, about 150 ft. above sea level, have been established by the Red Cross Society for the treatment of sick and wounded officers. The total number of beds available is 133, located in five separate buildings close together. In addition to these patients, there are a number of officers in hotels and lodgings who attend as out patients.

The buildings are well equipped for all purposes of treatment, containing an excellent modern operating theatre, with all the necessary appliances for sterilizing, etc., and here are performed such operations as may be required.

The department for physical treatment is one of the principal features of the establishment. All the most modern methods of electrical and physical treatment, including whirlpool baths, of the original French pattern

(which were presented by H.R.H. the Princess Royal), radiant heat, all varieties of electrical methods, ionization, massage, etc. About seventy officers a day are treated here, under the direction of Dr. F. P. Nunneley, commandant and medical officer in charge, assisted by three masseurs and six masseuses. The other members of the medical staff are Dr. J. C. Uhthoff, honorary physician, and Captain R. Sanderson, R.A.M.C.T. Only fully trained nurses are employed for all nursing purposes. Members of Voluntary Aid Detachments help in the work of the hospital, and there are some orderlies.

Another special feature of the hospital is the open-air treatment. Practically no officer stays in bed in the daytime; for those who cannot walk a wheel couch is employed which can be moved to a specially constructed lift. In front of the houses, separated from the main road, is a lawn on which tents have been placed. The hospitals are supported partly by the British Red Cross Society and partly by capitation grants from the War Office. In addition, there are a number of private subscribers. The expense of one of the houses is borne by ex-King Manoel of Portugal. Lady Dudley, whose hospital war work is so well known, takes the keenest personal interest in everything connected with the hospital, and is largely responsible for its foundation and successful progress. Among other generous contributors towards the needs of the hospitals are the Marchioness of Sligo, Mr. Scrase Dickens (late Chairman of the Royal Sussex County Hospital), Admiral Sir Hedworth Meux (who have all lent furnished houses), the Marquis of Abergavenny and Mr. Goodhart Rendel (who have lent unfurnished houses), and Mr. Thomas Pope (who has put in the large lift capable of taking a spinal chair or couch). H.R.H. the Princess Royal, in addition to presenting the whirlpool baths already mentioned, gives material assistance by paying the rent of two of the houses used.

The whole institution is most excellently managed, and the Commandant, Dr. Nunneley, is to be congratulated on the splendid hospital of which he has the care.

CASUALTIES IN THE MEDICAL SERVICES.

Royal Navy.

Lost at Sea.

Surgeon Probationer Gerald S. Freeman, R.N.V.R., H.M.S. *Lassoo*, was reported as missing, presumably drowned, when the destroyer *Lassoo* was sunk, by a mine or torpedo, on August 13th. He was the only son of Mr. James M. Freeman, Supervisor of Excise, Huntly. He was studying medicine at Aberdeen University, and at the beginning of the war joined the 6th Battalion Gordon Highlanders, afterwards transferring to the navy. He was 21 years old.

Army.

Killed in Action.

Captain Hugh Kennedy Birley, Manchester Regiment, was killed on July 23rd. He was educated at Owens College, Manchester, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1895. After acting as clinical assistant in the Cancer Hospital, Manchester, and house-surgeon of the Chorley Dispensary and Rawcliffe Hospital, he went into practice at Irlams-o'-th'-Height, near Manchester. He took a great interest in Red Cross work, and was assistant director of the British Red Cross Society of Pendleton, Manchester. He took a commission as captain in the 19th Service Battalion of the Manchester Regiment on September 21st, 1914, and went to the front in November, 1915. He was the elder son of Frederick Birley, and was 47 years of age.

Captain George Robert Hitchin, R.A.M.C.(T.F.), recently killed in action, was the only son of Mr. R. Hitchin, of Burnley. He was educated at Burnley Grammar School and at Manchester University, where he graduated M.B. and Ch.B. in 1903. After serving for some time as a ship surgeon he went into practice at Tottington, Bury. He joined the 2nd East Lancashire Field Ambulance as lieutenant on November 22nd, 1914.

With regard to the death of Captain Hugh Gwilym Morris, R.A.M.C., reported in our issue of August 5th, p. 193, we are informed that the Commanding Officer, in communicating the sad news to Mrs. Morris, wrote:

Your husband gave his life most gallantly in the midst of succouring wounded comrades where they had fallen in action in Bernefay Wood. He died as he had ever lived—a pattern of unselfishness, considering himself last, in the end giving even his life for others. All of us who knew him are mourning the loss of one of the best men this world contained. He was the idol of the whole unit, officers and men alike, and it was the unanimous desire of all that his great gallantry (which led to his death) should receive recognition. As his commanding officer I have therefore had the inestimable privilege of recommending such a man as your husband was for the award of the Victoria Cross. Whether this be now granted or no, it may comfort you to know that all of us who served with him deemed him fully worthy of the highest of honours.

He was killed instantly by a shell on the morning of July 14th, after he had been working all night between Bernefay and Trônes woods dressing wounded, and his men carried him to where we buried his remains in a little cemetery set apart for British heroes who have fallen for our country.

All the officers of the unit wish me to convey to you our combined expression of sincere sympathy with you and the children. Though he be gone from us, he still lives in the lives of all of us here not only as a tender memory but as a great inspiration.

Captain J. O'Brien, R.A.M.C., Special Reserve.

Captain Douglas Henry David Wooderson, R.A.M.C., was killed in action on August 6th. He was born in London in May, 1892, and was educated at Bart's, where he had a very distinguished career as a student, gaining the junior entrance scholarship in science in 1909, the junior scholarship in anatomy and biology in 1910, and the senior scholarship in anatomy, chemistry, and physiology in 1912; and also winning the following prizes: Harvey, 1910; Wix, 1911; Bentley, 1913; and Sir George Burrows, 1914. He graduated as B.Sc.Lond., with honours in physiology, in 1911; and as M.B. and B.S., with honours in medicine, midwifery, and diseases of women, in 1914; and also took the M.R.C.S. and L.R.C.P.Lond. in 1914. He took a temporary commission as lieutenant in the R.A.M.C. on December 10th, 1914, went to the front in March, 1915, was promoted to captain on completion of a year's service, and was attached to the King's Liverpool Regiment when he was killed. He had previously been invalided for trench fever in July 1915, and returned to the front in October. He was the elder son of Mr. H. D. Wooderson, of 39, Dartmouth Road, Brondesbury, N.W.

Lieutenant W. L. Evans, R.A.M.C. (temporary).

Died of Wounds.

Captain O. H. Peters, R.A.M.C.(T.F.).

Captain George Stanton, R.A.M.C., died on August 16th, of wounds received on July 1st. He was the youngest son of Mr. Stanton of Cork, and was educated at the Christian Brothers College, Cork, and at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1914. He joined the Special Reserve of the R.A.M.C. as lieutenant on September 11th, 1914, and had been at the front since October, 1915. His brother, Second Lieutenant Robert Stanton, Royal Dublin Fusiliers, was killed at Suvla Bay on August 9th, 1915.

Captain J. P. Walsh, Canadian A.M.C.

Captain George Huntly Woods, New Zealand Medical Corps, who was stated to be wounded a fortnight ago, was reported in the casualty list published on August 18th to have died of his wounds. He was educated at Durham University, where he graduated as M.B. and B.S. in 1909. After acting as house-surgeon successively in the accident, the ophthalmic and aural, and general departments of the Royal Victoria Infirmary, Newcastle-on-Tyne, he went to New Zealand, where he was in practice at St. Andrews, South Canterbury.

Died on Service.

Major N. E. J. Harding, R.A.M.C.

Captain Robert Inglis Binning, I.M.S., died of fever at Basra, the base in Mesopotamia, on August 16th, aged 31. He was born on May 4th, 1885, the son of Mr. John Binning of Glasgow, and educated at Glasgow University, where he graduated as M.B. and Ch.B. in 1907. After acting as resident medical officer in the Western Infirmary and in the Royal Infirmary in Glasgow he entered the I.M.S. as lieutenant on July 31st, 1909, becoming captain on July 31st, 1912.

A friend of the late Captain A. S. Seabrooke, who died (from paratyphoid fever) in Mesopotamia on July 1st, writes to inform us that the appointments held by Captain Seabrooke at Guy's Hospital were those of house-surgeon and resident obstetrical officer. He adds that Captain Seabrooke was first attached to the Rawal Pindi Hospital

in France, and went with the hospital when it was transferred to Mesopotamia in November, 1915. Both Lieutenant-Colonel C. Green and Major Davies-Colley write in the very highest terms of his conscientious devotion to duties, and of the excellent work done by him both in France and in the East. At Guy's his attainments were recognized to be of a high order, and his never-failing kindness and absolute integrity of character caused him to be universally loved and admired. News of his death brought forth expression in the deepest terms of regret from all members of the medical and surgical staff, and everybody with whom he had been associated, and cast a gloom upon the whole hospital.

Prisoners of War.

The names of Assistant Surgeons L. A. De Souza, D. L. Mackay, and M. P. Shemain, all of the Indian Subordinate Medical Department, have been added to the list of prisoners taken at Kut-el-Amara.

Wounded.

Major F. Worthington, D.S.O., R.A.M.C.
Captain N. G. Chavasse, R.A.M.C.(T.F.).
Captain H. B. Day, R.A.M.C. (temporary).
Captain C. O. Donovan, R.A.M.C. (temporary).
Captain S. B. Faulkner, R.A.M.C. (temporary).
Captain E. D. Gairdner, R.A.M.C.(T.F.).
Captain M. Gross, R.A.M.C. (temporary).
Captain L. S. B. Hamilton, R.A.M.C., S.R.
Captain F. R. Kerr, D.S.O., R.A.M.C., S.R.
Captain F. J. O. King, R.A.M.C. (temporary).
Captain R. J. B. Madden, R.A.M.C. (temporary).
Captain T. M. Newton, R.A.M C. (temporary).
Captain A. W. Raymond, R.A.M.C. (temporary).
Captain H. H. Robinson, R.A.M.C.(T.F.).
Captain P. Thornton, R.A.M.C., S.R.
Captain O. Teichmann, R.A.M.C.(T.F.).
Captain A. M. Trotter, New Zealand Medical Corps.
Captain W. L. Wood, R.A.M.C. (temporary).
Lieutenant P. R. Boswell, R.A.M.C. (temporary).
Lieutenant W. R. Dimond, R.A.M.C. (temporary).
Lieutenant J. H. C. Gatchell, R.A.M.C. (temporary).
Lieutenant T. H. James, R.A.M C. (temporary).
Lieutenant F. L. Keith, R.A.M.C. (temporary).
Lieutenant J. MacM. Watson, R.A.M.C. (temporary).

Captain Teichmann had previously been wounded in Gallipoli last year. The other medical officer of his regiment, the Worcestershire Yeomanry, Captain J. H. Beilby, was killed recently in Egypt (BRITISH MEDICAL JOURNAL, August 19th).

DEATHS AMONG SONS OF MEDICAL MEN.

Blackader, Gordon, Captain Canadian Infantry, son of Dr. Blackader, of Montreal, died on August 10th of wounds received on June 2nd.

Bower, William Carroll, Second Lieutenant King's Own Royal Lancaster Regiment, elder son of Dr. Bower, late of Hendon and of Ottery St. Mary, died in hospital abroad of appendicitis on August 9th, aged 30. He was educated at Heddon Court School and at Malvern College, and passed out of Sandhurst in July, 1915.

Burnie, John Gilchrist, Private, Royal Fusiliers (City of London Regiment), elder son of Dr. Gilchrist Burnie, of Heston, Bradford, killed recently in France, aged 24. He was educated at Northaw Place, Herts, at Shrewsbury, and at St. John's College, Oxford, where he was an honorary scholar and a member of the O.T.C. He enlisted in September, 1914, and was subsequently twice nominated for a commission, but on both occasions was rejected for short sight on medical examination. He had been at the front for nine months past. His only brother is a lieutenant in the navy.

Keelan, Claud Charles, Private, Honourable Artillery Company, youngest son of the late Dr. Nicholas Walter Keelan, died in King's College Hospital, on August 11th, of wounds received on March 28th, 1915.

Long, Francis William, Second Lieutenant Royal Field Artillery, elder son of the late Dr. F. T. Long, of Greenodd, Lancashire, died on June 28th as a prisoner of war at Par Mahn, in Germany. His commission was dated December 25rd, 1914.

Newstead, Frederick Lole, Captain Durham Light Infantry, elder son of Dr. Newstead of Blyth, killed recently, aged 24. He was educated at Ainmouth and at Durham School, and studied medicine for three years at University College. He took a commission in the Special Reserve of the Durhams in 1912, became lieutenant on September 19th, 1914, and captain on November 20th, 1915. He went to the front in September, 1914, was invalided home in May, 1915, and returned to his battalion last November.

Seymour, Louis Thierry, Lieutenant York and Lancaster Regiment, second son of Dr. Seymour of Oxford, killed on August 13th, aged 23. His first commission was dated May 12th, 1915.

Weldon, Cyril George, South African Infantry, only son of the late Dr. George Weldon, killed on July 18th, aged 30.

MEDICAL STUDENTS.

Dowse, William Arthur Clarence, Second Lieutenant 11th Battalion Cheshire Regiment, who was reported missing in July, is believed to have been killed. He was the son of Dr. Thomas J. Dowse, of Wexford, and was a second year medical student at Trinity College, Dublin, where he had many friends.

Guthrie, A. J., Lieutenant Gordon Highlanders, eldest son of the Rev. W. G. Guthrie, Manse of Glass, killed on July 30th, aged 25. Prior to the war he was a medical student. His commission was dated April 17th, 1915.

Sanderson, Frederick B., Second Lieutenant Royal Field Artillery, died in hospital abroad on August 20th, of wounds received on August 4th, aged 27. He was the eldest and only surviving son of Mr. F. R. Sanderson of Edinburgh, and was educated at Charterhouse, at Caius College, Cambridge, where he graduated as B.A., and at Edinburgh University, where he was studying medicine. He took a commission in the 1st Lowland Brigade, 1st City of Edinburgh Battery, R.F.A.(T.F)., on September 7th, 1914.

Saunders, Alfred G., Second Lieutenant North Staffordshire Regiment, killed on July 30th. He was the only son of Mr. G. Saunders of Holmerend, and was educated at Newcastle High School, and at Manchester University, where he was a medical student.

NOTES.

BRITISH RED CROSS WORK WITH THE ITALIAN ARMY.

WE referred last week to the gift by the Wounded Allies Relief Committee of a motor field operating theatre. Lord Northcliffe, in a letter addressed to the *Times* from the Trentino front on August 17th, writes as follows:

On my way back from the outer edge of the wood, well within the fire zone, I visited one of the Italian surgical mobile hospitals with an operating theatre that can be folded and carried by motor. It is used only for urgent stomach and head wounds that cannot bear delay or removal. A portable *x*-ray apparatus, a motor water wagon carrying 500 gallons, four nurses, four surgeons, physicians, and orderlies complete the equipment. During the last two months 240 urgent operations have been performed. The hospital has 200 beds. It was given by the city of Milan and works under the Italian Red Cross. I have visited several other hospitals. All are in every respect modern, well staffed, and well equipped. The complete absence of flies is a remarkable feature of the Italian hospitals.

I wish to call attention to the splendid work done by the British Red Cross hospitals near Cormons, to which are attached twenty-four ambulances. This and other ambulance sections are highly spoken of by the Italians, who regard the British Red Cross activity as a pleasing manifestation of allied sympathy. Lord Monson is in charge and Sir Courtauld Thompson is now on a visit of inspection and is highly satisfied. Much good work has also been done by the Fourth Section of the British Red Cross, which has a travelling *x*-ray car under the management of an English lady, Countess Helen Gleichen. Owing to hard work during the battle of Gorizia one car has been put out of action, but I suggest the provision of another car specially constructed for mountain climbing, such as is made by the Italian Fiat Company. The value of the work of the Fourth Section can be gathered by the fact that as many as sixty urgent cases have been radiographed, often under fire, in a single day. All the Red Cross work here presents unusual difficulties, owing to the heat and the lack of water. . . . On this, as on other parts of the front, the horrible conduct of the Austrians and Hungarians in using explosive bullets and iron-spiked bludgeons for killing the wounded has intensified the war feeling. Austrians, like Germans, make reprisals for defeats in the field by acts of cruelty and vandalism.

HONOURS.

A long list of honours conferred was contained in the *London Gazette* of August 18th and 19th. Among the recipients are sixteen medical officers; one has received the C.M.G., two the D.S.O., and thirteen, of whom six belong to the Canadian Army Medical Corps, the Military Cross. The names are as follows:

C.M.G.

Colonel H. C. Maudsley, M.D., Australian Army Medical Corps.

Dr. Maudsley, who is physician to the Melbourne Hospital and Lecturer on Medicine in the University of Melbourne, served first of all as chief of the medical division of No. 1 Australian General Hospital in Egypt; afterwards he was appointed consulting physician with the Australian Imperial Forces, and also consulting physician to the Egyptian Command. He is on duty now in the former capacity in this country.

D.S.O.

Temporary Captain E. C. Gimson, R.A.M.C. For conspicuous gallantry when continually attending to the wounded under very heavy shell fire. He has displayed the greatest devotion to duty and contempt of personal danger.

Temporary Captain P. L. Watkin-Williams, R.A.M.C. For conspicuous gallantry when tending the wounded for six hours in a shell crater under very heavy shell fire. He was twice knocked over by the explosion of shells, and his coat and putties were ripped by shrapnel.

Military Cross.

Captain J. A. Cruickshank, I.M.S.

Captain G. Wilson, R.A.M.C.

Temporary Captain H. A. Pallant, R.A.M.C. For conspicuous gallantry and devotion to duty when attending to the wounded under heavy fire. Later he voluntarily acted as stretcher-bearer, and helped to carry off nearly forty wounded under heavy shell and machine-gun fire.

Captain C. W. Johnston, Canadian A.M.C. For conspicuous bravery and devotion to duty. He went forward to establish a new dressing station under terrific fire, and worked continuously for three days, making many trips backwards and forwards with complete success in regard to the evacuation of his wounded.

Captain W. J. McAlister, Canadian A.M.C. For gallantry and devotion to duty in attending wounded under very heavy shell-fire. Though blown up and badly shaken he continued his work, which at all times has been splendid.

Captain J. B. McGregor, Canadian A.M.C. For gallantry and devotion to duty during a period of great stress. Under great difficulties he cleared all his casualties, and on occasions carried out his duties under very heavy fire, quite regardless of personal danger.

Captain A. Ross, Canadian A.M.C. For conspicuous courage and devotion in the performance of his duties. After all dug-outs had been blown in, he continued to dress and attend to the wounded in open trenches or wherever necessity existed.

Captain F. J. Tees, Canadian A.M.C. For bravery and fearless devotion to duty under heavy shell and machine-gun fire. Captain Tees led his bearers in exposed situations with great gallantry, and successfully evacuated all his wounded.

Captain H. W. Wadge, Canadian A.M.C. For conspicuous bravery and devotion to duty when in charge of an advanced dressing station. Under intense bombardment he continued to dress and evacuate wounded for four hours. Later, under conditions of extreme danger and difficulty, he succeeded in evacuating all his wounded.

Temporary Lieutenant G. P. Armstrong, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty when tending the wounded in the open under heavy fire and getting them back to our own lines.

Temporary Lieutenant F. R. Hassard, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty when collecting the wounded under shell, machine-gun, and sniper fire.

Temporary Lieutenant V. F. Stock, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty. After being rendered unconscious by a shell explosion, he insisted on returning to duty, and for several days carried out his duties by daylight and exposed to heavy fire.

Temporary Lieutenant G. B. Wiswell, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty when attending to the wounded and directing stretcher-bearers under shell and machine-gun fire without sleep or rest for three days and nights.

French Decoration.

The French Government has bestowed on Captain John Dale, R.A.M.C.(T.), "The Médaille d'Honneur des Epidémies" in recognition of his work in checking an epidemic of typhoid fever among the civil population in an area where, by reason of the mobilization, the usual civil practitioners were not available. Captain Dale, at the outbreak of war, was mobilized at once with the South Midland Division and went with the division to France. In civil life he is one of the assistant medical officers of health attached to the Public Health Department at the Council House, Birmingham.

COST OF ARMY HUTTING.

The sum expended on hutting for troops (including hospitals) and for horses in the United Kingdom in the years 1914–16 was approximately £24,500,000. The Public Accounts Committee reports that, owing to unforeseen circumstances, the billeting of troops in the United Kingdom continued on an extensive scale during the winter of 1914–15, the total expenditure being £6,250,000. In January, 1915, the Army Council announced that it intended to reduce the rate of payment to the householder to 2s. 6d., but no reduction was effected until September 1st. The Committee regards this delay, which resulted in a quite unnecessary expenditure of public money, as inexcusable.

THE British Home for Wounded in Florence was established by the members of the British colony in Florence with the assistance of the Florence branch of the British Red Cross, and was opened just over a year ago. The committee was able to rent a building erected as the bathing establishment of the Bonifazio hospital. It began with 30 beds, but since November has had 40. It was designed especially for the treatment of patients suffering from injuries of the nervous system or limbs. Massage and electrical treatment are employed, and Dr. Cumbo is able to report very satisfactory results in a large number of cases. Among the patients have been several British officers. The treasurer is Dr. Alex. R. Coldstream, of Florence.

Scotland.

EPIDEMIC ANTERIOR POLIOMYELITIS.

SINCE we last referred to the matter, on July 22nd, additional cases of acute anterior poliomyelitis have occurred in the city of Aberdeen. There were 29 cases in June and 26 in July. All the cases in June, with the exception of three, aged 4½, 6, and 11 years, were of the age of 3 or under, the majority being from 1 to 2½ years. In July all the cases except five were under the age of 5 years, and the majority were under 3 years; the oldest person attacked was a few months over the age of 7 years. In a few cases connexion between one case and another has been traced. Dr. Matthew Hay reports that the onset has been marked in most cases by fretfulness for a few days with more or less fever accompanied or followed by vomiting. Paralysis was not in some cases observed until after a week or more, in a few it was slight and began to disappear after a week. In most of the cases the leg has been affected, in a few one side of the face including the eyelids. In one or two cases there was a combination of paralysis of the face with paralysis of the limb. One adult, aged 24, died during July from acute ascending myelitis, not, Dr. Hay thinks, from acute anterior poliomyelitis. One fatal case in a child was probably due to the same condition—acute ascending myelitis—and not to acute poliomyelitis. During August six additional cases of acute poliomyelitis have been reported, all of them in children under 3 years of age.

THE HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

Before the passing of the Highlands and Islands (Medical Service) Grant Act, 1913, the necessity for legislation in the direction of improving the medical service available in the Highlands was very evident to any one conversant with the conditions in these remote parts of Scotland. Such legislation was almost a necessary sequel to the passing of the Insurance Act, for that measure left largely untouched many districts, especially in the Islands, where the population consisted of crofters, and therefore of "unemployed" persons; moreover, very many of them lived very far distant from the means of relief afforded in more populous places by hospitals and dispensaries. Distances were so great that the fees to be paid were often much too high for persons who were making little more than a bare living from the soil and the sea, and even in cases where the head of the house was insured the services of a doctor might be almost an unattainable luxury for the family. Thus it frequently happened that severe and even fatal cases of illness were never seen by a medical man.

The second report of the Highlands and Islands Medical Service Board,[1] dealing with 1915, is a record of considerable progress in carrying into effect the various schemes prepared for the administration of the yearly grant, which amounts to £42,000; as this includes a sum of £10,000 previously voted in aid of mileage and other special charges connected with attendance on insured persons, the amount available for the purposes of the 1913 Act is actually £32,000 a year.

The abnormal shortage of doctors and nurses brought about by the war has considerably hampered the Board in effecting the proposed changes, but already in Argyll, Caithness, Inverness, Cromarty, Orkney, Shetland, and the Highland district of Perthshire, the scheme has been initiated. The medical men in these districts with whom an agreement has been made are giving attendance to uninsured persons at the uniform rate of 5s. for a first visit and 2s. 6d. for subsequent visits at whatever distance the patient may live. The majority of the doctors have cars or motor bicycles.

The supply of doctors, however, is at present inadequate, and owing to war conditions must in the meantime continue to be so. If, therefore, as may happen, a patient lives from 25 to 50 miles from his doctor, that patient is not likely to be able to obtain regular medical attendance, no matter what legislation may be enacted, so long as it is impossible to increase the number of practitioners. Consequently in many districts the benefits of the fund will not be fully enjoyed until after the war. In the same way the

[1] H.M. Stationery Office (Cd. 8246). To be obtained through any bookseller, price 3d.

present shortage of fully trained nurses cannot in the meantime be fully overcome. The Board continues to assist existing nursing associations, but has not yet exercised its power to appoint nurses as well as doctors. Fortunately it has been possible to keep the outlying islands of Bernera, St. Kilda, Foula, and Fair Isle supplied with nurses.

Some of the schemes outlined have not yet been put into operation, such as giving assistance to hospitals and ambulance services, the improvement of houses for doctors and nurses, grants for special services and for telegraph and telephone facilities. The Board is rightly endeavouring to reduce capital expenditure at this time to a minimum, and in view of the cost of labour, and difficulties in various directions, has decided to postpone many of the measures which legitimately come within the scope of the Act. The total expenditure for the year was £9,243 1s. 4d., while the balance to the credit of the fund at the end of 1915 was £67,663 17s. 9d. The expenses of administration are not a charge on the fund.

Post-natal Care of the Illegitimate Infant.

Some weeks ago (Journal, July 15th and 22nd, pp. 79, 112) attention was drawn to the large scheme for maternity service and child welfare which had been prepared by Dr. Maxwell Williamson, M.O.H., and submitted to the Public Health Committee of the Town Council of Edinburgh. One of its outstanding features was the manner in which existing institutions had been worked into it, so as to provide for the welfare of the infant up to his fifth year (school age), and certainly Edinburgh is well supplied with hospitals, dispensaries, homes, clinics, kindergartens, play-centres, etc. The Infants' Edinburgh Home was not referred to by name, and yet it is calculated to do good work, although on a small scale and in a limited range. It is maintained for the benefit of the infants of unmarried mothers who have been confined in the Royal Maternity Hospital, lying-in homes, or elsewhere. The home is open only to unmarried mothers with their first babies, and is intended especially for those girls who may be leaving the hospital at the end of ten days, and who may either have no home to go to, or one at which they can no longer expect a welcome. In the past they have usually had to board out their young babies with the first person who offered, and return themselves to work without completing their convalescence properly. It is to relieve this unfortunate situation that the home—its name, by the way, is hardly happily chosen—is being carried on. Applicants must produce a medical certificate, and must sign an agreement to remain at least two months in the home; no mother may stay longer than nine months. Further, inmates must take part in the household work and comply pleasantly with the routine of the home. Five shillings is charged for each of the first two weeks, and 3s. 6d. for each succeeding week. Mothers who remain three months in the home may leave their babies there until they are a year old on payment of 5s. weekly. The objects of the home are stated to be fivefold: (1) To have the babies cared for and, whenever possible, nursed by their own mothers; (2) to help the mothers—usually quite young girls—to find good homes where the babies may eventually be boarded out or adopted; (3) to assist the girls to find suitable employment when they leave the home; (4) to strengthen and develop the mother's character, and (5) to trace the fathers and, if possible, compel them to contribute to the support of the children. The General Committee, which includes three medical men, is able to report that during last year 24 women of ages ranging from 16 to 37 passed through the home; 17 of them were domestic servants, 4 were factory girls, 1 was a laundry worker, 1 a field worker, and 1 a clerk. Of the 18 babies who left the home, 4 went to relations, 8 were boarded out, 3 were adopted, and 3 were delicate and died in hospital. The average number of mothers resident in the home was 5. The mortality amongst the infants of unmarried mothers who have to go back to work to earn a living, or who take to a life of shame, is very high. The home helps to complete the system, which, beginning with the prematernity home for unmarried primiparous patients, goes on through the antenatal clinic, the prematernity ward, and the maternity hospital, and finishes in this post-natal home. The committee is hampered in its efforts towards extension by the smallness of its resources, but it is certain that so valuable a piece of infant life conservation must not be allowed to fail for lack of funds. From the time the home was opened the medical responsibility for the inmates was borne by Dr. Dingwall Fordyce, and since his absence on war service his duties have been taken up by Dr. A. S. Cumming.

Ireland.

It was reported to the monthly meeting of the Executive Committee of the Infant Aid Society, Dublin, that 1,087 visits had been paid to the homes of the poor and 453 gallons of milk, 50 articles of clothing, and 40 loaves of bread given.

Stewart Institution for Imbecile Children.

The medical superintendent's recent report on the health of the inmates of the Stewart Institution for Imbecile Children stated that all the children recently elected had arrived, and, so far as could be judged, the prospects of improvement appeared fairly promising. There are now 122 pupils in the institution. The Managing Committee draws special attention to the serious financial effects caused by the great increase in the cost of food, fuel, wages, etc., asks for additional help in subscriptions and donations, and begs existing friends to do their utmost to widen the interest in the institution, which requires a considerable increase of income, not only to meet greatly enlarged outlay caused by present conditions, but to deal with the number of candidates who are on the books awaiting election. Elected children are nearly altogether dependent on voluntary help.

Canada.

Ontario Medical Association.

The thirty-sixth annual meeting of the Ontario Medical Association in Toronto, over which Dr. H. B. Anderson presided, was interesting and well attended. In his presidential address Dr. Anderson spoke of the tremendous struggle for freedom and justice in which the empire and her allies were engaged, and quoted the official historian who, in describing the battle of Ypres, said that "the members of the Canadian Army Medical Corps rivalled in coolness, endurance, and valour the men of the battalions who were their comrades." The association, he said, had put forth special efforts to assist in solving the problem of the injured soldier, and these efforts had already received recognition from the Government. Dr. Anderson laid emphasis upon the importance of depending upon the carefully appraised preparations in our national pharmacopoeias rather than upon the products of commercial houses, particularly those of German origin; and Professor A. D. Blackader, acting dean of the medical faculty and professor of pharmacology McGill University, in the course of an address on drugs and medicinal agents considered from the professional, economic, and national standpoints, strongly advocated the use of Canadian or British-made drugs in prescriptions. The physician should be acquainted with the formulae of all drugs used in his prescriptions, and the true chemical name, or the one used in the *British Pharmacopoeia*, should always be used. He suggested that after the war, in order to protect Canadian manufacturers, all German drugs should be heavily taxed. A notification from the Canadian Government of its intention to revise the bill for the sale of patent medicines was then read, and a committee was appointed to represent the association in relation to the proposed changes.

The address in gynaecology was delivered by Dr. J. F. Percy, of Galesbury, Illinois, who quoted cases of inoperable uterine carcinoma which had shown marked improvement from the application of varying degrees of heat by means of special apparatus. Dr. Justus Matthews, of the Mayo Clinic, Rochester, in an address on tonsillectomy, stated that such operations were usually performed under local anaesthesia, and that in a series of several thousand cases practically no bleeding has

occurred. The address in medicine, given by Dr. Elliott P. Joslin, of Boston, dealt with the treatment of diabetes mellitus. The importance of early treatment and of keeping the urine free from sugar was emphasized. Since fat was the source of the poisonous fatty acids, the preliminary treatment consisted of excluding fat from the diet; carbohydrates and proteins were then also cut down, but it was dangerous to cut the proteins down below a certain percentage. After a certain amount of starvation the diet could be slowly raised again without necessarily causing a reappearance or an increase in the amount of sugar in the urine.

The morning of the second day of the meeting was devoted to sessions in the sections of medicine, surgery, and gynaecology. Among the papers read was one by Professor F. R. Miller, of Western University, London, Ontario, entitled "A functional map of the floor of the fourth ventricle." Dr. Miller said that by employing the method of unipolar stimulation a number of functions had been localized in the floor of the fourth ventricle. It was found that stimulation at the inferior fovea caused deglutition and reflex secretion from the homolateral parotid and submaxillary glands. These effects were probably produced by stimulation of afferent fibres contained in the fasciculus solitarius. At two points situated at the level of the striae medullares submaxillary and parotid secretion was evoked. It seemed probable that these results depended upon stimulation of efferent fibres proceeding from the respective salivary nuclei. From the dorsal vagus nucleus cardiac inhibition and peristalsis of the stomach and small intestine might be elicited.

In the afternoon Professor De Wit Lewis, of Chicago, gave an address, illustrated by lantern slides, on cystic mastitis, and Professor S. S. Cohen, of Philadelphia, spoke on the treatment of pneumonia. Professor Cohen prefaced his remarks with a reference to the war, stating that the hearts of all the good people in the United States were with Great Britain and her Allies in their fight for freedom and righteous struggle against aggression. He advocated the use of quinine in the treatment of pneumonia, considering it a chemical antitoxin which neutralized the poisons of pneumonia.

In the evening moving pictures were shown to illustrate the technique employed in operations performed in the New York Polyclinic Hospital. The afternoon of the next day was given to the discussion of military questions. In a paper on neurosis in returned soldiers, Dr. Goldwin Howland, of Toronto, dealt with the various symptoms met with in returned soldiers who had undergone treatment at the Central Military Convalescent Hospital in Toronto. Captains Fitzgerald and McClennahan, of the C.A.M.C., pointed out that some of the rather unsatisfactory results of the treatment of cerebro-spinal meningitis had no doubt been due to the difficulty in obtaining proper antimeningococcus serum when the disease first made its appearance. Speaking of the effects of poisonous gases, as seen in soldiers who had returned from the front, Dr. Elliott, of Toronto, stated that it had been proved that the Germans had been experimenting for years on the effects of poisonous gases upon animals with a view to the employment of such gases in warfare. *X*-ray plates taken from patients at the Central Military Convalescent Hospital were exhibited and showed large coarse strands of fibrous tissue running outwards from the hilus of the lung. Some cases had been followed by tuberculosis. Senator J. S. McLennan, of the Military Hospitals Commission, discussed the problems connected with the care of invalided soldiers, and Professor Stephen Leacock, of the Chair of Economics in McGill University, dealt with the economic problem presented by the treatment and disposition of returned soldiers. The belief that war brought prosperity was, he said, absolutely fallacious; war was destructive and therefore must result in poverty—poverty as dire and as great as the destruction. The most serious problem would arise at the close of hostilities, when the huge armies would be disbanded and many of the men would refuse to return to their former indoor occupations. Work must be provided for them; after saying that every man must fight, it would be impossible to refuse them the chance to live. He believed that Canada would suffer less than Europe, since the large influx of men would be accompanied by money from the United States for the development of the vast and almost untouched natural resources of the country. The problem would have to be solved in Canada in conjunction with other parts of the empire.

The next annual meeting will be held at Toronto with Dr. A. Dalton Smith, of Mitchell, as President.

Canadian Medical Association.

In connexion with the meeting of the Ontario Medical Association, a meeting of the Executive Committee of the Canadian Medical Association was held. The annual meeting of the association was postponed last year on account of the war, and no meeting will take place this year. It has been decided to hold a meeting in 1917. The financial report for 1915 closed with a small balance in favour of the association, although the statement for 1914 showed a deficit of 700 dols. The secretary-treasurer of the association and the editor of the *Journal* are both at the seat of war, and during their absence the services of the acting officers have been given gratuitously; a considerable saving has thus been made, and it is due to this fact that the finances of the association are no worse.

Montreal's Milk Supply.

Montreal has gained an unenviable reputation for its heavy death-rate among infants, and it is believed that it is in a large measure due to the milk sold in the city, being dirty and below the standard established by the municipal regulations. The health authorities have been placed in a position of difficulty in dealing with the matter because the city by-laws were held to be invalid on the ground that matters relating to the milk supply were under the jurisdiction of the provincial government. This meant that each examination of the milk had to be made by an analyst employed by the provincial government at a cost to the city of from 2.50 dols. to 5.00 dols. for each analysis, and that all cases would have to be tried in the Federal courts. Last November, however, a dealer was fined for having in his possession, with intent to sell in the city of Montreal, milk below the standard established by the city by-laws. On an appeal to the Superior Court, the validity of the by-laws was established.

Correspondence.

A PROFESSION IN LEADING STRINGS.

Sir,—May I call attention to an interesting coincidence in two of the leading articles in the British Medical Journal of August 19th? These articles deal with two totally different subjects; yet in each the same defect in Government administration is noted. In "A Voice from the Dead" you quote a statement of the late Sir Victor Horsley that last March the Commander-in-Chief in India told him that he had appointed a "medical commission." Yet this "medical commission" consisted of members possessing no medical knowledge. In dealing with the "Obligations of the Profession to Discharged Soldiers," we find again that "there does not appear to be an obligation that local Pensions Committees should contain any representative of the medical profession." "The Central Pensions Committee itself does not contain any representative of the medical profession." "The Disablement Committee is almost entirely lay."

It is difficult to know whether to be amused, angry, or cynical at such a state of affairs; nor is it easy to know where to allot the blame. I will therefore confine myself simply to the cure. To complain that the medical profession is neglected by Government departments in matters vitally affecting its interests, as well as those of the community, is useless; there will not be the slightest change in procedure until the profession asserts itself through those of its members who can command a hearing. If this is not worth doing, matters must be left to go on as at present; no protest by a Horsley, no proposal for the formation of a new sectional committee by a Fothergill, will have the slightest effect.

The first necessity is watchfulness, which can only be maintained by a whole-time officer—preferably a layman—trained in keeping an eye on the earliest symptoms of activity on the part of politicians or philanthropists.

Next, a small body of well-known medical men is required. These should be drawn from all sections of the medical profession, should be easily accessible, and able to devote a portion of their time to problems as they

arise. The whole-time officer will report to them all matters in which the representation of medical opinion would be advisable.

Thirdly, the medical profession must be prepared to spend money on an office fully equipped to deal with the mass of material which will flow into it. The work would be of enormous magnitude, and only an office run on the most businesslike lines could possibly deal with it.

With arrangements such as these the profession could deal with the earliest symptom of the disease known as "progress." It would be possible to adopt at an early stage preventive treatment, so far as some of the complications which follow the disease are concerned; and the medical man would no longer be called in only after the complications are established.—I am, etc.,

August 21st. ADULT.

THE OBLIGATIONS AND CONSEQUENCES OF THE WAR TO MEDICAL AND ALLIED SCIENCES AND THE HONOUR AND INTERESTS OF THE MEDICAL PROFESSION.

SIR,—The motion which Dr. Rowland Fothergill carried in the Representative Meeting, and the letter which he writes under the above title in your issue of August 19th, are, doubtless with intent, phrased in wide and general terms. Dr. Fothergill wishes, I gather, to throw the whole field of the future, so far as this can be estimated, open to inquiry, and to avoid any restriction of the enterprise by an undue rigidity of definition. With this motive, I fancy, everyone concerned will sympathize. There is, however, at least one danger for any committee presented with terms of reference which boast a large liberty of interpretation. It is that some individual point, while not excluded from the inquiry, may possibly be overlooked.

In view of this risk I venture to suggest that a question not to be avoided by any committee charged with the mission contemplated in Dr. Fothergill's motion is the provision for medical practitioners of convenient facilities for post-graduation study. In this country these facilities have never attained more than a moderate degree of development, and those which existed up to 1914 have for the most part suffered the disorganizing influences of the war. The re-establishment of such facilities, or, still better, their improvement and extension, must surely be a matter for concern to any organization responsible for a programme fit to maintain the "honour and interests" of the medical profession, seeing that efficiency stands in the first rank of this ambition. A recent experience adds force to this contention. I may not refer to the matter in detail, but it has been quite plainly stated that a group of official administrative decrees which seem to reflect on the efficiency of the general practitioner claim their justification in the absence of a general professional interest in certain modern methods of treatment. Apart, however, from individual incidents, it may safely be stated that the existence of clinical and laboratory educational opportunities is a necessity of modern medical practice, and that any scheme for the future which neglects this need will be seriously or even fatally defective. Possibly the point is one which Dr. Fothergill already has in view, but as I have failed to find any inkling of it in the terms of his letter, I ask your permission to enter this plea for its due consideration.—I am, etc.,

London, W., Aug. 21st. C. O. HAWTHORNE.

SIR,—With reference to Dr. Fothergill's letter in the JOURNAL of August 19th, and to your leading article in the same issue, may I venture to suggest that neither seems to go to the root of the question.

Your leader—and I trust you will not take the criticism amiss—concerns itself with a small part of the problem, namely, the *post-bellum* treatment of war cripples, in relation to a system—namely, the State Insurance System—which may then no longer exist. Why it may no longer exist I will endeavour to make clear presently.

Dr. Fothergill makes the following statements:

> The public requires educating in matters of public health. It is the medical profession's duty to do this. At once certain statements can be made which the public should be educated to accept.

Apparently as the first of these statements he puts:

> If medicine and the allied sciences are to make any progress then the profession must be consulted and should retain its freedom.

Now running through these and similar statements, I seem to detect a lack of any recognition of the main reason which prevents our educating the public now—to wit, that we are not free to do so. The whole-time public health officer with security of tenure is free, he can express any opinion however unpalatable to erring members of the public. Unfortunately he has not the ear of the public, if we except occasional press notices of his annual reports. The general practitioner has the ear of the public, and each in his own circle has a measure of authority and influence; but, alas! his livelihood depends on his pleasing his patients, and he is consequently in no position to voice unpalatable truths.

Can a local practitioner many of whose best patients are owners of more or less insanitary cottages or unhygienic workshops afford to tell them, in their capacity of town councillors, that it is their plain duty to improve conditions? Certainly he cannot and does not, or, if he does, is immediately made to suffer financially for his temerity. I think no one in general practice will dispute this, which is only one example of the fact that we are not free to educate the public. In present circumstances it is mere beating the air to tell us that it is our duty to educate the public. We know it, but so long as we have wives and families we cannot afford to indulge in public-spirited altruism.

So also it is mere beating the air to tell the public that we must be free unless we can give some sort of idea of what we mean by freedom in this connexion. The public has rather the idea that we are the freest and most independent of all professions, and if we could listen to our own utterances by the sick-bed we should perhaps be slower to blame them for their mistaken view.

There is a further apparent fallacy in both articles, a fallacy we ought to be well rid of by now—namely, that the State may consult us when it introduces new schemes. It has seldom, if ever, done so yet. We may be consulted on details or on the application of schemes, but not as to the advisability of touching the schemes at all. Possibly, as Dr. Fothergill foresees, we might one day so organize that we could render useless any scheme of which we did not approve, and then we should be consulted; but that organization (which would, so long as it was not solely for our own ends, command public respect) cannot be set up in one year, or even five.

Should we not be far better employed to-day in studying what the State is likely to do, and in educating our members accordingly? We are bound to be asked or else compelled to take part in the work of social reconstruction, and we are equally certain not to have any determining voice in the methods adopted.

Suppose the State decides that general practitioners shall be freed from the results of expressing unpalatable opinions which are yet in the public interest, and that it will proceed to co-ordinate the many existing bodies dealing with prophylaxis and medical treatment. It could do so at once in one vast scheme of State medical service. Are we prepared to assist in the setting up of such a scheme on a satisfactory basis? Apparently we are not, for the lay press finds room for the suggestion, but not the medical. If we do not like it we shall, as before, be forced into it in circumstances most discreditable to ourselves. Suppose the State only desires to municipalize hospitals or to enormously extend the scope of the Insurance Acts. Are we ready to help in such schemes in any way which could be of real assistance, or are we to try and form opinions (after educating the profession with three meetings and a dozen pamphlets) only when the scheme is actually proposed, and become one of the planks of a political party?

I venture to suggest that our proper preparation for the duties which will fall on us after the war should consist of (1) an educated appreciation of the general direction in which legislation is tending; and (2) discussion as widespread as possible of the various methods which may be proposed to us.

To the statesman, "the honour and interests of the medical profession" make as little appeal as they do to the public, and in any case far less than those of any well-managed working men's union.

If we (the tail) insist on trying to wag the dog (the State) we shall court disaster and ridicule. If we set out to wag as the State decides and with as little incon-

venience as may be to ourselves, we may perchance avoid being sat upon, to the great advantage of both, but by all means let us wag efficiently.—I am, etc.,

Sevenoaks, Kent, Aug. 22nd. GORDON WARD, M.D.

SIR,—I have read with great interest Dr. Fothergill's letter in the JOURNAL, and it is undoubtedly time we knew where we were and in what way we can help in the general reconstruction of things, particularly our public health, after the war.

It appears to me now also that the time has come when we should make a definite stand in certain matters affecting our status and well-being. As a profession we want freedom from unnecessary lay control, such as one sees under the National Insurance Act, and, as one would read from Sir Victor Horsley's letter, such as played havoc with medical arrangements in Mesopotamia. Our profession is, I trust, still a profession, not a medical "business"; unless we pull up it is quickly for the rank and file becoming the latter.

Medical men require sufficient payment for their work to have leisure to keep up with scientific progress by study and practical experience at hospital or post-graduate clinics.

If our payment is to be on the scale of the National Insurance Act, then we may say good-bye to any such thing as far as the rank and file are concerned. Can we not make a stand in this matter? Our demand is legitimate; it is in the public interest, and the expenditure for the State would be a mere bagatelle.

With regard to the Insurance Act, our capitation fee of 7s. is now only worth about 4s. 2d., owing to the increased cost of living, besides, the amount of sickness among the insured has exceeded the estimation of the Government; and, more, we have on our hands now, owing to the war and the enlistment of the healthy males of military age, the insured persons most liable to illness—a point in itself which should have led to an increased capitation fee; now the disabled soldiers are going on our lists. Looked upon as an "insurance," the whole thing is a farce.

We as a profession, if the lives of our insured are bad lives, like an insurance company, if our finance is to be sound, we must have an increased premium. If everything is added up, the capitation fee now should be about 15s.; certainly not less. The expenses of medical men are largely increased by the war; they cannot reduce them. We have generously done work gratis for the public; at the same time we must live. The only alternative to financial trouble is increased remuneration.

We must also be freed from all this petty scraping and saving practised by Insurance Committees at our expense and the expense of the insured, as is exemplified in surcharging for prescriptions. Let us therefore formulate our demands. The Irish farmer, in his demands for a proper charter for the land, took his three F's; we, for our medical charter, must formulate ours. Might I suggest for a beginning the following: Freedom of control, fair remuneration, and in the future our old age made sure by superannuation?

Poor Law medical officers and other Government officials are worthy of superannuation; is our panel doctor and M.O.H. less so?

I am in thorough sympathy with Dr. Fothergill's suggestions, but I feel that with an ill-paid and overworked profession unable to keep abreast of the times national health reconstruction is impossible.—I am, etc.,

Long Eaton, Aug. 21st. E. H. M. MILLIGAN.

TREATMENT OF THE MAIN NERVES IN AMPUTATIONS.

SIR,—I am sure Mr. Marmaduke Sheild will be interested to hear that the practice he advises is systematically adopted at Netley.

During twelve months' work as an operating surgeon there I can safely say that I neither saw an amputation performed nor performed one myself in which the main nerves were not cleared and divided high up clear of the flaps.

Personally, I was following the advice laid down in the 1912 edition of Cheyne and Burghard's *Surgery*, which I have looked up so as to quote it correctly:

Painless Scar.—If the large nerves be divided at a higher level than the other structures in the flap, they do not become pressed upon by the cicatrix or adherent to the bone. This is a point of great importance, because, should the nerves become involved in the scar, bulbous enlargement will occur, neuritis will be set up, and the patient will suffer from intense neuralgic pain, aggravated by the slightest pressure.

I need hardly say I heartily concur in Mr. Sheild's remarks. He is to be much thanked for again drawing attention to and emphasizing this important point.—I am, etc.,

Exeter, Aug. 21st. RUSSELL COOMBE.

SIR,—I have read with much interest and instruction Mr. Marmaduke Sheild's remarks upon treatment of main nerves in amputations.[1]

Mr. Sheild says he is "not aware that the 'shortening' of the main nerves is prominently alluded to in the textbooks on operative surgery." I crave leave to draw his attention to *A System of Operative Surgery*, vol. i, Sec. iii, by Mr. F. F. Burghard, in which the following is to be read:

A painful stump is another source of great suffering to the patient. The most common cause of this condition is the implication of the several ends of the main nerves in the cicatrix; these become bulbous, and intense pain is experienced on the slightest pressure, so that it is impossible for an artificial limb to be worn.

The matter is equally forcibly dealt with in Thomson and Miles's *Manual of Surgery*, vol. iii, Operative Surgery, where also the following is to be read:

No nerve trunks should be left in the tissues covering the end of the stump, as they are liable to become incorporated in the scar and to form neuromata, which render the stump extremely sensitive.

From these quotations the conclusion to be drawn is that in some amputations the main nerves should be shortened. That this practice is not always carried out is evidenced by the cases Mr. Sheild has been called upon to treat. I have had recently in the out-patient department of the Royal West Sussex Hospital a sailor on whom amputation had been performed through the right elbow-joint. He had been supplied with an artificial limb but was quite unable to bear its fixation owing to two small tender lumps in the region of the scar. I admitted him as an in-patient, and in May last resected the stump scar and dissected down to the two painful spots. The median nerve was found to be fixed down to scar tissue, and upon being well exposed was seen to be bulbous at the end, and presented the appearance of a small spring onion. This was removed together with about an inch of the nerve trunk, and the latter allowed to retract into the soft tissues. The ulnar nerve was found to be in the same condition but to a lesser degree. This was treated in a like manner and the wound brought together. The man is now free from pain, and able to fix his artificial limb with every comfort.

This case appears to be one of many others that may be quoted in support of Mr. Sheild's remarks upon this all-important subject at this time when unfortunately so many amputations are being performed.—I am, etc.,

Chichester, August 20th. ARTHUR M. BARFORD.

WARM ETHER.

SIR,—The article on "warm ether" (August 19th, p. 268) does not, I think, do justice to the work of the American anaesthetists, notably Gwathmey and Davis, who can claim priority for the introduction of this method, as well as the credit for a considerable amount of experimental and clinical research. An account of this work was given by me in the *Lancet*, January 8th, 1916, together with the results of my own experience with warmed anaesthetic vapours, which confirms the claims made by Gwathmey that the chief advantages of the method are increased safety of anaesthesia, diminished loss of body heat, and therefore less shock, and a lessened tendency to post-operative bronchial affections. Your correspondent has, if I may say so, well described the other advantages, and his hints on apparatus are likely to be of much value to those who have not the opportunity to procure a ready-made apparatus, but I was a little disappointed that the first claim, namely, increased safety, was not discussed, for although at first sight "ether" and "danger" appear strange bed-fellows, it is undoubtedly true that the respiratory centre retains

[1] BRITISH MEDICAL JOURNAL, August 19th, p. 273.

its activity longer with warm ether than with open, and that anaesthesia can be pushed with less likelihood of pulse failure and with less anxiety. This is of considerable importance in a severe operation or in a patient "already partially collapsed." It is of even more importance when chloroform or a chloroform-containing mixture is being used, and I think that the anaesthetist who has travelled so far as to warm his ether will be well advised to go a step further and add a Junker bottle to his apparatus; he will find, too, that a regulating tap, such as I have described, to control the current of air will enable him to administer at will the warm vapour of ether, chloroform, or of mixtures of the two.

Finally, I should like to point out (1) that it is better to pass the vapour tube through a hole in the rim of the mask, instead of attaching it to a metal connexion, which cools the vapour to its own lower temperature and renders the vacuum flask almost superfluous, and (2) that it is more convenient, and does not cause recondensation, to have the tubing leading from the apparatus at least 24 in. long; hotter water in the vacuum flask compensates for the increased loss of heat.—I am, etc.,

London, W., Aug 21st. FRANCIS E. SHIPWAY.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—Before an Act for Ireland is drafted on the lines of the English Act, may I suggest that the opinion of the medical advisers of the local supervising authorities in England should be sought? I think that generally the opinion will be given that the present Act is unsatisfactory for the following reasons: (1) That women engaged in sick nursing have now taken up midwifery, and (2) that puerperal fever is not so much found in the practice of midwives, whether they are Gamps or trained midwives, as in the practice of nurses who are engaged in looking after abscesses, ulcers, and discharging growths, etc., as well as doing midwifery. If trained midwives are to be a success, midwifery must be divorced from sick nursing.

The reason generally given for tacking midwifery on to sick nursing is that without it sufficient funds cannot be found to pay for sick nursing! When the nation needs every life, we should not be content with anything but the best for the women who are adding to the man power of the nation, and we must not be content until we have provided for every lying-in woman the best service possible. This can only be done by the establishment of maternity hospitals throughout the country; the hospitals to be in charge of trained midwives who practise in the area around the hospital as well as attend to the patients in the hospital, every hospital being so placed that skilled medical attention can easily be obtained. In the sparsely populated parts of Great Britain and Ireland it is impossible for a woman to approach childbirth without running unnecessary risks—risks which would be removed by the provision of small maternity hospitals. The Local Government Board has obtained power to make grants for assisting midwifery in necessitous cases, and the money could not be better expended than in the provision of small maternity hospitals.

If these were provided in Ireland more good would be done than by passing a Midwives Act on the same lines as the English Act. The procedure under the present Act is extremely unsatisfactory. When a midwife is charged before the Central Midwives Board she does not give her evidence on oath, and if she lies with sufficient skill and audacity she may avoid her name being removed from the roll. A proper Midwives Act should enable the local supervising authority to bring a midwife before a properly constituted legal tribunal locally, which could take evidence on oath and have power to fine the midwife for minor offences, and for serious offences strike her off the roll. The absurdity of the present position is that the proceedings are held in London. Generally speaking, all the Central Midwives Board has before it are statutory declarations on both sides, which frequently are diametrically opposed to each other. Some of the midwives join one of the institutes which have representatives on the Central Midwives Board and so have some chance of influencing those in power.

Ireland is a distressful country. Let her put up with the ills she has rather than flee to those she knows not of.—I am, etc.,

August 21st. M.D.

Obituary.

SURGEON-MAJOR JOHN GREIG, R.A.M.C. (retired), died at Ealing on August 13th. He was educated at Marischal College, Aberdeen, where he graduated M.B. in 1858, nearly sixty years ago. He took the diploma of L.R.C.S.Ed. in the same year, and became a Fellow in 1860. He joined the Army Medical Department as assistant surgeon on December 14th, 1858, became surgeon in 1870, and surgeon-major in 1873, and retired on August 10th, 1881. He served in the Afghan war of 1878–80, receiving the medal.

Surgeon JOHN EUSTACE WEBB, R.N. (retired), died at Kerswill House, Looe, Cornwall, on August 6th. He was educated at Aberdeen, where he graduated M.B. and C.M. in 1884. After serving as house-surgeon of the Western General Dispensary he entered the navy, and held the posts of resident surgeon of the royal naval hospitals at Plymouth and Haslar, and instructor of sick berth staffs. When he retired from the navy he went into practice at Looe, where he was Admiralty surgeon and agent, port medical officer of health, certifying factory surgeon, medical officer and public vaccinator of the second district of Liskeard Union, medical officer of Looe Urban District Council, and examiner to the St. John Ambulance Association.

Universities and Colleges.

SCHOLARSHIPS AND PRIZES.

London Hospital Medical School.

THE following scholarships and prizes have been awarded:

Entrance Scholarships.—Buxton Scholarship in Arts, Mr. B. S. Nissé; Science Scholarship open to students of Epsom College, Mr. A. R. Stearn.

Prizes and Certificates.—Clinical Medicine—Prize: Mr. A. G. Harsant; Honorary Certificates: Messrs. R. G. Simpson and G. P. B. Huddy. Clinical Surgery—Prize: Mr. A. G. Harsant; Honorary Certificate: Mr. H. W. L. Molesworth. Clinical Obstetrics—Prize: Messrs. N. S. Hewitt* and G. Adler*; Honorary Certificate: Mr. R. G. Simpson. Andrew Clark Prize in Clinical Medicine and Pathology—Prize: Mr. A. G. Harsant; Honorary Certificates: Messrs. H. W. L. Molesworth and G. P. B. Huddy. Letheby Prizes in Chemistry—(1) Organic Chemistry: Messrs. H. S. Cohen* and J. Fanning*; (2) Inorganic Chemistry: Mr. D. Hunter; Honorary Certificates: Messrs. M. Marcus, J. J. Coghlan, and P. Steinberg. Sutton Prize in Pathology—Prize: Mr. R. G. Simpson; Honorary Certificate: Mr. A. G. Harsant. Elementary Clinical Surgery—Prizes: Messrs. M. Shimberg, I. H. Zortman, W. Eidinow, and E. Miller; Honorary Certificate: Mr. C. F. Rainer. Minor Surgery—Prizes: Messrs. J. K. Sanyal,* M. W. Bulman,* E. L. Sergeant,* H. Barker,* and G. Newman.* Practical Anatomy—First Prize: Mr. M. W. Bulman; Second Prize: Messrs. H. M. Gerson,* and J. Fanning.* Anderson Prizes in Elementary Clinical Medicine—Prizes: Messrs. D. C. Beaumont, I. H. Zortman, and G. R. Woodhead. Honorary Certificate: Mr. R. Theron.

* Equal; prizes divided.

St. Thomas's Hospital Medical School.

Entrance Science Scholarships.—First: M. D. Cadman (£150); Second: R. G. B. Marsh (£60). *Arts:* J. G. Churcher (£15 15s.).

The Services.

EXCHANGES.

REGIMENTAL M.O. (Temporary Captain R.A.M.C.), after seventeen months' service on the Continent with 1st Battalion of well-known regiment, wishes to exchange with R.A.M.C. officer serving at home.—Reply in first instance to M.O., Coldwells, Holmer, Hereford.

Captain R.A.M.C.(T.), in provisional unit, desires exchange with medical officer abroad in casualty clearing station, hospital dépôt, ambulance train (home or abroad), or hospital ship. Failing these he would be glad to hear from any one in artillery who does not wish to go abroad, or M.O. in hospital abroad.—Address No. 3198, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Casualty Clearing Station (H.D.), desires exchange into casualty clearing station or field ambulance in France.—Address No. 3309, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Regimental, wishes for exchange to France, C.O. and A.D.M.S. permission obtained.—Address No. 3297, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Lieutenant R.A.M.C.(T.), nearly a year's service, desires exchange from regiment to base hospital, England or France, owing to ill health.—Address No. 3298, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

Mr. A. H. W. Ayling, of Brixton and Walworth, has been elected Master of the Society of Apothecaries. He became a licentiate of the society in 1872, has been a member of the Court of Assistants and recently one of the wardens.

The Financial Secretary to the War Office stated recently in the House of Commons that the amount spent on jam for the army during the last financial year was about two million sterling.

The Wellcome Historical Medical Museum will be closed from September 1st to 30th inclusive for cleaning. It will reopen in October with a loan exhibition illustrating the folk-lore of London, including medical charms, amulets, and other objects found to have been used by the superstitious in connexion with the cure and prevention of disease.

Dr. Clippingdale (London) writes to say that the house in which Sir Victor Horsley was born is the picturesque old brick structure with the wooden lintel, formerly known as No. 1, High Row (now No. 128, Church Street), Kensington. Dr. Clippingdale adds the expression of his hope that the County Council will embellish the house with a tablet recording the fact.

Nature states that through a timely gift from Sir Charles Parsons the National Physical Laboratory has made arrangements, at the request of the Röntgen Society, for the examination of materials employed for the protection of *x*-ray workers. The equipment has been installed, and the conditions of test are being determined in conjunction with the council of the Röntgen Society.

The Right Hon. Arthur Henderson, M.P., who resigned the Presidency of the Board of Education in order to devote himself to the work of Labour Adviser to the Government, has been appointed Paymaster-General, in which capacity he will preside over the Board of Chelsea Commissioners. Mr. Henderson remains a member of the Cabinet, and his chief duties, it is understood, will be those connected with labour questions.

Captain J. P. N. Casey, R.A.M.C.(T.), has designed and the Army and Navy Stores (Victoria Street, London, S.W.) have made a combination wrist pocket to hold a handkerchief and to carry a wrist watch. Both handkerchief and watch are carried on the palmar aspect of the left wrist. The pocket for the handkerchief consists of a separate flap attached by laces, so that it is open all round to allow of ventilation. It is intended to be worn over a soft shirt wrist cuff.

According to the *Medical Record*, the total number of cases of poliomyelitis recorded in New York up to July 20th was 2,327, with 455 deaths. In a telegram from New York, dated August 12th, the number of cases is given as 6,000, with nearly 1,400 deaths. The Rockefeller Foundation has given £10,000 to aid in the work of discovering and keeping under observation suspected carriers. Adrenalin has been tried with apparent success in a number of cases. The United States Public Health Service has issued a notification that no child under 16 years of age will be allowed to leave New York for interstate travel without both a Federal certificate and one from the city department of health. Many cities have established a rigorous quarantine against children from New York.

The governors of the Girls School Association announce the offer of ten scholarships of the annual value of £35 to the daughters of army and naval officers at Fosse Bank Ladies' College, Tonbridge, Kent, a school opened in 1892 under the auspices of Canon Joseph Wood, at that time head master of Tonbridge School, and afterwards of Harrow. The scholarships reduce the fees for education, board, and residence to £28 inclusive. The association also offers scholarships of the annual value of £25 to the daughters of widows of clergymen, doctors, and professional men, and in special cases to the daughters of gentlemen in reduced circumstances through the war. Further information can be obtained from the head mistress or the secretary of the association, Mr. H. F. Pearson, 179, High Street, Tonbridge.

Dr. Robert Armstrong-Jones has received on the occasion of his retirement from the post of medical superintendent of the London County Lunatic Asylum, Claybury, many evidences of the value attached to his services. The Asylums Committee of the London County Council has presented to him an illuminated address embodying a generously-worded resolution of regret, and the Home Secretary has sanctioned the recommendation of the committee that Dr. Armstrong-Jones should receive a special pension. The Lunacy Commissioners have passed a resolution expressing appreciation of his services. Seven former assistants who had served under Dr. Armstrong-Jones are now medical superintendents of different asylums, and the matrons of five of the ten public asylums of London were trained at Claybury.

The late Miss Mary Hamilton, of Kelvinside, Glasgow, and Ascog, Bute, left £165,000 in bequests to Scottish institutions, including the following: £30,000 to the Western Infirmary, Glasgow, for a Hamilton ward and £7,500 for ordinary purposes; £10,000 to the Glasgow Royal Infirmary for ordinary purposes; £7,500 each to the Glasgow Hospital for Sick Children and the Edinburgh Royal Infirmary; £7,000 to the Victoria Infirmary, Glasgow; £5,000 to the Royal Edinburgh Hospital for Incurables; and £1,000 each to the Glasgow Ophthalmic Institution, Glasgow Hospital for Diseases of the Ear, Nose, and Throat, and the Glasgow Eye Infirmary. Miss Hamilton also bequeathed £2,500 to the Glasgow and West of Scotland Convalescent Home, Dunoon; £2,000 to the Glasgow Convalescent Homes, Lenzie; and £1,000 each to the McAlpin Nursing Home and Higginbotham Sick Poor Nursing Association.

By an arrangement between the Central War Pensions Statutory Committee and the Board of Agriculture discharged sailors and soldiers can be trained at the College of Agriculture and Horticulture, Holmes Chapel, Cheshire. One term of twelve weeks will, it is considered, enable men to obtain satisfactory employment on a farm, but they may, if they are ambitious and considered suitable, receive two further courses which will qualify them to take positions of responsibility. Among the first group, which included manual workers, clerks, a shop assistant, a dentist, a traveller, and a footman, several have already obtained posts on farms or in gardens, and one has been appointed subinspector in the horticultural branch of the Board. Among the men who have thus been rendered capable of doing useful work was one who had lost his right hand and another who had lost the use of his right arm. There are still vacancies for a reasonable number of men, and applications may be addressed to the Secretary of the Board of Agriculture, 4, Whitehall Place, S.W.

The Wounded Allies Relief Committee (Sardinia House, Kingsway), which was organized during the first month of the war, has during the two years established two homes for disabled Belgian soldiers in England, where they have been fitted with artificial limbs and taught to be self-supporting, and it has also maintained a sanatorium at Eastleigh for Belgian soldiers suffering from phthisis; it has presented bath caravans to the Belgian army, two of them capable of furnishing seventy hot baths an hour, and also a caravan supply kitchen. The committee is maintaining two hospitals for French soldiers—one at Limoges with 225 beds, and the other at Lyons with 300 beds. It has given four motor ambulances to the Russian Red Cross Society; it has provided a fever unit for Serbia and Montenegro; and, until the country was overrun, maintained hospitals at Kragujevatch and Podgoritza; more recently it has sent out fresh units with stores and provisions to Corfu.

During last week a deputation from the recent Education Conference at Oxford had conferences with the Chambers of Commerce of Leeds, Bradford, and Huddersfield. The deputation included the Master of Balliol (Mr. A. L. Smith), the Vice-Chancellor of the University of Leeds (Dr. M. E. Sadler), Mr. A. E. Zimmern, Inspector of Schools, and Mr. J. M. Mactavish, General Secretary of the Workers' Educational Association. The deputation directed attention to the need for improvement in public elementary schools, including better salaries and improved professional training for teachers, and the establishment of a national system of continuation classes, both technical and humane, to be held in daylight hours as part of the work of the week. It advised that more conscious and deliberate attention should be given to inculcating the duties of citizenship and to social ethics, especially by the development of corporate life and of self-government in the elementary schools upwards. The deputation submitted that a knowledge of natural science in some of its aspects should be regarded as a necessary part of the education of every man and woman, and that a reconciliation of the humanities with natural science and other modern subjects in the curricula of the public schools and universities is feasible. It also advised that instruction and practice in physical exercises should be a necessary part of education in all schools and for students in all universities; that there should be a fuller development of the school medical service; and that greater attention should be paid to the better nutrition of school children.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

EXCESS PROFITS DUTY.

A. B. C. has received a claim for excess profits duty in respect of his private sanatorium, and inquires if he is liable, "having regard to the exemption of professional men by the Act."

*** Section 38 of the Act lays the charge on "the profits arising from any trade or business to which this part of the Act applies"—that is (Section 39), to all trades or businesses of any description, excepting, *inter alia*, any profession the profits of which are dependent mainly on the personal qualifications of the person by whom the profession is carried on and in which capital expenditure of only a comparatively small amount is required. It will be seen that the exemption extends not to all the operations of professional men—since it is conceivable that a man undeniably engaged in professional work might also supervise a business—but that regard must be had to the circumstances of each profit-bearing concern. If, for instance, A. B. C. were in practice as a consultant, but giving time to the supervision of the sanatorium, and substantially working it through and by means of the professional skill of others, and thus managing it in a quasi-commercial manner, the sanatorium profits would probably fall within the scope of the duty. The point in issue is whether A. B. C. is carrying on the business of a sanatorium proprietor or is exercising his profession as a medical practitioner in a special manner. It is probably impossible in such a case to draw an absolutely definite line, but he may be able to show that in his case the latter predominates. The following facts are suggested as bearing on the consideration: (1) How far capital expenditure is required—for example, what comparison exists between "profits" and interest at, say, 5 per cent. on the capital sunk in the sanatorium; (2) how far payments received are for medical attendance as distinct from payments for board, rooms, etc.; (3) what proportion of A. B. C.'s time is devoted to supervising the treatment of patients; (4) what staff is maintained, and what proportion is "medical," how the additional profits have been earned—for example, by economies in the administration of the "boarding," or by increased charges for medical treatment and attention. No single one of the above considerations would probably be conclusive, but, taken together, they should lead to some general determination of the question.

INCOME TAX.

A. G. gives particulars as to the rent paid for his professional residence and states that the local surveyor of taxes has refused to allow more than one-third of the sums paid in rates, gas, coal, and servants' wages and board, stating that this is the usual basis of allowance. The house is too large for his requirements, and part of it is not used, but there is, he states, no other suitable house available.

*** Two-thirds of the rent and rates is the maximum, and our correspondent is entitled to deduct a reasonable amount, not exceeding that proportion. So far as our experience goes, the usual basis is from a half to two-thirds in the country and two-thirds in London and other large centres where there is a higher proportion of "site value" covered by the rent. In the circumstances mentioned, A. G. certainly seems to be entitled to a half, if not two-thirds. The empty portion of the large house is paid for in the rent, and we suggest that to that extent the rent is paid for professional purposes, inasmuch as A. G. would never have rented those rooms for private purposes; they are an unremunerative incubus arising from the professional use of the premises. It has to be borne in mind that the ground floor—where, presumably, the professional rooms are situated—has a higher letting value than any other. A. G. does not quote the amount of his rent, but if the domestic portions of the house are not worth to let more than one-third of the rent, our correspondent would do well to press for the full two-thirds allowance. If the surveyor of taxes cannot agree to that basis, perhaps the district or special commissioners might prove open to persuasion on the reasonableness of our correspondent's contention.

ANSWERS.

NOCTURNAL DYSPNOEA ASSOCIATED WITH NASAL OBSTRUCTION.

DR. T. W. LOCKET (Melksham) writes to suggest the trial of thyroid gland tablets.

MR. H. CLAYTON FOX, F.R.C.S.Irel. (London) writes: In cases of deflected septum with hypertrophy of the inferior turbinated bodies of the wider nasal fossa the ideal treatment would be submucous resection of the septum and turbinal bones to the degree required. In those cases of chronic rhinitis attended with engorgement of the turbinal tissue, when the body is in the recumbent position, judicious application of the cautery should meet the requirements. As regards the age at which submucous resection is permissible there is much difference of opinion; but provided a sufficient amount of the anterior border of the quadrilateral cartilage be left intact the operation seems to be quite justifiable and attended with good results at the age of 10 years and upwards.

DR. C. H. HAYTON (London) writes: Dr. J. Lewis Thomas's letter opens up afresh the subject of nasal obstruction in children. It was my privilege a few months ago to investigate the results of the submucous resection performed on patients before the age of puberty for the seven years 1908 to 1914 inclusive by the Nose and Throat Department of the Royal Infirmary of Edinburgh, under the charge of Dr. Logan Turner. In the report published in the *Journal of Laryngology* for April, 1916, three cases are mentioned in which asthmatic attacks were entirely cured by the correction of the nasal obstruction. The operation is quite successful if performed under a general anaesthetic, due regard being given to the removal of as little cartilage and bone as is absolutely necessary with as little trauma as possible. The general health of the child is much improved, and in some cases results are obtained as brilliant as in the removal of tonsils and adenoids. The risk of facial deformity following the operation has been much over-estimated.

LETTERS, NOTES, ETC.

DOCTORS' HOLIDAYS.

A LOCAL scheme by which doctors could obtain holidays was framed at Bury and briefly described in the JOURNAL of April 24th, 1915, p. 730, and Dr. J. Attridge Williams subsequently (May 1st and May 15th, 1915, pp. 783 and 859) gave an account of a plan which had been worked at Sparkhill, near Birmingham, for three years.

We have now received the following communication from Dr. A. Bygott, M.O.H. West Suffolk:

"Unfortunately, this year many hard-worked general practitioners will be deprived of their holiday. It seems a great pity that some steps could not be taken to arrange for exchanges of practice during the summer months, between practitioners in towns and rural districts.

"Such a plan would be a rest to both practitioners, as the change of employment would be very interesting.

"Work in the country needs no recommendation to the town practitioner, but it is perhaps more difficult to see the advantage the other way. There are, however, many things in a busy town which would interest the country practitioner's wife, and facilities might easily be provided to enable the doctor to engage in some form of post-graduate study, especially in towns where there is a medical school. Such facilities for post-graduate study are needed, and, so far as one can see, such exchanges might afford an easy way of obtaining it. In the army, for promotion, the medical officers are compelled to obtain periodical instruction, with very great benefit to themselves, and it seems strange that nobody attempts to point out that civil practitioners might also adopt a similar system with advantage.

"During 1915 I was able to leave my work here for a short time, and relieve other doctors working in close London hospitals, and this was very beneficial to us all. Surely such organization is well within the scope of the British Medical Association?"

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	5	0
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A whole column	3	10	0
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An average line contains six words.

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THE DISTRIBUTION OF TYPHOID AND PARATYPHOID INFECTIONS AMONGST ENTERIC FEVERS AT MUDROS,

*OCTOBER—DECEMBER, 1915.**

BY

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THE early records from France of the incidence during the war of enteric fever upon inoculated and uninoculated British troops showed no significant difference. This was in contrast with results previously obtained, and notably with those patiently collected over three or four years by the War Office Committee appointed to examine into the virtues of antityphoid inoculation, according to whose report the incidence was about 1 to 5½ respectively.[1]

This discrepancy might obviously be accounted for if the prevailing type of enteric infection was not typhoid, but paratyphoid, for Kabeshima[2] has shown that inoculation against typhoid affords no protection against paratyphoid A or B. Accordingly, endeavours were made towards the end of 1914 to differentiate these latter fevers from typhoid.

Early in 1915, Dreyer, Walker, and Gibson[3] published the results of the examination of a limited series of cases at the base hospital at Oxford. They concluded that no case of typhoid fever had occurred in the inoculated individuals of their series, and that, as found by Kabeshima, paratyphoid fevers had occurred with equal frequency among antityphoid inoculated and non-inoculated individuals. Dreyer, Walker, and Gibson (*loc. cit.*) were of opinion that the cases returned as typhoid fever amongst our troops were to a large extent paratyphoidal infections.

A large portion of our work at No. 3 Australian General Hospital at Lemnos consisted in helping our medical colleagues to arrive at an accurate diagnosis of the various intestinal diseases, which bulked so largely in the medical practice of the hospital. To this end, in the case of the enteric fevers, we chose the serological method as our routine procedure. It would not have been possible, with the material and assistance at our disposal, to have made more than one-fifth the number of observations by blood culture, and at least half of these would have miscarried, as so many of the patients were past the first week of the disease on admission.

We were aware that the interpretation of agglutination results would, in the case of persons inoculated against typhoid, be a matter of some difficulty; but we had the advantage of working in close co-operation with our physicians, who kept us in touch with the subsequent history of the patients, so that repeated observations could be made if desirable. We therefore hoped that in the great majority of cases any ambiguity might be removed.

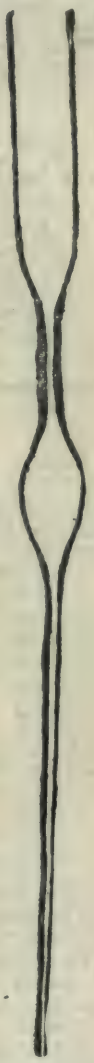
There is no one perfect method for estimating the distribution of the various enteric infections. Conclusions drawn from blood cultures alone are not free from error, for the proportion of successful cultivation is higher in typhoid than in paratyphoid B fever.

During the three months October to December, 1915, we gathered a considerable amount of data, which we shall proceed to deal with, in view of its bearing upon the distribution of enteric fevers at Gallipoli during this part of the campaign.

In carrying out the agglutinations we had from time to time valuable help from Sister Williams and Captains Bahr, Brennan, and Maclure. In scrutinizing the cases whose serums gave an agglutination to typhoid only, the importance of which scrutiny will be emphasized below, we had invaluable help from Lieutenant-Colonel Stawell, Lieutenant-Colonel de Crespigny, and Captain Ercole. To one and all we express our deep sense of gratitude.

METHOD EMPLOYED IN DETAIL.

The emulsions were, in the first instance, made from strains of typhoid, paratyphoid A, and paratyphoid B bacilli obtained from the Lister Institute. The first is a readily agglutinable strain, which has been propagated in the laboratory for several years. The two last are descendants of Schottmüller's original strains. Subsequently we substituted a locally isolated strain of *B. paratyphosus* B, as the Schottmüller's strain did not form good emulsions. The bacilli were grown for twelve hours on nutrient agar, emulsified in saline by gently agitating the bottles, and diluted so as to show definite opalescence when placed in the tubes used for the agglutinations, which were about a quarter of an inch in diameter. Formalin was added to make a concentration of 0.1 per cent. Each brew of emulsion was tested against standard serums obtained from the Lister Institute, which agglutinated all three emulsions up to a dilution of 1 in 16,000. The agglutination was specific in a dilution of 1 in 50. Lower dilutions were not tried. As fresh emulsions were made from time to time, they were tested in the same way against the corresponding standard serum. No significant variation in agglutinability was observed during the course of the observations.



About a fifth of a cubic centimetre of blood was drawn from the patient into a sterile glass pipette and sealed. The blood serum was usually separated from the clot by centrifuging on the same day. For diluting the serum pipettes drawn out in the flame and cut off at a point where their orifice had an external diameter of 1.12 mm. were employed. Such a pipette drops 0.02 c.cm. of serum if held vertically. Two drops made up to 1 c.cm. affords a dilution of 1 in 25. For arranging the series of dilutions we used pipettes drawn so as to leave a small bulb intervening between the two capillary portions (see diagram), which latter should have thick walls. The content of the pipette is arranged so as to equal about half the volume it is desired to work with in the agglutination tubes. The exact content is not material if the same pipette is used throughout the series of dilutions and subsequently for adding the emulsions. For convenience, however, we made two stock sizes of pipettes, which contained 0.15 c.cm. and 0.25 c.cm. respectively. The pipettes in each series were then interchangeable.

The successive dilutions were made by the usual method, namely: Two volumes of the first dilution of serum were placed in tube No. 1 of the series, and into tubes 2, 3, 4, etc., was placed one volume of water. Thereafter, one volume was removed from tube No. 1, emptied into tube No. 2, and mixed. A volume of this mixture was withdrawn and emptied into No. 3, and mixed. One volume withdrawn from tube No. 3 was emptied into No. 4, mixed, and so on until the last tube of the series was reached, when, after mixing, the one volume removed was discarded. In this way each successive tube contained serum twice as dilute as the previous one. The procedure having been carried out in triplicate, to every tube in a series an equal volume of emulsion of typhoid, or paratyphoid A, or paratyphoid B bacilli respectively, was added and the contents mixed. The tubes were placed in the incubator at 37° C. for two hours, allowed to remain on the bench for one hour, and the results read.

The following conventional series of marks was awarded and will be employed in this communication:

Complete agglutination	+++
Agglutination visible to the naked eye	++
Agglutination visible with lens magnifying 4 diameters	+
No agglutination visible with lens magnifying 4 diameters	–

The serums of 350 patients were tested against *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B in dilutions of 1 in 100, 1 in 200, 1 in 400, and 1 in 800. In the remainder the 1 in 800 dilution was omitted to save labour, as it was found that the results could, in most cases, be equally well read without it. After the first two months a lower dilution, 1 in 50, was employed for the paratyphoid A series, as we found that we were missing some

* A paper read to the Anzac Medical Association, Cairo, on February 20th, 1916.

infections due to this organism by beginning at 1 in 100. For reasons which will be entered into later these cases were generally recorded as typhoid.

RESULTS.

Observations were made upon the serums of 627 patients and 151 normal persons. As we were functioning as the clinical laboratory of a large general hospital, the patients whose serums we examined were not all enterics. If the medical officer thought that a serological examination would help him towards a diagnosis, the blood was sent to the laboratory. The 627 patients consequently included a number who were suffering from other febrile diseases.

In Table I below are set forth the gross results:

TABLE I.

No agglutination (minimal dilution of serums 1 in 50 or 1 in 100)	163
Agglutination to *B. typhosus*	138
Agglutination to *B. paratyphosus* A	66
Agglutination to *B. paratyphosus* A and *B. typhosus*	136
Agglutination to *B. paratyphosus* A, *B. typhosus*, and *B. paratyphosus* B (last slight or transient)	9
Agglutination to *B. paratyphosus* A and *B. paratyphosus* B (latter slight or transient)	2
Agglutination to *B. paratyphosus* B	19
Agglutination to *B. paratyphosus* B and *B. typhosus*	88
Agglutination to *B. paratyphosus* B, *B. typhosus*, and *B. paratyphosus* A (last slight or transient)	5
Agglutination to *B. typhosus* and *B. paratyphosus* A (latter slight or transient)	1
	627

INTERPRETATION OF AGGLUTINATION FINDINGS IN PATIENTS PREVIOUSLY INOCULATED AGAINST TYPHOID FEVER.

Agglutination of B. typhosus.

Dealing, as we were, with a population almost entirely inoculated against typhoid within fourteen months, it is not surprising that 376 out of the 627 should show an agglutination to *B. typhosus* in a dilution of 1 in 100 or upwards.

Before we are able to draw any conclusions from our results, it is first necessary to ascertain, with the technique used, the amount of agglutination which occurs from inoculation only. To determine this, the blood of members of the staff and hospital orderlies, who had not been sick, was examined under similar conditions to those employed in the case of patients.

Agglutination Titre for B. typhosus of the Serums of 75 Healthy Persons Inoculated against Typhoid 7 to 14 Months Previously.

7 agglutinated in a dilution of	1 in 800
12 " "	1 in 400
22 " "	1 in 200
26 " "	1 in 100
18 did not agglutinate in a dilution of 1 in 100.	

That is, two-thirds showed an agglutination titre of 1 in 200 or upwards and in 10 per cent. it was 1 in 800 or upwards.

In addition to the above experiment, the pooled serums of twenty-eight men inoculated on the same day fourteen months previously was found to give a good agglutination at 1 in 200—a result in close agreement with the above.

It follows, therefore, that in an inoculated person an agglutination of *B. typhosus* by his serum, up to the limits observed by us in patients, is not necessarily significant of typhoid infection, and that in order to arrive at a diagnosis of typhoid fever in our cases other means must be resorted to.

When we commenced our observations we were under the impression that the progressive development of typhoid agglutinins during the course of illness, reaching sometimes a titre of 1 in 1,000 or upwards, might, in the absence of any discoverable agglutinins to *B. paratyphosus* A or B, be taken as evidence of typhoid fever.

We were strengthened in this belief by the conclusions arrived at by Dreyer, Walker and Gibson (*loc. cit.*), who pointed out, quite rightly, that a differential diagnosis may be arrived at by measuring the agglutination titre to typhoid and paratyphoid bacilli respectively over a period of a few days. This method is, however, beset with pitfalls.

Early in our observations, as we shall proceed to show, it became apparent that many serums agglutinating one of the paratyphoid bacilli simultaneously agglutinated typhoid bacilli to an unexpected degree. Further, in a number of cases of paratyphoid fevers in which repeated observations were carried out, a progressive development of typhoid agglutinins preceded by one to two weeks the development of agglutinins to the paratyphoid bacillus. We give below examples illustrating this phenomenon in which paratyphoid bacilli were isolated. Unless the observations had been persisted in, all of these would have been diagnosed as typhoid fever. We ought to have been alert to this possibility, for in 1911 Grattan and Harvey[4] described its occurrence in paratyphoid A fever in India. It was also drawn attention to by Firth,[5] and later by Safford.[6]

No. 3729.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
Before illness:				
B. typhosus	+ +	–	–	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
After 1 week:				
B. typhosus	+ + +	+ + +	+ +	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
After 2 weeks:				
Agglutination the same. B. paratyphosus A was recovered from urine.				
After 3 weeks:				
Agglutination the same.				
After 4 weeks:				
Agglutination the same.				
After 5 weeks:				
B. typhosus	+ + +	+ + +	+	–
B. paratyphosus A	+ + +	+ + +	+ + +	+ +
B. paratyphosus B	–	–	–	–

B. paratyphosus A was isolated from the faeces in the fourth week.

No. 3681.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
First week of illness:				
B. typhosus	–	–	–	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Third week of illness:				
B. typhosus	+ + +	+ + +	+ +	+
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Fourth week of illness:				
B. typhosus	+ + +	+ + +	+ +	+
B. paratyphosus A	+ +	+	–	–
B. paratyphosus B	–	–	–	–

B. paratyphosus A was recovered from the sputum and pleural exudate during the third week of illness. The patient died in the fourth week with gangrene of the lung and localized pleurisy. B. paratyphosus A was recovered in pure culture from the spleen. The bile was sterile.

No. 3778.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
First week of illness:				
B. typhosus	–	–	–	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Second week of illness:				
B. typhosus	+ +	+	–	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Third week of illness:				
B. typhosus	+ + +	+ + +	+ +	+
B. paratyphosus A	+ + +	+ + +	+ + +	+
B. paratyphosus B	–	–	–	–

B. paratyphosus A was recovered from the faeces during the third week.

No. 532.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
Second week of illness:				
B. typhosus	+ + +	+	–	–
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Third week of illness:				
B. typhosus	+ + +	+ + +	+ +	+
B. paratyphosus A	–	–	–	–
B. paratyphosus B	–	–	–	–
Fifth week of illness:				
B. typhosus	+ + +	+ + +	+ +	+
B. paratyphosus A	–	–	–	–
B. paratyphosus B	+ + +	+ + +	+ + +	+ + +

The patient died in the sixth week of illness. A pure culture of B. paratyphosus B was isolated from the spleen and bile. The heart blood taken *post mortem* agglutinated B. paratyphosus B in a dilution of 1 in 10,000.

In the instances detailed above infection with one of the paratyphoid organisms stimulated the production of typhoid agglutinins early in the disease, and it was not until as late as the third to fifth week that the titre for the infecting organism rose to 1 in 100. This occurred in about 2 per cent. of our cases, all, with one exception, paratyphoid A fevers.

As soon as we became aware of these facts we regarded the development of typhoid agglutinins in a patient previously inoculated against typhoid fever with suspicion, and he was only diagnosed as typhoid when *B. typhosus* was isolated, or, as being clinically a case of one of the enteric group of fevers, when no evidence of paratyphoid infection could be obtained. Even so, we have reason to believe that some cases of infection with *B. paratyphosus* A were returned as typhoid, for occasionally the development of agglutinins to this organism is slight and transient.

In order to throw some further light upon the interpretation of the rise in typhoid agglutinins in paratyphoid infections we inoculated healthy persons, some of whom had previously received antityphoid vaccine, with paratyphoid A and B bacilli. In about half of those who had been previously inoculated this was followed by the considerable development of typhoid agglutinins. The instances given below were amongst the most striking:

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
No. 1001.				
Inoculated against typhoid six months previously:				
B. typhosus	−	−	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	−	−	−	−
Eleven days after injection of 200 million each of B. paratyphosus A and B:				
B. typhosus	+++	+++	+++	++
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	+++	+++	+++	++
No. 1002.				
Inoculated against typhoid five months previously:				
B. typhosus	−	−	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	−	−	−	−
Ten days after injection of 200 million each of B. paratyphosus A and B:				
B. typhosus	+++	+++	++	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	++	−	−	−
Fifteen days after above:				
B. typhosus	+++	+	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	++	−	−	−
No. 1008.				
Inoculated against typhoid twelve months previously:				
B. typhosus	−	−	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	−	−	−	−
Seven days after inoculation with 50 million each of B. paratyphosus A and B:				
B. typhosus	+++	+++	+++	+++
B. paratyphosus A	+++	+++	+++	++
B. paratyphosus B	+++	++	+	−
No. 1010.				
Inoculated against typhoid six months previously:				
B. typhosus	++	−	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	−	−	−	−
Eleven days after second inoculation with 500 million each of B. paratyphosus A and B:				
B. typhosus	+++	+++	+++	+++
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	+++	+++	+++	+
No. 1012.				
Inoculated against typhoid seven months before:				
B. typhosus	++	−	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	−	−	−	−
Fifteen days after inoculation with 50 million B. paratyphosus A:				
B. typhosus	+++	+++	+++	++
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	−	−	−	−
No. 1,013. (Non-inoculated. No agglutination to typhoid or paratyphoid A or B bacilli in 1 : 100.)				
Ten days after inoculation with 200 million each of B. paratyphosus A and B:				
B. typhosus	−	−	−	−
B. paratyphosus A	+++	+++	+++	++
B. paratyphosus B	+++	+++	++	−
No. 1014. (Non-inoculated.)				
Nine days after 200 million each of B. paratyphosus A and B:				
B. typhosus	−	−	−	−
B. paratyphosus A	+++	+++	++	+
B. paratyphosus B	+++	++	−	−
No. 1015. (Non-inoculated.)				
Ten days after 250 million each of B. paratyphosus A and B:				
B. typhosus	−	−	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	++	+	−	−

Harvey and Wood [7] found, in the cases of paratyphoid A fever which they studied, that the agglutinins for both *B. typhosus* and *B. paratyphosus* A were absorbed by an emulsion of the latter, whereas an emulsion of typhoid bacilli only absorbed the homologous agglutinins. According to this observation, we are merely dealing with an example of group agglutinins. Co-agglutinins were certainly produced in some of our patients, but we doubt whether this is the whole explanation, as it did not occur when individuals not inoculated against typhoid were injected with a vaccine containing only *B. paratyphosus* A and *B. paratyphosus* B. We also tried to absorb the agglutinins for typhoid bacilli in two instances, where they were well developed, by shaking out with a strong mixed emulsion of paratyphoid A and B bacilli, but only succeeded in reducing them. The development of well-marked agglutination to typhoid bacilli weeks before the specific agglutinins arrived suggests another interpretation, namely, that in an inoculated person the mechanism for the manufacture of typhoid agglutinins being already laid down, the introduction of paratyphoid organisms stimulates this mechanism to further activity.

Agglutination of B. paratyphosus A or B. paratyphosus B, or both of these Organisms.

The serum of 326 cases agglutinated *B. paratyphosus* A or B in dilutions of 1 in 100 and upwards. In 238 of these more or less agglutination of *B. typhosus* was exhibited also. Nevertheless, for reasons entered into above, in individuals inoculated against typhoid, these were returned as paratyphoid A or B fevers respectively, and whenever opportunity afforded to confirm this by isolation of the infecting organism the conclusion was found to be justified. With the dilutions we employed, in 95 per cent. of the cases the results were unequivocal, but in 17 out of a total of 326 the serum agglutinated both *B. paratyphosus* A and *B. paratyphosus* B. The agglutination generally occurred in considerably higher dilution with one than with the other, so as to leave little doubt as to the diagnosis. In a few cases this was not so, and it was impossible to say from one examination which was the infecting organism, and a second or third observation at intervals of about a week was made. At the same time efforts were made to recover the organism responsible for infection.

The following are examples illustrating how the diagnosis was cleared up by a second examination of the blood:

No. 533.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
November 6th, 1915:				
B. typhosus	+++	+++	+++	+++
B. paratyphosus A	+++	++	−	−
B. paratyphosus B	+++	+++	+++	+++
November 18th, 1915:				
B. typhosus	+++	++	−	−
B. paratyphosus A	−	−	−	−
B. paratyphosus B	+++	+++	+++	+++

B. paratyphosus B was recovered from the faeces.

No. 449.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
October 23rd, 1915:				
B. typhosus	+	−	−	−
B paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	++	++	+	−
November 1st, 1915:				
B typhosus	+	−	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	−	−	−	−

B paratyphosus A was recovered *post mortem*.

No. 548.

	1 : 100	1 : 200.	1 : 400.	1 : 800.
November 7th, 1915:				
B. typhosus	++	+	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	+++	+++	++	+
November 16th, 1915:				
B. typhosus	+	−	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	+	+	−	−

No. 379.

	1 : 100.	1 : 200.	1 : 400.	1 : 800.
October 16th, 1915:				
B. typhosus	+	−	−	−
B. paratyphosus A	++	+	+	+
B. paratyphosus B	+	+	+	+
November 15th, 1915:				
B. typhosus	−	−	−	−
B. paratyphosus A	+++	+++	+++	+++
B. paratyphosus B	++	+	−	−

In making a diagnosis we have regarded the organism for which agglutinins persisted as responsible for the infection. In those cases in which we succeeded in isolating the causal organism this view was justified.

The amount of co-agglutinins present at an early stage of the illness in 5 per cent. of patients with paratyphoid fevers is noteworthy. Compared with our standard serums made by injecting rabbits with a laboratory strain of paratyphoid A or B bacilli it is considerable. It must be remembered, however, that the standard serums were made from strains selected on account of their specificity, whereas the "wild" strains occurring in nature are not always so specific. Further, it is probable that man is not as good an animal to use for the manufacture of highly specific serums for this group of organisms, in this respect resembling the horse rather than the rabbit.

Analysis of Observations.

We are now in a position to proceed to the analysis of our observations and see what indications they afford as to the distribution of different enteric fevers at Gallipoli. The 163 instances in which the serum gave no agglutination in the minimum dilution used—1 in 100—may be summarily dismissed, as they furnish no information. They comprise cases in which the serum was sent for examination too early in the disease, and others in which the subsequent clinical history indicated that the patient was suffering from some disease other than one of the enteric fevers.

The total number of cases in which agglutination with one or more of the bacilli of the enteric group was observed was 464.

Of these, 213 serums agglutinated *B. paratyphosus* A, and are, for reasons given above, regarded as significant of paratyphoid A infection. For parallel reasons we regard 113 as infections by paratyphoid B.

The determination of the number of typhoid infections is not so simple.

The 138 cases in whose serums only typhoid agglutinins were discovered were not necessarily typhoid fevers, for all but five of the patients had been inoculated. These five exceptions we place to the credit of typhoid infections on the agglutination findings. In seven other cases we succeeded in isolating *B. typhosus* from the blood or excreta either during life or after death, leaving 126 cases in which the serological observations might be interpreted either by previous inoculation or by recent infection.

Medical officers were in the habit of sending blood to the laboratory for serological examination whenever they suspected that they might be dealing with a case of one of the enteric fevers and sometimes irrespective of the time the patient had been ill. Consequently there are in this group a number of cases which subsequently proved to be dysentery, pneumonias, malaria, influenza, or relapsing fever. It also includes 35 cases of epidemic jaundice in which serological observations were deliberately made, as there was a widespread impression at first that the disease was associated with infection by a paratyphoid organism. We may eliminate these 35 cases of jaundice from further consideration, as whatever the infective agent may have been there was no evidence that it was due to a paratyphoid bacillus.

The remaining 91 cases were either investigated at the time or their records carefully scrutinized for us by Lieutenant-Colonel Stawell, consulting physician to our unit, and we take this opportunity of expressing to him our exceeding gratitude. Without his assistance in this matter it would not have been possible to draw what is perhaps the most important conclusion from our observations—namely, the relative prevalence of true typhoid fever at Gallipoli. After submission to his scrutiny, these 91 cases which might possibly have been typhoid infections were reduced to 13. This number includes all those which, on clinical grounds, might have been cases of one or other of the enteric fevers. It is certainly a maximal estimate, for, as mentioned above, we have reason to believe that some cases of paratyphoid A fever, which the method we employed failed to discover, are included in it.

The results of the analysis of our observations after this eliminative procedure had been applied to the cases whose serums agglutinated only *B. typhosus* are as follows:

Cases of typhoid fever... ...	25	... 7 per cent.
Cases of paratyphoid A fever ...	213	... 61 ,,
Cases of paratyphoid B fever ...	112	... 32 ,,
Total of enteric fevers ...	350	

The patients at No. 3 General Hospital, A.I.F., were derived from Gallipoli and the lines of communication. Imperial troops and Australians were indiscriminately admitted. As the sample covered by our observations was of fair size we shall not commit a serious error if we apply our conclusions to the distribution of enteric fevers at the Dardanelles.

From information kindly furnished us by Colonel Aldridge, R.A.M.C., there were 5,700 cases returned as enteric fevers from this area from the commencement of the campaign until the middle of December, 1915. According to a statement made by the Under Secretary for War in the House of Commons on December 23rd, the total medical casualties during the same period were 96,683.

If we further assume that the distribution we have arrived at is applicable to the whole of this period, the invaliding rate from typhoid fever represents less than ½ per cent. of the total sickness during the period.

This highly satisfactory result must presumably be attributed to antityphoid inoculation, for the conditions were not unfavourable to the spread of enteric disease.

As soon as we became aware from our observations that the great proportion of the cases of enteric fevers amongst Australian troops was due to paratyphoid infections, we represented the facts to the Director Medical Services of the Commonwealth forces and advised that Australian troops should be at once inoculated with a vaccine containing paratyphoid and typhoid bacilli. This recommendation was approved by the Minister for Defence, and early this year all Australian units were so inoculated.

Henceforth, the interpretation of observations upon the agglutination of enteric organisms will, in the case of patients belonging to Australian units, be too difficult to possess any practical value, and the isolation of the infecting organism must be resorted to for diagnosis.

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E. P. R. RYAN, D.D.S., of New York, publishes a case in which seven unerupted teeth were detected by the use of the *x* rays in the upper maxilla of a woman aged 34 (*Journ. Amer. Med. Assoc.*, July 1st, 1916). She had suffered for several years from a fistula draining into the right nostril. A nest of six supernumerary teeth was detected, but extraction proved difficult, as they were tightly packed and embedded in bony tissue. The removal of a large unerupted central incisor proved even more troublesome.

BRILLIANT GREEN AND TELLURIC ACID IN THE ISOLATION OF TYPHOID-PARATYPHOID BACILLI.

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Of the recent methods that have been advocated for the isolation of the enteric organisms (typhoid and paratyphoid bacilli) from the excreta of patients or carriers, probably that which has excited most interest and not a little controversy is the brilliant green method of Browning, Gilmour, and Mackie.[1] Support has been lent to it by the observations of Dreyer, Ainley Walker, and Gibson,[2] Stokes and Clarke,[3] Robinson and Rettger,[4] and others. Adverse opinions have mostly been expressed privately, though Robinson[5] states definitely that it has no value. Teague and Clurman[6] conclude that it must be regarded as a failure. In view of these latter opinions I venture to publish the results of a controlled test over a period of three weeks at the beginning of this year. The hospitals to which this laboratory is attached are the final hospital dépôts for soldiers convalescent from enteric and dysenteric diseases and obscure febrile conditions clinically resembling them. It is exceedingly important that no carriers should be allowed to rejoin their units in camp. Perhaps in the majority of cases the organisms are readily isolated from the faeces or urine of carriers; sometimes even they are so abundant and the condition of the bowel or its contents so abnormal that they appear in pure culture on bile-salt plates. Sometimes, again, we may fail to find evidence of their presence in known carriers, and it has been supposed that there are periods when the carrier passes no enteric bacilli. The probability, however, is that we only fail to find them because they are swamped by normal inhabitants of the intestines. At the time mentioned, the percentage of carriers found was below the average, for several months had in many cases elapsed since any illness had been complained of, or the history had been so obscure as to cast great doubts on the supposed nature of the previous illness. It seemed a good opportunity for testing Browning's method as against that adopted as a routine. Browning's method consists in the interposition of brilliant green peptone water as a means of suppressing much of the contamination before the suspected material is spread on solid media for the isolation of the bacteria. Various dye stuffs have been in use from time to time with the idea of cutting out the common bacteria of the colon—methyl-violet, malachite green, etc. Conradi was the first to employ brilliant green for the isolation of typhoid bacilli from stools. He used it along with picric acid in solid media, but as this dye develops its best bactericidal effects in media which are very faintly alkaline to litmus, Conradi obviously weakened much of its power by adding to it picric acid. Further, a mixture of organisms of various kinds with varying resistance, such as one gets in faeces, cannot be so well subjected to the uniform action of a chemical substance on solid as in liquid medium. If one may so express it, on the surface of a solid medium the organisms scarcely do more than wet their feet in the dye. In a liquid medium all the surfaces are equally prone to attack.

Browning, Gilmour, and Mackie,[7] as the result of experiments with various dyes, concluded that brilliant green in very weak solution had a specially inhibitory effect on the colon bacillus as contrasted with typhoid and paratyphoid bacilli, whilst it had a powerfully bactericidal action on practically all other organisms. This fact I have already made use of in the treatment of septic wounds.[8] It must be insisted on that in the isolation of enteric organisms the effect on colon bacilli is an inhibitory one mostly, and that if sufficient time is allowed, or if unsuitable concentrations of the dye are employed, or if there is too heavy an inoculation of our culture tubes, then the various adventitious bacteria may multiply to such an extent as to crowd out those of the typhoid-paratyphoid group. Again, all strains either of colon bacilli or enteric bacilli are not equally susceptible or resistant to the same concentration of the bactericidal substance; and, for this reason, Browning and Mackie advised the employment of five or six different concentrations of brilliant green in peptone water. This is a refinement which is practically impossible of adoption as a routine measure in a laboratory dealing daily with a large number of specimens. From a careful test of 100 specially selected cases with five concentrations, I was not convinced that anything is to be gained by this; for in those cases in which enteric organisms were isolated by the brilliant green method where the direct plate failed, as also in those cases where direct plate and brilliant green method agreed, the typhoid and paratyphoid bacilli were caught by the two highest concentrations which the authors of the method advocate. Browning practically admits this, seeing that where he succeeded with his method when the direct plate method failed he generally obtained pure cultures in the highest concentration of brilliant green, and if he insisted on the longer method he would apparently do so only when a small number of cases was to be tested. Owing to the considerations already mentioned this is no doubt a useful precaution, but as a routine measure it is not convenient. Stokes and Clarke have already reported very favourable results with one concentration only, and my results agree with theirs.

In addition to brilliant green, Browning and Mackie used telluric acid in their medium because they found that certain organisms amongst others, giving the ordinary sugar reactions of the enteric group but differing from them in fermenting inosite, escaped the action of brilliant green alone, but were killed off by the addition of telluric acid.[9] I have therefore always used both in conjunction. Even then we may get organisms surviving which we judge from all the tests we employ not to belong to the group, but the number of such is incomparably less than in the direct plate method. I have compared the results of Browning's method and the direct MacConkey plate, dealing with the same specimens, in over a thousand cases—a sufficiently practical test on which to pass judgement—and the conclusion can safely be drawn that, by Browning's method a larger number of carriers can be detected. It happens sometimes that the direct plate succeeds when the indirect method fails; and the hypercritical might suggest that when the indirect method succeeds and the direct method fails, such a result is only due to the increase in the usual number of plates spread—that is to say, if we spread three MacConkey plates directly instead of two MacConkey plates directly and another after the interposition of brilliant green, we should get the same results. From my results I should have no hesitation in preferring the brilliant green method alone if I were confined to a choice between that and the MacConkey plate, but the use of the two, where it is possible, would be nearer an ideal. Browning and his collaborators do not discard the ordinary method. By the use of brilliant green we cut out a great deal of unnecessary work by throwing out large numbers of "likely" colonies that would turn out in the long run to be quite useless for our purpose, and we suppress entirely, or restrain to moderate degrees, the growth of organisms normally found in faeces; above all, we succeed in obtaining pure growths or numerous easily identified colonies on plates of the organisms for which we seek.

In the method as given by its authors a loopful of liquid faeces is transferred directly to the brilliant green peptone water, incubated for twenty-four hours, and, from this, stroke cultures are made on MacConkey plates. When the faeces are not obtained in fluid form saline emulsions are made. Of course one can generally ensure that the stools are liquid by purging the patient. The difficulty when dealing with soldiers is that many will not swallow a pill, and we have to take the faeces as we get them. Consequently as a routine measure we emulsify the faeces in peptone broth by shaking up a roughly pea-sized portion with 5 c.cm. of bouillon. A drop of this is taken and spread on bile-salt agar plates by means of a glass spreader. I allowed these broth emulsions then to stand for a few hours in the incubator, and at the end of that time two loopfuls of the supernatant fluid were transferred to tubes of brilliant green peptone water with the dye in a concentration of 1 in 200,000 (0.5 c.cm. of 1 per cent. aqueous solution of brilliant green to 1 litre of peptone water), telluric acid, which does not affect the reaction of the medium, being added in a proportion of 1 to 25,000. These were incubated for eighteen hours, and from each three successive strokes were made on small MacConkey plates, using one plate for two specimens. I have convinced myself by control experiments that the best results are obtained by transferring some of the broth emulsion after incubation to the

brilliant green. By so doing we more frequently get pure cultures of the organisms of the group, and where they are not present we much more often succeed in obtaining sterile plates. Stokes and Clarke adopt pretty much the same technique. If we put the faeces direct into brilliant green peptone water it is exceptional to get pure cultures or negative plates. Frequently the medium is decolorized, and when it is decolorized we may be sure that colon bacilli are present in abundance. On the other hand, by the modification I have adopted decolorization of the medium is very uncommon; indeed, it is practically impossible to tell whether there is growth or not in brilliant green until after we have plated out.

When likely colonies are obtained, the same routine is adopted as in the case of the direct plates. They are transferred to lactose peptone water. If after forty-eight hours no fermentation results, the organism is tested on glucose, mannite, dulcite, maltose and broth, and then submitted to the final test of agglutination by specific serums. The direct plates were examined by the whole laboratory staff—five in all—whereas the indirect method was carried on throughout by myself. That alone indicates the saving of work of which the method is capable.

Results of the Examination of 1,023 Specimens.

Result.	No. of Cases with Likely Colonies.	Lactose Fermenters.	Carried to other Sugars.	Necessary Agglutination Tests.	Actual Positives.
By direct plating	373	59	314	161	17
By brilliant green and telluric acid	120	39	81	45	21

In no single case did we obtain pure growths by direct plating; they were always mixed. By the brilliant green method there were pure growths of colourless colonies in 62 cases. In no single case by direct plating was the plate sterile, whereas 50 per cent. of plates by the indirect method showed no growth whatever. This means an enormous saving of time. When the growth on the indirect plate was mixed, the colourless colonies generally preponderated, and in all cases were easily detected. By the direct method the final test of agglutination had to be done on 161 cases, with a positive result, so far as typhoid-paratyphoid bacilli were concerned, in 17 cases, while, on the other hand, only 45 cases had to be carried to agglutination, with positive results in 21, in the case of the indirect method. By the direct method 6 cases of dysentery organisms were found in addition to these, whereas only one was discovered by the brilliant green method, for dysentery bacilli are apt to be killed off by brilliant green.

On referring to the specimen index we found that the 1,023 specimens were provided by 622 individuals. There were two cases of typhoid carriers in the lot. Typhoid bacilli were picked out on all of five occasions by the brilliant green method, and on four occasions by the direct plate. Paratyphoid A bacillus was picked out on the single occasion by both methods. Paratyphoid B bacilli were isolated on fifteen occasions by brilliant green and on twelve occasions by the direct plate; but this only gives one side of the picture, for it happened that no less than five paratyphoid B carriers were detected by brilliant green which were altogether missed by the direct method, whilst, on the other hand, two carriers were found by the latter method and missed by the former.

For the isolation of typhoid-paratyphoid organisms from urine I tried a slight modification of the method in 1,100 specimens. Equal quantities of urine and brilliant green peptone water (the dye being in a concentration of 1 in 100,000 in the latter) were mixed and incubated for twenty-four hours, and a loopful from each was spread on MacConkey plates. In only one case was an organism of the group isolated—a paratyphoid A. In almost all other cases the plates were sterile. The test was of no great value because it was uncontrolled, and no care had been taken to ensure the proper reaction of the composite medium. But I am enabled by the courtesy of my colleague, Dr. T. H. C. Benians, to give a short but striking experiment in favour of the value of the method. He took the urine of a carrier in which *B. paratyphosus* A and *B. coli* could be demonstrated by straight plates, and added portions of this urine to fifteen other urines in the proportion of 1 to 10. To a parallel series he added brilliant green in a concentration of 1 in 250,000. After twenty-four hours' incubation plates were spread, with the result that by the direct method in only one case was the paratyphoid organism recovered, though *B. coli* were found in abundance on all plates, whilst by the interposition of brilliant green he found the paratyphoid organisms in nine cases in practically pure culture.

The method of Browning, Gilmour, and Mackie is therefore a useful method in detecting a number of carriers of typhoid-paratyphoid that are liable to be overlooked by the ordinary procedure. Both methods should be done together as a check on each other. Owing to the saving of time, if one method alone has to be used it should be the brilliant green.

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THE LOCAL TREATMENT OF BURNS ON A NAVAL HOSPITAL SHIP.

By R. J. WILLAN, M.V.O., M.S., F.R.C.S.,

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THESE remarks refer to cases which have been under my care while afloat. They numbered 28, and were received (*a*) immediately after the *Natal* explosion, and (*b*) about forty-eight hours after the recent Jutland naval battle. The first application to the burn in every case was the Service picric acid dressing.

Out of the 28 cases, 15 were aseptic, and all these recovered. The remaining 13 cases were septic to a greater or lesser degree, and 5 of them succumbed, but one of these had other serious injuries. Four of the cases from H.M.S. *Natal* were virulently septic, and the two fatal cases developed erysipelas. I attributed this acute sepsis to the patients' immersion in water containing oil and sewage which had escaped from the sinking ship.

PLAN OF TREATMENT.

The treatment employed in my wards was as follows:

1. The blisters were punctured and the contents drained under strict antiseptic precautions, the surface being first sponged with carbolic acid solution, 1 in 20.

2. If it was a recent burn (for example, cases from H.M.S. *Natal*), I applied the Service picric acid dressing as the first dressing.

3. I smelt the dressings at my morning and evening duty rounds. Early sepsis in burns has an unmistakable odour, and the sense of smell can detect it early.

4. If there was no smell the first dressing was left on for two days, when it was removed in order to puncture any further blisters which might have formed. An ointment was applied, made of equal parts of boric ointment and vaseline. This was plentifully spread on strips of white "surgeons' lint," and was changed once daily. It is a good dressing, which does not tend to adhere, and so is not a painful procedure.

5. If the dressing had the septic smell the infected part was fomented with boric fomentations every four hours. The fomentation was four-ply, and the covering jaconet projected for ½ in. beyond the margins of the fotus in order to keep in the moisture. When the area cleared up—that is, when all sloughs, etc., had separated and a clean surface was left—the above-mentioned ointment was similarly applied once a day, according to the amount of pus which had been secreted from the raw surface.

6. If the burn was aseptic the loose skin of the blisters was *not* removed, but was left to act as a protection to the exposed deeper and painful layer of the skin.

7. If the burn was septic all loose skin was cut away; under these conditions the skin harbours harmful toxins which are readily absorbed to the detriment of the patient.

8. The dressing next to the skin was covered by alembroth wool, which contains a small amount of antiseptic (mercury perchloride), sufficient to prevent multiplication of any organism the wound discharges. The whole dressing was fixed by a bandage loosely applied.

9. Face masks were not used except when a fomentation was required. With face burns the nose, cheeks, and lips were frequently smeared with the ointment, which was gently massaged in with the convex surface of a teaspoon.

As prevention is much easier than cure, the greatest possible care was taken to prevent any infection of the burn wound, and the precautions particularly applied to a wound which was already septic. The vitality of such a patient is low, and his vitality is still further reduced by the continued absorption of the toxins formed by the septic bacteria. The exposed deep layers of the skin absorb toxins with avidity; until the septic sloughs have separated, and the infected area is quite clean, this absorption continues to occur, thereby seriously exhausting the patient's strength. If sepsis was present every effort was made to eliminate it as quickly as possible. If the patient can be kept going until this has occurred, he will most probably ultimately recover. If a further infection is added by any act of surgical uncleanliness on the part of the surgeon, nursing sister, or sick berth steward, this in a large number of cases proves to be the last straw. The patient may succumb before the separation of the slough from the living tissue (that is, the elimination of the sepsis) can be effected. Therefore to neglect antiseptic precautions in the treatment of a burn is akin to soundly kicking a man who is down on his luck.

To prevent infection sterile india-rubber operation gloves were used for dressing the burns, and were changed for each case. Further, a bowl of 1 in 20 solution of carbolic acid was kept on the dressing bogey, and the gloved hands were constantly sluiced in this. No burn was ever exposed until the area had been isolated by towels wrung out in carbolic acid, 1 in 20 solution; these lay on a sheet of jaconet the same size as a towel. After finishing a dressing, the towels were folded up and used for the next case. The same towels sufficed for a large number of dressings. All blisters were opened and drained, under such antiseptic precautions. The person who applied a fomentation had first thoroughly washed his hands before doing this.

If I were suddenly inundated with a large number of burn cases I would provide, if possible, all persons who were to dress the wounds with smooth india-rubber gloves. Should circumstances prevent changing of the gloves between cases, the gloved hands would be constantly rinsed in carbolic acid, 1 in 20 solution. For practical purposes any organisms would be thus removed from the smooth surfaced glove.

Remarks.

This small series well illustrates the fact that burns up to the third degree will heal immediately, provided they are protected from the air by a mild antiseptic dressing. This can take the form of (*a*) lint soaked in picric acid, (*b*) dry boracic lint with boracic powder, or (*c*) ointment either smeared on directly or spread on lint.

As a first covering for a recent burn the Service picric acid dressing is excellent, and can be quickly applied. When this dressing is removed in an aseptic case the skin presents a dry yellow crinkled surface, all loose skin being curled up.

Having once removed the picric acid dressing I never repeat it. My reasons are: (*a*) That a burn after the first forty-eight hours is more comfortable with an ointment dressing, and that the wound heals quicker; (*b*) the burnt area should be examined in order to empty any further blisters which have formed. To neglect the latter may mean that the coagulated serum becomes organized by vessels from the deeper layers of the skin, a most undesirable thing to happen.

The reason for using an ointment of equal parts of boric ointment and vaseline is that it gives a mild antiseptic ointment of excellent consistence for the purpose. Boric ointment by itself is too firm and lies on the skin in the form of uncomfortable hard flakes. Vaseline by itself melts too freely at the body temperature and becomes disseminated in the lint upon which it is spread.

Any dressing which adheres to the raw area is not a good one, as it is uncomfortable for the patient, and there is bleeding on its removal. A boracic fomentation is comfortable and is an excellent method of quickly cleaning up a septic burn. The fomentation should be renewed every four hours.

I did not use face masks excepting when fomentations to the face were required. I find a patient dislikes a mask intensely, and covering up his face has a depressing effect on him. More important still, with a face mask on it is impossible to treat efficiently the purulent conjunctivitis which was so frequent an occurrence in burns of the face; the eyes required irrigating at least every two hours.

The great value of the protection afforded by clothing was illustrated by the fact that in 22 out of 28 cases the head (including its junction with the neck and also the face), wrists, and hands were burnt. A mask should protect the face, while gloves should protect the hands. The gloves should have gauntlets, as two or three of my patients burnt on the arms were wearing coats at the time, and the flames had travelled up the sleeves.

The bandaging of the patients' limbs is a most important point. In the excitement of the battle it is easily forgotten that there is a great deal of oedema and swelling after burns. A bandage, even loosely applied, will soon become uncomfortably tight. This causes intense agony, and if left on too long will result in gangrene of the limb. Immediately the cases arrived in my wards (on June 2nd, 1916) I had all the bandages of the burn cases cut and left loose as they were until I was able to dress them. This gave great ease.

Description of a First Dressing for Burns.

I have thought out the question of a combined outer dressing with its fixation, and have made (and tried) one

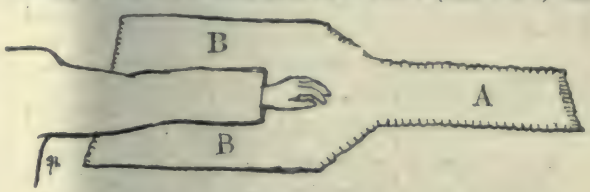


Fig. 1.—Showing the dressing laid out ready for use with an arm *in situ*.

which I will describe. It is simple, efficient, and comfortable. It can be quickly applied and changed. Most important of all, it does away with the real danger of gangrene, where the first dressing has from necessity to be left on for any length of time. It would be best made of an antiseptic wool (corrosive wood wool or alembroth) with a layer of gauze on either side after the manner of Gamgee tissue. If, after its application, the patient complained of pain due to tightness, any one near could loosen the offending tape—an easy matter compared with the finding of the actual point of constriction of a too tight roller bandage. It might prove a convenience to have this dressing packed up to contain a Service picric acid dressing. In case of necessity the whole would be ready for instant use.

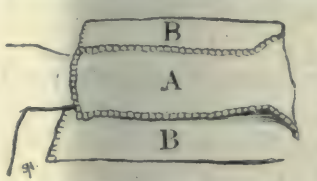


Fig. 2.—The portion marked A has been turned back to cover the limb; the side portions, marked B B, overlap A and are secured in this position by tapes.

The centre portion of the dressing upon which the arm rests should be made of thicker wool than the flaps A and B. (See Fig. 1.)

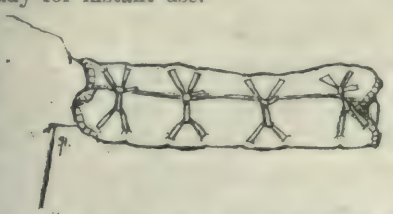


Fig. 3.—Showing the dressing made secure. Note the distribution of the fastening tapes.

Fig. 1 shows the dressing laid out ready for use with an arm *in situ*. The portion marked A is turned back to cover the limb. The portions marked B overlap A, and are secured in this position with tapes.

Fig. 2 shows the flap A turned back.

Fig. 3 shows the dressing fixed by the tapes. It will be noted that the tapes cover a wide area and are sewn on far back in order to fix the whole bandage.

When finger cases were dressed care was taken to move the various joints passively before reapplying the dressing. Joints tend to get very stiff under overlying burns, and dangerously so if left unmoved for any length of time.

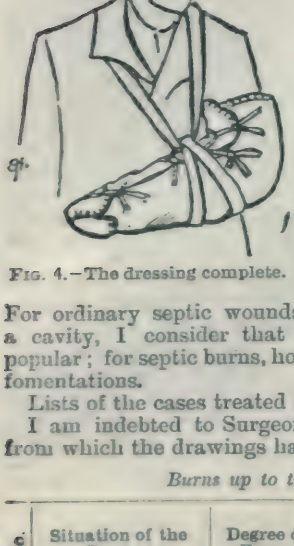


FIG. 4.—The dressing complete.

The patient holds his burnt hands and wrists in a position of flexion of the wrist with extension of the fingers. Any tendency to wrist-drop was countered by the application of a light splint (for example, poroplastic) to the palmar surface of the limb.

Only the treatment that was actually employed in the series has been detailed.

For ordinary septic wounds, particularly where there is a cavity, I consider that eusol solution is deservedly popular; for septic burns, however, I prefer the hot boracic fomentations.

Lists of the cases treated in my wards are attached.

I am indebted to Surgeon Glover for the photographs from which the drawings have been made.

Burns up to the Third Degree.

No.	Situation of the Burns.	Degree of Burns.	Aseptic or Septic.	Result.
1	Head, wrists, hands	1st, 2nd, 3rd	Aseptic	Quickly healed.
2	Head, neck, wrists, hands	1st, 2nd, 3rd	,,	,, ,,
3	Face	1st, 2nd, 3rd	,,	,, ,,
4	Head, wrists, hands	1st, 2nd, 3rd	,,	,, ,,
5	Head, chest, wrists, hands	1st, 2nd, 3rd	,,	,, ,,
6	Head, wrists, hands	1st, 2nd, 3rd	,,	,, ,,
7	Face	1st, 2nd, 3rd	,,	,, ,,
8	Head, hand... ...	1st, 2nd, 3rd	,,	,, ,,
9	Head, wrists, hands	1st, 2nd, 3rd	,,	,, ,,
10	Wrists	1st, 2nd, 3rd	,,	,, ,,
11	Wrists	1st, 2nd, 3rd	Septic	Healing delayed, but did well.
12	Head, arms, hands	1st, 2nd, 3rd	Aseptic	Quickly healed.
13	Head	1st, 2nd, 3rd	,,	,, ,,
14	Head, hands, thighs	1st, 2nd, 3rd	Septic	Healing delayed, but did well.

Burns up to the Fourth Degree.

No.	Situation of the Burns.	Degree of Burns.	Aseptic or Septic.	Result.
15	Head, wrists, hands, leg	1st, 2nd, 3rd, 4th	Aseptic	Did well.
16	Face	1st, 2nd, 3rd, 4th	,,	,,
17	Head, hands ...	1st, 2nd, 3rd, 4th	,,	,,
18	Head, wrists, hands	1st, 2nd, 3rd, 4th	Septic	Healing delayed, would do well.
19	Head, wrists, hands	1st, 2nd, 3rd, 4th	,,	Healing delayed, would do well.
20	Head, arms, hands	1st, 2nd, 3rd, 4th	,,	Healing delayed, would do well.
21	Head, wrists, hands	1st, 2nd, 3rd, 4th	,,	Very ill when discharged, but he ultimately did well.
22	Head, wrists, hands	1st, 2nd, 3rd, 4th	,,	Healing delayed, would do well.
23	Head, wrists, hands	1st, 2nd, 3rd, 4th	,,	Healing delayed, would do well.
24	Head, wrists, hands	1st, 2nd, 3rd, 4th	,,	Died 4 days after action. Had other injuries.
25	Head, arms, hands	1st, 2nd, 3rd, 4th	,,	Died 4 days after action from acute sepsis.
26	Head, arms, hands	1st, 2nd, 3rd, 4th	,,	Died 7 days after action from acute sepsis.
27	Head, arms, legs ...	1st, 2nd, 3rd, 4th	,,	Died 11 days later from acute sepsis with erysipelas.
28	Head, arms, hands	1st, 2nd, 3rd, 4th	,,	Died 5 days later from acute sepsis with erysipelas.

CONCLUSIONS.

1. Of the 28 cases the burns were aseptic in 15. Five of the series died; in 4 of these the cause was acute sepsis.

2. The keynote of treatment is the prevention of sepsis. A burn must be regarded and must be treated with exactly the same care as is a fresh operation wound. Further sepsis, added to an already septic burn of the fourth degree and upwards, will probably kill the patient.

3. Picric acid as a first dressing is unrivalled.

4. For an aseptic case, equal parts of vaseline and boric ointment, plentifully spread upon white lint, makes a good, comfortable, and easily removed subsequent dressing.

5. Immediately a burn is known to be septic hot boracic fomentations should be begun.

6. Unless loosely applied a roller bandage put on at the first dressing will cause severe pain and it may lead to gangrene. To prevent this a new outside dressing is described.

ON THE EXTENSION TREATMENT OF GUNSHOT FRACTURES.

BY E. W. HEY GROVES, M.S., F.R.C.S.,

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IN reply to Mr. Aitken's criticism, in your issue of August 12th, of my address on the treatment of gunshot fractures, I would begin by thanking him for the fair and courteous tone of his remarks. Far from considering it a personal attack, I only welcome this or any other reasoned statement, which is much easier to meet than a mere appeal to the *ipse dixit* of dead or living authorities.

I have advised that full extension of a shattered limb should be postponed until active infection of the wound is at an end—that is, until there is evidence of readiness for repair. But this is only carried out in those grave cases where there is fear of gangrene or secondary haemorrhage. It does not involve any great distortion of the limb, so that remarks about kinks and twists of the vascular channels seem to me to have no bearing.

Now as to the mechanism of extension. I am sorry Mr. Aitken finds my physiology faulty, but I will, for the sake of argument, accept his own statements on this subject. We are agreed that there is a certain contractile force which tends to shorten a broken limb. The two practical points are: How can this force be overcome most effectively? and how can the correct length of limb be maintained most surely?

How can a Recent Fracture be Restored to Full Length?

The advocates of Thomas's teaching say that by simply pulling upon the limb, full length can be restored in a few moments and without anaesthetic or apparatus. With the utmost respect I say that I do not believe this, and I should like to see it demonstrated on any case of fractured femur which is about to be exposed for an open plating operation; but that such a fracture can be infallibly restored to full length or to over-extension by weight action has been proved over and over again.

One of the most striking instances of the difficulty of immediate lengthening of a limb as compared with the facility of slowly doing so, is afforded by the use of an extension apparatus which acts by two extending screws pushing apart transfixion pins driven through the two parts of the broken bone. When this double transfixion apparatus is applied either to the femur or the lower leg bones, and the extension screws twisted, a force of 200 lb. can be brought to bear, but I content myself with using 50 lb., at which point considerable resistance is found in further twisting the screws. But the next day, the screws can be twisted by the finger and thumb so as to get further extension, and by doing a little each day, full extension is easily obtained; this would have been impossible at the first sitting. This is exactly what Mr. Aitken himself describes as his own practice in many cases—that is, extension up to a certain point, followed by further extension on one or more subsequent days. But this is surely gradual extension, and it quite contradicts the idea that it is only necessary to pull harder than the muscles once and for all for full length to be obtained?

How is the Full Length to be Maintained?

The Thomas teaching is that it is easy to pull the leg to its full length, and equally easy to keep it there by tying it to the splint. But the two ends of the bone are not directly grasped by the splint, and all sorts of variations of tension are permitted by it. In the first place, the hold on the tuber ischii is shifted every time the skin over that promontory is attended to. Then it is shifted when the leg is raised for dressing purposes. If the leg is lifted until the knee is 9 in. from the bed, the distance of the knee from the tuber ischii is increased by 1 in., that is, the adjustment of a fracture which originally had 2 in. shortening is varied by 50 per cent. When the slings are removed from under the thigh, the tension is increased by the weight of the sagging limb tied by its two ends. And lastly, there is the stretching or slipping of the plaster attachment to add a fourth element of variability to the extending force. If, instead of tying the limb to a rigid bar, it is pulled upon by a constant weight of 15 lb., all these variations are done away with. The pelvis is tied to the top of the bed by a perineal band round the sound thigh, and the leg is slung off the bed. Then there is always 15 lb. extension, whether the buttocks are moved or whether the leg is elevated, or whether the slings are removed for dressing.

I would protest against the Thomas system being described as constant extension and the weight pull as intermittent. Such a statement is simply begging the question. How can a system be described as constant extension when it is subject to five distinct variations? First, the extension is often not done all at one sitting, but added to by tightening the straps day by day. Secondly, it is altered when the thigh ring is moved from its purchase on the pelvis for cleaning purposes; thirdly, it is altered whenever the leg is lifted and the ring leaves the tuber ischii; fourthly, it is altered whenever the dressing slings are undone; and fifthly, it is altered if ever the plaster stretches or slips.

On the other hand, if extension be by a weight acting through a cord running over a pulley, how can this be intermittent? If the man moves down the bed or up the bed the weight moves with him, but its pull does not vary, neither does its direction. Slipping or stretching of the attachment does not vary the weight or the extension.

It is stated by the Thomas school that there is less tension on a limb extended to its full length and held by a rigid splint than when it is held at the same length by a weight; and, further, that when the weight is used the tension varies. Now, both these statements are without proof. I know, when once a femur has been pulled down to its full length by a weight of 15 lb., that 10 lb. is enough to maintain this length. But what is the tension on the straps of a Thomas splint when the leg is at full length? I cannot say, because I have never seen this condition obtained, but if 10 lb. is needed to balance a contractile force, when applied by weight, is not this a measure of the tension which must be exerted by the fixed system? Again, the tension required by the Thomas system is greater than that employed by a weight with the knee semiflexed, because the Thomas splint has to overcome the maximum tension of the hamstring muscles, whereas in the cradle, the knee being bent, these muscles are out of action.

As to the tension in the weight system varying, I have already shown that it cannot be either more or less than that of the extending weight. But it may be said that the muscles spasmodically contract. If this were so, then with the same extending force the length of the leg would be constantly altering. But the weight remains the same, the tension remains the same, and the length of the leg remains the same.

I cannot accept Mr. Aitken's suggestion that his quoting a single case is a satisfactory answer to my objections. I do not doubt for a moment that Mr. Aitken could bring forward many brilliant results obtained by the use of a Thomas splint in his hands as used for fractured femur. I believe that even I could obtain good results from it. But why should one use a system which requires a splint to be fitted for each patient and which then has no less than five variables tending to failure when one has at hand a simple and constant system with none of these drawbacks?

I ought also to have mentioned the fact that whilst the Thomas splint imposes rigidity upon the knee, the weight system allows this joint to be exercised throughout the treatment.

Mr. Aitken speaks of my using great weights, weights up to 25 lb. But I only use such a weight for an old fracture, for which Mr. Aitken employs pulley blocks, giving, I suppose, over 100 lb., and then he repeats the employment of this "great weight" on several occasions. I never use more than 25 lb., and this very rarely; 15 lb. is the routine weight for recent fractures, and it is reduced to 10 lb. within a week. But, apart from all theoretical considerations, it is urged that weight extension is a constantly painful process as compared with the Thomas splint. I can only meet this with a direct negative, and my proof is close at hand. I have now a considerable number of cases of fractured femurs under treatment by weight extension, and all of them had a preliminary trial of a Thomas splint. I most cordially invite Mr. Aitken to visit these patients and ask them for an expression of their experiences. In the meantime let me simply state that the idea of "reflex starting pains" is quite mythical.

The Thomas Splint.—All advocates of Thomas's splint for fractured femurs lay great stress upon the point that the ring should fit the patient's thigh so that it rides snugly upon the tuber ischii instead of lying across the perineum. Now this is a fatal objection to its routine use in military surgery. The splints cannot be fitted to the patients at casualty clearing stations, and it is, I think, a matter of common observation that what is done is to use a size which fits no one, that is, a size of ring much too large. In one case which I know, in which the ring fitted originally, the splint had to be removed under an anaesthetic, owing to the fact that the limb had swollen subsequent to its application.

In conclusion, I would cordially endorse the spirit of Mr. Aitken's article, which he opens by saying that we are all concerned chiefly in helping to find the best methods of treatment, and not in making attacks upon one another. The results of weight extension treatment have been recorded with the fullest details by many surgeons. For example, by Bardenheuer, by the authors of the Balkan splint, and in the present war by myself, among others. May I, with the utmost respect, ask some advocate of the Thomas splint to do the same? Thomas's pioneer work was done before the discovery of the x rays, and I venture to suggest that if, after this discovery, any advocate of his system had proved by radiography that a large proportion of good results had been obtained by it, it would not have lapsed into being regarded by most surgeons as an obsolete and unsatisfactory method. But now, when the Thomas splint is being used by the thousand, there is ample opportunity for this demonstration. I would urge any surgeon who believes in this method to publish one hundred, fifty, or even ten consecutive unselected cases, illustrated by skiagrams, to show us what are the results obtained.

THE MECHANISM OF SALINE DRESSINGS.*

BY

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SINCE the onset of the war the publications of Sir Almroth Wright on the use of saline solutions for dressings[1] have caused a secession of many of the adherents of the old antiseptic school. This is partly due to the disappointing results obtained by the use of antiseptics and the failure to sterilize wounds by this method; for a greater success has been expected by the surgeons from their experience in civil practice.

The new treatment has come into very extensive use in England and in France, but there has been little discussion of the theoretical and experimental evidence indicating its use as a dressing for wounds, with the exception of the publications of its chief advocate, Sir Almroth Wright.

According to the recent publications of Sir Almroth Wright, the activity of salt solutions depends on their "phylacagogic" character—that is, their capability of "bringing the protective elements of the body, blood

* From the laboratories of the Robert Walton Goelet Research Fund.

fluids and leucocytes, into application in the wounds." Strong and weak salt solutions are included in these dressings, and their action varies according to the salt concentration.

What is Claimed for Saline Dressings.

A. *Hypertonic saline** is termed a "lymphagogic agent," and the mechanism of its action is described under the three phases of "physical action," "physiological action," and "the effect on the condition of the wound and microbial infection."

The physical action is stated to be chiefly a process of diffusion. It is stated that by this action water and albuminous substances are attracted to the surface of the wound. The statement is made that there is nothing in the wound like an animal membrane to filter out albuminous substances, and that therefore the laws of osmosis do not apply.

The physiological action of strong salt solution is described as bringing about the disintegration of leucocytes and the liberation of trypsin, which process permits autodigestion. This furnishes a medium favourable for bacterial growth as soon as the excess of salt is removed. Strong salt solution is said, further, to paralyse or repel the leucocytes by exerting a negative chemio-taxis.

The effect on the condition of the wound and microbial infection is stated to be due to a combination of the physical action and the physiological action, and also the inhibitory effect exerted directly on the pyogenic organisms themselves by the 5 per cent. salt solution.

As a result of the physical and physiological action, the autodigestion of sloughs is said to be expedited in the wound, and they are assumed to be readily loosened from living tissue by the outward current of "blood fluids."

B. The action of *physiological saline* is then described. This is stated to be physiological only in its tonicity or total content of crystalloids. There is, of course, more sodium chloride in it than in the blood, and sodium chloride will pass into the tissues in exchange for other salts which will pass out. This is presumed to be the cause of its "leucocytagogic" action.

Discussion of Claims for Saline Dressings.

Is Sir Almroth Wright's hypothesis that "neither in the earliest stage of the wound where the tissues lie exposed, nor yet in the later stage, when the walls are infiltrated, have we in the wound anything in the nature of a membrane which could filter out albuminous substances"[2] correct? In his interesting little book on *Wound Infections* (1915) we find the statement: "Granulation tissue is composed of continuous layers of cells." Also "The cell wall is a quasi-impenetrable membrane" (p. 58). This sounds much like the description of an osmotic membrane. Apparently it was at that time so considered, for a little further on (p. 71) the statement is made: "Five per cent. solution of common salt mixed with one-half per cent. of sodium citrate . . . brings into play *osmotic* forces and 'draws' the lymph out of the walls of the wound." We are left in some doubt as to whether the principles of osmosis are held to apply or not to apply to the action of salt solutions on wounds.

Where do the bactericidal constituents of the discharge come from? We cannot consider the action of salt solutions on the tissues *en masse*. We must consider the action on the individual cells, each with its semi-permeable cell wall, as well as the action on the free fluids circulating between the cells.

It seems not unreasonable to assume that the bulk of the body fluids in the neighbourhood of the wound must be within intact cells or intact blood and lymph vessels, and only a comparatively small amount present in ruptured cells or cut intercellular spaces and lymphatics. Therefore it appears that we must have to deal with the laws affecting the passage of fluids through an animal membrane (osmosis) as well as with the laws affecting the interchange between fluids in free contact (diffusion). In addition, we must consider how the physiological activity (secretion) of the cells is acted upon by the dressing.

1. *What is Effected by Osmosis?*

If we cannot eliminate the process of osmosis as one of the physical reactions between the tissues and salt solutions, we must see what can be expected of it in the case of salt solutions of various strengths.

As far as there is an interchange of soluble bodies between the great mass of *individual cells*, including the endothelium of blood and lymph vessels, and a dressing solution, it is governed by the laws of osmosis or secretion.

A dressing containing only sodium chloride and water is *hypo*tonic for the albuminous substances, among which are the antibacterial agents of the body. No alteration in the concentration of the salt will alter the fact that there is a tendency toward the attraction of water by these substances into the cells, and a tendency for the same substances to osmose into the protein-free salt solution. Since, however, their osmotic motion is almost entirely restrained by the semi-permeable cell wall, their osmotic pressure results chiefly in attracting water. As far as they do pass through the cell wall in response to differences in osmotic pressures, they do so equally, no matter what the salt concentration, there being no albuminous substances in the dressing solution to exert a counter pressure for these substances in the cells.

Colloids and gels may attract and retain water from a saturated salt solution. Presumably those in the cells may do the same from 5 per cent. saline. The balance of water in the tissues depends, therefore, as far as the laws of osmosis are concerned, on the relative amount *extracted* by the salts in the dressing solution and *attracted* by the albuminous substances retained within the cells.

Now, the rate of osmosis of water and salt through an animal membrane such as the cell wall is proportionate to the difference of their concentrations on the two sides of that membrane. There will therefore be a rapid extraction of water and inward migration of NaCl at first. The *rate* of interchange will decrease until the difference between the concentration of salt outside and inside of the cell is equal to the difference between the concentration of salt inside the cell and in the blood and lymph by which the salt is carried away. If the dressing solution is kept at a constant concentration and the blood and lymph circulation is sufficient to carry off salt as fast as it passes into it, a point will be reached where a stable maximum concentration of salt is established within the cell with a uniform rate of migration of salt through the cell from dressing solution to blood stream and a uniform rate of passage of water outward. This concentration point will be midway between that of the dressing solution and that of the blood.†

At this point, however, the attraction of the albuminous substances for water will be exerted, and the cells will attract water to satisfy their separate, positive osmotic pressure. Regulated by the same law which governs the rate of interchange between salt and water, the water will (at first) pass into the cell and on into the blood at rates proportionate to the differences between the protein content of the dressing solution and of the cell, and between the protein content of the cell and that of the blood stream. Since the protein content of the cell cannot easily escape (albuminous substances osmose only very slowly through an animal membrane), this balance is established when the protein concentration in the cell becomes one half that of the blood—that is, when the amount of water in the cell is doubled. The body fluids and the dressing solution may be considered as unchanging solutions, since their constant renewal prevents any

* Since this paper was sent for publication "A Memorandum on the Treatment of Wounds by Physiological Methods" (Sir Almroth Wright, BRITISH MEDICAL JOURNAL, June 3rd, 1916) has appeared, in which the previous claim of the stimulation of tryptic digestion by hypertonic saline is apparently abandoned, and an inhibiting effect admitted. The œdema which may result from the accumulation of salt in the granulations is also mentioned, and the previously emphasized conception of the drawing power of salt for albuminous substances, except in so far as they are brought along with the current of water, is apparently dropped.

[Dr. Kenneth Taylor's paper was received for publication on May 22nd, 1916.]

† It may be desired to find the theoretical concentration of NaCl in the cell as far as the laws of osmosis apply. If the NaCl concentration of the dressing solution be represented by S, that of the blood by B, and that of the intermediate cell by C, the ultimate maximum NaCl concentration in the cell may be expressed by the formula $C = \frac{S + B}{2}$. In the case of continued application of 5 per cent. NaCl solution this will be about $\frac{5 + 0.6}{2}$, or 2.8 per cent.; with "physiological" saline solution $\frac{0.8 + 0.6}{2}$, or 0.7 per cent.; with salt free solutions $\frac{0 + 0.6}{2}$, or 0.3 per cent.

alteration in character. The variations will occur in the substances within the restraining membrane of the cell wall. In the following formulae A represents the albuminous substances present in approximately equal concentration in the circulating body fluids and within the cells. The arrows represent the direction of migration of each substance—the larger arrows the more rapid, the smaller the slower migration. Arrows of equal size represent migration at equal rates. The relative concentrations of each substance, when the dressing solution is first applied, are shown by the signs $> = <$. The "established reaction" represents the arrival at a stage when the concentration of the intracellular constituents will no longer vary unless the constitution of the body fluids or the dressing solution be altered.

	Body Fluids.	Cell Fluids.	Dressing Solutions.
1. *Hypertonic Saline.*			
Before reaction ...	H_2O	H_2O	H_2O
	NaCl =	NaCl	< NaCl
	A =	A	H_2O
Beginning reaction ...	$H_2O \rightarrow$	H_2O	$\rightarrow H_2O$
	NaCl $\leftarrow$	NaCl	$\leftarrow$ NaCl
	A	A	$\leftarrow H_2O$
Established reaction ...	$H_2O \rightarrow$	H_2O	$\rightarrow H_2O$
	NaCl $\leftarrow$	NaCl−H_2O	$\leftarrow$ NaCl
	A	A+H_2O	$\leftarrow H_2O$
2. *Isotonic Saline.*			
Before reaction ...	H_2O	H_2O	H_2O
	NaCl =	NaCl	= NaCl
	A =	A	H_2O
Beginning reaction ...	H_2O	H_2O	H_2O
	NaCl =	NaCl	= NaCl
	A $\leftarrow$	A	$\leftarrow H_2O$
Established reaction ...	$H_2O \leftarrow$	H_2O	H_2O
	NaCl =	NaCl	= NaCl
	A	A+H_2O	$\leftarrow H_2O$
3. *Hypotonic Saline.*			
Before reaction ...	H_2O	H_2O	H_2O
	NaCl =	NaCl	> NaCl
	A =	A	H_2O
Beginning reaction ...	$H_2O \leftarrow$	H_2O	$\leftarrow H_2O$
	NaCl $\rightarrow$	NaCl	$\rightarrow$ NaCl
	A	A	$\leftarrow H_2O$
Established reaction ...	$H_2O \leftarrow$	H_2O	$\leftarrow H_2O$
	NaCl $\rightarrow$	NaCl+H_2O	$\rightarrow$ NaCl
	A	A+H_2O	$\leftarrow H_2O$

The chief result to be anticipated in a hypertonic saline dressing is, therefore, an ultimate increase of NaCl and water within the cell. If at any point the hypertonic solution be removed or replaced by iso- or hypo-tonic solutions, an additional inrush of water will occur from the dressing solution and body fluids to satisfy the excess of salt deposited.

By applying the same laws to the case of isotonic saline, it becomes evident that it is chiefly the osmotic pressure of the albuminous substances which is exerted, and which will result in an increase of water within the cell. There should be a little increase of the NaCl concentration due to its slight excess in the dressing solution.

In the case of hypotonic solutions, the positive pressure of both the NaCl and the albuminous substances will be active, with a more rapid inrush of water and a gradual extraction of the salt.

Thus the end result of the prolonged use of any protein-free watery solution will be an increase of water within the cell—early in the use of the hypotonic saline, later with the hypertonic solutions. Any great increase in concentration of NaCl in the cell due to the hypertonic, and also a diminished concentration due to the hypotonic, can, together with the watering of the protein content, only serve to check or permanently inhibit its physiological response to the stimulus of the injury and the infection.

No increase in albuminous bactericidal substances in the wound is to be expected from the process of osmosis. It is useless to attempt to influence the osmotic motion of albuminous substances by increasing the salt content of the dressing solution. They will osmose very slightly in any case, but in so far as such osmotic motion occurs it will take place just as rapidly into weak as into strong salt solution. Hypertonic saline is not a "lymphagogic" but a hydrogogic agent.

2. *What is Effected by Diffusion?*

Sir Almroth Wright does not admit that the great mass of intact cells is affected in any way by the use of saline solutions. He apparently does not consider the exchange of salts and water through the endothelial cells of the blood vessels and lymph channels to be subject to the laws of osmosis. The "lymphagogic" action he assumes to be entirely a process of diffusion.

Now we know of no physical law from which it may be deduced that NaCl exerts a positive attraction for albuminous substances. In fact, it has been demonstrated in this laboratory by Mr. H. E. Magee that when a weak saline solution of egg albumen is brought into direct contact with solutions of NaCl no greater migration occurs into 5 or 10 per cent. salt solution than into physiological saline. When the albumen was incorporated into agar, allowed to set, and saline solutions of various concentrations superimposed, the same results were obtained except in the case of saturated NaCl solution. In the latter, albuminous substances appeared in greater amounts than in the 0.85 per cent., 5 per cent., and 10 per cent. solutions, probably due to the obvious shrinkage of the agar and the *expression* of its content.

When two solutions are in direct contact and there is no selective animal membrane between them, no more restraint is placed upon the movement of salts and colloids than upon the movement of water. The interchange must take place without inducing, in the fluids, any current which might bring with it albuminous substances.

Of course there is a natural diffusion of these substances into any solution which contains them in lesser concentration. The proportion of NaCl is immaterial. It is only the proportion of albuminous substances which counts.

Sir Almroth Wright places considerable confidence in what he terms the "physiological action" of the hypertonic solution when applied to the wound. The solution is admitted to produce certain undesirable results in the wound. It is said to repel the leucocytes in the neighbouring tissues. It is said to break up those in the surface of the wound. This disintegration of leucocytes (and other cells?) frees trypsin, which is admitted to digest ("corrupt") the lymph in the discharge, making it a favourable medium for bacterial growth. The rapid multiplication of bacteria is assumed, however, to be inhibited by the antiseptic action of the strong saline.

The digestion of the sloughs by the trypsin is claimed to proceed, causing their rapid separation. It is assumed that trypsin will act in 5 per cent. saline. This concentration is sufficient to markedly reduce its action *in vitro*. Many ferments are inhibited by an excess of NaCl. We have found in a series of *in vitro* experiments that peptic digestion proceeds rapidly in 0.85 NaCl solution, a little more slowly in weaker salt solutions, and is almost entirely suppressed in 2.5 NaCl solution. Tryptic digestion we found to be most active in the weak salt solutions, to fall off rapidly in solutions of over 1 per cent., and to be almost completely suppressed in 5 per cent. concentrations. The only remaining physiological action with which the hypertonic solution is accredited is, then, that of breaking up and "paralysing or repelling the leucocytes." It is reasonable to assume, however, that considerable interference in the vital processes of the cells will occur as a result of the marked alteration in their salt and water content. It is unsafe to assume that such antibacterial albuminous bodies as may be present in the discharge retain their activity in a menstruum of 5 per cent. NaCl.

As to the beneficial action of 5 per cent. NaCl as a very weak antiseptic, there is no dispute.

3. *What is Effected by Secretion?*

It appears to us that little increase in the discharge of bactericidal substances can be expected as a result of osmosis and diffusion. Is not the greater part of the antibacterial substances *secreted* by the cell in its reaction to irritation by specific substances? Increased secretion of albuminous substances is one of the chief phenomena of inflammation. It is probably to this process that we must look for the source of most of our antibacterial agents. We must be careful not to interfere with this reaction by too great alteration of the salt content of the tissues.

SUMMARY.

(*a*) What, then, may be expected from the use of a strong salt solution in a wound?

By a process of osmosis water is extracted from intact cells, blood vessels, and closed lymph spaces. The same interaction increases the NaCl content of intact cells and those lymph spaces which may be slowly drained. When the strong salt solution is diluted or withheld, a rapid increase of water within the cells is to be anticipated. If continued for a long period, the colloid constituents of the cells imbibe water and the basis of oedema is established. A small amount of dialysable albuminous substances will emigrate from the cells, due to the absence of such substances in the dressing solution. This emigration will be unaffected by the NaCl concentration of the solution.

By a process of diffusion an interchange of NaCl and water will occur between the free fluids in the intercellular spaces and cut lymph channels which are in contact with the dressing solution, resulting in a concentration of the salt in these fluids.

At the same time a slow diffusion outward of all soluble proteins and other bodies (with the exception of NaCl) will occur, due to their absence in the dressing solution. Again, the NaCl concentration will not affect the rate of diffusion of these substances, nor will an outward *current* be produced by the interchange of NaCl and water and thus carry with it the free lymph. There remains the normally brisk reaction of secretion upon which we have to fall back for the desirable increase in antibacterial substances. This may be seriously inhibited by the excess of NaCl in the cells.

The migration of leucocytes will be checked and those on the surface of the wound probably destroyed.

The tryptic digestion of sloughs will be suppressed.

The character of the antibacterial substances secreted or diffusing into the wound may possibly be so altered as to become inactive by their dilution and solution in strong salt solution. The activity of the bacteria may be slightly reduced by the antiseptic action of NaCl in concentrations of 5 per cent. or more.

(*b*) What is to be expected from "physiological saline"?

The amount of osmosis is negligible as far as the interchange of NaCl and H_2O is concerned; there will be only a slight increase in the NaCl content of the cells. There will, however, be the same positive osmotic pressure of the albuminous substances within the cells resulting in the attraction of water. Therefore the waterlogging of the tissues will occur if the solution be used for a long period.

The process of diffusion will allow of an equal outward movement of soluble proteins as in the case of hypertonic saline solution.

The secretion of the cells will proceed without serious interference by the dressing solution until the gradual accumulation of water diminishes their power of reacting.

The migration of the leucocytes will proceed normally or be increased and their beneficial activities remain unaltered.

The tryptic digestion and dissolution of the sloughs in the wound will proceed at its maximum rate, free from the inhibition of strong salt solution.

The character of the antibacterial albuminous substances, diffusing or being secreted in the surface of the wound, will be unaltered.

(*c*) What is to be expected from hypotonic saline?

By the process of osmosis the combined positive osmotic pressure of the salts and proteins within the cells will be exerted. The result will be a rapid extraction of salts from the cell, and a rapid accumulation of water, with the early establishment of a waterlogged condition.

The process of diffusion will allow of an equal outward movement of soluble proteins as in the case of hypertonic and isotonic solutions. In addition, there will be a similar emigration of NaCl. The secretion by the cells will be interfered with as a result of the extraction of salts and the rapid accumulation of water. The migration of leucocytes will be checked.

The tryptic digestion of the sloughs will proceed a little more slowly than with isotonic solutions, but much more rapidly than with hypertonic.

The character of the antibacterial substances will probably be altered, and possibly be rendered inactive by dilution and solution in an abnormal menstruum.

CLINICAL EVIDENCE.

What clinical evidence is there of the success of the treatment with hypertonic salt dressings? Aside from the claims of its author, there have been scattered reports in its favour appearing in various medical journals. There is also a strong minority which is disappointed in the treatment. It is claimed that the infection is not diminished and that the wound is left in poorer condition by its use than would have been the case if it had been left alone. Attempts are made to reinforce the weak antiseptic action of the high NaCl content by the addition of a more active germicide. This is merely additional evidence that it has proved unsatisfactory.

We have seen it used rather extensively, and have not been convinced that it produced the results claimed for it. The saprophytic bacterial flora persisted quite as long as with the ordinary methods of antiseptic treatment, and the separation of sloughs did not appear to be appreciably hastened. We have, in addition, felt that oedema of the tissues around the wound occurred more frequently after the use of hypertonic saline than with other dressing solutions, possibly as the result of an increased deposit of salt. Furthermore, the recuperative reaction in the wound appeared to be retarded.

CONCLUSION.

The clinical superiority of the treatment by hypertonic saline dressings does not appear to be so decisive that the theoretical and experimental objections to their use can be disregarded.

The theoretical indications for the use of salt solutions appear to be based on an untenable hypothesis of the structure of the tissues about the wound, and an erroneous interpretation of physical and physiological laws.

Certain characters possessed by hypertonic NaCl solution are theoretically undesirable in a dressing solution, and their harmful action can be demonstrated experimentally and clinically.

Certain desirable results claimed to be effected by the use of hypertonic NaCl dressings cannot be demonstrated *in vitro*.

The chief beneficial character held by strong salt solutions, aside from the cleansing property possessed by all watery solutions, is their mild antiseptic action.

A detailed investigation of the specific character of special antiseptics may be a more profitable undertaking than an exclusive concentration upon the physical and physiological properties of sodium chloride.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, October 30th, November 6th, and November 13th, 1915. [2] Ibid., November 6th, 1915, p. 676.

RECENT EPIDEMIC OUTBREAKS OF ACUTE POLIOMYELITIS.

BY A. GARDNER ROBB, M.B., D.P.H.,

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IT seems to be clearly established that acute poliomyelitis has only in comparatively recent years appeared in epidemic form. The first definite and clear reference in the literature to an epidemic outbreak occurs in 1881, when Bergenholtz recorded the occurrence of 18 cases in one district in Northern Sweden; but it was not until the appearance of Medin's well-known record of 43 cases in Stockholm in 1887 that attention was called to the subject. Since that time outbreaks have been more frequent and ever-increasing in extent. In 1899 Wickman reported 54 cases in Stockholm, and in the same year Leegaard described an outbreak, also of 54 cases, which had occurred at Bratsburg in Norway, between July and October. Wickman's excellent record of his observations in over 1,100 cases in Sweden in 1905–6, his accurate description of the various clinical types met with in that epidemic, and of the *post-mortem* findings in the fatal cases, mark a great advance in our knowledge of the disease. In the same years—1905–6—Norway also suffered severely, about 1,000 cases being reported.

In Germany small outbreaks had been reported from time to time since 1886; the first large outbreak there

* Abridged from a paper read before the society.

occurred in Westphalia in 1909, 700 cases being reported, and there were at least 1,000 cases in Germany in that year. About the same time outbreaks were reported from Austria, Holland, Switzerland, Russia, and Australia. In France reports of epidemic outbreaks began to appear in 1888, and gradually became more numerous. Netter reported 100 cases in Paris in 1909. Italy had much the same experience, and small outbreaks also occurred in Spain. America came in with a record of 38 cases in Massachusetts in 1892, and since then has had annual visitations of ever-increasing magnitude. Epidemics increased in number and extent until 1910, when, all over Europe and in the United States and Canada, the disease was very prevalent. Between the years 1907 and 1910 America had, according to Flexner, 23,000 reported cases, and it is estimated that at least 20 per cent. of the cases were not reported.

In the British Isles the first report of an epidemic outbreak was made in 1897 by Dr. Pasteur, who met with 7 cases in one family. Reports of small outbreaks then began to appear more frequently. The first large outbreak was reported by Parker of Bristol in 1909; there were 37 cases. In 1910, 34 cases were reported in Carlisle, 37 in Barrow, and it is known that quite a large number of cases occurred in the towns and rural districts in the North of England. In that same year—1910—quite an extensive epidemic occurred in Leicestershire and Nottingham, Bingham and Melton Mowbray districts being most affected. In this outbreak, as has so often been the case elsewhere, both in Europe and America, the true nature of the epidemic was not at first recognized. For a considerable time the cases were diagnosed as cerebro-spinal fever. This mistake was the more easily accounted for by the fact that the meningitic type was common, and that there occurred at the same time cases of true meningococcal meningitis in the city of Nottingham. In 1911 also there were many cases in England, and quite an extensive epidemic was reported from Devon and Cornwall. The exact number of cases in this outbreak is not definitely known, but it was certainly over 200. This epidemic was very severe and the mortality in it high. In this outbreak also the cases were at first reported as cerebro-spinal meningitis. In Scotland the records are few, but outbreaks have occurred. Low reported 62 cases in and near Edinburgh in 1910.

In Ireland, at least since 1909, cases have been more common, and many small outbreaks have been observed. In the autumn of 1911 there were many cases in Belfast and the neighbouring counties. It was again very prevalent in our own district in 1913. Severe localized outbreaks have occurred in several districts—mainly rural districts—throughout the country. The best known of these occurred at Coagh, co. Tyrone, mainly in the practice of Dr. Burgess, commencing in October, 1913. Dr. Burgess had within a few weeks thirty-seven cases in a comparatively sparsely populated country district. A few months later Dr. Burgess had a single house outbreak; in this house there were six cases of very virulent type, with four deaths. During the progress of this outbreak I had an opportunity of visiting the district with the late Dr. Brian O'Brien and Dr. Burgess, and of examining some seventeen or eighteen of these patients, then in all stages of the disease. At the same time as the Coagh outbreak some fourteen cases occurred in quick succession at Irvinestown. It is not possible to obtain anything like complete figures for Ireland. I am indebted to Dr. Bigger, of the Local Government Board, for a return of the cases reported to the Board since 1912. From that return it does not appear that, with the exception of these two instances, there has been any considerable localized outbreak.

Seasonal Prevalence.—Practically all these outbreaks have occurred in the late summer and autumn. Some variation is shown in the times at which the period of maximum intensity has been reached. In many instances it has been in August, at other times as late as October. In some places cases have continued to crop up all through the winter months.

Symptomatology.

In all these epidemics the clinical types met with have been similar. Wickman's main types are—

I. The *abortive* type, in which the prodromal symptoms are present, but which clears up quickly without any paralysis.

II. The *spinal* type. In this group is included a large percentage of the cases. It is characterized by the usual onset followed by paralysis, temporary or permanent, of the limbs or muscles of the trunk.

III. The *ascending* or *descending* type, fortunately a small group in which the paralysis generally begins in the lower limbs, less frequently in the arms, and gradually extends and involves the muscles of respiration, terminating in death after a few days' illness.

IV. The *bulbar* or *pontine* type, in which some of the cranial nerves are affected, frequently in conjunction with some involvement of the spinal centres.

V. The *cerebral* type in which changes occur in the cortex of the brain, giving rise to spastic hemiplegia or monoplegia.

VI. The *meningitic* type, in which the symptoms closely resemble those of cerebro-spinal fever, the pia mater being much involved. Netter found that 29 per cent. of his cases were of this variety.

Wickman also describes (*a*) an *ataxic* type, but it seems doubtful if this variety should not be classed with the bulbar and pontine cases; and (*b*) a *polyneuritic* type, which many writers think should be included in the "spinal" class.

The incubation period is said to be generally five to ten days, but many observers believe they have met with instances of much longer periods, and Wickman reports one in which he was satisfied it could not have been longer than one day.

Whatever the type, the onset is always much the same, varying only in severity: An initial rise of temperature, generally digestive disturbances with vomiting and occasionally diarrhœa, drowsiness, profuse sweating, irritability, marked hyperæsthesia, with pain and general tenderness. Wickman lays stress on the diagnostic value of (1) drowsiness, (2) pain and tenderness, (3) stiffness of the neck, and (4) profuse sweating. According to Müller the outstanding signs are (1) the profuse sweating, (2) the hyperæsthesia, and (3) leucopenia.

In the cases which occurred in our own neighbourhood in the last few years all Wickman's types were met with, and I have seen examples of them all. The spinal type was common; several showed involvement of the cranial nerves.

In 1909 I saw with Dr. Gaussen two cases in one family at Lambeg, children of 10 and 12 years; both had taken ill on the same day. When I saw them, on the morning of the fourth day of illness, one showed complete hemiplegia, was unconscious, with rapid breathing and a temperature of 104°, with drenching sweating. This child died a day or two later; this was a typical example of the cerebral type. The other had a comparatively mild attack of the *spinal* type with partial paralysis of both legs.

In the autumn of 1913 there were many cases in the city. At that time I saw with Dr. McLorinan four cases in one family; all had taken ill within a couple of days. When I first saw them two had comparatively mild attacks of *spinal* type—one with partial paralysis in both legs, the other with partial paralysis in one arm. Another was still very acute, showed profuse sweating, with high temperature, and very great tenderness all over, especially in the legs. The dread of being touched was so great that the child when any one approached the bed held itself quite rigid and gripped the mattress with a hand on each side; the sweating was so free as to drench the pillow and bed. There was no mental confusion. We inquired from the mother if the other members of the family were quite well; she told us that the youngest child, an infant of ten months, seemed dull but not really ill. On examining this infant we found it had a temperature of 101°, was rather apathetic, and had complete absence of knee-jerks. This child did not develop any further signs. The temperature next morning was normal, but the absence of the patellar reflex remained for some time. This I take to be a typical example of the *abortive* type.

At this time, when there were many cases of poliomyelitis occurring in the city, I saw two cases of "Landry's paralysis" within a fortnight. One was a powerfully-built man of 21 years who had taken ill with headache, general tenderness, and mild fever with some vomiting. The vomiting and headache cleared off but the temperature remained elevated without obvious cause. I saw him with Dr. Martin on the fifth day of his illness: he had that morning shown some weakness in his legs and had complete loss of patellar reflex. He was removed to Purdysburn Hospital. Next day there was complete paralysis of the legs; the paralysis quickly extended to the arms and later to the respiratory muscles, and he died from the respiratory paralysis on the ninth day. The other was a case of Dr. Burnside's, a boy of 15 years. In this case the paralysis had extended much more slowly. When I saw him the legs were completely paralysed and the arms almost so. He was unable

to swallow and there was great difficulty in respiration. He died the following day.

Of the *ataxic* type I have only met with one case. This case I saw with Dr. Rentoul in Lisburn. Two children in one family had been taken ill on the same day. One developed a very severe attack of the combined meningitic and spinal type with complete paralysis of both legs, which was permanent. The other, a boy of 7 years, after a short feverish attack with gastric disturbance lasting a couple of days, developed a very ataxic gait. When I saw him the fever had cleared up. In bed he appeared quite well and very bright. He showed complete loss of knee-jerks, and when stood upon the floor he was able to walk without assistance, but with a *very* staggering gait. There was then no pain or tenderness. He was most anxious to give exhibitions of this staggering, which he treated as a great joke. He was kept at rest in bed and the ataxia rapidly disappeared. The knee-jerks remained absent for a considerable time.

Landry's Paralysis.—The position of "Landry's paralysis" in relation to acute poliomyelitis has given rise to much writing. Strümpell had insisted from clinical observation that they were identical. Wickman satisfied himself from histological findings that this view is correct. Römer states that "Landry's paralysis is only infantile paralysis with a fatal issue." Zimmerman as early as 1885, from *post-mortem* evidences, came to the conclusion that "Landry's paralysis and infantile paralysis formed only different degrees of one and the same disease." Römer refers to Landry's paralysis as "poliomyelitis acutissma."

Second Attacks.—Second attacks have been reported by many observers, but appear to be very rare. They have also been experimentally produced in the monkey.

Case Mortality.

In examining the records it is impossible to avoid the conclusion that the figures are not always closely comparable. In some outbreaks the abortive cases appear to have been carefully looked for, in others to have been generally overlooked. Wickman found that the abortive cases in some outbreaks accounted for over 50 per cent. of the total cases. In most of the mortality tables the abortive cases are excluded, only those in which there was definite evidence of paralysis being counted. Then the case mortality has generally been between 10 per cent. and 30 per cent., though in some outbreaks it appears to have been considerably higher.

Case Mortality Recorded by Various Observers.

		Mortality.
Wickman	868 cases in Sweden in 1905	16.7%
Leegaard	577 cases in Norway in 1905	14.5%
Krause	633 cases in Westphalia in 1909	12.3%
Müller	100 cases in Hesse-Nassau in 1909	16.0%
Frost	150 cases in Cincinnati in 1911	30.7%
Frost	1108 cases in New York in 1912	16.5%
England:		
Reece	154 cases in Cornwall and Devon in 1911	22.1%
Farrar	74 cases in the Midlands in 1910	10.8%
Ireland:		
Burgess	37 cases in Coagh, co. Tyrone, in 1913-14	27.0%

Etiology.

Dr. Robb gave an account of the researches which led to the establishment of the fact that the infecting agent is a filter passing organism, and proceeded as follows:

It was soon found that specific antibodies were present in the serum of humans and monkeys who had recovered from the disease. The blood serum from such cases when mixed with the virus destroys the infective power of the virus. The serum retains this power for a very long period. Netter records a case in which the blood serum was found to be still active after thirty two years. By this test it has been possible to prove (1) that epidemics in different countries are due to the same infecting agent; (2) that sporadic cases and epidemic cases are due to the same cause; (3) that the "abortive" cases are true cases of poliomyelitis, and it is also of great value in settling the diagnosis in doubtful cases. It has the disadvantage of being very expensive, as two monkeys are required.

Immunization.—All attempts to find a method of immunizing monkeys have so far failed. (1) Inoculations with active virus in minute doses; (2) inoculations with dried virus; (3) inoculations with virus attenuated or killed by chemical agents; (4) inoculations with heated virus; (5) inoculations with mixtures of virus and serum containing antibodies. So far no method which is effective and free from danger has been found.

Serum Therapy.—At present there does not seem to be much prospect of the successful employment of serum therapy in poliomyelitis. Where monkeys are infected by intracerebral injection of the active virus, the giving at the same time of large doses of serum containing antibodies, either by the intravenous, intraspinal, or intraperitoneal route, produces no results. Even if such a method of treatment were efficacious the fact that the ordinary "serum animals" could not be made use of must prove a great difficulty. Attempts have been made to treat acute cases of the disease with the serum from human cases which have recovered from an attack. The BRITISH MEDICAL JOURNAL published recently a note of the employment of this method by Netter in 32 cases. The results are still doubtful.

Method of Spread.

Two main views on the method of transmission of the disease were for a time held: (1) That the disease is communicated by personal contact; and (2) that it is conveyed by insects, the stable-fly being held mainly responsible.

Rosenau, of Harvard, in 1912 reported that he had successfully transmitted the disease by allowing numbers of the stable-fly (*Stomoxys calcitrans*) first to feed on an infected monkey, and by then transferring them to a healthy monkey. Anderson and Frost, of Washington, also reported that they had conveyed the disease in this way; but many other observers, after careful and elaborate experiments, obtained completely negative results, and Anderson and Frost failed in all their attempts to repeat their experiment. The fact that only after the injection of *very large* doses of the active virus can the disease be produced when the intravenous route is employed also goes far to establish the improbability of biting insects being the means of spread. After an exhaustive inquiry the stable-fly has now left the court without this stain upon its character.

It is now generally accepted that the disease is spread by personal contact (1) by acute cases; (2) by abortive cases; (3) by chronic carriers; and (4) by healthy carriers. It has been proved that the active microbic agent is at times to be found in the nasal washings of all these classes, and it is generally believed that the disease is conveyed by the passage of this active agent from the upper respiratory tract of one individual to the upper respiratory tract of another. It is possible readily to infect monkeys by rubbing in the active virus to the *abraded* nasal mucous membrane. It has been long known that the disease spreads along routes of traffic, and that schools are often important factors in spreading the infection, and there is no doubt that should the disease appear in epidemic form in Belfast the picture palaces would be accused of helping in its dissemination, as they have been accused, perhaps with truth, of helping to keep alive our scarlatina.

General Measures for the Control of Epidemics.

The attack-rate in epidemic outbreaks of poliomyelitis is, as a rule, a low one; to this rule, it is true, there have been exceptions. For instance, in the outbreak in Nauru there were 700 cases in an island population of 2,500.

In England a step in the right direction was taken at the beginning of 1913, when the disease was made compulsorily notifiable. Scotland and Ireland followed, but with a shorter step, for in Scotland and Ireland it is left to the option of each sanitary area to adopt notification, or not to do so, as they may think advisable. This is much to be regretted, for only universal notification is of much value. With us in Belfast the disease has been notifiable for a couple of years.

In America isolation of the cases, and in some places also of the contacts, is the rule. In Vermont the acute cases are being isolated for a minimum period of six weeks, and all known contacts for two weeks.

Drug Treatment for Contacts.—It had been found by Flexner that the administration of large doses of urotropin to monkeys before giving to them an infective dose of the active virus modified the results. In some cases the attack was prevented altogether, in others the incubation period was increased from the normal, of five to eight days, up to twenty-four days, and the attack, if it occurred, was generally mild. Urotropin has been much prescribed for known contacts.

THREE CASES OF BUBONIC PLAGUE ARISING IN ENGLAND.

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As has been reported in the public press, two certain cases, and one probable, of bubonic plague have been treated at the Bristol Royal Infirmary.

The first was a lad, J., aged 16. He was admitted under my care on July 30th, sent in with a diagnosis of strangulated hernia. He had been well in the morning, went for a cycle ride, but was taken suddenly ill with pain in the right groin and vomiting. I saw him late at night. He was obviously very ill, pulse 126, temperature 103°, respirations 24. There was an intensely tender swollen lymphatic gland in the right groin, with nothing on the leg, genitals, or perineum to account for it. He was extensively fleabitten.

I instructed my house-surgeon, Mr. Hayman, to make multiple incisions into the inflamed area around the gland, and passed him over to the care of my medical colleague, Dr. Edgeworth. My house-surgeon sent the cultures to Dr. Walker Hall for bacteriological examination, but it was not till two days afterwards that Mr. Hayman and I specially asked that plague bacilli should be looked for. Eventually they were found. The patient's further progress will probably be reported by others. He is now at a fever hospital, nearly well.

The second case, O., was a boy aged 10. He was admitted to my ward on August 1st with an inflamed gland in the right groin, a temperature of 103°, pulse 120, respirations 36. He did not look very ill. There was no obvious cause for the glandular inflammation. He had been laid up for one day previously. The temperature rapidly fell, the gland improved, and on August 5th he went home. This case has not been proved to be bubonic plague, and it would never have been suggested if it had not been that Dr. Edgeworth discovered that his father worked at the same factory as the lad J.

The third case was the one that definitely established the diagnosis, which in the other patients had been only a suspicion. A man, S., aged 23, was sent to my ward on August 5th diagnosed as appendicitis. He had been taken ill on the previous evening with pain in the right lower abdomen and groin, and had vomited four times. I saw him in the afternoon. He looked prostrate, restless, and anxious. The breathing was jerky, but not hurried. The temperature was 100°, pulse 96, respirations 24. There was great tenderness and rigidity in the right iliac fossa, but also an enlarged and tender gland in the right groin, with oedema round it, and no source in the leg, genitals, or perineum. He was covered with vermin.

After careful consideration I decided that, though it was probably plague, it was highly desirable to clinch the diagnosis by examining an excised gland, and as there was some possibility of its being appendicitis, and he had to have an anaesthetic anyhow, I explored and removed both the appendix and the gland. The appendix contained oxyurides, but was otherwise normal. The gland was soft, red, and swollen, and not suppurating. My house-surgeon stained a film, which we found full of bipolar bacilli. Dr. Walker Hall definitely established our diagnosis of plague a day or two later by cultural and animal inoculation experiments. The patient is recovering, but has a great sloughy hole in the groin (August 17th).

The patients S. and J., and the father of O., all work at a rag factory, full of rats and fleas, in a poor part of the city. No further cases have arisen, as far as I know, from August 5th till now (August 26th).

One can only speculate as to the source of the infection. No doubt further light will be thrown on this in due course. Plague bacilli have been demonstrated in a rat found dead in the factory. My own theories have been three:

(*a*) *Infection from the rags.* The patients, however, tell me that the rags do not come from abroad.
(*b*) *Infection carried by rats escaping from ships entering the port.*
(*c*) *Deliberate inoculation of city rats by an enemy.* If this last theory is correct, it is probable that other towns may have a visitation of rat plague, with human cases following.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ON THE USE OF PETROL FOR CLEANSING WOUNDS.

PETROL has been used for the first cleansing of wounds for over twenty years in the hospitals of Toronto, Canada, in their emergency wards in which accident cases are dressed; such cases include street, railroad, and machinery accidents, and have contused lacerated wounds with much dirt ground into them. Petrol has given excellent results in the cleaning of these wounds, probably through its fat-solvent action in removing tissue débris and particles of fatty tissue to which dirt clings, as well as dirt itself.

As wounds received at the front are contused, lacerated wounds, and come in a very dirty condition, it seemed worth while to try petrol in cleaning them; the method used in this field ambulance for the first cleansing of wounds is as follows:

The skin, and then the surface of the wound, is cleaned by vigorous rubbing with a swab of absorbent cotton soaked in petrol. Swabs of cotton are wound round an artery forceps or probe and soaked in petrol, and with them the wound is cleaned from the surface inwards as far as the forceps can be pushed. The forceps is rotated and pushed in all directions, a number of swabs being used, and the process is continued until a couple of swabs come out perfectly clean.

If there is much dried blood or gross dirt on the surface of the skin or wound, it is best removed with warm water and soap, and a brush if necessary, before the petrol is used.

The petrol does not cause any special smarting, and patients did not complain of it when questioned. If petrol is left wet on the skin and jaconet or adhesive plaster strips close together are applied over the dressing, preventing evaporation, blistering of the skin will occur, but otherwise this does not occur.

Petrol used in the manner described certainly seems to clean up the surface, and particularly the depths of wounds better than any other method we have tried. Many of the wounds, by shrapnel and fragments of shell or bombs, have small openings on the surface, but extend deeply for several inches, the tract being filled with a blackish mass of dirt, blood, and necrotic tissue. After cleansing such a wound by petrol as described above, this is all dissolved out, and a clean open track is left extending to the depth of the wound, which hardly requires drainage.

As to the results of this method of treatment it is more difficult to speak. Wounded cases dressed in a field ambulance are practically all evacuated within twenty-four hours, only very slight cases being kept for treatment, and it is practically impossible to follow up cases and compare the results of the petrol treatment with other methods. Those cases which we have dressed again on the following day seemed to do very well. As a rule the track of the wound seemed quite clear from suppuration; there was scarcely any inflammatory areola, and any discharge present did not appear to be infective pus.

The conclusion come to was that petrol was a most efficient means of cleansing wounds, especially the depths of punctured wounds, and that the removal of so much dirt and tissue débris must be beneficial. Very little petrol is used in the process, and it can be carried about conveniently.

It might be well, therefore, if this method were given a more extensive trial for the first cleansing of wounds as soon after being received as the condition of shock and haemorrhage will permit, and if such cases were followed up and the results noted and compared with those from other methods.

M. H. EMBREE, Lieutenant R.A.M.C.

A SUM of £20,000 is to be spent during the next three years by the American National Association for the Study and Prevention of Tuberculosis in an effort to control the spread of the disease. More than fifty towns and villages, with populations ranging from four to ten thousand, have been suggested as possible places for the experiment. Dr. Edward R. Baldwin of Saranac Lake, President of the Association, is chairman of a committee appointed to select a place.

Reviews.

THE DRINK PROBLEM OF TO-DAY.

Foremost among the sociological questions which the war has forced more than ever on public attention is the drink problem; and the publication of a revised and enlarged edition of *The Drink Problem of To-day*[1] edited by T. N. Kelynack, M.D., is specially opportune. The earlier work published in 1907, with the shorter title *The Drink Problem*, has long been out of print, and the present volume attempts more fully to meet the special needs of the times, and claims to be in great measure a pioneer work. "Its main aim," the editor says, "is to present principles and indicate laws governing the drink problem." The intention has been either to exclude more controversial topics and purely polemical points altogether, or to keep them strictly in the background, "to deal with the drink problem of to-day in a strictly scientific spirit and to present all medico-sociological aspects of the subject in a comprehensive series of authoritative studies." The volume contains fourteen separate articles, each dealing with separate parts of the subject and each written by an expert in his subject. Each contributor has been allowed a free hand and is alone responsible for the chapter contributed. There is in consequence a certain amount of overlapping, but it nowhere leads to useless repetition, and is in fact an advantage as showing how slightly divergent views may yet tend to a similar result.

The opening chapter on the biology of alcoholism, by Dr. Harry Campbell, deals briefly with the history of alcohol and the evolution of alcoholic drinks. The writer suggests that systematic drunkenness was a product of early civilization, and he discusses among other topics the the natural liking for intoxicants, the influence of natural selection on the liking for alcohol, customs tending to promote drunkenness, and the relation of alcohol to ill health. This chapter is followed by one on the pathology of alcoholism by Professor G. Sims Woodhead. He lays it down that the less highly developed the protoplasm, the less is its activity affected by alcohol; he describes the effects of alcohol in bringing about cardio-vascular changes and definite changes in nerve cells and nerve fibres, and produces recent evidence that alcoholized patients and animals are more readily attacked by various febrile diseases such as pneumonia, erysipelas, typhoid, and other fevers, and that tubercle and syphilis are distinctly promoted by alcohol, through its interference with the mechanism of immunity. Next follows a chapter on the psychology of alcoholism by Dr. Claye Shaw, who deals with the nature of the alcoholic craving and the mental and moral characteristics of the alcoholic. Sir W. J. Collins' next treats on the medico-legal relations of alcoholism, summarizing the limitations and defects in the present law. Alcohol and life assurance is dealt with by Mr. W. McAdam Eccles and Mr. Wm. Bingham, statistics being given as to the effects of alcohol on the expectation of life. Next follow chapters on alcoholism in relation to women and children, by Mrs. M. Scharlieb, M.D.; on alcohol and crime, by Dr. W. Sullivan; on alcoholism and poverty, by the Rev. J. C. Pringle; on alcoholism and national efficiency, by Dr. Robert Armstrong-Jones, and on alcohol and work by Sir Thomas Oliver. Sir Alfred Pearce Gould contributes an article on alcohol and war, in which he expresses the opinion that the use of alcohol in time of war is bad for the soldiers, as it lessens their power of physical endurance and resistance to extremes of heat and cold and to all infections, whether primary or secondary to wounds. Alcoholism and legislation is suitably dealt with by the Right Honourable Sir T. P. Whittaker, M.P., who advocates taking the liquor trade out of the hands of those whose interest is at present to sell as much as possible, and putting it under the control of persons who have no interest in pushing the sale, but whose only object would be to promote the public welfare. Mr. J. Turner Rae writes next on the educational development of national sobriety, and a final chapter on the arrest of alcoholism is contributed by the editor, Dr. Kelynack, who, after touching on some of the subjects treated by other contributors, gives an interesting summary of the important part which alcohol and alcoholism are exercising in relation to the great war. Referring to the German drinking habits, he says "alcohol has played no unimportant part in defeating the plans of our enemies," while, on the other hand, he points to Russia prohibiting the sale of vodka, and France forbidding the sale of absinthe. A good account is given of the restrictions placed on the sale of intoxicants in Great Britain since the war began, and of the effective work of the Central Control Board, and, in conclusion, a fairly full summary is given of statistics of the trade. The book was published before the experiment of taking over the beershops in Carlisle by the Central Control Board was commenced, and it might well be claimed that that experiment was largely in accord with numerous suggestions of this book. The success of the restrictions described by Dr. Kelynack is well seen in the most recent statistics, which show the enormous reduction in the amount of drunkenness and crimes from drunkenness throughout the country. The book may well claim to have raised the subject to a distinctly higher level of discussion. It deals with the problem of drink from a scientific standpoint, and its study cannot fail to be of the greatest advantage to medical practitioners, sociologists, and legislators.

[1] *The Drink Problem of To-day, in its Medico-Sociological Aspects.* Edited by T. N. Kelynack, M.D. London: Methuen and Co. (Cr. 8vo, pp. 316. 7s. 6d. net.)

THE OPEN-AIR TREATMENT IN AMERICA.

Edward Livingston Trudeau, the pioneer of the open-air treatment of tuberculosis in America, who died on November 15th, 1915, left an autobiography, which has recently been published.[2] The book has a twofold interest as the record of a struggle with a disease which after many alternations of defensive and offensive, proved victorious at last, and as the history of the growth of the Saranac Lake Sanatorium from the smallest beginnings to an institution of world-wide celebrity. It is delightful as a revelation of a nature in which gentleness and modesty were combined with a fine fortitude and an energy in work for the good of mankind which in the circumstances was heroic. It cannot be denied, however, that the flow of the story is marred by unnecessary details, repetitions, and otiose reflections; this makes the book somewhat tedious, and although we cannot help admiring and loving the author, we could wish that he had a little more literary art.

Trudeau was of French descent. His father, a doctor, was a great friend of the famous naturalist, John J. Audubon, whom he accompanied on many scientific expeditions and helped with the anatomy of the great work on ornithology, for which he drew illustrations of birds and eggs. The same love of nature was in the blood of the son, and when stricken with tuberculosis in 1872 he threw up his practice in New York and buried himself in the Adirondacks, then "an unbroken wilderness and considered a most dangerous climate for a chest invalid," but giving large opportunities for hunting and the pleasures of an open-air life in the great forest. So strongly did he feel that his span of life was to be short that he lost all interest in a profession he thought he would never live to practise. He began, however, by degrees to practise among summer visitors, and in 1882, after reading an account of a visit to Brehmer's sanatorium in Silesia, he resolved to try the new method of treating tuberculosis, of which nothing was then known in America. Trudeau had the happy gift of making friends, and with their help he built a few small cottages in which patients could be housed cheaply and comfortably. The Adirondack Cottage Sanatorium, which was established in 1884, has now grown into a picturesque little village consisting of thirty-six buildings, with macadamized roads, grass lawns and flower beds, which have taken the place of boulders and rough pasture. Besides the cottages, there are an infirmary for bedridden patients, a nurses' home, a post office, a library, a reception and medical building, with a laboratory and *x*-ray department, a pavilion for entertainments, a workshop where patients are taught fancy leather work, book-binding, brass work, and frame making and photography, and a chapel.

Trudeau had at first many troubles about water supply, drainage, coals, and so forth; he had to do all the medical

[2] *An Autobiography.* By Edward Livingston Trudeau, M.D. Philadelphia and New York: Lea and Febiger. 1916. (Med. 8vo, pp. 322; illustrated. 2 dols.)

work himself, he had no nurse, and no one to attend to the patients in their cottages. But in spite of all difficulties the fame of the place spread, and sufferers flocked to Saranac Lake. Among them was Robert Louis Stevenson, who spent the autumn and winter of 1837–1888 there. At Saranac his essays *Pulvis et Umbra*, *The Lantern Bearers*, a *Christmas Sermon*, and some parts of the *Master of Ballantrae* were written. "R.L.S." was bored by enthusiastic admirers; on one occasion after bowing out an importunate lady and banging the door after her, he said, "Trudeau, it is not the great unwashed whom I dread, it is the great washed." Though the doctor admired his illustrious patient their relations would have been classed by Charles Lamb as an example of imperfect sympathies. Stevenson lived in an ideal world and tried to shut out the unpleasant facts of life. He was enticed one day into the laboratory but quickly escaped, saying, "Trudeau, your light may be very bright to you, but to me it smells of oil like the Devil."

Among those who took an interest in Trudeau's work were Osler and W. H. Welch, and he says it was largely through Osler's influence that he was elected the first president of the National Association for the Study and Prevention of Tuberculosis. The laboratory has had a powerful educational influence. The amount of research done by his associates was revealed to him on his 60th birthday, when they presented him with two handsome volumes containing seventy papers representing their own work published in various medical journals in America and other countries from 1887 to 1908. Trudeau asks if the laboratory will some day extend its usefulness by becoming a teaching institution for advanced students and specialists. This question has already been answered. A foundation bearing his name was formally opened on May 17th, 1916. Its objects are to conduct research work, to investigate the causes of tuberculosis, and develop methods of treatment. There are three departments—the Trudeau School of Tuberculosis, the Saranac Laboratory for the Study of Tuberculosis, and a Society for the Control of Tuberculosis. Among the lecturers in the school are Professor W. H. Welch, Dr. Theobald Smith, Director of the Rockefeller Institute, Princeton, and Dr. Herman M. Biggs, State Commissioner of Health of New York. The institutions available for the purposes of the school comprise the Adirondack Cottage Sanatorium at Saranac, the New York State Hospital at Ray Brook, the Stony Wold Sanatorium at Lake Kushaqua, and the Sanatorium Gabriels, all in the Adirondack region and affiliated for the creation of a research and teaching institution of the first class. The humble root planted thirty-two years ago already shows promise of growing into a noble tree.

NOTES ON BOOKS.

THE address delivered by Dr. Thomas J. Watkins, President of the American Gynaecological Society, at its annual meeting in 1915, discussing the work it has done for gynaecology, is published in the fortieth volume of the society's *Transactions*.[1] The president dwelt on Noeggerath's contribution on latent gonorrhoea, especially with regard to its influence on sterility in women, which appeared in 1876; it was much assailed, but further experience has shown that Noeggerath's views were correct. The new volume contains a valuable store of monographs and articles, many of which are already known to our readers. The most important perhaps are those prepared by Dr. Franklin H. Martin on ovarian transplantation, by Hiram Vineberg on the fate of the ovaries left *in situ* after hysterectomy, and by Dr. Chalfant on subcutaneous transplantation of ovarian tissue. General surgeons will study with interest Dr. Bissell's notes on the surgical treatment of the tuberculous ureter in the female and Dr. Vineberg's paper on Kelly's method of cystoscopy.

A good general introduction to the study of colloids, suitable for medical men or students who wish to know more about a very progressive branch of science, is supplied by E. HATSCHEK'S little textbook, now in its second edition.[2] Colloid chemistry is being more and more frequently called upon to explain the subtle problems of the physics and chemistry of the cell, when the physiologist or pathologist (as the case may be) finds himself gravelled for an explanation. The reader who has digested the readily-assimilable contents of Mr. Hatschek's little volume will find himself able to grasp such explanations and to realize their value.

MISS MACMILLAN'S *Infant Health*[3] contains the substance of a course of lectures delivered by the authoress to voluntary health visitors in Aberdeen and Oxford. In a foreword by Professor Osler he says that it should be most helpful to district visitors and nurses, and could be put in the hands of intelligent mothers. "It is not easy," he adds, "to give just the needed amount of information on health subjects, but Miss MacMillan has found the happy mean between a technical treatise and a popular handbook." We gladly endorse this commendation.

[1] *Transactions of the American Gynaecological Society*, vol. xl. for the year 1915. Philadelphia: W. J. Dornan. 1915. (Med. 8vo, pp. 600.)

[2] *An Introduction to the Physics and Chemistry of Colloids*. By E. Hatschek. Second edition. London: J. and A. Churchill. 1916. (Cr. 8vo, pp. 114; 17 figures. 3s. net.)

[3] *Infant Health: A Manual for District Visitors, Nurses, and Mothers*. By J. (Shawnet) Cameron MacMillan, C.M.B., A.R.San I. London: H Frowde; Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 136; 9 figures. 2s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Paraffin Treatment of Burns.

WE have received from a correspondent a specimen of "ambrine," the petroleum wax preparation used in the treatment of burns, as noted at p. 333. It is of a greyish-black colour which is not quite uniform. It has been examined for us by Messrs. Squire and Sons, who report that the substance accountable for the colouration is in suspension and not in solution, as the coloured matter settles out when the wax is melted and is altogether removed by filtration; the quantity of the colouring matter is relatively small. The solution of the wax in a neutral solvent is neutral to litmus paper. The following results were obtained upon analysis:

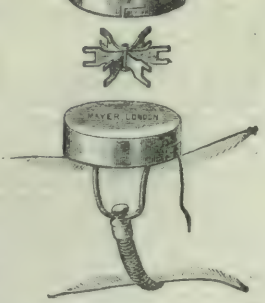
Melting point	50° C. (122° F.)
Specific gravity at 15.5° C. (60° F.)	0.908
Acid value	1.12
Ester value	4.5
Sapon. value	5.62
Ash	Nil.

These figures indicate that the wax contains only a very small proportion of resinous ingredients. Dr. Sandfort, we understand, states that the wax, to which he has given the name "ambrine," consists of paraffin to which succinite, by which probably is intended oleum succini, is added. When blown on to the skin it instantly solidifies into a tough tissue-paper-like film. Some difficulty may be encountered in obtaining in this country a spray with the proper bore, but this can, no doubt, be overcome by experiment. Professor Peters figured a rather elaborate nozzle in the JOURNAL of 1898, vol. ii, p. 621, but the cold water he employed for making casts is not required for the present purpose. The paraffin he used melted at 125° F.

MEDICAL AND SURGICAL APPLIANCES.

A Wristlet Ligature Holder.

MR. PERCIVAL P. COLE (London, W.) writes: The wristlet ligature holder, as illustrated, has been made to my design by Messrs. Mayer and Meltzer.



I find it very convenient as a time-saving device, where a number of bleeding points have to be tied—in the course, for example, of such operations as removal of the breast, glands in the neck, and thyroidectomy. The lid is removable, and, when secured by a bayonet catch, leaves a small slit-like aperture, through which the ligature material emerges. Owing to its small bulk, it can be worn throughout an operation without inconvenience. The skeleton reels are removable, and a number can be kept ready wound and sterilized. A reel will easily hold 40 ft. of fine thread. If gut be used, iodine should not be utilized in its preparation, owing to its action on the metal.

A FRENCH veteran of 1870, who volunteered last year at the age of 76 and has been serving as a sergeant in the engineers in every position of danger, in spite of offers to give him employment in the rear, has been awarded the Croix de Guerre.

EXPERIMENTS ON LIVING ANIMALS.

A REPORT showing the number of experiments on living animals during 1915 under licences granted under the Act 39 and 40 Vict., c. 77, has just been issued.

ENGLAND AND SCOTLAND.

The return for England and Scotland is signed by the chief inspector, Professor G. D. Thane. Twenty-one new places were registered and two removed from the register during the year. Of the new places registered thirteen are laboratories connected with naval or military hospitals and sanitary institutions. The total number of licences during 1915 was 664. Reports were furnished by—or in a few cases on behalf of—nearly all the licensees, but in three instances it was not possible to obtain the necessary report owing to the absence of the licensees on war service. The return shows that 323 licensees performed no experiments. A table (II) gives the names of the licensees and the number of experiments performed by each. It is divided into two parts, which contain respectively experiments done without, and with, anaesthetics.

Number of Experiments.

The total number of experiments in Table II (A) is 2,771. Of these there were performed:

Under Licence alone	1,505
Under Certificate C	275
Under Certificate B	782
Under Certificate B+EE	209

Table II (B) is devoted entirely to inoculations, hypodermic injections, and some few other procedures performed without anaesthetics. It includes 67,802 experiments, whereof there were performed:

Under Certificate A	67,521
Under Certificate A+E	270
Under Certificate A+F	11

The total number of experiments was 70,573, being 16,680 fewer than in 1914; the number of experiments included in Table II (A) shows a decrease of 2,118; that in Table II (B) a decrease of 14,562. During the year 11,657 experiments were performed by fourteen licensees in the course of cancer investigations. Of these 281 are in Table II (A) and 11,376 in Table II (B); the latter are almost entirely inoculations into mice. Seventy licensees reported over 20,000 experiments for Government departments, county councils, municipalities, and other public health authorities. Twelve licensees reported nearly 25,000 experiments for the testing of antitoxic serums and vaccines and for the testing and standardizing of drugs.

Inspections.

During the year the several registered places were frequently visited, and a large number of experiments were witnessed by the inspectors. For the most part the visits were made without previous notice. The animals were found suitably lodged and well cared for, and the licensees generally attentive to the requirements of the Act and the conditions attached to their licences by the Secretary of State.

Irregularities.

The irregularities which came under notice were few and not serious.

Two licensees performed, in connexion with hospital work, three inoculation experiments on rodents, after the certificates which they held for such experiments had expired. They expressed their regret, and submitted fresh certificates. The Secretary of State caused a suitable admonition to be addressed to them, and their new certificates were allowed to come into operation.

A licensee who held Certificate A for inoculations performed some experiments in which he exposed animals to certain gases which were found to be destructive to vermin. As it appeared that this was due to a misreading of his certificate, he was cautioned as to the importance of a careful adherence to the exact terms of the Act and of the licence and certificates granted thereunder.

A licensee performed two inoculation experiments at a military hospital which was not a registered place. It appears that this arose from a misconception as to being certain that the visit of the inspector was sufficient to ensure registration, so that no official application was made. When this became known the licensee had left on war duty. The place was then registered and a new licensee was authorized to perform experiments there.

A licensee holding Certificates B+EE for experiments on dogs and cats performed forty experiments in excess of the number allowed by those certificates. He explained his error as being due to his absence owing to illness during the year 1914, and his impression that he had a larger number of experiments left than was the case. He was admonished and cautioned as to his future proceedings.

A licensee who held Certificate B+EE for experiments on dogs and other animals made two injections into dogs which were not covered by the terms of those certificates. He explained that he had presumed that the experiments were covered by the certificates. He was told that no experiments can be performed under certificates except such as fall within their definition strictly construed. He expressed his deep regret at having exceeded his powers, and as the Secretary of State was satisfied that it was not a wilful contravention the licensee was censured, and the licence was allowed to remain in operation.

IRELAND.

The inspector, Dr. Joseph O'Carroll, states that during the year an outhouse and laboratory at the Military Barracks, Tipperary, were added to the list of registered places. The number of persons holding licences at the end of 1915 was 27. Four new licences were issued, three lapsed, one licensee died, and one licence was revoked at the request of the licensee. The renewal of two licences was deferred. During the year 590 experiments were performed by 17 licensees, 66 being under licence alone and 524 under certificate; 488 were simple inoculations under Certificate A. In 91 cases the object of the research was physiological, in 442 it was pathological, and 57 had a therapeutic aim. Three communications to learned societies—two physiological and one pathological—are recorded as based on the experiments of 1915. The inspector concludes by stating that he has every reason to believe that the holders of licences obeyed the spirit as well as the letter of the Act, and that experiments were not unnecessarily multiplied.

Medical News.

DR. W. W. KEEN of Philadelphia has been invited to give the second Colver Lectures at the Brown University, Providence, Rhode Island. The university was founded 150 years ago, but the Colver Lecture is a new endowment. The first course was given by the president of Johns Hopkins University last winter, and Dr. Keen's course will be given next January.

THE Germans having now experienced the effect on their own soldiers of gas attacks have been devising gas masks and would appear to have resorted to a rather crude method of testing their efficiency. A correspondent of the *New York Times* with the German army on the Somme states that he was taken to the testing-room at the central gas department through which every German soldier with a new gas mask must pass before being sent to the trenches. They are kept in this chamber half an hour, and if the officer who watches them through the window observes that they make frantic gestures this is considered to be *prima facie* evidence that the masks leak. It is claimed that the masks remain efficient for eight hours, but the whole story is not very clear, for the writer also states that enough masks are kept in store at one point for two army corps and rushed to the front whenever a big gas attack is reported.

THE Department of Health of the State of New Jersey some time ago began the publication of *Public Health News*, a periodical which is sent free to any person who applies to the director. The last issue, that for July, is an infantile paralysis number. It states that in New Jersey 47 cases were reported in 1911, 59 cases with 21 deaths in 1912, 87 cases with 20 deaths in 1913, 35 cases with 18 deaths in 1914, and 35 cases in 1915. For the first six months of 1916, 20 cases were reported. The department has issued a circular to local boards of health in which it is pointed out that acute poliomyelitis is an infectious and communicable disease, and that healthy persons who show no symptoms may harbour and transmit the infective organism to others. The virus, it is added, has been shown to exist in the nose, the mouth, the pharynx, and upper air passages and the intestine of infected persons, and in the dust of a room that has been occupied by an acute case. Evidence of the transmission of the disease by the bite of the *Stomoxys calcitrans* (stable fly) has not been definitely verified, but it is considered quite probable that flies of various species do play a part in the spread of the disease by carrying infective material. The duration of the period of infectivity or contagiousness has not been definitely determined, but experiments on animals have shown that the virus sometimes persists in the nasal mucous membrane for many weeks. It is stated that the mortality has been as high as 25 per cent. in some outbreaks, but that in others it has been from 13 to 16 per cent. The rate of permanent paralysis in those who recover is said to be 50 per cent. The average incubation period is stated to be about seven days, but it may vary from three to fourteen days.

British Medical Journal.

SATURDAY, SEPTEMBER 2ND, 1916.

THE EDUCATIONAL INQUIRY COMMITTEES.

THE Prime Minister has admitted on many occasions in response to parliamentary representations made to him, that the existing system of education in this country, with reference especially to science and modern languages, ought to be overhauled. His earlier statements seemed to convey the impression that the matter was to be the subject of inquiry by the Cabinet itself, but this was far from satisfying those members of Parliament most interested in the subject. They believed, no doubt, that the Cabinet was too busy to conduct any adequate inquiry into so complex a subject. This view has prevailed and two committees have been appointed. The first, or Science Committee, is "to inquire into the position occupied by natural science in the educational system of Great Britain, especially in secondary schools and universities; and to advise what measures are needed to promote its study, regard being had to the requirements of a liberal education, to the advancement of pure science, and to the interests of the trades, industries, and professions which particularly depend upon applied science."

It was at first announced that Lord Crewe was to act as chairman, but unforeseen circumstances have prevented him from accepting the office, and it is, perhaps, not altogether a misfortune that this should be the case, for he has been replaced as chairman by the President of the Royal Society, Sir J. J. Thomson, Cavendish Professor of Experimental Physics at Cambridge. With him as representatives of science are Dr. H. B. Baker, F.R.S., Professor of Chemistry in the Imperial College of Science, and Dr. E. H. Starling, Jodrell Professor of Physiology at University College. The educational expert members of the committee are Dr. Michael Sadler, C.B., Vice-Chancellor of the University of Leeds; Mr. W. W. Vaughan, Master of Wellington College; Mr. Graham Balfour, Director of Education for Shropshire; Mr. C. W. Crook, President of the National Union of Teachers; Miss E. R. Gwatkin, Mr. William Neagle, and Mr. F. G. Ogilvie, C.B., Secretary of the Board of Education for the Science Museum and director of that museum. The representatives of trade are Sir William Beardmore, chairman of the engineering firm which bears his name, and Sir G. H. Claughton, Chairman of the London and North-Western Railway. The committee is completed by the addition of two members of Parliament —Mr. F. D. Acland, Parliamentary Secretary of the Board of Agriculture, and Sir Henry Hibbert, Chairman of the Education Committee of the County Councils Association. The secretary is Mr. F. B. Stead, an inspector of schools.

The reference is very wide, and the fruitfulness of the inquiry must depend to a very large extent upon the direction given to it. The phrase instructing the committee to advise what measures are needed to promote the study of science, having regard to the interests of the trades, industries, and professions which particularly depend on applied science, is oddly worded. The inquiry should have regard not to the interests of the trades, industries, and professions as though they were things or personalities apart from the nation, but to them as parts of the nation, through and by which it maintains itself, increases its efficiency, and adds to the happiness of its individual members. The phrase may be used by obscurantists to hamper the committee as the idea which seems to find expression in it has hampered industry and some professions in the past. Science works for the good of humanity, not to gratify ambitions of its own, and, so far as it is national, for the good of the nation as a whole. If the bureaucratic idea that science is something which is to be kept quiet and obedient by doles is allowed to dominate the committee, it will fail to do any good. The master idea by which the labours of the committee should be informed is to show how the study and application of science can be made an essential part of the national life; to do the draftsman of the instruction justice it must be admitted that he had some inkling of the truth when he told the committee to have regard to the requirements of a liberal education. Hitherto a liberal education has meant a knowledge of humane letters, and chiefly of such knowledge as may be gained through the medium of dead languages. At the present day there are a good many men, especially among the governing classes, considering themselves well educated, who profess without regret total ignorance of science; they look upon it either as a harmless hobby or as a form of knowledge which the State or industry can purchase at a low price from the misguided people who have given themselves up to "stinks." We very much hope that Sir J. J. Thomson and his committee may succeed in making this sort of person a little ashamed of himself.

The phrase in the instruction referring to pure science seems to be open to misunderstanding, for it will be apt to convey to the uninformed persons to whom we have been referring the idea that "pure" is a particular department of science. Nothing was more purely pure than Clerk Maxwell's work, yet physicists have not yet finished applying it. A great deal of Lord Kelvin's work was pure science, yet throughout his long life he was himself never ceasing to apply it. In the case of medicine, too, no hard-and-fast line can be drawn. Physiology, for instance, may be studied, and studied profitably, as a pure science, but facts established by physiological inquiry are quickly utilized by the applied science of the practice of medicine. The first object of the committee must be to instruct the governing classes and those who determine the policy of the older English universities. It is devoutly to be hoped that it will not lose itself in a wilderness of evidence. The facts the committee requires in order to advise on main principles are already in the possession of its members, and the Prime Minister has frequently promised that the inquiry the Government recognizes to be necessary should deal with main principles and be speedily conducted. If the Science Committee is to consider such matters as the provision of scholarships, bursaries, etc., it is to be hoped that they will be relegated to a secondary place and made the subject of a separate report.

The other committee—that on modern languages—is instructed "to inquire into the position occupied by the study of modern languages in the educational system of Great Britain, especially in secondary schools and universities, and to advise what measures are required to promote their study, regard being had

to the requirements of a liberal education, including an appreciation of the history, literature, and civilization of other countries, and to the interests of commerce and public service." Its chairman is the first Civil Service commissioner. That commission was set up in 1855 to apply tests of fitness for junior situations in the Civil Service; fifteen years later it was instructed to use competitive examination as the universal system of testing fitness. As has recently been pointed out with authority, the system actually involved has had a numbing influence on the development of higher education in this country.

EXPLOITING PANEL DOCTORS.

A SHORT editorial note appended to a letter from Dr. de Gébert in the SUPPLEMENT of August 19th, page 66, has had a somewhat mixed reception. On the one hand, it was evidently welcomed by a number of panel doctors as suggesting a means of relieving a position which has become unbearable, but the *National Insurance Gazette* in a leading article last week expressed the opinion that the advice given was "unfortunate," and that "if members of the British Medical Association take that advice there will be trouble." The note must be read in conjunction with Dr. de Gébert's letter; he complained that an insured person went to him having a medical card which had not been signed by any other doctor; he signed it, presumably sent it to the Clerk of the Insurance Committee, and attended the patient for a fortnight or three weeks, and then found out that the patient had not been put on his list. The reason for this is not stated, but it must have been either that the patient was for some reason not entitled to medical benefit, or that the clerk of the committee for some cause had delayed in dealing with the matter. In the latter case the doctor had just ground for complaint, especially as the clerk has recently stated that "when a doctor signs a medical card accepting the insured person on his list he immediately assumes responsibility for the treatment of such insured person." The editorial note assumed that the person was not placed on the doctor's list because it was found that he was not entitled to medical benefit. In the note it was said that "it is monstrous to expect a doctor to accept responsibility for panel treatment of a person who may prove to be disentitled to medical benefit," and it was added, "whenever there is any doubt, the doctor applied to should refuse to sign the card and refuse to give treatment unless the person pays for it." The question of the responsibility of panel doctors for the treatment of unassigned persons is quite a separate question and hardly affects the case. The penalty for refusing to treat an unassigned person entitled to medical benefit would be loss of a share in the unassigned funds which at present appear to be rather a shadowy quantity; but surely there could be no penalty for refusing to treat an unassigned person who was found to be disentitled to medical benefit, and to give prescriptions in doubtful cases would be simply gambling with the drug fund.

It may be said that the possession of a medical card entitles the possessor to free treatment from a panel doctor, but this brings us to the point of our protest. It ought to be true, but is not true, that a medical card shows a title to medical benefit. It is certain that at present there are thousands, probably many hundreds of thousands, of persons in possession of medical cards who have become disentitled to medical benefit. In other words, it by no means follows that a panel doctor will receive any remuneration whatever when he signs a card and gives treatment, or that the chemists will be paid for the drugs they supply. An enormous proportion of insured persons who have joined the army have neglected to give up their cards or notify their society, and it is quite a common occurrence for soldiers on furlough to present their cards to their former panel doctor and expect free treatment; their names may still be on the doctor's list. In the same way numbers of persons who have never been assigned to any doctor and who have joined the army have kept their cards and imagine that they have only to present them to a panel doctor to obtain free treatment. In all these cases the doctor should understand that the Insurance Committee will never be able to pay any capitation fee for these persons from the time they joined the army; the army authorities are responsible under certain strictly defined conditions.* It is, of course, often the insured persons themselves who are primarily at fault; they ought to have notified their societies when they joined the army, but it is matter for surprise and complaint that the army authorities have not done more to see that the men carry out their duty in this respect.

If this were all, however, the profession would hardly have been inclined to utter any protest at this time, for it has shown itself ready to put up with a good deal of unfair treatment rather than trouble either the army authorities or the men who are ready to fight so nobly for their country. But altogether apart from the war the index registers and the medical registers have become a disgrace to the National Insurance system, and the doctors, who are the least of all responsible for either of the registers, are made the chief sufferers. Both registers are inflated to an extent which is unknown, but unquestionably very great, and the payments to Insurance Committees and panel doctors for medical benefit have to be settled by a system of juggling with figures in which the committee with the worst kept register comes out best. As was pointed out on a previous occasion, it is a mere matter of luck whether any particular panel doctor gets anything like his due, and it is a poor consolation to individuals to be told that the sum total paid to the profession is as nearly accurate as possible. Some recent investigations have shown that quite an astounding number of persons have been receiving medical treatment from panel doctors when they were not entitled to it—persons, for example, disentitled owing to penalty arrears and women who have married and have later lost the right to medical benefit.

The whole system of dealing with these cases seems designed to put the doctors at the mercy of the carelessness of innumerable persons. It is the duty of the approved society at once to notify the Insurance Committee when a person becomes disentitled, and then it is the duty of the Committee to write to the person asking for the return of his medical card. But the society officials often neglect to notify the Committee until several months have passed, and during all this time the doctor may be actually giving treatment and seeing at intervals the medical card, which appears to be in order. When the Committee, after this interval, actually receives the society's note, another delay often occurs, but at length a letter is sent by the Committee to the insured person. That person again may delay in returning the card, and it is disquieting to find from

* The claim must be made on Army Form O. 1667, the instructions in which must be precisely followed. According to a statement put out by the Insurance Commission for England last year (SUPPLEMENT, March 13th, 1915), clerks of Insurance Committees have been provided with copies of this form; copies can also be obtained from the Medical Secretary of the British Medical Association.

reports of several committees that a proportion as large as 30 per cent. of the letters are returned, after a delay of a week or two, through the dead-letter office, marked "Wrong address; not found." An insured person who has removed may not know that he has become disentitled to medical benefit, may still retain his card, and the doctor may still be giving treatment. It is surely astonishing that the Commissioners should have done practically nothing except write letters to societies and committees reminding them of their duties, letters of which apparently these bodies take no notice.

It has become only too clear that until the societies and, if necessary, the committees are fined for their neglect, and the fine paid to the doctor to compensate him for services which he should never have been called on to render, the abuse will continue indefinitely. Most of the cards have been unchecked for over two years, and if the expense of issuing fresh cards is too great, the least that could be done would be to require them to be officially stamped at suitable intervals to show that they continue to be valid vouchers. We repeat that though the medical card may appear to be in order, it is no guarantee that the doctor depending on it will ever be paid for his services. We have sufficient knowledge of the profession to be assured that emergency cases needing urgent and immediate treatment, whether entitled or disentitled to it, will receive what is immediately necessary, even though the doctor knows at the time that he will never be paid; but to expect after the immediate necessity has passed further treatment when there is any doubt, and until the doctor is notified that the person has been placed on his list, is unreasonable and inequitable. As matters are at present, we do not see what other course is open to the doctors than that suggested in the editorial note. A desperate disease requires a desperate remedy. The profession is losing large sums through the present muddle. Protests, which have been so often made, have had no effect, and it is only by united action such as has been suggested that the injustice will be righted.

PARAFFIN TREATMENT OF BURNS.

WITH reference to the paraffin treatment of burns, a note on which was published in these columns on July 29th, p. 153, we have received some fresh information from a correspondent who has had opportunities of observing its use at the Hôpital St. Nicolas, Issy-les-Moulineux, Paris. His remarks on the subject may be summarized as follows: The hospital mentioned is the only one at which the paraffin treatment has hitherto been applied on a large scale, and it is there known as "ambrine treatment." The hospital itself is an ordinary French auxiliary military hospital of about 500 beds, of which 80 have been set aside for the treatment of burns by ambrine. These beds are under the control of Dr. Barthe de Sandfort, the deviser of "ambrine," but the treatment itself is applied by ordinary military surgeons. The wax employed, a semitransparent substance of violaceous hue, is prepared under Dr. de Sandfort's own supervision, and its exact composition has not yet been disclosed. This, however, is of very small practical importance, since everything points to the conclusion that any paraffin wax of the same melting point and degree of ductility would have precisely the same effect (see p. 329). Strictly speaking, it is not a treatment, but a form of dressing, which is applied in the following fashion: The wax having been reduced to the consistency of water by heating it to about 80° Centigrade over a spirit lamp, is sprayed on to the burn until its surface is dulled, or, in other words, until its colour is obscured by the interposition of a fine delicate screen of wax. This first layer applied, the second is put on by means of a paint brush, the two layers together being about the thickness of ordinary blotting paper. The formation of the first pellicule is instantaneous, and that of the second is hardly less rapid. The completed pellicle is then covered by a very thin layer of cotton-wool, kept in place either by a bandage or a few dabs of wax. When the time comes to change the dressing one corner is raised and the whole dressing, wax pellicle and cotton-wool included, is gently rolled off. It comes away without any difficulty, since exudation from the wound has already ended the contact between pellicle and wound surface. It is, in fact, mainly the amount of this exudation that regulates the frequency with which the dressing must be renewed. If the output of pus is considerable it begins to trickle out from under the edges of the dressing within twenty-four hours, and the latter, being now quite loose, must be replaced. If the quantity of exudation is small the interval between the dressings may be correspondingly longer. Whatever the interval, the surface of the wound is thoroughly cleansed before the fresh dressing is applied. In performing this cleansing the greatest care is taken to avoid injuring any granulations that may be forming. To this end the cleansing is effected by making a fluid flow over the wound surface. Usually plain boiled water is used for this purpose, but hydrogen peroxide may be added in early cases still presenting fragments of scarred tissue or unseparated sloughs. However exuberant the granulations may appear, nothing is done to repress them, for it is held that any interference with the granulations may lead to the formation of scar tissue. The first sign of the approaching transformation of the granulations into dermal tissue is commonly the appearance of a circular depression, an islet of epithelium becoming visible at its base a day or two later. Such depressions and islets may appear several inches away from the unharmed skin surrounding the burn. The primary and quite incontestable advantages of the treatment are two: it is agreeable to the patient because entirely painless; it is convenient to the surgeon because easily and quickly applied. As for its results, prolonged study would be necessary to determine how they compare with the "open" treatment which was recently in use in the navy, but they appear certainly more satisfactory than those of treatments hitherto commonly used. All these cause a good deal of pain, are slow in effecting a cure, and often leave big cicatrices. This difference in result seems due to the fact that in paraffin treatment properly applied there is no injury of granulation tissue or other interference with Nature's own efforts to bring about a cure. It is an essential part of paraffin treatment that the first pellicle should be secured by spraying on the wax from a heated container, for in this way any touching of unprotected granulations is avoided. It is possible that the treatment by paraffin spray would be found useful in dealing with ordinary ulcers, and in any case it is certain that the study of its application to raw surfaces is worth pursuing. It will be the easier to appreciate the results at the hospital at Issy because the progress of the cases there is habitually recorded by means of coloured photographs.

THE BELGACHIA MEDICAL COLLEGE, CALCUTTA.

THIS institution, which is described as "the first medical college in Bengal organized by private enterprise, and managed entirely by Bengali medical men," was formally opened by Lord Carmichael, Governor of Bengal, on July 5th, 1916. The history and development of the college were related by the president, Dr. Bannerjee. It has long been realized in India that the Government medical colleges and schools, whose main purpose is to provide officers for the public services, are not adequate to supply medical

practitioners to meet the requirements of the native population. Efforts have been made from time to time to start private medical schools under Indian control and support, and staffed by Indian teachers; but for lack of funds, suitable accommodation, and appliances these have not been successful, and have not obtained Government recognition. The present college commenced work in 1887 as the "Calcutta Medical School" under great difficulties. "There was no outdoor dispensary, dissection was not allowed, there was no hospital and no possibility of clinical instruction." Pupils were permitted in 1838 to attend the Mayo Native Hospital and its branches; in the same year an outdoor dispensary was opened; in 1889 permission was obtained for dissection; in 1897 a small hospital, containing fifteen beds, was provided; in 1902 a hospital, containing forty beds, was opened at Belgachia, a suburb of Calcutta, where the Bengal Veterinary Department and Veterinary Hospital and the Macleod Veterinary College are located. The cost of erecting the hospital was met from savings, private contributions, and the surplus of a fund raised "to give a suitable reception to His Highness Prince Albert Victor on the occasion of his visit to Calcutta in 1890." The new hospital was named after this Prince. In 1904 the "Calcutta Medical School" was amalgamated with the "College of Physicians and Surgeons of Bengal." Instruction had hitherto been given in the vernacular up to the standard of the Government vernacular schools. Teaching was now conducted in English, and extended to five years up to the standard of the Government College. Under the encouragement and liberal support of the Government of Bengal, the Calcutta Municipality, the University of Calcutta and influential and wealthy native gentlemen, the assistance of Surgeon-Generals Sir Pardy Lukis and W. R. Edwards, and the praiseworthy efforts of the teaching staff, the hospital has been enlarged, suitable college buildings have been added, a curriculum of study up to the University M.B. standard arranged, and the institution has been affiliated to the Calcutta University "for the preliminary scientific M.B. examination." Lord Carmichael's speech was sympathetic and laudatory. As indicating the need of additional means of medical education he mentioned that "last year 725 students applied for admission to the Medical College, but the number of vacancies was only 137; at the Campbell (vernacular) school there were 530 applicants for admission but only 122 vacancies." The organization of the Belgachia Medical College is highly creditable to all concerned, and constitutes an important step in providing practitioners of rational medicine for service among the peoples of Bengal.

PURIFICATION OF WATER BY BLEACHING POWDER.

MR. CREE BROWN, Professor of Engineering in the College of Science, Poona, has described in the *Indian Journal of Medical Research* an apparatus for the purification of water for troops by hypochlorite of lime. Such an apparatus, he points out, must be sufficiently simple for use by unskilled men, and the result must be thoroughly reliable. His apparatus consists of two tanks, one above the other. Into the upper and smaller tank water is pumped from the source of supply. The hypochlorite solution is mixed with it as it leaves this tank to run into the larger tank, in which the process is completed in the course of a few minutes. The water entering the lower tanks smells strongly of chlorine, but that drawn off from the bottom of it is tasteless, odourless, and free from dangerous bacteria. The apparatus by which the mixing is carried out consists of a glass gauge, protected by a brass tube and connected with both the upper tank and the gauge by a three-way cock, which is an essential part of the design. The hypochlorite is admitted through the glass gauge. The hypochlorite solution is mixed in a bottle by agitating bleaching powder and water in the correct proportions. Free lime is allowed to settle; the upper receiving tank is then filled with untreated water and the hypochlorite solution poured into the gauge to the same level as that of the water in the tank. The three-way cock is then opened so that the untreated water and hypochlorite solution flow through it into the tank below, mixing *en route*. As the water levels in the tank and in the glass gauge fall at the same rate the resulting mixture is in the correct proportions throughout. In a note appended to the paper Captain J. Morison, I.M.S., describes a modification of Professor Sims Woodhead's method of dosing the bleaching powder which he has had in use since July, 1915, as a daily routine at Poona. Into each of seven flasks 500 c.cm. of the water to be treated is introduced. To each is added a measured quantity of a freshly prepared 1 in 1,000 solution of hypochlorite of lime, and the samples are stirred with a glass rod, or rotated to ensure mixture. The convenient quantities are: 0.5 c.cm., 0.6 c.cm., 0.7 c.cm., 0.8 c.cm., 0.9 c.cm., 1 c.cm., and 1.1 c.cm. After a quarter of an hour each sample is tested with a crystal or a few drops of a solution of potassium iodide and a few drops of fresh starch solution. The sample with the smallest quantity of hypochlorite solution, which shows a distinct blue colour, has received sufficient bleaching powder solution to make it bacteriologically safe. As these samples were each of 500 c.cm., and the strength of the solution of bleaching powder 1 in 1,000, the weight of bleaching powder in pounds required to treat 1,000,000 gallons of water is obtained by multiplying the number of cubic centimetres of the test solution used by 20. As samples of bleaching powder, especially in the tropics, vary in the percentage of available chlorine they contain, it is necessary to repeat the estimation of the dose from time to time. Where the water is derived from a river, the estimation should be made daily. The apparatus was tried at the camp of the Poona Volunteers at Chinchwad with satisfactory results. The water was from a surface well in the midst of agricultural land. After treatment with 15 lb. per 1,000,000 gallons in the way described, the water used from the second tank contained no lactose fermenters in 100 c.cm., and was absolutely free from smell or taste. The daily average number in camp during the week of the trial was 200, and there was no case of diarrhœa or dysentery. In another paper in the same issue Captain Morison gives directions as to the dose of alum for the clarification of water by precipitation. For soft water the best dose is half the equivalent weight of alum necessary to react completely with the alkalinity calculated as calcium carbonate. For a hard water the same rule holds good; but an equally good clarification can be obtained by the use of a smaller dose and a mechanical filter. A watery solution of haematoxylin (logwood) gives a reddish colour when the correct dose has been used. With doses in excess or in defect of this a decoloration or a gradation of shades of purple or lavender is obtained; this reaction can be used for a colorimetric estimation of, and hence a check on, the dose of alum actually used. The clarification obtained by adding the optimum dose of alum was not affected by the turbidity of the water within the wide limits of turbidity found in the Poona water.

CANCER AND HOT DRINKS.

THAT the habit of drinking hot fluids—coffee, tea, and soups—so common throughout the temperate zone is the main predisposing cause of cancer of the œsophagus and stomach is the opinion of Dr. Lorche of St. Paul, Minnesota,[1] although he allows that alcohol and other irritating fluids may have the same effect. It seems clear that cancer of the œsophagus is extremely rare in animals and cancer of the stomach distinctly more frequent. These two local forms of malignant disease are alike rare in the natives of tropical and subtropical lands, and alike conspicuously frequent in certain countries

[1] A Contribution to the Etiology of Cancer of the Œsophagus of the

temperate in climate and inhabited by so-called civilized man. Dr. Lerche lays stress on the fact that while cancer of the stomach occurs with almost equal frequency in both sexes, cancer of the oesophagus is much more frequent in males. The local effects of corrosive fluid, swallowed accidentally or for suicidal purposes, have long been familiar to pathologists. Cicatricial strictures develop along certain tracts in the oesophagus and stomach. Now Lerche maintains that clinical records agree in demonstrating how it is precisely these same tracts that are the usual seat of oesophageal and gastric cancer. A corrosive fluid passing along the course that all ingesta take in their descent along the alimentary canal burns the surface of the oesophagus and stomach at once, but hot drinks swallowed day after day for years irritate the same parts of the alimentary tract, just as the kangri basket full of burning charcoal irritates the skin of the abdomen of the Kashmir natives. Lerche ends with a less generally acceptable proposition. Cancer of the oesophagus is relatively rare in women because they drink more slowly and take smaller mouthfuls, which pass quickly downwards, sparing the oesophagus, while the less resistant mucosa of the stomach where the fluids come to a stop is more equally exposed in both sexes. Cancer of the stomach, Lerche notes, is almost equally frequent in both sexes.

GERMAN GAOLERS AND RUSSIAN PRISONERS.

Although the British prisoners in the hands of the Germans are treated with exceptional cruelty, they are not the only victims of the barbarity of that unchivalrous race. Senator Edouard Herriot, Mayor of Lyons, calls attention in *Le Journal* to their brutal treatment of Russian prisoners, and offers a large mass of documentary testimony from French witnesses in proof of his statements. Last winter the Germans made Russian prisoners work in their trenches in the regions of Rethel and Montmédy. "It would be impossible," says a doctor, "to give you an idea of the martyrdom of these poor soldiers, who had become tuberculous. I have had several under my care who died without any apparent disease; according to Russian doctors, who examined them, many succumbed to anaemia, while others were killed by French projectiles to which they were exposed." Russian prisoners are used in the training of dogs which guard the camps. They have to bear without resistance the furious attacks of the beasts set on them by the sentries; if they defend themselves they are tied to posts or shot. At Gastrow there were four deaths from hunger—a fact proved by autopsy. According to the same witness, the Russians receive no money, no letters, no food, and no clothing. Another French witness has seen half-famished Russians in the camp of Gross Poritch harnessed to heavily-laden carts like beasts of burden; they appealed in vain to the pity of their guards, and, when utterly exhausted, were sent to die in the lazaret. Some months ago Dr. Abramovitch, who was repatriated after a long captivity in the fortress of Küshin, wrote in the *Rousskia Viedomosti* that two-fifths of the Russian prisoners are doomed to death, while the others are threatened with complete physical breakdown. Russia does its best for the relief of these unhappy sufferers. Organizations have been formed at Moscow, Petrograd, and in the provinces, in connexion with Prince Galitzow's Committee and the Union of the Zemstvos, for the dispatch of supplies of all kinds. But as transport can only be made by sea and through Denmark and Sweden, communication is difficult. Therefore Russia has established centres for the sending of consignments at Berne and Lausanne, The Hague, Rome, and London. Eight months ago M. Herriot organized a service, under the presidency of Madame Isvolsky, for the relief of Russian prisoners, to co-ordinate the work of the Russian and French organizations. It has its headquarters in Paris and its centre for dispatches in Lyons. The Austrians are not less cruel than the Germans. Besides the privations and other miseries of prison camps, they punish the slightest breach of rules with extreme severity, tying the men's hands and feet, and hanging them by the wrists. In twenty minutes they lose consciousness. They are then cut down and revived by throwing water over them. The hanging is then repeated perhaps eight times, when the prisoner has to be taken to hospital, sometimes in a dying state. Among those records of barbarism it is pleasant to find evidence of the humanity of the British and French to their Russian fellow prisoners. The *Times* of August 12th published a communication from the Foreign Office giving the text of a deposition made before a member of the Russian Extraordinary Commission of Inquiry by Philipp Danilovich Ovcharenko, private in the 83rd Samursky Regiment, who had been a prisoner in the German town of Kwetlenburg. The Russians suffered much from hunger, and if the British and French had not shared with them the large quantities of food which they received many would have died. In spite of the cruel punishments meted out by the Germans to the French and British prisoners they continued to feed their Russian fellow captives secretly, and, thanks to their kindness and care, the prisoners survived to return to their native country.

CENTRAL WAR PENSIONS DISABLEMENT SUBCOMMITTEE.

A meeting of the special Disablement Subcommittee of the Central War Pensions Committee has been held. The committee contains representatives of the Soldiers' and Sailors' Help Society and the Officers' Family Association, of the Admiralty and Army Council, of the National Insurance Joint Committee, of the Local Government Board and the Board of Agriculture, of the Labour Exchanges Department and of labour, and of the co-operative interest; there are seven other members, including, as the only medical representative, Sir Alfred Pearce Gould. Among the questions discussed at the recent meeting was a new regulation enabling maintenance to be paid to disabled men during training for employment in cases where the pension is insufficient to support the man and his family when the training necessitates absence from home, and thus increases his expenses.

Medical Notes in Parliament.

Alcohol in Military Hospitals.—Major Chapple asked a question on August 23rd with regard to the prescription of alcohol in military hospitals, and inquired whether, when alcohol was deemed by the medical officer to be beneficial to a case in hospital, it could not be prescribed through the hospital chemist in its medicinal form as set out in the *British Pharmacopoeia* and not in the form of a beverage. The Financial Secretary to the War Office said that the prescription of alcohol must be left to the discretion of the medical officer attending the case. It was not considered practicable to arrange for the supply of beer and such beverages through the hospital dispensary.

Vaccination of Naval Entrants.—Dr. Macnamara informed Mr. Snowden, on August 23rd, that the regulations of the Admiralty which required, on the advice of its medical officers, the vaccination of men and boys entering the navy were made under the authority of the Naval Enlistment Acts 1835 to 1884.

Cocaine and Unregistered Dentists.—The Home Secretary informed Mr. Raffan, on August 23rd, that the general permit to unregistered practitioners in dentistry to use solutions containing not more than 1 per cent. of cocaine for the purpose of their practice would be extended to October 15th. In a written answer to Mr. Keating, on the same day, he said that the German patent had been suspended and that novocaine was now being manufactured by a British firm.

Autumn Recess.—The House of Commons adjourned on August 23rd until October 10th.

It was reported that, through the exertions of the British Ambulance Committee, there are now with the French army some 150 ambulances and 250 men of British nationality drawn not only from the United Kingdom, but also from Canada, Africa, New Zealand, Australia, Ceylon, and the Malay States. One Médaille Militaire and twenty-nine Croix de Guerre have been awarded to those serving.

THE WAR.

TREATMENT AND TRAINING OF WOUNDED MEN.

PROVISION FOR MUTILATED SOLDIERS IN LOMBARDY.

A RECENT number of the Italian Archives of Orthopaedics[1] gives an account of what is being done in Milan by the Lombardy Committee to supply the artificial limbs required by Italian soldiers mutilated in the war and to educate them in the use of the various forms of apparatus supplied. The matter was taken in hand early in 1915. In the summer of that year it was decided to convert the Istituto dei Rachitici of Milan into a Reserve Hospital for Military Orthopaedics, with the help of various organizations in Milan and Lombardy. The hospital consists of two parts: One, the Istituto dei Rachitici, in Milan, is the surgical and orthopaedic portion; it contains 70 beds for soldiers, with facilities for all sorts of surgical and mechanical treatment, and was at work in August, 1915. The other section, the Refuge of Gorla Primo, recently founded by Signora F. F. Ottolenghi, near Milan, contains about 100 beds, and is employed for the re-education of the convalescent mutilated soldiers; temporary buildings to lodge a further hundred men have been erected in the ornamental grounds of the Refuge. All the hospital patients are under military discipline, and remain in the hospital until they have made the maximum improvement possible; permanent invalids and those who do not profit by the education given are not kept. The chief surgeon is Professor R. Galeazzi, with the military rank of major. The artificial limbs and mechanical appliances required by the patients are all made, as they were for the civil patients before the war, by the hospital staff, on the spot and under the eye of the surgeons in charge of the cases; presently, however, the matter of supplying artificial limbs and apparatus will be taken over by an Officina Nazionale di Protési, or national prothetic workshop, at Gorla. The necessary funds for all this work have been furnished partly by local generosity, partly by Government grants, and partly by the contribution from the Minister of War of 3½ lire a day for each soldier. This minister has concluded with the hospital an agreement of sixty-eight articles regulating its management, which is printed in full. It appears from a paper read to the Lombardy Committee on October 29th, 1915, that the F. F. Ottolenghi Refuge is the first school for the education of the wounded to be started in Italy. It has been modelled on the similar French schools at Lyons, Paris, Bordeaux, and other important towns, which were specially visited by the Milanese authorities. It is calculated that about 80 per cent. of the severely mutilated soldiers can be re-educated satisfactorily; 45 per cent. returning to their full previous powers of earning, 20 per cent. returning to a larger or smaller fraction of their former worth, and 15 per cent. being rendered capable of entering certain minor employments where no great strength or skill are required.

THE BELGIAN INSTITUTE FOR DISABLED SOLDIERS AT VERNON.

The Belgian Institute for the re-education of crippled soldiers at Vernon, which forms part of the Belgian scheme for disabled soldiers described in the JOURNAL of August 12th, p. 236, stands on a site at an elevation of 150 metres above the Seine. It has accommodation for 1,200 men in eighty huts, similar in design to those of the British hutted hospitals. Forty-eight trades are taught. The output of the school during the twelve months of its existence is valued at £50,000. In addition to the industrial work, land to the extent of thirty hectares is cultivated; the value of the produce up to the present time is estimated at £4,000; the school has produced all the vegetables and fruit required for its own use. A poultry farm produced since March, 1916, three thousand chickens. Pigs have already yielded a profit of £300, and three hundred rabbits have been reserved for breeding. There are thirty colonies of bees. Gardens around the workshops are used for the teaching of horticulture, and for the growth of flowers under glass.

[1] Archivio di Ortopedia, Milan, 1916, xxxiii, f. 1.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

ASSISTANT SURGEON PETER CLEMENT D'CRUZ, of the Indian Subordinate Medical Department, has been reported as killed in action. He was born on February 23rd, 1889, and became fourth class assistant surgeon on April 17th, 1911. Previous to the war he was stationed at Mombasa, in British East Africa, so presumably was killed in the campaign in German East Africa. He is the third member of I.S.M.D. to be killed in that province.

Died of Wounds.

Captain Owen Herbert Peters, R.A.M.C.(T.F.), was reported as wounded in the casualty list published on August 4th, and in that of August 21st as having died of his wounds. He was educated at Melbourne University, where he graduated M.B. in 1902 and B.S. in 1903; he took the D.P.H. of the London Colleges in 1906, and before the war was working in the health department of the London County Council. He joined the 2nd London Sanitary Company as lieutenant on May 7th, 1915, and was promoted to captain on completion of a year's service.

Died on Service.

Major Norman Ernest Jasper Harding, R.A.M.C., died of cholera in the Colaba Military Hospital, Bombay, on August 10th, while in command of a Stationary Hospital there. He was born on February 2nd, 1875, and educated at University College, Liverpool, and in the University and Extramural School at Edinburgh, where he graduated M.B. and Ch.B. in 1900; he took the diploma in tropical medicine in the same year. He served as a civil surgeon in the South African war, in which he was severely wounded, gaining the Queen's medal with two clasps, and the King's medal. He entered the R.A.M.C. as a lieutenant on September 1st, 1902, becoming captain on March 1st, 1906, and major on June 1st, 1914. Previous to the war he had served in Burma, in India, and the West Coast of Africa. He was the author of a paper on the value of Koch's treatment of malaria (*Journal of R.A.M.C.*, 1908), and of numerous other historical and professional articles. He went to France with No. 12 General Hospital at the beginning of the war in 1914, and served in that country for fifteen months, before taking to India the unit which he was commanding at the time of his death. In 1908 he married Dorothy, eldest daughter of the late Mr. Ernest Wotton, of Maidstone, and of Kobe, Japan.

Captain Milward Cecil Hayward, R.A.M.C.(T.F.), died of acute septic pneumonia at the Howard Home, Brighton, on August 25th. He was the son of the late Mr. Henry Howard Hayward, of Queen Anne Street, London, and was educated at Cambridge and Guy's Hospital. He graduated B.A. in 1893, M.A. in 1898, and M.B. and B.C. in 1903. He also took the M.R.C.S. and L.R.C.P.Lond. in 1898. After filling the posts of clinical clerk at the Samaritan Hospital for Women, house-surgeon and house-physician at Paddington Green Children's Hospital, and resident medical officer of the North-West London Hospital, he went into practice at Abingdon. He joined the 3rd Home Counties Field Ambulance as lieutenant on December 3rd, 1914.

Captain H. H. Tanner, R.A.M.C. (temporary).
Lieutenant W. W. Farrer, R.A.M.C. (temporary).

Wounded.

Captain H. S. Baker, R.A.M.C., S.R.
Captain F. A. Bearn, R.A.M.C., S.R.
Captain R. D. B. Frew, R.A.M.C.(T.F.).
Captain A. S. Glynn, R.A.M.C. (temporary).
Captain R. McC. Hill, D.S.O., R.A.M.C. (temporary).
Captain S. M. McLay, R.A.M.C. (temporary).
Captain A. F. Menzies, R.A.M.C. (temporary).
Captain N. M. Rankin, R.A.M.C. (temporary.
Captain H. K. Ward, R.A.M.C., S.R.
Captain A. Watson, R.A.M.C.
Lieutenant C. P. S. Allingham, R.A.M.C. (temporary).
Lieutenant T. J. Lloyd, R.A.M.C. (temporary).
Lieutenant W. J. Macknight, R.A.M.C. (temporary).
Lieutenant P. L. Watkin-Williams, R.A.M.C. (temporary).

Prisoner of War.

The name of Lieutenant P. E. O'Donoghue, Indian Subordinate Medical Department, has been added to the list of prisoners taken at Kut in April.

DEATHS AMONG SONS OF MEDICAL MEN.

Bass, Charles Brodie, Second Lieutenant Alexandra Princess of Wales's Own Yorkshire Regiment, son of Charles William Bass, M.R.C.S., of 25, Perham Road, West Kensington, reported wounded and missing on September 27th, 1915, now presumed to have been killed on that date on Hill 70. Before the war he was private secretary to Lord d'Abernon, of the Dominions Royal Commission. He got his commission on December 12th, 1914, and went to the front on September 10th, 1915.

Cockey, John E. P., Second Lieutenant King's Liverpool Regiment, only son of Dr. E. Cockey, of Frome, Somerset, recently reported as missing, and subsequently as killed. He was educated at the King's School, Worcester, where he was a King's Scholar.

Goudie, Humphrey, Lieutenant Cameron Highlanders, son of the late Dr. Goudie, of South Shields, killed recently. He had not long ago been decorated with the Military Cross.

Layng, George Reginald Stuart, Lieutenant Gloucestershire Regiment, third surviving son of the late Dr. Henry Layng of Swatow, China, killed on August 13th, aged 20. He was educated at Abingdon School and at Cheltenham College, and in 1913 was articled to Messrs. Winterbotham and Gurney, solicitors, Cheltenham. At the beginning of the war he enlisted in the Public Schools Battalion, got a commission on January 14th, 1915, and went to the front last October.

MacNeece, James Douglas Gaussen, Captain Royal Field Artillery, second son of Colonel T. F. MacNeece, Army Medical Staff (retired), of Castlecary, Donegal, killed on August 10th, aged 25. He was educated at Cheltenham College, where he was senior prefect and captain of football in 1909. He also played football for the Royal Military Academy and for Blackheath. He got his commission from Woolwich in August, 1911, was promoted to lieutenant on July 20th, 1914, and recently to captain, and was commanding his battery when killed. He was mentioned in dispatches, and received the Military Cross in February, 1915.

Marshall, Arthur Norris, Second Lieutenant Bedfordshire Regiment, son of the late Dr. W. N. Marshall, of Newent, Gloucestershire, killed on July 31st, aged 19. He was educated at Dean Close School, Cheltenham, where he was in the O.T.C., afterwards entering Lloyd's Bank. He got his commission in June, 1915, and went to the front in November.

Rainsbury, Finn Barre Prendergast, 21st Royal Fusiliers, eldest son of Dr. W. C. Rainsbury, of Skegby, Nottinghamshire, killed on July 22nd, aged 20. He was an undergraduate of the University of Dublin. He enlisted early in 1915. He had been severely injured in Flanders at the end of last year.

Sansom, Walter Edwin Hammond, Second Lieutenant King's Own Royal Lancaster Regiment, son of Dr. Sansom, of Barrow-in-Furness, killed on August 17th, aged 19. He was educated at Rossall and at Edinburgh University, where he was studying medicine, and got his commission on December 7th, 1914.

NOTES.

CLASPS FOR D.S.O. AND M.C.

ROYAL WARRANTS gazetted on August 26th ordain that any one who, after having performed services for which the Distinguished Service Order or the Military Cross is awarded, subsequently performs an approved act of gallantry which, if he had not received the Order or the Cross, would have entitled him to it, shall be awarded a bar, to be attached to the ribbon by which the Order or the Cross is suspended, and for every additional such act an additional bar may be added. It is further ordained "that the Military Cross shall not confer any individual precedence, but shall entitle the recipient to the addition after his name of the letters M.C." The insertion of the letters will be carried out in the *Army List* for October.

HONOURS.

THE *London Gazette* of August 25th announces the names of thirty-eight officers on whom the D.S.O. has been conferred, and of 234 who receive the Military Cross. Among the former there are three, and among the latter eighteen medical officers. Their names are given below.

D.S.O.

Temporary Lieutenant Hugh Llewellyn Glyn Hughes, R.A.M.C. For conspicuous gallantry and devotion to duty during operations. He went out in broad daylight, under heavy fire, and bandaged seven wounded men in the open, lying out in an exposed spot for one and a half hours. At nightfall he led a party through a heavy barrage and brought the seven men back.

Temporary Captain Douglas William Hunter, M.B., R.A.M.C. For conspicuous gallantry in action. He tended the wounded incessantly in the open and in the front line trench under very heavy fire.

Temporary Captain Henry Harold Robinson, R.A.M.C. For conspicuous gallantry and devotion to duty. After a raid in the enemy's trenches, he twice crawled out in broad daylight to assist wounded men under fire. They were brought in at night.

Military Cross.

Temporary Captain Archibald Stirling Kennedy Anderson, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty in action. He was untiring in attending to the wounded, though on more than one occasion his aid post was struck by shells. He went out under heavy shell fire to the assistance of the wounded.

Captain William Barclay, M.B., R.A.M.C.(S.R.). For conspicuous gallantry and devotion to duty when in charge of a bearer division during operations. He worked often in the open under heavy shell fire, and set a fine example to all under him.

Temporary Lieutenant James Roberts Boyd, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty when rescuing, under heavy fire, some men who had been buried in their dug-out. He assisted in the digging out, although temporarily disabled by earth thrown up by a bursting shell, and finally brought in one man alive.

Temporary Captain Michael Charles Burke, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty in action. He worked incessantly with practically no rest for seven days under shell and machine-gun fire. He greatly encouraged all those round him by his cheeriness and disregard of danger.

Temporary Lieutenant Charles Bromley Davies, R.A.M.C. For conspicuous gallantry and devotion to duty in action. When commanding stretcher bearers, although himself wounded, he continued his gallant work with practically no rest for six days.

Temporary Captain James Churchill Dunn, R.A.M.C. For conspicuous gallantry and devotion to duty in action. He showed an utter disregard of personal danger, and his bravery when tending the wounded was the admiration of all ranks.

Temporary Captain Ernest Harrison Griffin, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty. Without food or sleep he worked incessantly tending the wounded of his own and other units under heavy fire. He showed an absolute disregard of danger. On other occasions he has done similar gallant work.

Captain Henry Alphonsus Harbison, R.A.M.C.(S.R.). For conspicuous gallantry and devotion to duty in action. When in charge of stretcher bearers he dug out a man under heavy fire and brought him safely back. He also repeatedly took out parties under heavy fire and evacuated a wood of all wounded.

Captain William Johnson, M.D., R.A.M.C.(S.R.) For conspicuous gallantry and devotion to duty. He led the bearer division of his unit for seven consecutive days during heavy fighting. He was repeatedly under heavy fire when rescuing the wounded. He has always set a fine example of courage.

Temporary Captain James Reginald Kemp, R.A.M.C. For conspicuous gallantry and devotion to duty in action. For several days he was indefatigable in bringing in and tending the wounded, and undoubtedly saved many lives.

Captain George Herbert Hind Manfield, R.A.M.C. For conspicuous gallantry and devotion to duty in action. He worked day and night tending the wounded in our advanced positions under heavy fire, and carried many of them down the trench after all his bearers had been wounded.

Temporary Captain Valentine Cleeve Martyn, R.A.M.C. For conspicuous gallantry and devotion to duty when tending the wounded under fire. On several occasions he has gone out under circumstances of the greatest danger, but has never hesitated to take any risk in order to reach a wounded man.

Temporary Captain John Boyd Orr, R.A.M.C. For conspicuous gallantry and devotion to duty in action. On several occasions he displayed the greatest courage when searching for and tending the wounded.

Temporary Captain David Pottinger, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty in action. When in charge of stretcher-bearers he showed an utter disregard of danger, and, though himself wounded in the face, continued his gallant work during the remainder of the day.

Temporary Captain Clive Watney Roe, R.A.M.C. For conspicuous gallantry and devotion to duty during three days of hard fighting. He was indefatigable in tending the wounded, and displayed great coolness under fire.

Captain Joseph Wilkie Scott, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty in action. He tended the wounded under heavy fire for several hours, and carried back a number of them to our front line at great personal risk.

Temporary Captain John Henry Tomlinson, R.A.M.C. For conspicuous gallantry and devotion to duty during a heavy bombardment. He tended the wounded in the main street of a village at great personal risk till he was severely wounded by a fragment of a shell.

Captain Fergus McIntyre, Australian A.M.C. For conspicuous gallantry and devotion to duty under heavy artillery fire during operations. The aid post received a direct hit from an enemy shell.

THE General Education Board of New York is undertaking what we believe to be a novel inquiry. A great deal has been done to estimate the degree of defect in deficient children, but the board has now appointed Professor Whipple, of the University of Illinois, to endeavour to find out how early in school life gifted children can be spotted, how much of their school time and energy can be economized, and how much additional training and mental equipment can be obtained during their school years.

Scotland.

Admission of Women Medical Students to University Classes in Edinburgh.

The Court of the University of Edinburgh at its meeting on August 28th resolved to admit women this winter session to all the medical classes, systematic and practical, in the university. The systematic lectures in midwifery and gynaecology will be given separately to men and women students, and possibly also those in materia medica, but in all other subjects the classes will be mixed. There will be separate sections for women in all practical courses, except in advanced courses, and in special cases that may be arranged by the head of the Department. Women will be admitted to university clinical instruction so soon as arrangements can be made. They are now under consideration, and it is expected that by next year women students will be able to take their whole curriculum within the university.

Epidemic Anterior Poliomyelitis.

Dr. Watt, medical officer for Aberdeenshire, reported to the Deeside district committee on August 26th that five or six cases of anterior poliomyelitis had occurred in the county, and that there was an outbreak in Fraserburgh, comprising five cases. Altogether sixty-six cases had, he said, occurred in the city of Aberdeen, but the disease usually declined in cold weather, and appeared to be decreasing now. The committee decided to add infantile paralysis to the list of compulsorily notifiable diseases.

Infant Welfare Scheme, Dundee.

The Public Health Committee of Dundee has approved a scheme for an infant welfare organization in the city, and intends to advertise for a doctor at a salary of £300 a year. The convener of the committee said that it had been learnt that no one who was a member of the British Medical Association would take the position under £350 a year; the M.O.H. (Dr. Templeman) said that that was now the recognized minimum for a medical woman at the head of an infant welfare scheme. The committee, however, resolved to advertise the appointment at a salary of £300.

A Military Orthopaedic Department.

The report of the first six months' work in the orthopaedic department at Woodside Red Cross General Hospital, Glasgow, has been issued. The cases treated included wounds, contusions, fractures, dislocations, sprains, synovitis, arthritis, periostitis, rheumatism, myalgia, lumbago, and neuritis and other nervous affections. In all, 217 soldiers received treatment, and the majority have recovered sufficiently to return to their units. Only about 10 per cent. have been discharged as unfit for active service, but all of them were able to use all their limbs. The means employed include massage, exercises, electricity, and the Dowsing radiant heat and light apparatus. Remedial exercises carefully selected to suit the capacity of the individual, and gradually increased in difficulty so as to ensure systematic progress, have proved very useful.

Miners and Doctors' Fees.

A conference of the Colliery and Public Works Surgeons' Committee for Scotland and the Executive of the National Union of Scottish Mine Workers was held in Edinburgh on August 25th to consider the following proposals:

1. The proposal by the miners that the doctors should accept a new contract at the rates of 2d. without and 2½d. with medicine per week per worker.
2. The proposal by the doctors that the miner should pay each week at the works the sum of 2½d. without and 3d. with medicine, or, alternatively, that the parties should refer the whole question to an arbiter to fix a fair rate.

The Colliery and Public Works Surgeons' Committee reported that the medical practitioners throughout the whole areas unanimously rejected the miners' proposal. It was announced for the miners that the counties of Lanark, Dumbarton, Stirling, and West Lothian had voted in favour of amending the rates to 2½d. without and 3d. with medicine, but that the areas of Clackmannan, Kinross, Fife, and Mid and East Lothian were against any increase of the present rates, and refused to refer the matter to arbitration. The Colliery and Public Works Surgeons' Committee stated that the offer of the miners in the areas mentioned to pay 2½d. without and 3d. with medicine would be accepted in those areas, but that in the event of the same improved terms not being arranged within six weeks in the other areas, the doctors would give notice to terminate, and would terminate, the new contract.

The Incorporated Sanitary Association of Scotland.

The forty-second annual congress of the Incorporated Sanitary Association of Scotland is to be held in Edinburgh from September 6th to 8th. The annual business meeting will take place on the evening of September 6th, and will be followed by a popular lecture on the Hairmyres Colony scheme of graded labour for the cure of tuberculosis by County Councillor George Fraser. On the morning of September 7th the Congress will be opened by Sir Robert Kirk Inches, Lord Provost of Edinburgh, and Dr. Alexander Robb, M.D., C.M., D.P.H., County Medical Officer for Midlothian, Linlithgow, and Peebles, will give his presidential address, the subject being "After the War." The rest of the day will be given to the discussion of infant and maternity welfare schemes under the Notification of Births (Extension) Act. The subject will be divided into sections as follows: The discussion of the care of the mother before the birth of her child will be introduced by Dr. J. W. Ballantyne, and he will be followed by Sir J. Halliday Croom and Dr. Haig Ferguson; Miss Mary E. Cairns will then read a paper on the place of the midwife in infant welfare schemes; Mr. John Halliday will speak of the unregenerate and the degenerate parent; Mrs. Leslie Mackenzie will introduce the subject of the linking up of child welfare schemes with schemes of school medical inspection and treatment; Dr. Mary J. Menzies will deal with some administrative aspects of child welfare schemes; and Sir George Thomas Beatson, M.D., K.C.B., will discuss the necessity for a central association with affiliated or branch committees for carrying on instruction in infant hygiene and feeding so as to furnish a good supply of suitably qualified teachers. September 8th will be mainly devoted to a discussion on tuberculosis, and there will also be a discussion on the outbreak of diphtheria associated with the milk from certain farms, with diphtheritic sores on the knuckles of milkers, and with sores on the udders and teats of certain cows at the farms from which the milk was obtained. Finally, the economic aspects of the housing problem in relation to the war will be discussed. The meetings will be held in St. Cuthbert's Hall, Edinburgh. The secretary is Mr. Geo. Middleton, 83, Bath Street, Glasgow.

England and Wales.

The Refreshment House Experiment in Carlisle.

The Central Liquor Control Board is continuing and extending its experiment at Carlisle. Last week it acquired another brewery and eleven more of the licensed premises in the city, making a total up to date of two breweries and sixty-one licensed houses. There has been, it is stated, a great increase in the bottle trade, due, in part at least, to workers living at Gretna and in the surrounding districts purchasing bottled beer and spirits in Carlisle to take home with them. The Board is now preparing to take over the premises of a firm of wine and spirit merchants, with the intention of making them the chief distributing centre for the bottle trade in Carlisle. The intention of carrying out this policy was announced when the scheme was first put in force, and the premises now about to be acquired are within a few yards of Gretna Tavern, the model refreshment house described when we last referred to this matter (July 8th, 1915, p. 59). The tavern itself, it is said, has failed to attract the workmen from Gretna who come into the town, except on Sundays when it is the only refreshment house open in the city. The convictions for drunkenness in Carlisle were 139 in June and 91 in July. In the first three weeks of August they numbered 41. Opinions differ as to the cause of this diminution, but many attach a great deal of importance to the fact that the new population of Gretna is changing its character. The constructional work which at first attracted navvies is now more or less completed, and the men are going elsewhere,

their places being taken by artisans. The navvies, it is said, were of an extremely rough class, given to a weekly carouse, whereas the artisans are of a superior class, and better behaved. It is probably too soon as yet to draw any general conclusions from the experiment, but we are informed that the impression is that so far the result has been satisfactory. Meanwhile the housing problem in Carlisle is very acute. The provision of small houses was insufficient before the war, and the influx of munition workers has greatly aggravated the difficulty.

Correspondence.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASE.

Instruction of the Young.

SIR,—The report of the Royal Commission on Venereal Diseases has raised again the problem of the instruction of the young in these matters. Knowledge, especially such as can be given to schoolboys, does not necessarily save, but ignorance greatly enhances risk.

If progress is to be made we must learn by experience. Systematic instruction has been given for about twenty years in many schools; in one, with which I have been connected, after instruction was introduced, the known cases of masturbation fell in two years from 62 per cent. to 24 per cent.; the authorities doubtless did not know all at either stage, but there is no reason to suppose any great variation in ratio between the known and the unknown. There are things which all boys should know; almost all welcome instruction when given sanely and privately, and far more go wrong than is generally supposed.

It has been from time to time suggested that instruction should be given (1) by mothers—they can do much to safeguard a boy's early years, but cannot generally carry him effectively beyond childhood; (2) by fathers—but they almost universally neglect it; (3) by the dissemination of literature—but the satisfactory pamphlet remains to be written, and in my experience more harm than good is done by this method. Instruction is given at most "public" schools by head master or house masters, at many preparatory schools, and at a few day schools. The problem, so far as my knowledge goes, is almost entirely neglected in schools of the "secondary" or "grammar school" type, apart from dealing with occasional scandals, though in a few it has been handled with remarkable results. These schools, with the public elementary schools, account for the vast majority of boys in the country, and the gravity of the danger may be judged by the fact that two boys came recently to the preparatory department of a public school from good homes, understanding at the age of 10 the use of "French letters." Something, but by no means enough, is done by the clergy in confirmation classes and by scout-masters.

The best results are obtained by private and individual conversations, as different boys require very different handling; normally, two conversations at about 10 and 15 are enough; too much probing defeats itself. Where this is impossible as, presumably, in public elementary schools, class instruction must take its place, but this requires to be given with very great care, and shares with literature the drawback that it stimulates talk in which the prurient always take the lead.

The educational profession has done about as much as it can in informing public opinion; if a comprehensive national policy is to be inaugurated the lead must be given by the medical profession. This might be done in three ways: (1) By a strongly-worded and widely-circulated memorandum insisting on the paramount need of instruction in every case; (2) by the organization of a system of instruction in all schools aided by the State or local authorities; (3) by making it the duty of every general practitioner to advise the father and instruct, with his consent, the boys of every family he attends.

To one who knows how much is done by the school doctor in a "public" school it is little short of amazing to find that the family doctor has, with very few exceptions, never either directly or indirectly warned a boy before he comes to school.—I am, etc.,

August 23rd. A PUBLIC SCHOOL MASTER.

NITROUS OXIDE-OXYGEN ANAESTHESIA.

SIR,—The administration of anaesthetics is not in my line of practice, but I have always taken an interest in the subject from my house-physician days, when I administered chloroform frequently and freely by the Scottish method—with a towel. I also had the advantage of serving on the Chloroform Committee. The above must be my excuse for venturing to interpose any remarks on this subject.

The fact that two deaths have occurred after the administration of a mixture of nitrous oxide and oxygen in the hands of two such able anaesthetists as Dr. McCardie and Dr. Robinson must arrest public attention. The fact that two deaths have occurred, to my mind, need cause no surprise, but why the deaths have not been more numerous is a point which requires some explanation.

It seems to me that in the administration of any general anaesthetic it is most important that the activity of the respiratory centre should be maintained. The natural and best stimulant for this centre is carbonic acid, but this method of hyperoxygenation, so highly vaunted, is the one best calculated to throw the respiratory centre out of action and bring on a fatal apnoea, which is further accentuated by frantic efforts at artificial respiration. It appears to me that the reason why this fatal apnoea has not been frequent, and, consequently, the mixture of oxygen and nitrous oxide relegated to the limbo from which it should never have emerged, arises from the facts, first, that it is difficult to get the blood to take up more than a definite amount of oxygen; and, secondly, with a closed inhaler the carbonic acid tension as a rule does not fall too low unless there be a state of collapse and the metabolism be very low. The old closed ether inhaler might half suffocate the patient, but it never induced a fatal apnoea. I would rather see an anaesthetized patient purple and the respiratory centre acting, than a normal colour and a tendency to apnoea. Anaesthetists before adopting any method likely to induce apnoea should study the work of Dr. Yandell Henderson. Personally I should never allow any one, no matter how experienced, to administer a mixture of oxygen and nitrous oxide to myself or to any of my friends if I could help it.—I am, etc.,

Liverpool, Aug. 29th. JAMES BARR.

SIR,—The account of a death under nitrous oxide and oxygen and spinal anaesthesia published in your issue of August 26th, 1916, by Dr. W. E. Robinson, is highly instructive.

It is, of course, always difficult to criticize from a mere description of events, but there are one or two points that occur to me:

(*a*) Why give both stovaine and nitrous oxide and oxygen? If the spinal anaesthesia is going to be satisfactory, why the need for nitrous oxide and oxygen? If the spinal anaesthesia is not going to be a success, why give it at all?

(*b*) I observe that Dr. Robinson apparently does not have any means of regulating the flow of gases into his bag, but changes the mixture "about every five minutes." Now this, if I understand Gwathmey aright, is not a satisfactory method of administering the mixture. He insists on a regular flow of gases, the percentage of which can be altered in a moment at the will of the anaesthetist.

(*c*) I am rather puzzled to know quite what Dr. Robinson means by "the regular snoring breathing." Does he mean "stertorous"? But he cannot mean that because, according to Gwathmey, "the symptoms of an overdose of nitrous oxide in the presence of sufficient oxygen to keep the patient pink is, first, stertorous respiration . . . ."

(*d*) I do not quite understand why the second attack of vomiting is put down to the stovaine. May it not have been on account of excessive rebreathing? This, as Gwathmey points out, and as I myself have observed, is a frequent cause of vomiting, until one has learnt how much rebreathing each patient will stand—a matter that experience alone can teach.

The prolonged administration of nitrous oxide and oxygen with rebreathing—and with a little ether, if necessary, to produce complete relaxation—is (at any rate in this country) in its infancy, and reports like those of Dr. McCardie and Dr. Robinson are highly valuable and instructive. There can be no question as to the value of this method from the patients' point of view, for their condition after the operation is infinitely better than with any of the other methods of anaesthetization that were usually in vogue in this country.

I have recently been giving nitrous oxide and oxygen with a Gwathmey apparatus, and have no hesitation in

saying that the cases that have been so anaesthetized have been far more comfortable after the operation than they were with other methods. As an instance let me cite two cases:

1. An officer had a semilunar cartilage removed under nitrous oxide and oxygen. The operation was finished at 5.30 p.m., and he had his dinner in comfort at 7.30 p.m.
2. A lady with varicose veins. Operation one hour; finished at 9.45 a.m. I saw her at 12 noon, and she said she felt perfectly fit, and could she have some lunch?

One has only to compare results like these with the ordinary condition of patients after the usual anaesthetic to see what a great deal we owe to men like Gwathmey and Teter for bringing this method to such perfection as has already been reached.

In conclusion, I hope that Dr. Robinson will not consider that my criticisms are made in any carping spirit; on the contrary, I make them because I want to know as much about this method as it is possible to know, for I am convinced that it is our duty as anaesthetists to do everything we can to alleviate the undoubted sufferings of our patients after ordinary general anaesthesia.—I am, etc.,

London, W., Aug. 26th. H. EDMUND G. BOYLE.

THE TREATMENT AND TRAINING OF WOUNDED MEN.

SIR,—The treatment of disabled soldiers in command dépôts and similar institutions is clearly described in the JOURNAL for August 12th, and the objects of treatment are summarized.

Major McKenzie speaks of three classes of patient, of whom the third contains those who are expected, with treatment, to be recovered within six months. May I suggest that there is a fourth class, very similar to the third in type, but differing in degree, and therefore requiring more than six months' treatment? These men, with injuries to bones, joints, muscles, and nerves—particularly the last—require thorough and careful treatment for a long time. They can only get it from a specialist, or his out patient department in one of the bigger hospitals, and there are not many with suitable equipment throughout the country; yet such a man is boarded out of the service, and his future treatment then depends on his own patience, perseverance, and optimism, and still more on his living within reach of such treatment and being able to afford the time usually necessary for a course of out-patient attendances.

His is not a case that can be benefited by his panel doctor, nor yet by the massage he might get from a kindly village nurse. If he is fortunate enough to live near a large hospital he can get treatment if he will, but is it right that damage done in the service of the State should be repaired at the expense of private charity? Further, is it fair to the taxpayers, or to the soldier himself, that he should eke out an existence on a poor pension when by reasonable attention he might be enabled to work and support himself?—I am, etc.,

Epsom, Aug. 23rd. NOEL H. M. BURKE.

THE CHEMIO-THERAPEUTICS OF MR. McDONAGH.

SIR,—I wish to thank Professor W. M. Bayliss for the trouble he has taken in offering criticisms upon my work, although they aim at being destructive. When I introduced the subject of chemio-therapy for discussion I did so with the intention of showing that Ehrlich's views were untenable, and that the theory of oxidation and reduction would better explain the phenomena observed. As we learn more it is probable that a still simpler explanation may be forthcoming, and I should not be at all surprised to find that certain physical properties possessed by the hydroxyl and hydrogen ions will explain all.

The serum contains colloidal particles which vary in number and size in different diseases. These particles are kept in "solution" by the normal hydrogen ion concentration, any upset of which alters their physical state. These particles, in my opinion, differ only from the colloidal particles of cells in that the former are free, while the latter are contained in a cell membrane. In other words, the colloidal particles in a syphilitic serum, in plasma cells in a case of syphilis, in the urine of so-called syphilitic albuminuria, and in the syphilitic parasites are as nearly as possible identical. They all possess amino and carboxyl groups, which regulate permeability: salts, and oxidizing and reducing ferments. These oxidizing and reducing ferments are intimately bound up with the normal hydrogen ion concentration, since any upset thereof destroys both complement and the ferments. The colloidal particles in a syphilitic serum are more numerous and larger than those in a normal serum. This observation gives us the rationale of the Wassermann reaction, and explains why chemio-therapeutic agents are more active in syphilis than in other diseases.

Since oxidizing ferments appear to be dependent upon metals, of which iron is the one to functionate in the human body, and reducing ferments upon non-metals such as sulphur, I tried to prepare some sulphur and iron compounds, which would readily permeate the particles and supply the non-metal and metal required for their oxidizing and reducing action. When I found that sulphur and iron had a marked therapeutic action in syphilis, it was reasonable to suggest that arsenic acts as an oxidizer, and that the employment of salvarsan only fulfils half of the chemio-therapeutic programme, since no reducing agent is employed. Intramine is particularly efficacious, since, owing to its amino groups, it is readily taken up by the particles in question. The first iron body I experimented with was ferric hydroxide, then with ferrivine, which was more powerful. I have already pointed out that the action of ferrivine is inconstant, because the iron is not directly attached to the benzene rings. Experiments are now in hand to achieve the object desired.

Since the paper (column 3, line 8) referred to was written I have repeated some of my former experiments, and have succeeded in demonstrating that the particles contain oxidizing and reducing ferments. The experiments were undertaken with dyes, as I am aware of no other method used for detecting these ferments. Drury's paper has only recently been published, and I have not yet been able to see it, consequently I am unable to judge whether Unna or Drury is right.

Under the ultra-microscope serums and colloidal suspensions present many similarities; therefore to compare the adsorptive capacity of a rigid body like charcoal with one of the former seems to me to be quite beside the point. For staining *in vivo*, although alcoholic solutions of dyes may be used, I expressly stated that the best and therefore the dye most to be recommended, was borax methylene-blue.

Professor Bayliss does not seem to realize that in the dried films only the dye is dried, while the cells in the examined secretion remain alive for several hours.

In my book I was careful to draw attention to the secret methods of preparing "606," and I cannot see how Professor Bayliss can make out that I have some secret method of preparing intramine and ferrivine. All these chemio-therapeutic compounds are colloids; therefore, although several samples may be chemically the same, their physical action may be quite different.

I am surprised to see in Professor Bayliss's remarks about intramine that he fails to acknowledge the help of one drug's action upon that of another. In my book I reported cases which immediately improved under intramine, although they had been uninfluenced by salvarsan and mercury. Why has Professor Bayliss not quoted one of these?

According to Professor Bayliss's reasoning, a simple explanation would be that salvarsan and mercury are useless, while intramine is a valuable remedy. For the past nine months I have been experimenting with colloidal iodine, and have found that it increases both the action of salvarsan and intramine. I have given so many injections of these different remedies that I am convinced that drugs can be employed which mutually increase the therapeutic effect obtainable by either one alone. Considering the exact formula of ferrivine is given, the accusation against me of using mystifying nomenclature falls to the ground. It is extraordinary for Professor Bayliss to state that "it is extremely unlikely that such a compound (ferrivine) would have any special action different from an ordinary ferric salt." In the first place, an ordinary ferric salt is non colloidal, while ferrivine is; and, in the second place, I should not have advocated ferrivine if ferric hydroxide was as good. It is odd that Professor Bayliss failed to note my remarks concerning the therapeutic action of ferric and aluminium hydroxide.

I find that Professor Bayliss's only argument against me rests on the fact that I have used certain technical terms in a sense which does not meet with his approval. No argument has been brought forward to disprove my theories.—I am, etc.,

London, W., Aug. 18th. J. E. R. McDONAGH.

*** This further letter from Mr. McDonagh is published in order that there may be no semblance of unfairness to him, but as the profession has now ample material for forming a judgement both on his theories and their outcome in drugs it is not proposed to continue this correspondence.

THE FASTING TREATMENT OF DIABETES.

SIR,—I accept Dr. Cammidge's explanation for not having referred to my paper with much less hesitation than his explanation of the "carbohydrate" content of turnips. He asserts that pectose is not turned into a sugar; this is not accepted by all. I hope to decide the question by making observations on patients who offer themselves for investigation. But even if it were assumed that pectose is not absorbed or transformed, it must be noted that Atwater and Bryant record 4.4 per cent. sugar in a specimen of turnips. A single observation showed me that boiled turnips may contain 2 per cent. of a substance which upon boiling with dilute acid turns into a body which may be fermented with yeast.

My contention is that when the carbohydrate tolerance is low, and whilst determining the tolerance, it is unwise to give foods the true carbohydrate content of which may vary from 0.75 per cent. to 4.4 per cent.—I am, etc.,

London, W., Aug. 23rd. O. LEITON.

THE OBLIGATIONS AND CONSEQUENCES OF THE WAR TO MEDICAL AND ALLIED SCIENCES AND THE HONOUR AND INTERESTS OF THE MEDICAL PROFESSION.

SIR,—The letters in this week's issue of the JOURNAL have been most interesting, and I hope you will allow me space to comment upon them. In reply to "Adult," I would suggest there is no need for his recommendations, for the British Medical Association already possesses all the office room and the organization necessary for carrying out his suggestions without any additional whole-time officials and expenditure.

Dr. Hawthorne is absolutely right in saying that "medical practitioners require the provision of convenient facilities for post-graduation study." But, in industrial centres, medical organization is so defective that they would be unable to avail themselves of such facilities, even if they were provided. Again, I agree with him when he states "that the existence of clinical and laboratory educational opportunities is a necessity of modern medical practice, and that any scheme for the future which neglects this need will be seriously or even fatally defective." How these things can be done in connexion with the State Insurance Medical Service is what I have been puzzling at for some considerable time, and I wish Dr. Hawthorne and others would try and help to work out the problem.

All my medical life I have taken an active part in political and municipal work, deriving from it great pleasure and satisfaction, and probably in consequence am better able to judge correctly upon matters affecting both the profession and the public. During most of these years I have been a member of a county borough council. With deep regret I affirm that never during the twenty-seven years of my medical life has the medical profession been in such bad odour with public authorities as it is at the present time. I honestly believe that the cause lies in such phrases as "the honour and interests of the medical profession," "freedom from unnecessary lay control," "inadequate remuneration," etc. A medical hierarchy would be just as hateful to a British community as was the Papal hierarchy of the Middle Ages.

I shall never forget the howls of derision which once greeted my statement at a medical meeting that the medical profession only existed for the good of the community. It is this inability to realize their *raison d'être* which makes it so impossible for public authorities to deal with doctors.

The great after-the-war question which has to be settled between the profession and the public is, "How is the most efficient medical service for the community to be provided?"

And, if we are to gain the confidence of the public, we must base all our schemes on the fact that we are primarily British subjects and only secondarily members of the medical profession.—I am, etc.,

Wigan, Aug. 26th. FERDINAND REES.

A FLAW IN THE RETAIL DISTRIBUTION OF MILK.

SIR,—Twice recently within a fortnight milk purporting to be "nursery milk" was left at my house in a dirty bottle. This was obvious from the fact that when the milk was poured out the bottom of the bottle was found to be crusted inside with dirty, dried milk. I may mention that the milk was furnished by one of the large London dairy companies. On a complaint being made to the manager of the local branch, the girl who brought the milk round confessed that she had given some one else the nursery milk intended for us, and had filled a dirty bottle collected from another house with milk from the churn and left it with us as nursery milk. When an allowance is made for the dislocation of labour consequent upon the war, it is disquieting to think that our infants are liable to be exposed to such grave risks as are incurred by the procedure above mentioned. It makes one shudder to think of the myriads of bacteria there may be in the bottom of a dirty, unwashed milk bottle which has stood in somebody's area or back garden, possibly for twelve or more hours, and as often as not in close proximity to a dustbin or water-closet, and then to think of a pint of milk being put into such a bottle and left at one's house as food for an infant. If such a condition of things obtains in a good residential district where the price of nursery milk is 6d. or even 7d. a quart, it is no wonder that our children's hospitals are flooded with cases of gastro enteritis from the poorer quarters, especially at this season of the year.

When I interviewed the secretary of the company with reference to my complaint he admitted that it was a serious matter, but that he could not easily prevent it, although instructions were given to men and girls who distributed the milk that they were on no account to fill dirty bottles with milk from the churns. He asked me what I could suggest to prevent it.

In the first place, I would suggest that all persons concerned in the distribution of milk should receive elementary instruction in the potentialities for evil inherent in dirty milk, especially to infants and young children. Secondly, the filling of dirty bottles or cans collected from houses should be absolutely forbidden, and it should be impossible for anyone but an authorized person to have access to the cardboard discs with which the bottles are closed. Thirdly, bottles or cans with "nursery milk" should be filled only at the dairy and sealed with some sort of label to which again only an authorized servant of the company should have access. Fourthly, I would suggest that it should be made a punishable offence for any one to put milk, and especially milk intended for the food of infants, into a dirty bottle and that notices to that effect should be prominently displayed in every dairy.

Another point in this connexion is that the company in question, so the secretary informed me, was pasteurizing all the milk (general and nursery) it was supplying to customers. Apart from the absurdity of putting pasteurized milk into dirty bottles, the question arises whether it is right to describe such milk as fresh. Customers should be informed when milk is pasteurized, otherwise there is the possibility that it will be boiled again (as is always done in my own household) with the result that infants fed on this twice sterilized milk run the risk of developing scurvy.—I am, etc.,

London, W., Aug. 27th. DAVID NABARRO.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE diploma of the society has been granted to Messrs. H. H. Bailey, C. P. Barber, I. H. Beattie, S. F. Cheesman, H. M. Hobson, L. A. B. Moore, E. O. Morrison, T. W. Robbins, J. M. Wall, and R. H. Yolland.

Obituary.

THOMAS GREGOR BRODIE, M.D., F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF TORONTO.

PROFESSOR BRODIE died on Sunday, August 20th, at his Hampstead residence, quite suddenly and unexpectedly. He had been suffering from a mild attack of gout during the previous week, but on the morning of his death he was bright and seemed much better. He took breakfast in bed, and it was while he was reading a newspaper after the meal that he was seized with sudden heart failure and expired in a few minutes.

He was the second son of the late Rev. Alexander Brodie, Vicar of Grandborough, and was born at Northampton in 1866, so that he was just over 50 years of age when he died. He was educated at King's College School, and later proceeded to St. John's College, Cambridge; then he decided to take up a medical career, and received his medical education at King's College, London. He was there one of a band of exceptionally brilliant students, several of whom are now on the King's College Hospital staff. Brodie was a leading spirit among them, carried off most of the prizes the College had to offer, and would have proved eminently successful in any branch of medical science he chose to select. His choice fell on physiology, and after he had taken his M.D. degree he became demonstrator in physiology at King's College under Professor Halliburton in 1890. Subsequently he was appointed senior demonstrator in physiology at the London Hospital, and on Professor Sherrington's resignation of the lectureship in physiology at St. Thomas's Hospital was elected to succeed him. He resigned this post when a little later he was appointed director of the Research Laboratories of the Royal Colleges of Physicians and Surgeons. This was a post which specially suited his capabilities and character, and here he not only published brilliant research work of his own, but gathered around him a band of workers whom he inspired by his energy and contagious enthusiasm.

When the Royal Colleges on grounds of economy decided no longer to retain their laboratories, Brodie was for a time without any position; but this state of things lasted only a few months, and he was almost simultaneously elected to three posts, namely, professor of physiology at the Royal Veterinary College, lecturer on physiology at the London School of Medicine for Women, and professor-superintendent of the Brown Institution under the University of London. This pluralism was necessary, for each appointment individually did not yield a living wage; this is an illustration, by the way, of the manner in which scientific men are rewarded in this country. The labour of having to look after three sets of duties was far too great, but did not deter him from the prosecution of important original researches, for which in 1904 he was rewarded by obtaining the F.R.S.

In 1908 he accepted, after considerable hesitation, the professorship of physiology at the University of Toronto, and he was holding this chair at the time of his death. For domestic reasons, the most important of which was the education of his sons, he continued to keep on his London house, and it was here he spent the long vacations which Canadian professors enjoy; but he took very little real holiday, for research work mainly occupied his time in the vacations. Last year he came over in a different capacity—namely, as captain in the Canadian Medical Service, and this summer also he held the same position. His services in relation to original work arising out of the war were invaluable, and his investigations were carried out at the London School of Medicine for Women, the Endell Street Hospital, and more recently at the Military Hospital at Ramsgate. The subjects he specially took up were respiratory changes in disease and injury, and the means of re-educating maimed men to resume a useful life.

His published papers are very numerous, and deal with many branches of physiological science, but his bent was mainly physical, as foreshadowed in his first published paper on the elasticity of muscle. He will perhaps be best remembered for his epoch-marking work on the kidney and for his views on the functions of the glomerulus, which formed the subject of his Croonian lecture delivered before the Royal Society. But whether his work was chemical or physical, it was always characterized by great originality and by a never-failing resourcefulness in devising means for overcoming difficulties. He was a brilliant operator, and invented numerous pieces of useful apparatus. He also published a textbook on *Experimental Physiology*. He was not a very ready writer, but everything he wrote showed evidence of care and thought. He has left unpublished or uncompleted much manuscript, which his friends intend shall see the light as soon as practicable.

As a teacher he was very successful, and he never failed to win the respect and affection of his pupils. He made no pretence of being an orator, but his deliberate incisive manner compelled attention to his lucid expositions.

The writer of these lines can also speak of Brodie as a personal friend, and here words fail to do him justice. He was a friend worth having—loyal, affectionate, bright, and delightful in every sense of the word.

He had interests outside his professional work, for he was a keen student of literature and an adept in all forms of athletic sport, golf, perhaps, being his favourite relaxation. He was never so happy as when he was carpentering with his boys, or tramping or bicycling with his friends, the leader in all their fun and merriment.

He had been married for twenty-two years, and his widow (*née* Alice Sims) survives him. So also do his three fine boys, all chips of the old block; the eldest is in the army, and is home now wounded for the second time; the second, in the navy, passed scatheless through the Jutland battle; the third is still at school.

His funeral took place at Hampstead on August 23rd with full military honours, and there were but few dry eyes when the notes of the Last Post concluded the sad ceremony. His relations and personal friends hurried from their holiday resorts to pay him the last tribute of respect, and in addition there were representatives of his own company, including General G. Carleton Jones, Colonel Adami, and other Canadian officers. Among those present may be mentioned: Sir William Osler, Professors Cameron and J. J. Mackenzie (Toronto), Professor and Mrs. Waller, Professor Halliburton (representing the Royal Society), Professor Cathcart, Dr. and Mrs. Mott, Mrs. George Buckmaster, Mrs. Albert Wilson, Drs. Bryett, Cadman, Hugh Playfair, A. E. Russell, Sandifer, and Whitfield, Miss Cullis, Mrs. Tribe, Miss O. Lewin, and other members of the London School of Medicine for Women and the Endell Street Hospital.

The writer feels he cannot conclude this brief and imperfect tribute to his old friend without once more alluding to the indifference with which this country regards its scientific workers. Here was a man with exceptional power and brilliant gifts, but still unable to obtain in his native land a position and a competence worthy of his greatness.

KARL GROSSMANN, M.D., F.R.C.S.EDIN.,

CONSULTING SURGEON, STANLEY HOSPITAL, LIVERPOOL.

DR. KARL AUGUST GROSSMANN died in London on August 24th, at the age of 65. He had suffered for some time from anginal attacks, and recently had grown rapidly worse. He graduated M.D.Freiburg in 1874, and came to England some thirty-five years ago with very high credentials from his German teachers. He took the diploma of L.R.C.S.Edin. in 1879, and the Fellowship of the same College in 1889.

While at Freiburg he was assistant surgeon to the University Eye Infirmary, and when he came to this country took up the special practice of ophthalmology. He was appointed the first ophthalmic surgeon to the Liverpool Stanley Hospital, and soon came to be recognized as a leading authority on the eye and as a brilliant operator. He threw himself heartily into the professional life of Liverpool; he was a well-known figure at the debates at the Medical Institution, where he held office as librarian and vice-president. He was a member of the Council of the Lancashire and Cheshire Branch of the British Medical Association from 1899 to 1911, and was the representative of the Liverpool (Western) Division from the first Annual Representative Meeting at Swansea in 1903; he continued to represent that constituency until 1907. He was one of the local secretaries of the annual meeting of the Associa-

tion in Liverpool in 1912, and was a vice-president of the Section of Ophthalmology at the annual meeting at Aberdeen in 1914.

His mind was essentially original and his industry never flagged. In a great seaport the question of colour blindness is of perennial interest, and Dr. Grossmann threw himself into the discussion and investigation of the subject with his usual energy. He devised a set of tests for colour vision which were generally considered very excellent, though they were not generally adopted owing probably to the practical difficulties attending their manufacture on a commercial scale. Some twenty-five years ago, following a severe illness, he had to take a prolonged holiday and spent a winter in Egypt, where he did excellent work in the investigation of ophthalmia. More recently he made very original investigations on the mechanism of accommodation, proving that, contrary to the general teaching, the curvature of the posterior surface of the lens changes during the act.

His interests and energies were by no means confined to his strictly professional work. He was a wide and intelligent traveller, and he had done some mountain climbing in his early days. He had an intimate knowledge of German, French, and Italian, as well as of English, and during the last few years had seriously taken up the study of Russian. He undertook two journeys across Iceland, and explored the celebrated ice caves, when he made investigations on the forms of the ice crystals, which led him to novel conclusions as to the true form of the crystallization of water, conclusions which he brought before the Royal Society and published in *Nature*. Another result of his visit to Iceland was a clinical study of lepra ophthalmica founded on observations made at the leper hospital in Laugarnes, Iceland, in 1901 and 1904. He read a paper on the subject at the Annual Meeting of the British Medical Association at Leicester in 1905, and gave a demonstration of a number of natural colour photographs, some of which were produced in the Journal to illustrate the report of the paper when it was published on January 6th, 1906.

He had great taste in music, and for an amateur was a brilliant performer on the violoncello, and he was a draughtsman of no mean skill.

A man with so many interests and accomplishments had naturally a host of friends in various countries and in many walks of life. He had a lively sense of humour, and was generous almost to a fault. He leaves a widow, but no children.

JOHN B. MURPHY, M.D.,

CHICAGO.

Dr. John Benjamin Murphy of Chicago, one of the foremost surgeons of the United States, died suddenly of heart disease on August 11th. He was born at Appleton, Wisconsin, in 1857, and took his degree at Rush College, Chicago, in 1879. After three years of practice he studied two years in Germany. On his return to Chicago he soon gained a great reputation, especially in abdominal and bone surgery. In 1895 he was appointed professor of clinical surgery in the Chicago Post-Graduate Medical School, and later he became head of the department of surgery in the North-Western University Medical School. He was chief surgeon to Mercy Hospital, and held several other public appointments. "Murphy's button" made his name known to the whole profession; it was successfully used by him in a case of gangrene of the intestine as early as 1892. In 1898 he recommended the production of artificial pneumothorax by compression of the affected lung with nitrogen. He was very successful in replacing bone tissue by grafts of cartilage. He was president of the Clinical Congress of North American Surgeons, held in London in 1914, when he delivered an address on arthrodesis and bone transplantation, in which he gave an account of his operative treatment of joints that had long been ankylosed. The essential point in the procedure is to free the fixed joint and to interpose between the bones a flap of soft living tissue to form the lining of the new articulation. When Colonel Roosevelt was wounded in Chicago in 1912 Dr. Murphy had charge of the case. He was a member of the Deutsche Gesellschaft für Chirurgie, of the Paris Société de Chirurgie, and of other scientific bodies. Many distinctions were bestowed upon him in recognition of his work. In 1908 he received the honorary degree of Doctor of Science from the University of Sheffield; in 1911 he was president of the American Medical Association, and in 1916 he received from the Pope the collar and cross of the Order of St. Gregory the Great.

Dr. Murphy was the author of many contributions to medical literature. The most important of these were a report of an original research on cholecysto-intestinal, gastro-intestinal, entero-intestinal anastomosis, and approximation without sutures (*Medical Record*, 1892); intestinal approximation: pathological histology of reunion and statistical analysis (*Medical Record*, 1894); operative surgery of the gall tracts, with report of twenty successful cholecystenterostomies by means of the anastomosis button (*Chicago Medical Recorder*, 1894); an experimental and clinical research on the resection of arteries and veins injured in continuity—end-to-end suture (*Medical Record*, 1897); surgery of the lung (*Journal of the American Medical Association*, 1898); two thousand operations for appendicitis, with deductions from personal experience (*American Journal of Medical Sciences*, 1904). Dr. Murphy was editor of *International Clinics* from 1901 to 1905. A living record of his clinical teaching may be found in his *Surgical Clinics*, the first number of which was issued in February, 1912. Reviews of this publication, which contains much valuable matter, have appeared from time to time in the British Medical Journal.

THE LATE SIR VICTOR HORSLEY.

The Medical Secretary has received from Lady Horsley a letter asking him to convey to the Representative Body her sincere thanks for its commemoration of her husband's work for the Association and the medical profession, and her gratitude for its sympathy with her.

We have received from a correspondent in Amara the following letter dated from that place, Sunday evening, July 16th:

I have just been to the Rawal Pindi Hospital, where Sir Victor Horsley was lying ill, to find that he passed away a few minutes ago—at 8.45 p.m.

He had only three days ago returned to Amara from the front and seemed to be in his usual health and spirits. Only yesterday (Saturday morning) I had some conversation with him on a subject which was interesting him—the provision of hospitals with laboratories; and he then set out to walk back to his camp, which was about a mile and a half away across the Tigris bridge and over the open plain. The shade temperature was over 110° and the atmosphere humid. When he got to his tent he heard there was a sick officer he knew, about half a mile further on; he went on to see him and examined him carefully. He complained of headache later in the afternoon and was admitted to the Rawal Pindi Hospital on Saturday evening about seven o'clock. His temperature rose, he had a rather restless night, and in the morning seemed worse. His temperature rose all day and finally reached nearly 110° F. He became comatose in the afternoon and passed away after little more than twenty-four hours' illness. The cause of death appeared to be heat-stroke, a condition which carries off many people nowadays in Mesopotamia.

The news of his death has been received with the greatest sorrow and regret even in these days when the loss of friends is almost our daily portion, and it will be a large and representative following he will have to his last resting place to-morrow in the Amara Cemetery.

It would ill become one who has only known him personally within the last few months to write of his many and great achievements in the past, but I can speak of his untiring energy and the loyal devotion and singleness of purpose shown in his every action up to but a few hours ago. Those who have met him recently are aware that he had framed a very severe indictment against those he believed were responsible for the mismanagement which he thought characterized some aspects of the campaign. It is only three days since he returned from the front, and he was about to return to India for a spell to prepare his report.

He has been urged time and time again to curb his extraordinary energy and not to put too severe a strain on his physical capacity, but it appears that he underestimated the baneful effects of the severe climatic conditions existing just now in Mesopotamia. It would have been easy for him to have pleaded the heat or his increasing years, but he refused to take things easily, and has sacrificed himself to his zeal for bettering the conditions

of the soldier, and has died for a cause which almost justified even so great a loss to his friends and to the ideals of the medical profession of which he was so devoted a champion.

WE regret to record the death on August 15th, at Oxford, of Dr. EDWIN BENJAMIN GRAY. He was in his 85th year and was the oldest medical practitioner in the city. His death was due to advancing age and bronchitis. Dr. Gray, after graduating from Exeter College in 1852, joined St. Bartholomew's Hospital and became an M.R.C.S. in 1856 and D.M.Oxford in 1861. After obtaining his medical qualification, he held first the post of house-physician and afterwards honorary physician to the Radcliffe Infirmary, which post he resigned in 1884; he was at the time Litchfield lecturer in clinical medicine and examiner in medicine of the University. He was a member of the British Medical Association and the Oxford Medical Society, and took a very keen interest in all medical matters up to the time of his death. For many years he had a wide connexion in the county and district as a consulting physician, and his opinion was highly valued. In 1902 he had a severe and prolonged illness which caused him to retire from professional work. He leaves a widow, two sons, and a married daughter.

The Services.

INDIAN MEDICAL SERVICE.

CONSEQUENT on the suspension during the period of the war of examinations for promotion, lieutenants of the Indian Medical Service with (1) less than three years' service, and (2) those who have not been able for approved reasons to present themselves for examination, will, if fit in all other respects, be promoted permanently on completion of three years' full-pay service, while those who have completed three years' service but have not passed or failed to pass the prescribed examinations will be promoted from October 22nd, 1914.

EXCHANGES.

CAPTAIN R.A.M.C.(T.F.), at present on leave, due back in India middle of October, desires to exchange with M.O. (must be a Territorial) doing duty at home.—Address C. F. M., Furnham House, Chard, Somerset.

Captain R.A.M.C.(T.), R.M.O., wishes to exchange from home service regiment to active service abroad (France or Salonica).—Address No. 3392, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Lieutenant R.A.M.C. would like to exchange with medical officer desirous of going to Egypt.—Address No. 3400, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

WE have received from Messrs. Frederick R. Butt and Co., 147, Wardour Street, London, a catalogue of *x*-ray apparatus, tubes, and accessories, which shows that they are prepared to supply everything, or nearly everything, the *x*-ray operator requires. Most of the apparatus appears to be of their own manufacture, but they also supply platinum and tungsten target tubes of American manufacture. The catalogue contains a number of useful hints on the use of the more modern and delicate pieces of apparatus. It is well illustrated and provided with an adequate index.

THE American Rights League has been formed to uphold the duty of the United States Republic in international relations. The president of its New York Committee is Mr. G. H. Putnam, and of its Boston committee, Mr. W. R. Thayer. The secretary of the league is Dr. Richard C. Cabot, associate professor of medicine in Harvard University. The league has recently directed its attention to the case of Captain Fryatt, and has issued a leaflet on "The Society of Nations *versus* Germany," written by Dr. Munroe Smith, professor of jurisprudence in Columbia University, New York, and another containing an expression of the opinion of Professor Stowell of the same university. Professor Stowell writes that the German authorities tried Captain Fryatt "under a regulation which they had enacted in violation of the law of nations; neither did they allow a reasonable publicity to the proceedings, such as is due out of respect to the opinion of mankind, that they may make felt their influence against abuses of bureaucratic action." In transmitting this opinion Dr. Cabot points out that, "although the case is not more shocking than many acts of the German Government, it is a clear reminder that Germany still defies our ideals of law and righteousness. It comes to us bringing not the dazed surprise caused by the invasion of Belgium, but a sort of familiar horror."

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

X. Y. Z. inquires as to the procedure and liability in the following case. A doctor whose net income was £500 from private practice and £180 from public appointments, joined the R.A.M.C. early in 1916, and is now in the East, having left a power of attorney and put a locumtenent in charge of his practice.

*** Prima facie, the absentee practitioner is liable to tax on the full (average) profits of past years, but under Section 13 (1) of the Finance Act, 1914 (Session 2), as continued by the Finance Act, 1916, he can claim an adjustment of his assessment from the "average" to the amount of the actual profits of the year, inasmuch as he is serving in the forces of the Crown. We therefore suggest that the person holding the power of attorney may be able to arrange with the surveyor of taxes for the locality where the practice is situated for an estimated assessment to be made, based on the probable amount of the profits of the practice (after deducting the expenses incurred in respect of the locumtenent) for the year to April 5th, or March 31st, 1917. Tax will be payable in two moieties in January and July, 1917, and before the second moiety becomes due there should be sufficient information available to allow of that tax to be diminished or increased to the balance necessary to account for the full liability of the year. It will probably be found advisable and sufficient to make one return to include the appointments as well as the private practice.

ANSWERS.

BOOKS ON SANITARY LAW.

S.—The best book on sanitary law is one which contains the original Acts. Such a book is *Public Health Acts*, by Davey, 8s. 6d. (London: Knight and Co.). A new edition has appeared recently. A popular book on sanitary law for D.P.H. examinations is *Handbook of Sanitary Law*, by E. Burnett Hano, 3s. 6d. (London: Lewis). Another popular book is *Sanitary Law and Practice*, by Robertson and Porter, 12s. 6d.

LETTERS, NOTES, ETC.

GARLIC IN WHOOPING-COUGH.

CAPTAIN A. STEVENSON, M.D., R.A.M.C. (Lark Hill, Salisbury), writes: Besides being used with good results in whooping-cough, as Dr. Hovell has mentioned in his instructive note in the BRITISH MEDICAL JOURNAL of July 1st, "garlic" can also be used with very successful results in treating tuberculosis both of the lungs and the joints. Two cases under my care were treated by garlic juice applied on lint, and covered with gutta-percha tissue. Both were adults. One, a case of tuberculosis of the spine with lung infection, was successfully treated by rest in bed with extension, and the application of garlic juice over the diseased spine. For the lung condition he had an inhalation. The other was a case of tuberculosis of the wrist-joint, which also completely recovered under the use of garlic juice and rest on a splint. In using garlic juice some vesication may occur, which, however, soon disappears. Garlic juice can also be given as an inhalation in lung cases.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, SEPTEMBER 9TH, 1916.

EDUCATIONAL NUMBER. SESSIONS 1916-1917.

THE PROFESSION OF MEDICINE.

THE main object of this issue of the BRITISH MEDICAL JOURNAL is to meet the needs of two classes—those who require information as to the course which must be followed in order to become a legally qualified practitioner of medicine, and those who, having already obtained this position, are doubtful as to what particular part in medicine they should choose as a career after the war.

In this country the conditions with which those who desire to enter the medical profession must comply are regulated by a statutory body known as the General Medical Council, and a statement of its requirements will be found on page 347. The task of examining candidates as to their fitness to practise medicine is left to the universities and to certain corporations in England, Scotland, and Ireland. But the Council takes steps to ensure that the tests imposed do not fall below a certain standard, and that none of these bodies admits to its examinations persons who have not undergone certain definite courses of instruction at one or other of the many recognized medical schools.

Successful candidates at such examinations eventually receive from the body holding them either degrees, in the case of the universities, or diplomas or licences, in the case of the corporations, entitling them to claim that their names shall be inserted in the *Medical Register* kept by the General Medical Council. The difference in the result is, however, no criterion of the comparative difficulty of the examinations undergone, nor yet of the expenditure in time and money demanded by the education necessary to pass them. At one time the holders of diplomas and licences formed the great majority of all medical men, especially in England and Wales, but of recent years universities have greatly multiplied. Consequently so many medical men now hold degrees that, save in exceptional circumstances, the wisest course for a medical student is to aim at a degree, though it may be desirable to take also a diploma or licence.

Apart from the degrees and diplomas and licences, on the strength of which the General Medical Council admits to the *Medical Register*, most of the bodies in question bestow on candidates who have passed further examinations higher titles, such as "Fellow" and "Doctor of Medicine." It may be said that as a rule they are worth obtaining, though the difficulty of doing so, and the added professional status they confer, vary considerably. There are also a certain number of diplomas in special branches of work, such as public health and tropical medicine, which are superfluous in the case of the great majority of medical men, but either useful or absolutely necessary in the case of those who wish to specialize in the work covered by them.

The expenditure involved in successfully completing a medical curriculum varies so much that no single precise statement on the subject can well be made. Apart from differences in the charges made by different medical schools for instruction, there are differences also in the fees for examination, as well as in those charged for the actual certificates given to successful students, whether these relate to degrees, licences, or diplomas. Besides this, not all medical students, however industrious, get through their examinations with equal facility.

Since in any case their professional education must continue for at least five years—a period exceeded by the vast majority—and since the cost of living in different parts of the kingdom varies considerably, and personal expenditure varies still more, it can only be said that no one should think of entering the profession of medicine who is unprepared to spend on his medical education a sum of about £1,000.

When once a medical graduate, diplomate, or licentiate has obtained the insertion of his name on the *Medical Register* there are many courses open to him. He can aim at becoming a general practitioner; or at entering one of the Government services at home or abroad; or at specializing in public health or asylum work, or in pure science, or in one or other of the many modern subdivisions of medicine and surgery. Most of these different paths in medicine are considered in some detail elsewhere, but a few observations may here be made as to the first and last of them.

A man becomes a general practitioner either by taking a house and waiting for patients to seek his services, or by entering into partnership with some already established practitioner. The successful conduct of a private practice entails, however, the possession of a great deal of knowledge other than that acquired at the medical schools, and consequently no man is likely to be accepted as a partner, or to prove successful as an independent practitioner, unless he has first gained experience in private practice as an assistant. The pay of assistants was at one time very small, but of late years has risen to what is quite a respectable figure, when consideration is paid to the fact that most assistants are still more or less *in statu pupillari*. Their average pay before the war was probably between £150 and £250 a year.

The path of those whose ambitions lie in the direction of becoming consultants or specialists is

rugged. Their eventual success will depend not only upon their mental attainments and capacity for hard work, but on their possession of the various qualities which help to win for a man the confidence both of his colleagues and of the general public. Moreover, since it is certain that, however well equipped they may be, they will not for many years make as specialists enough to pay their outgoings, this particular path is open only to those who are in possession of sufficient means to maintain themselves for an indeterminable number of years, or who are able, by teaching or in other ways, to make sufficient to defray their expenses.

It is not the purpose of this number to put forward any opinion as to what paths in medicine offer the greatest attractions, whether financial or scientific. Whatever the branch of medical or surgical practice chosen, it must be remembered that the large majority of medical men make but a moderate income. The financial returns of even the most successful practitioners compare but ill with those obtained by persons of equal ability in others walks of life. The Insurance Acts stand for a movement that has done much to convert the general practitioner who is on the panel into a part of a piece of official mechanism, but nothing to maintain or improve the status of the medical profession, unless it be by the increased opportunities for scientific work afforded by the Medical Research Committee established under the Act of 1911. The full effects of the National Insurance scheme on the profession cannot yet be estimated, for, in spite of modification by many hundreds of successive orders, circulars, and regulations, it is still far from having reached any stable form. In consequence, the prospects of members of the medical profession must still be regarded as uncertain so far as they are influenced by the Act.

The effects of the war upon the medical profession, and more particularly upon medical education, have of course been revolutionary. It will suffice to indicate a few of them quite briefly. It was stated in Parliament last April that the Army and Navy together were employing the services of over 12,000 medical men; this is in place of the normal 3,300 or thereabouts accredited to the Services year by year in the *Medical Directory*. Further, a great many civilian practitioners are giving up a part of their time to attendance at military hospitals, and a few more are employed there as whole-time officials. It is clear, therefore, that the civil population must perforce be dispensing with some large part of the medical attendance it receives in normal times, while many of the civil practitioners left at home must be hardly worked. The effect of the war upon the numbers of the medical students in their different years of professional study has been curious, and to some extent unexpected. It was explained by Sir Donald MacAlister in his presidential address to the members of the General Medical Council last May. It appears that between the years 1910 and 1914 the annual entry of first year medical students averaged 1,441. During 1915 this number rose to 1,935, and in May, 1916, these students were about 1,800 in number. Hence the effect of the war has been to increase the annual number of these entries by several hundreds. The numbers of the second and final year medical students were each about 950; the third and fourth year students together totalled about 1,750. The practical inference to be drawn from these figures is that a certain shortage of newly qualified medical practitioners is to be looked for about the end of the year 1918; but the expected depletion of medical students under the attestion and compulsory service systems has not been so severe as was at one time anticipated, and at the end of the war a large number of young medical men who qualified shortly before it broke out or during its progress will probably return to civil life. A statement made by the Financial Secretary to the War Office on August 21st may be taken to indicate that second and third year medical students who have not been passed as fit for general service, but who are at present serving, will probably be allowed to return to their professional studies. It is not probable, we conceive, that there will be any actual shortage of medical practitioners for civil work in 1918, unless the war is then still continuing.

Another feature of the last two years has been the great increase in the number of women going in for the study of medicine. In 1915 the number of entrants was 456, and it is probable that in 1916 even this large figure will be exceeded. As for the professional instruction of these large numbers of medical students, men and women alike, there can be no doubt that the war, by diverting the activities of many of their teachers into other channels or other spheres, has considerably depleted the teaching staffs of the hospitals and other educational institutions in which the preliminary subjects and various branches of medical science are taught. Yet teachers enough for all practical purposes remain at their posts: indeed, it may be said that now that the Board of Education is gradually assuming a larger share in the general direction of medical studies, there is good reason to expect that the educational prospects of the medical student will show a steady improvement year by year. The student will profit indirectly, his teachers directly, by the use of public moneys in the furtherance of medical education.

What will be the prospects of the medical profession when the war is over? The medical services have acquitted themselves extremely well in the war, and medical science will come out of it with an enhanced reputation. Surgery has made considerable advances, the treatment of wounds has improved greatly, orthopaedic treatment for the crippled and maimed is more successful than ever; preventive medicine in camp and trenches has, with but few exceptions, scored far greater triumphs than could ever have been expected; the work of the pathological laboratory and of the bacteriologist has proved to be of the utmost value. In civil life the spirit of the times is all in favour of a wide extension of the public health services. In the near future more medical care will be provided for expectant mothers, for infants, for children, and for the victims of certain diseases; a great increase in the public work of pathological laboratories all over the kingdom may be confidently expected. All this means an increase in the official medical services. What fate is in store for the private practitioner we will not venture to prophesy. Before the war his position had been profoundly affected by the Insurance scheme. It has converted the majority of general practitioners into part-time civil servants, and subjected them to the discipline of Insurance Committees and Insurance Commissioners. Pecuniarily it has benefited some and impoverished others. Many believe that the State will sooner or later—and perhaps sooner rather than later—tighten its grip on the medical profession. Whether this is regarded as a blessing or the reverse will depend upon the bent of the mind towards collectivism or individualism.

Finally, it should be noted that a quality every medical man should possess is a strong sense of *esprit de corps*. Medicine, like the Church, is a

profession which the general public—as also public authorities—persistently regards as being of a semi-philanthropic character. Furthermore, it is a profession whose aims and requirements are very ill understood by persons who have not undergone a medical education, including in that term not only a certain number of years at a medical school, but also a certain number of years passed in the actual practice of medicine. Consequently the interests of the medical profession, both on its financial and scientific sides, are continually being attacked, sometimes openly, sometimes insidiously. For this reason it is absolutely essential that medical men should band themselves together for the common protection of themselves and the profession that they represent, and to this end join the British Medical Association[1] as soon as they have entered their names on the *Medical Register*. For the objects of this body are to promote the progress of medical science and the interests of the medical profession, and its past history shows that it has well fulfilled them.

THE GENERAL MEDICAL COUNCIL.

THE General Medical Council is a body which was called into existence by the first Medical Act of 1858. A certain number of its members are elected by the medical profession, and the rest—who form the great majority—are nominated by Government itself and by the universities and such medical corporations of the United Kingdom as have a statutory right to issue diplomas. Its head quarters are at 44, Hallam Street, Portland Place, W., and it has branch offices at 54, George Street, Edinburgh, and 35, Dawson Street, Dublin. Its duties are to control the medical and dental professions in the interests of the general public, and to that end to maintain a register of legally qualified practitioners. It is admission to this *Register*, and not the possession of a medical degree or diploma, that constitutes a person a legally qualified practitioner. The Council is bound to admit to the *Register* those who hold the degrees or diplomas granted by the bodies represented among its members, but it can prescribe the terms on which those bodies shall grant such diplomas or degrees, and it can erase from the *Register* the name of any medical man or dentist who has been convicted before a court of law of an ordinary crime or of a serious offence against public morality, or who is proved before the Council itself to have been guilty of certain actions which the Council regards as professionally infamous. Its disciplinary powers are strictly limited to legally qualified practitioners, and it has no control whatever over irregular practitioners of any kind.

An account of the regulations that the Council has drawn up in respect of the education of medical students here follows and should be carefully studied. The primarily important things to note about them are that they entail (1) the production of proof of a certain degree of proficiency in subjects of preliminary or general education; (2) application for registration as a medical student either at the head-quarters office in London or at one of the branch offices in Edinburgh and Dublin, although this latter requirement is not invariably enforced.

PRELIMINARY EDUCATION.

The subjects of which proof of efficient knowledge must be produced by applicants for registration as medical students are as follows:

(1) *English:* Grammar; paraphrasing; composition; questions on English history and geography.

(2) *Latin:* Grammar; translation into English from unprescribed Latin books; translation into Latin of a continuous English passage, and of short idiomatic English sentences. In the case of natives of India or other Oriental countries, whose vernacular is other than English, a classical Oriental language may be accepted as equivalent to Latin.

(3) *Mathematics:* Arithmetic; algebra, including easy quadratic equations; geometry, including the subject matter of Euclid, Books i, ii, and iii, and simple deductions.

(4) One of the following subjects:

(*a*) *Greek:* Grammar; translation into English from unprescribed Greek books; translation into Greek of short idiomatic English sentences; or

(*b*) *A Modern language:* Grammar; translation into English from unprescribed books; translation of a continuous English passage, and of short idiomatic English sentences.

The Council does not hold an examination itself in these subjects, but expects a candidate to prove his knowledge of them by the production of evidence either that he holds a degree in arts or that he has passed one or other of the tests imposed by various educational bodies which it recognizes for this purpose. Such tests include the matriculations of universities at home and abroad, and the "local examinations" held by the Universities of Oxford and Cambridge, the "leaving" and other examinations held by the Education Departments in Scotland, Ireland, and Wales, as also the examinations of the College of Preceptors and the Educational Institute of Scotland. In regard, however, to nearly all these tests the Council qualifies its acceptance of them by some condition, and these vary so considerably and are so numerous that the leaflet issued by the Council should itself be studied.

REGISTRATION OF MEDICAL STUDENTS.

In addition to showing that he has passed one of these examinations, any person applying for registration as a medical student must (1) produce satisfactory evidence that he has attained the age of 16 years; (2) show that he has commenced medical study at a university or school of medicine, or at a teaching institution recognized by one of the licensing bodies and approved by the Council. The commencement of professional study will not be reckoned as dating earlier than fifteen days before the date of registration.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland or Ireland. It must be made on a special form, which can be obtained on application at the offices either of the General Medical Council itself or of one of the various licensing bodies and medical schools, and when forwarded it should be accompanied by the certificates as to age and general education.

The regulations with regard to registration apply equally to medical and dental students, with the exception that in the case of the latter pupilage with a registered dental practitioner may be regarded as a commencement of professional study, and that applications for registration should be addressed to the London office only.

PROFESSIONAL EDUCATION.

The rule is that it is only from the date which appears against his name in the *Students' Register* that the medical student's career officially begins: thereafter five years must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts.

There are, however, certain important exceptions to this rule: thus (1) to meet the circumstances brought about by the dates at which sessions of the medical schools commence and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. (2) Graduates in arts or science of any university recognized by the General Medical Council, who have spent a year in the study of physics, chemistry, and biology, and have passed an examination in these subjects for the degrees in question, may be held to have completed the first of the requisite five years. (3) The Council will accept as six months of that year six months passed, subsequent to obtaining a certificate in general education, as a student of chemistry, physics, or biology at any teaching institution recognized by a licensing body and approved by itself. In any case, the period of five years must be one of bona fide study, and during its course education in the following subjects must be pursued and examinations passed:

(i) Physics, including the Elementary Mechanics of Solids and Fluids, and the rudiments of Heat, Light, and Electricity.

(ii) Chemistry, including the principles of the science, and the details which bear on the study of medicine.

[1] The ordinary subscription of members resident within the United Kingdom is £2 2s., but as from January 1st, 1915, those admitted within two years from the date of their registration pay only 25s. until the expiration of four years from such registration. Members resident outside the United Kingdom pay 25s. to the parent Association.

(iii) Elementary Biology.
(iv) Anatomy.
(v) Physiology.
(vi) Materia Medica and Pharmacy.
(vii) Pathology.
(viii) Pharmacology and Therapeutics.
(ix) Medicine, including Medical Anatomy and Clinical Medicine.
(x) Surgery, including Surgical Anatomy and Clinical Surgery.
(xi) Midwifery, including Diseases peculiar to Women and to Newborn Children.
(xii) Theory and Practice of Vaccination.
(xiii) Forensic Medicine.
(xiv) Hygiene.
(xv) Mental Disease.
(xvi) Anaesthetics.

The practical study of Subject (xi) shall not commence until the student has held the offices of Clinical Clerk and Surgical Dresser, and the work done in connexion with it must follow prescribed lines. The Council also expects that study of the Subjects (vii) to (xvi) shall extend over not less than twenty-four months subsequent to success at the examination in Subjects (iv) and (v). It also now recommends licensing bodies to require of candidates at their final examinations evidence of instruction in the administration of anaesthetics and in infectious diseases, and of sedulous attention in hospital wards, out-patient departments, and *post-mortem* rooms, as clerks and the like.

Wherever the first of the five years is spent, the next three must be passed at one of the schools of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858. The final or fifth year the Council recommends should be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by any of the licensing bodies.

SPECIAL CONSIDERATIONS.

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in sufficient detail, but before leaving this part of the subject the steps which the aspirant should take may finally be rehearsed in their due order:

(1) Pass an examination in arts;
(2) Enter himself at a medical school or other scientific institution recognized by the Council;
(3) Get himself registered as a medical student;
(4) Study for a minimum of five years certain prescribed subjects;
(5) Meanwhile pass sundry intermediate examinations; and, finally, at the end of the fifth year, one which will entitle him to receive at the hands of a licensing body a legal authority to practise.

The Arts Certificate.—There are, however, other important considerations; thus, it is not a matter of indifference what certificate of proficiency in general education, or arts, the student obtains. The General Medical Council, it is true, will accept any of the large number of tests to which reference has been made, and this, too, is the case with practically all the college corporations in England, Scotland, and Ireland. But all the licensing bodies are not equally accommodating; some of the universities require that their own ordinary matriculation should be passed, others have special matriculation examinations for those wishing to join their medical faculty, and a third and larger number will accept any arts degree and certain matriculation examinations, as well as several other of the tests entered in the Council's list.

The first thing, therefore, the future medical student should, if possible, decide is at what degrees or diplomas he intends to aim, and then find out what arts certificate will be required. If he cannot decide the question in advance, the best course probably would be to matriculate at London University, choosing as two of his optional subjects Latin and one other language, so as to meet the requirements of the General Medical Council with respect to general education. It is a troublesome examination in many respects, but gives a wide choice of subjects, and has the advantage of being accepted as sufficient testimony to general education by a larger number of bodies than is any other analogous examination.

The Minimum Period.—Another point to remember is that the period of five years mentioned is a minimum; a good deal more will almost certainly be required even by the man of good abilities and reasonable industry. Besides these qualities, a student to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Otherwise it is almost inevitable that his career as a student should be prolonged for a greater or smaller number of months beyond the possible minimum. Thus, for instance, a student before presenting himself for any examination has to get what is called "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place, he may miss a sufficient number of them to make it impossible for him to be "signed up." Then, again, should a student fail to satisfy the examiners at some examination, he cannot present himself again for re-examination for at least three months. This fact generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by his having to give up some time to restudying the subjects in which he has failed, the Examining Boards in the majority of instances insist upon a definite interval elapsing between a student passing one examination and his presenting himself for that which should follow it. Then, again, many Boards refuse to recognize lectures and classes which have been attended at a date anterior to that at which the student has passed the requisite examination in earlier subjects. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the commencement of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and as a matter of fact, the vast majority of students take very much longer than that period.

Furthermore, in speaking of the minimum period, it is to be remembered that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or a diploma of one of the Royal Colleges. These are quite sufficient for the purposes of general practice, or for entering the Services, etc., but those who wish to take a higher qualification—for instance, the F.R.C.S.Eng.—must prolong their work for another year or more. So, too, must in some cases they who desire to convert their Bachelorship into an M.D. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age, and has practised his profession for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended at the time he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

The Normal Course.

In conclusion, it may be convenient to sketch the general fashion in which the student will pass his five years or more, but discussion of this need not be prolonged, because once a student has entered at a school, and chosen the degrees or diplomas at which he wishes to aim, the dean of the school will guide his steps in every particular.

Whatever the precise final goal, the path thereto is in all cases identical in broad outline. Practically it is divided into three stages, the conclusion of each being marked by an appropriate examination. In the first stage the student acquires a more or less extensive knowledge of the preliminary sciences—chemistry, physics, and biology; in the second he studies anatomy and physiology; and the third he devotes to the real work of his future life—medicine and surgery and their branches. During each of these stages the student must attend not less than the prescribed number of lectures and classes to ensure getting "signed up" in the subjects of the stage, and also do a very considerable amount of practical work. As for the examinations at the end of the stages, these are known by different titles by different examining bodies, but "preliminary science," "intermediate," and "final" are in common use. Some bodies demand that the student should pass in all the subjects of one stage at one time; others allow the candidate to present himself in each of the subjects separately, thus multiplying the

actual number of examinations, but limiting their scope. There are also differences in the requirements of the different licensing bodies as to the length of each stage, but practically all demand that the second shall be longer than the first, and the third not shorter than the second. By the length of the allotted stage the candidate may gauge the comparative importance the licensing body attaches to the subjects within the stage and the difficulty of the tests it will impose, and he may feel certain that the time allotted is none too much.

In any case it should be the aim of the student to get through his first two stages as quickly as his abilities and the regulations will allow; and, as a rule, he should have completed the first stage by the end of his first year, and may hope to complete the second stage not later than the end of his third year. He will then have two years in which to prepare for his final examination, and it will prove a very crowded period, for he has to get into it not only medicine, surgery, and midwifery proper, but many other allied subjects, such as pathology and bacteriology, forensic medicine, gynaecology, and therapeutics. In the first of the final two years he may be able to complete his formal lectures, and thus have the fifth year for entirely practical work and private study; during those two years, too, he will take part in the work of his hospital by holding clerkships and dresserships in the wards and out-patient department for the periods laid down by the licensing bodies. Then, at length, after perhaps a few weeks of special coaching, he will be ready to present himself for his final examination, which the regulations of most bodies will allow him to divide into two or more parts. The final examination passed in its entirety, he will be able to claim registration as a qualified medical practitioner at the hands of the General Medical Council, and become an independent personage. There is still room for him to continue a student's career if he will, for, apart from the higher qualifications to which reference has been made, it may seem to him worth while to devote time to acquiring greater knowledge of some particular branch of medicine, such as ophthalmology or laryngology, or to undergo the courses of study necessary to obtain a diploma of special proficiency in questions of public health (page 377), or in tropical medicine (page 376). Points such as these, however, the student will be fully capable of deciding for himself when he has reached the stage to which our account has now brought him.

The next matters to be considered, therefore, are the requirements in detail of the different licensing bodies, and what they have to offer in the way of degrees and diplomas.

THE WAR.

The Council advised the licensing bodies that its recommendations respecting the courses of medical study represent, in general terms, the minimum curriculum that should be required by the various licensing bodies. But it recognizes that during the present national emergency it may be advisable for them to modify or even suspend their regulations. It feels sure, however, that the licensing bodies concerned will recognize the importance, in the public interest, of maintaining unimpaired the present standard of knowledge and skill required of all who seek to be admitted to all the status and privilege of registered practitioners. It will therefore be desirable to secure in every instance that the requirements of the minimum curriculum are to be substantially fulfilled. The standard of the qualifying examinations, in other words, is to be maintained.

The English Universities.

THERE are eleven universities in England and Wales, and some account of each of them follows. With one exception they all have fully developed medical faculties. The exception is the University of Wales, whose constituent colleges are those of Aberystwith, Bangor, and Cardiff. It is in a position, however, to grant degrees, and has laid down a six years' curriculum for candidates for the M.B. degree, and it already provides, at the School of Medicine at Cardiff—of which an account will be found at page 367—thorough training in the work of the first three or four years.

UNIVERSITY OF OXFORD.

THE professional degrees conferred by this university are those of Bachelor of Medicine (B.M.), Bachelor of Surgery (B.Ch.), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in State Medicine and a diploma in Ophthalmology. On receiving the B.M. the candidate is entitled to registration by the General Medical Council. In favourable circumstances this degree and the B.Ch. may be obtained in six or seven years from matriculation. Before receiving either, however, the candidate must have taken a degree in Arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period; for some of the subjects chosen for the final stage of the arts course may be the same as those in which examinations would in any case have to be passed for the medical degrees.

THE B.A. DEGREE.

A candidate may obtain the B.A. degree in either of the following ways:

(*a*) By passing Responsions (or one of the examinations which are accepted as equivalent), Moderations, a Scripture examination, or, in the event of a candidate objecting, an examination in some substituted book; and the Final Pass School in three subjects, two of which may be the same as two in the preliminary examinations in natural science.[1]

(*b*) By passing Responsions, an additional subject in Responsions, the Scripture examination, some of the preliminary examinations in the Natural Science School,[1] or the Preliminary Examination and the School of Jurisprudence, or the Honour School of Mathematics in the first public examination; and one of the final honour examinations.

Responsions and the additional subject may be passed before a candidate is a member of the university;[2] Moderations and Scripture can be passed in or after the second term; the final pass school may be taken any time after Moderations; a final honour school may be taken at the end of the third or within the fourth academical year—that is, twelve or sixteen terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions have been passed.

PROFESSIONAL DEGREES.

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the Preliminary Examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First M.B. and the Second M.B. These take place twice a year, the first on the Thursday, the second on the Wednesday, of the eighth week of Michaelmas and Trinity terms. Every candidate at the First M.B. is examined in human anatomy and also in physiology and in organic chemistry, unless he has previously taken a first or second class in the two latter subjects in the Natural Science School. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine, and hygiene, materia medica, and pharmacology[3] (subjects of the second examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the twenty-fourth term from the date of his matriculation, and not until a period of at least twenty-two months have elapsed from the date of his passing the first examination, and he must take all the three subjects at one and the same time.

D.M. AND M.CH. DEGREES.

A Bachelor of Medicine who wishes to proceed to the M.D. must have entered his thirty-ninth term and must present a dissertation for approval by the appointed examiners. If a candidate for the M.Ch., he must have

[1] The four subjects of the medical preliminary examinations are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions.

[2] Membership is constituted by matriculation and by becoming either a member of a college or hall, or a non-collegiate student.

[3] A candidate who passed in materia medica and pharmacy under the old regulations in the First Examination before April 14th, 1909, is exempt from the examination in materia medica and pharmacology in the second examination.

entered his twenty-seventh term and must pass an examination which is held in June.

TEACHING.

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First M.B., and in part those of the Final Examination. For the diploma in State Medicine and the diploma in Ophthalmology certain of the courses can be taken in Oxford.

SCHOLARSHIPS.

The several colleges grant scholarships of £80 a year, tenable for four years, in natural science, chemistry, physics, and biology. Exhibitions of varying value are also awarded in these subjects. Particulars can be obtained on application to the college tutors. A Radcliffe Travelling Fellowship of £200 a year, tenable for three years, is conferred annually; candidates must have taken the B.M. degree. A Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize, for research in natural science (including pathology), and the C. Theodore Williams Scholarships in Anatomy and Physiology, and in Pathology, of the value of £50 each, tenable for two years. A Burney Yeo King's College Hospital Scholarship of £80 is awarded annually.

FEES.

An annual fee of £2 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degree the fees are—the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £25; the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £120.

UNIVERSITY OF CAMBRIDGE.

THE professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.C.), which entitle the possessor to admission to the *Register* by the General Medical Council, and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants diplomas in State Medicine and Tropical Medicine to persons who are registered medical practitioners, but not necessarily graduates of the university.[1] A candidate for the M.B., B.C. degrees need not possess a degree in arts; it is sufficient if he has passed the *Previous examination* or some other examination accepted by the university as its equivalent.

PROFESSIONAL EXAMINATIONS.

To obtain the M.B. the candidate must pass three examinations, of which the latter two take place twice a year, in the Michaelmas and Easter terms; those who are finally successful receive the B.C. degree without further examination.

First M.B. or Preliminary Examination in Science.—This comprises (1) chemistry, (2) physics, (3) elementary biology. The parts may be taken together or separately. In either case the candidate before admission to examination must have satisfied the requirements in respect of the *Previous examination*, paid the matriculation fee, and entered on his first or some later term of residence. During the continuance of the war students may be admitted to this examination though they have not commenced residence. The other requirements must be satisfied. The examination is held three times a year—in October, December, and June.

Second M.B.—This examination, which cannot be passed until the first examination has been completed, comprises Part I, human anatomy and physiology; Part II, elementary pharmacology, including pharmaceutical chemistry and the elements of general pathology. No one may enter Part II unless he has passed Part I. The candidate must be signed up in both subjects and have dissected for six months.

Third M.B.—This is divided into two parts, to neither of which is the candidate admitted until he has passed the examinations previously mentioned. A candidate for the first part, which deals with surgery and midwifery, must have completed five years of medical study and be signed up in these subjects and have completed two years of hospital practice.

Before admission to the second part the candidate must have completed five years of medical study and be duly signed up in all subjects. He must also possess certificates showing that he has fulfilled all the recommendations as well as the requirements of the General Medical Council. The examination is in the principles and practice of physic, pathology, and pharmacology.

Act for the M.B.—Before receiving his degree, a candidate who has been successful at the Final M.B. has to write a thesis. This he reads in public on an assigned day, and is then questioned concerning it and other subjects of medicine by the Regius Professor of Medicine. If approved at this test he is then certified as having "kept the Act" satisfactorily, and in due course receives his degree. Medical degrees may be taken in absence, the candidate sending a thesis to the Regius Professor of Physic, which is laid before the Board.

THE HIGHER DEGREES.

The M.D. degree may be taken by an M.B. of three years' standing, after keeping a further Act and writing a short extemporary essay, in which he may deal at his choice with either medicine, physiology, pathology, or State medicine. The M.C. degree may be granted to a candidate who has qualified for the B.C. at least three years previously; he is then examined in pathology, surgery, surgical anatomy, and surgical operations, or submits books or writings of his own which constitute original and meritorious contributions to the science and art of surgery.

FEES.

In addition to college fees, tutorial fees, and the expenses of living, the following examination fees are payable: First M.B., £4 4s.; Second M.B., £4 4s.; Third M.B., £9 9s. For schedules referring to the examinations, lists of schools recognized by the university, and other information, application should be made to the University Registrary.

UNIVERSITY OF LONDON.

UNDER the regulations of the University of London, the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Mastery of Surgery in two branches, and Doctor of Medicine in six different branches. The university has its own matriculation examination, and this is of so peculiar a kind that candidates should secure and carefully study the booklets relating to it.

In no circumstances is a degree granted to any one in less than three years after the date at which he passed the Matriculation Examination or obtained registration in some other way; and unless they are already registered medical practitioners of a certain age and standing, all students must pass not less than five and a half years in professional study subsequent to matriculation. Four and a half of those years must be passed at one or more of the medical institutions or schools at home or abroad recognized by the university for the purpose; and not less than one in the school of the university itself.

PROFESSIONAL EXAMINATIONS.

M.B., B.S.—There are three examinations, the last two being subdivided. They are held twice a year.

The First Examination covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible viva voce test in each subject. The names of successful candidates are placed in alphabetical order, with a note as to any subject in which a candidate has distinguished himself.

The Second Examination, Part I, cannot be passed within six months of the passing of the First Examination. It covers organic and applied chemistry, the candidate's knowledge being tested as in the earlier examination. It is a pass examination, but a mark of distinction may be won.

Candidates for Part II must have passed the First Examination at least eighteen months previously besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmaco-

See p. 376.

logy, the tests being written, oral, and practical. Candidates who fail in one subject may offer themselves for re-examination in that subject alone if the examiners think fit.

No candidate is admitted to the Third M.B., B.S. Examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including therapeutics and mental diseases), pathology, forensic medicine and hygiene, surgery, and midwifery and diseases of women. They may be divided into two groups, one comprising medicine, pathology, forensic medicine and hygiene, and the other surgery and midwifery and diseases of women. Either group may be taken first at the option of the candidate, or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but in the list of successful candidates the names are divided into an honours list and a pass list, in each of which the names are placed in alphabetical order, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination.

The Higher Degrees.

M.D.—An examination for the M.D. is held twice yearly—in December and July. Every candidate must have passed the examination for the M.B., B.S., unless he became M.B. before May, 1904. He may present himself for examination in any one of the following branches: (1) Medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) State medicine, (6) tropical medicine, and, if he wishes, may pass also in another branch at a subsequent examination.

The period that must elapse between acquiring the M.B. and sitting for the M.D. in any branch varies with the nature of the candidate's previous work between one year and two years, and in all cases evidence must be afforded of special study of the subject chosen, whatever the branch; both written and practical examinations must be passed, though exemptions can be obtained from the former in exceptional circumstances. In each branch the scheme of examination is the same: two papers on its special subject, a paper on an allied subject—for example, medicine in the case of branch (4), pathology in branch (1)—an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. In any branch of the M.D. Examination a gold medal of the value of £20 may be awarded.

M.S.—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are only two branches in which it may be obtained—General Surgery and Dental Surgery.

Fees.

For Matriculation: £2 for each entry. First Examination: £5 for each entry to the whole examination. For re-examination in one subject the fee is £2. Second Examination, Part I: £2 for the first and each subsequent entry. Second Examination, Part II: £8 for each entry to the whole examination. For re-examination in one subject the fee is £4. M.B., B.S. Examination: £10 for each entry to the whole examination, and £5 for examination or re-examination in either group. M.D. and M.S. Examinations: £20, and £10 on re-examination.

Special Regulations in Respect of the War.

Internal students who have failed at an intermediate or a Final Pass Examination for a First Degree in a Faculty other than Medicine, but who passed in one or more subjects on the last occasion when they presented themselves for such examination, and who have been debarred from presenting themselves for the corresponding Intermediate or Final Examination held between September, 1914, and a date to be determined later by the Senate, by service under the War Office or Admiralty, or by hospital service in connexion with the war, will be credited with the subjects in which they passed on the occasion in question.

In cases in which students, owing to War Service, have been unable to attend a course of lectures given only in alternate years, they will be permitted, if necessary, on the resumption of their work after the war, to count special tuition approved by the authorities of the school or institution concerned in place of attendance at such courses.

Military service during the war will be counted as equivalent to not more than two terms of a course of study in military science for internal students in any one of the three years over which such course of study would ordinarily extend.

In the session 1914–15, in the case of an internal student entering for an examination of the university, 120 hours of military training in the University of London Contingent of the Officers' Training Corps, duly certified by the commanding officer, will be counted as equivalent to 25 per cent. of the hours of attendance prescribed for the student's course of study in that session.

During the continuance of the war, students who have not passed the Second Examination for Medical Degrees in Anatomy and Physiology, but who have completed one year's study after passing the First Examination for Medical Degrees, will be allowed to count not more than six months' service as clinical clerk or not more than six months' service as surgical dresser in a recognized hospital as if they had so passed the examination in question.

UNIVERSITY OF BIRMINGHAM.

This university confers the ordinary medical and surgical degrees—M.B., Ch.B., M.D., and Ch.M., and also diplomas and degrees in State medicine and dentistry. It has a plan, too, by which, extending his study to six instead of five years, the M.B., Ch.B. candidate may become a Bachelor in Science as well. Of the five years' curriculum, the first four must be spent, as a rule, at the university itself, the fifth being passed at any approved school or schools. Occasionally, however, the Senate will reduce the period of enforced residence to three years and exempt from the First M.B. those who have passed elsewhere an examination considered to be its equivalent.

All students in the Medical Faculty must either (1) matriculate in mathematics, in chemistry or experimental mechanics, in the English language and literature and history, a foreign language, and in either another language or an additional science; or (2) show that they have passed elsewhere an examination deemed an equivalent. Subject to certain provisos, the following are at present thus regarded:

(*a*) The Previous Examination of the University of Cambridge if it includes the "additional subjects." (*b*) Responsions of the University of Oxford, except in mathematics. (*c*) The Matriculation Examination of a recognized university. (*d*) The Higher Certificate of the Oxford and Cambridge Boards. (*e*) The Oxford or Cambridge Senior Local Examination. (*f*) The Senior Certificate of the Central Welsh Board.

Professional Examinations.

The candidate for the M.B., Ch.B. degrees has five examinations to pass. In the second and final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again.

First M.B.—This deals with chemistry, physics, and elementary biology; it may be passed before the student commences residence at the university, provided the regulations as to matriculation have been met.

Second M.B.—This deals with anatomy and physiology, and the student must pass in both simultaneously.

Third M.B.—This deals with general pathology and bacteriology, materia medica, and practical pharmacy.

Fourth M.B.—This takes place at the end of the fourth year, the subjects being forensic medicine, toxicology, public health, therapeutics, and special pathology.

Final M.B.—This comprises medicine, surgery, midwifery and diseases of women, ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a *post-mortem* clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, and ophthalmology. In repect to the latter he must show that he has learnt refraction work. He also has to present to the examiners reports drawn up by himself on six gynaecological cases, and certificates drawn up by himself regarding four actual cases of lunacy, and notes respecting two others.

M.D.—An ordinary candidate for this degree must be an M.B., Ch.B. of not less than one year's standing. He

presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch.M. are of the same general character. Subject to certain requirements as regards special research or other post-graduate study, graduates of other universities may obtain the M.D. and Ch.M. in the same way as the holders of the Birmingham M.B., Ch.B.

FEES.

The fee for matriculation is £2, and for each of the first four professional examinations the same amount; M.B., Ch.B. degree fee, £8; M.D. and Ch.M. examination, £10 each. For further particulars application should be made to the Dean of the Medical Faculty.

UNIVERSITY OF BRISTOL.

THE university grants the following degrees: In medicine and surgery, M.B. and Ch.B., M.D., Ch.M. (the M.D. may be taken in State medicine); in dental surgery, B.D.S., M.D.S. Diplomas in public health (D.P.H.) and dental surgery (L.D.S.) are also granted. Candidates for degrees must pass the Matriculation Examination (or some equivalent examination accepted in lieu thereof; see the Regulations for Matriculation), and study at the university itself for at least three years of the five and a half years' curriculum, two such years being subsequent to the passing of the Second M.B. Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) English grammar and composition, (4, 5) two subjects at choice, one of which must be a foreign language. It is held in July and September. The winter session opens on October 3rd, 1916.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are three examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M.B. comprises chemistry, physics, botany, and zoology. The Second M.B. comprises organic chemistry, elementary anatomy (Part I), advanced anatomy, physiology (Part II). The two groups may be taken separately or together. The Final Examination includes materia medica and pharmacy, pharmacology, and therapeutics, general pathology, morbid anatomy and bacteriology (Part I), special pathology, forensic medicine, toxicology and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical, and operative), medicine (systematic, clinical, and practical), including mental diseases (Part II). The two groups may be taken separately or together. At the option of the candidate, forensic medicine and toxicology may be taken either with Group I or Group II. First or second class honours may be obtained by a candidate whose work is deemed of sufficient merit, but cannot be awarded to one who has recorded against him a failure at any examination after the First M.B.

M.D.—A candidate for this degree must be an M.B. and Ch.B. of at least two years' standing. He has a choice between presenting an original dissertation, undergoing a general examination in medicine (including medical anatomy, medical pathology and bacteriology, systematic and clinical medicine), or passing an examination in State medicine.

Ch.M.—A candidate must have attended, since becoming M.B., Ch.B., and for not less than two years, a public institution affording opportunity for the study of practical surgery, and produce certificates to that effect; the candidate shall be required to pass a general examination in surgery (including surgical anatomy, surgical pathology and bacteriology, operative and clinical surgery), and to present a dissertation in some department of surgery. He must be of two years' standing as an M.B., Ch.B.

Applications for other information should be addressed to the Dean of the Medical Faculty.

DENTAL DEPARTMENT.

The university grants the degrees of Bachelor and Master in Dental Surgery (B.D.S., M.D.S., and a Diploma in Dental Surgery entitling to the letters L.D.S.). The courses of the university are available equally for these qualifications and for those of other licensing bodies. Both courses are open to men and women alike.

UNIVERSITY OF DURHAM.

To its own graduates, who may be of either sex, this university grants the degrees of Bachelor and Doctor of Medicine (M.B. and M.D.) and Bachelor and Master of Surgery (B.S. and M.S.); it also grants special degrees and diplomas in State Medicine, Psychiatry, and Dental Surgery.[1] To become a graduate, however, at the university it is not necessary to pass the major portion of the five years' curriculum within its precincts, or even to commence that period by matriculation. It is sufficient if, before he presents himself for his final examination, the candidate has passed at least one year in study at the University of Durham College of Medicine, including the practice of the Royal Victoria Infirmary in the same city. The earlier examinations may be passed while the student works elsewhere, but not less than a year must elapse between the date when the student satisfies the requirements of the university as regards matriculation and his presenting himself for the Final M.B., B.S. Examination.

MATRICULATION.

The university has its own matriculation examination, but accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations for the M.B., B.S. degrees. Each is held twice a year—in March and June. The first deals with elementary anatomy and biology, chemistry, and physics; the second with anatomy and physiology; the third with pathology, elementary bacteriology, medical jurisprudence, public health, materia medica, and pharmacy. At the final M.B., B.S., the candidate is examined in medicine and clinical and psychological medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical gynaecology; therapeutics; diseases of the throat, nose, and ear; diseases of the skin; and diseases of the eye.

M.D.—A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and satisfy the university that he knows either Greek or German. He then submits a typewritten essay dealing with original work or observations of his own, and is examined in its subject. If the candidate is not an M.B. of the university, he must be a practitioner of fifteen years' standing and submit to special tests.[2]

B.S.—A candidate for this degree must have passed the examination for the M.B. of the university, and have attended courses on operative surgery and regional anatomy. He must then perform operations on the dead body before the examiners.

M.S.—Candidates for this degree must, like those for the M.D., satisfy the authorities as to their knowledge of Greek or German, and must have been engaged in practice for at least two years subsequent to becoming B.S. Durham. They are submitted to an examination which covers the whole range of surgical knowledge.

FEES.

The following fees are payable: Matriculation or its equivalent, £1 10s.; First, Second, and Third M.B. Examinations, each £5; Final M.B., £10; M.D., B.S., and M.S., £5 for each examination and £6 6s. for each degree. Further information respecting the examinations and degrees may be obtained from Professor Howden, at the University of Durham College of Medicine, Newcastle-on-Tyne.

UNIVERSITY OF LEEDS.

THE degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Dental Surgery (M.Ch.D.). It

[1] See pp. 377 and 380. [2] See p. 374.

also gives diplomas in public health, psychology, and in dental surgery.

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university subsequently to the date of passing the first examination. They must also have matriculated by satisfying the examiners in (1) English (language or literature); (2) English history; (3) mathematics; (4) three of the following, one of which must be a language: (*a*) Latin, (*b*) Greek, (*c*) French, (*d*) German, (*e*) some other modern language approved by the Board, (*f*) either mechanics or physics, (*g*) chemistry, (*h*) geography, (*i*) natural history. Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., Ch.B. number three. The first deals with (1) physics and chemistry, (2) biology. In each subject laboratory work is included, but the two parts can be taken separately. For neither can the candidate present himself until after matriculation, and at least two or three terms' approved work in the respective subjects indicated.

Second M.B.—This may be taken in two parts: (*a*) anatomy and physiology, including practical work; (*b*) materia medica and pharmacy, including actual compounding of drugs. The candidate's certificates must show, among other things, that he has dissected during at least five terms.

Final M.B.—This may be divided into three parts. The first part, pathology and bacteriology, may be taken at the end of the tenth term; the second part, forensic medicine and public health, and the third part, medicine, surgery, and obstetrics, cannot be taken before the end of the fifth year; and before being admitted to the examination in its subjects the candidate, in addition to ordinary certificates, must produce proof that he has done both intern and extern maternity work, and received clinical instruction in gynaecology, in diseases of the eye, skin, or larynx, and in the administration of anaesthetics. This division covers all branches of surgery, medicine (including mental diseases and diseases of children), and obstetrics and gynaecology. Passages for translation from French and German are included in the papers on medicine. First and second class honours may be obtained in this division.

M.D.—A candidate for this degree must be an M.B., Ch.B. of at least one year's standing. He presents a dissertation embodying the results of personal observation or original research, and, if this is approved, passes an examination which consists in the writing of an extemporary essay, and answering questions on the history of medicine and the subject of his dissertation.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. In addition, he must have attended certain special courses, including one on ophthalmology and one on bacteriology; he is then examined in the subject of surgery in all its branches.

FEES.

The matriculation fee is £2, and on readmission £1 10s. For each of the other examinations £5, and £2 on readmission. On conferment of the degree of Ch.M. £5 is payable, the same remark applying to the M.D. degree.

UNIVERSITY OF LIVERPOOL.

THIS university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B. and Ch.M.), gives a degree in dental surgery (B.D.S.), a degree in hygiene (M.H.), and degrees in veterinary science (B.V.Sc., and M.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), public health (D.P.H.), veterinary science (D.V.H.), and in several single subjects.

MATRICULATION.

The Matriculation Examination is governed by the Joint Matriculation Board, 24, Dover Street, Manchester, which accepts under certain conditions the tests of several other bodies as its equivalent. These include the Matriculation of London University, the Senior Local Examination of Oxford and Cambridge, the Higher Certificate of the Joint Oxford and Cambridge Board, Responsions of the University of Oxford, the Previous Examination of the University of Cambridge, the Leaving Certificate of the Scottish Education Department, and the Senior Certificate of the Central Welsh Board. Of the five years' curriculum, not less than two must be passed in the university itself, one such year being subsequent to the date of passing the First M.B. Examination.

PROFESSIONAL EXAMINATIONS.

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, inorganic, organic, and physical; (2) biology, including zoology and botany; (3) physics. Section 2 may be taken alone or in conjunction with Sections 1 and 3.

Second M.B.—This test covers (*a*) (1) anatomy, (2) physiology, including physiological chemistry and histology; and (*b*) (3) materia medica and pharmacy, (4) pharmacology. Candidates may present themselves in (*a*) and (*b*) separately.

Final M.B.—This examination deals with six subjects, which may be taken all together or divided into three parts: (1) General pathology, morbid anatomy, and bacteriology; (2) therapeutics; (3) forensic medicine, toxicology, and public health; (4) obstetrics and diseases of women; (5) surgery, systematic and clinical, including mental diseases and diseases of children.

M.D. and Ch.M.—Candidates for these degrees must have received the M.B. and Ch.B. at least a year previously. The M.D. candidate submits for approval a dissertation covering original work, the M.Ch. candidate undergoing an examination in all subjects of surgery, including ophthalmology. Other information concerning the diplomas of this university and its medical school will be found on page 368.

FELLOWSHIPS, SCHOLARSHIPS, AND EXHIBITIONS.

The university awards Fellowships annually to students of distinguished merit, as follows:

(1) Alexander Fellowship in Pathology and Bacteriology, value £100 and tenable for one year. (2) Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex. (3) John W. Garratt International Fellowship in Bacteriology, value £100 and tenable for one year. (4) Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year. (5) Holt Fellowships in Physiology and Pathology, two in number, value £100 each and tenable for one year. (6) Johnston Colonial Fellowship in Biochemistry, value £100 and tenable for one year. (7) Thelwall Thomas Fellowship in Surgical Pathology, value £100 and tenable for one year.

There are, in addition, scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER.

THIS university grants the four ordinary degrees in medicine and surgery, M.B. and Ch.B. and M.D. and Ch.M.; a diploma and a degree (B.Sc.) in public health; a certificate in factory and in school hygiene; a diploma in psychological medicine; and a degree and diploma in dental surgery. Candidates for degrees must pass the special Matriculation Examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof; see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the five years' curriculum, one such year being subsequent to the passing of the First M.B. Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history; (4) English history; (5) two subjects at choice, one of which must be a language approved by the Joint Board, the other being elementary mechanics, *or* physics, chemistry, geography, natural history, *or* botany. It is held in July and September.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. At all examinations the

subjects, or groups of subjects, prescribed can be taken separately or together, as the candidate pleases. The First M.B. is divided into Part 1, inorganic chemistry and physics; Part 2, biology (including animal and vegetable morphology, physiology, and laboratory work); Part 3, elementary organic chemistry and biochemistry. The parts may be taken separately or together. At the Second M.B. the candidate is examined in anatomy and physiology; at the Third in pathology, hygiene, and pharmacology and therapeutics (including materia medica and practical pharmacy). The Final Examination includes medicine, systematic and clinical (separate papers being given on mental diseases), and diseases of children, surgery (systematic, clinical, and practical, with a separate paper on ophthalmology), obstetrics and gynaecology, and forensic medicine and toxicology.

M.D.—A candidate for this degree must be an M.B. of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject to be selected by the candidate.

Ch.M.—A candidate must have held, since becoming Ch.B, and for not less than six months, an appointment in a public institution affording opportunity for the study of practical surgery, and produce certificates of having attended certain courses of study. The examination comprises the general field of surgery, including ophthalmology and bacteriology.

FEES FOR EXAMINATIONS.

The following fees are payable: Matriculation, £2; on readmission, £1 10s. Each M.B. examination, £5; on readmission, after failure, £2. M.D., including the conferring of the degree, £10. Ch.M., £5 each for the examination and degree. Application for further information should be addressed to the Dean of the Medical Faculty.

UNIVERSITY OF SHEFFIELD.

THE degrees of this university (M.B., Ch.B., and M.D. and Ch.M.) and the diploma in public health are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognized for this purpose.

PROFESSIONAL EXAMINATIONS.

A candidate for the degrees of M.B., Ch.B. must produce certificates that he will have attained the age of 21 years by the day of graduation; that he has pursued the courses of study required by the university regulations during a period of not less than five years subsequently to the date of his matriculation, or exemption from matriculation, three of such years at least having been passed in the university, one at least being subsequent to the passing of the first examination. He or she has eventually to pass the following examinations in due order:

First Examination.—The subjects are chemistry, physics, and biology. The Intermediate examination in science—chemistry, physics, and zoology—will, on payment of the required additional fee, be accepted instead of this examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, in (i) chemistry, inorganic and organic; (ii) physics; (iii) biology.

Second Examination.—The subjects are anatomy and physiology. The candidate must have completed the third winter session of professional study, must have passed the First Examination, and must have attended (1) lectures on anatomy, and dissections during five terms; (2) lectures on physiology during four terms; practical, experimental, and chemical physiology during four terms, and histology during one term.

Third Examination.—The subjects are pathology and pharmacology. Candidates must have completed the fourth year of medical study and completed the requisite courses in these subjects, including *post-mortem* clerkship for three months.

Final Examination.—The subjects are medicine (including forensic medicine, public health, mental diseases, and diseases of children), surgery, and obstetrics (including gynaecology). Candidates must satisfy the examiners in all subjects at the same examination. Candidates must have completed the fifth year of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES.

THE Supplemental Charter and statutes of the University of Wales provide for a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., B.Ch. cannot be admitted to examination until the completion of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed as a student in one of the constituent colleges of the university. He must also hold an Arts or Science degree of the University of Wales, or of some other university approved for this purpose. Some of the courses of study pursued for a B.Sc. or B.A. degree may be counted as part of the courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first include the preliminary subjects—physics, chemistry, botany, zoology; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects must extend over at least one academic year, study of the ancillary subjects must extend over at least two academic years, and, excepting organic chemistry, cannot be commenced until all the preliminary courses have been completed; hence the first section of the course must occupy not less than three years. The second section includes courses in pathology, bacteriology, pharmacology, medicine, surgery, and obstetrics, and cannot be commenced, except in the case of pharmacology, until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in the earlier subjects are held at the end of each academic year, and in the subjects of the second section each July.

During the continuance of the war clinical service at a medical unit of the forces, or at an approved hospital, will be recognized as hospital practice, under certain conditions, for the purpose of the M.B. degree.

English Medical Corporations.

THERE are three medical corporations in England—the Royal College of Physicians, the Royal College of Surgeons, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the "Conjoint Board." Details concerning this body, its component colleges and the third licensing body here follow.

THE CONJOINT BOARD.

THIS body deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who satisfy it for the licence and diploma of Membership respectively. The successful candidate is then entitled to admission to the *Medical Register* as an L.R.C.P.Lond., M.R.C.S.Eng.

It performs the same task in connexion with diplomas in State medicine and tropical diseases jointly issued by the two colleges in question. It obliges all candidates to pass one of a large number of examinations which it considers satisfactory tests of general education, and thereafter to pass five years in professional study at a recognized medical school, allowing, however, six months to be spent at any institution which may be recognized by the Board as giving efficient education in chemistry and physics. A list of such institutions, as also of the tests accepted in regard to general education, can be obtained from the Secretary of the Board at the Examination Hall, Queen Square, Bloomsbury, W.C.

PROFESSIONAL EXAMINATIONS.

There are three examinations for the Conjoint diploma, or L.R.C.P., M.R.C.S., which are commonly known as First Conjoint, Second Conjoint, and Final.

First Conjoint.— This examination is in four parts: (1) Chemistry, (2) physics, (3) elementary biology, (4) practical pharmacy.

A candidate must present himself for examination in Parts (1) and (2) together until he has reached the required standard to pass in both, or in one of these parts, but he will not be allowed to pass in one part unless he obtains at the same time half the number of marks required to pass in the other part. A candidate may take Parts (3) and (4) separately, or he may present himself for the whole examination at one time.

Before admission to either part the candidate must show that he has undergone certain courses of theoretical and practical instruction, but these courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education. A candidate referred in any part or parts will not be admitted to re-examination for three months. If referred in chemistry, physics, or biology, he must produce evidence of further instruction. Those who are already graduates in medicine, or who have passed an examination in the same subjects before a university board for a degree in medicine, may obtain exemption from re-examination in those subjects at this examination.

Second Conjoint.—This examination deals with anatomy and physiology, and both subjects must be passed at the same time. A candidate must have attended at a recognized medical school lectures on anatomy, physiology, and a course of practical physiology and histology, and have dissected for twelve months during the ordinary sessions. The study of anatomy and physiology before passing in two of the first three parts of the first examination is not recognized. If rejected, a candidate, before being admitted to re-examination, must continue his studies at a recognized medical school for not less than three months.

Final Conjoint.—This examination consists of three parts: Part I, medicine, including medical anatomy, pathology, practical pharmacy,[1] therapeutics, forensic medicine, and public health; Part II, surgery, including pathology, surgical anatomy, and the use of surgical appliances; Part III, midwifery and gynaecology. The examination may be passed at one time or in each part separately. Evidence of attendance at courses of instruction in the subjects of the three parts must be produced, and also of having conducted twenty labours. A candidate will be admissible to Parts I, II, and III of the Third or Final Examination at the expiration of two years (twenty-four months) from the date of passing the Second Examination, and on production of the required certificates of study, provided that the examination is not completed before the expiration of five years (five winter and five summer sessions) from the date of passing the Preliminary Examination. A rejected candidate must produce evidence of further instruction during three months.

NOTE.—A person holding a Colonial, Indian, or foreign qualification which entitles him to practise in the country where such qualification has been obtained is, after a course of study and examination equivalent to those required by the Regulations of the two Royal Colleges, admissible to the Second and Third or Final Examinations without any interval. Members of an English, Scottish, or Irish university are under certain conditions eligible for admission to the Third or Final Examination two years after passing at their university the subjects included in the First and Second Examinations of the Board.

[1] Candidates who have previously passed in practical pharmacy will not be re-examined in that subject at the Third Examination.

A member of an Indian, Colonial, or foreign university recognized for the purpose, who shall have passed examinations at his university for the degree of Doctor or Bachelor of Medicine or Surgery in the subjects of the First and Second Examinations of the Conjoint Board, will be eligible for admission to the Third or Final Examination two years after passing in the said subjects.

No special conditions relating to the war have been laid down, beyond allowing candidates to take midwifery before the completion of the fifth year of study. The committee of management, however, are willing to consider special cases where it has been difficult to fulfil certain details of the curriculum.

FEES.

First examination, £10 10s. Re-examinations, Parts I and II, £3 3s.; Parts III and IV, each £2 2s. Second examination, £10 10s. Re-examination, £6 6s. Third examination, £21. Re-examination, Part I, medicine, £5 5s.; practical pharmacy, £2 2s. Part II, surgery, £5 5s. Part III, midwifery and diseases of women, £3 3s. Members of an English, Scottish, or Irish university, £5 5s. For the diplomas, £36 15s.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THIS College has three grades—its Licentiates, its Members, and its Fellows. The Licence is only issued through the Conjoint Board, as already stated, unless the candidate commenced professional studies before October, 1884. Its Membership is only granted to those who have passed the final examinations for the Licence; or those who are registered practitioners and graduates of a recognized university; in any case they must be persons over 25 years of age, who do not practise in partnership, dispense medicines, or engage in trade. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce. Those under 40 are also examined in Latin, and either Greek, French, or German. The examination fee is £6 6s., the Membership fee being £42, or the difference between that sum and what the candidate has already paid if a Licentiate. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THIS College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations—the first in anatomy and physiology, which may be passed after the third winter session; the second, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical practice of a general hospital recognized by the College after obtaining their degrees. The College also issues a diploma in dentistry.

Fees.—At first examination: £5 5s. At second examination: £12 12s. Diploma fee: Members, £3 3s.; non-members, £13 13s.

SOCIETY OF APOTHECARIES OF LONDON.

THIS body confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A., on those successful at the following examinations:

Primary Examination.—This is divided into two parts, of which Part I includes elementary biology, chemistry, chemical physics, practical chemistry, pharmacy. Part II includes anatomy, physiology, and histology, and cannot be passed before the completion of twelve months' practical anatomy with demonstrations. The subjects cannot be taken separately, except in the event of the candidate having previously passed in one. Candidates will be excused any or all the subjects of the primary examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the

Society. Candidates referred in anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination.—This is divided into two sections, the first of which is subdivided into three parts. Part I includes the principles and practice of surgery, surgical pathology, operative manipulation, surgical anatomy, instruments and appliances. Part II includes: (*a*) The principles and practice of medicine (including therapeutics, pharmacology, and prescriptions), pathology, and morbid histology; (*b*) forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. Part III includes midwifery, gynaecology, and diseases of newborn children, obstetric instruments and appliances. A candidate for any part of Section 1 must have passed not less than three winter sessions and two summer sessions at one or more of the medical schools recognized by the Society. Section 2 consists of clinical surgery and clinical medicine and medical anatomy, and a candidate before appearing at it must have completed five years of medical study.

FEES.

Primary examinations, £5 5s.; final, £15 15s. Further information may be obtained from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C.

The Scottish Universities.

THERE are in Scotland four universities, each of them possessing a faculty of medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are on all fours with one another, so that an account can be given of all of them together.

The universities in question are those of Edinburgh, Glasgow, Aberdeen, and St. Andrews, and in point of standing and repute it is not easy to differentiate between them. What provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed an excellent repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also a diploma in psychiatry. As for public health, registrable degrees in this subject are granted both by the University of Edinburgh and that of Glasgow, while diplomas in public health may be obtained from the universities of St. Andrews and Aberdeen. Information as to these will be found in the appropriate sections dealing respectively with preventive medicine and tropical medicine.

MATRICULATION.

There is a special matriculation examination for medical students, the subjects being English, Latin, elementary mathematics, and either Greek or French or German. Candidates are required to pass in all these subjects either at one or at not more than two examinations, but they can present themselves as often as they please. Many corresponding tests held by other bodies are accepted as the equivalent of this examination.

PROFESSIONAL EDUCATION.

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and in addition necessitate definite study for stated periods of diseases of children, of the larynx, ear and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended the courses regularly, but has duly performed the work of the class. Out of the necessary five years of medical study, not less than two must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the end of June.

PROFESSIONAL EXAMINATIONS.

The distinctive feature of the Scottish curriculum is that, though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may get rid of physics and chemistry. At the end of the first summer session he can finish with botany and zoology, and with anatomy and physiology at the end of the second. Practical materia medica may be taken at any period of examination after the necessary course of instruction has been attended. Pathology and materia medica he will pass at the end of the third year, and so on, until the final examination in midwifery, surgery and medicine, and the corresponding clinical subjects at the end of the fifth year of study. At each examination the candidate may pass "with distinction," and a record is kept of the merit displayed, so that, when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with first or second class honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry; the second with anatomy and physiology; the third with materia medica and pathology; the fourth with medicine and surgery (clinical and systematic), midwifery, forensic medicine and public health, and clinical gynaecology. The first three examinations are held three times a year; the final twice a year.

Exemption from the first professional examination can be obtained by candidates who have passed a degree examination in its subjects at any recognized university. When a candidate presents himself for an examination in several of its parts, but is not successful in all of them, he is credited at the next examination with those subjects in which he has previously been approved.

THE HIGHER DEGREES.

It is open to those who are already M.B., Ch.B., to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year at work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Services, or have been at least two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and his thesis being on a surgical rather than a medical subject. He is examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

FEES.

It is estimated that the class, examination and other fees for the M.B., Ch.B. come altogether to £150, the separate examination fees included in this calculation being as follows:

	£	s.	d.
Preliminary Examination	0	10	6
First Professional	6	6	0
Second Professional	5	5	0
Third Professional	4	4	0
Finals	7	7	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 1s. Candidates for the M.D. and Ch.M. pay £15 15s., and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 2d., which is published by Mr. Thin, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application may be made to the Secretary of the Medical

Faculty, Marischal College. In respect of St. Andrews information can be obtained either from the Secretary of the University, or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally, it should be mentioned that, in connexion with all the Scottish universities, including St. Andrews, there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

Owing to the war, special final examinations may be held for such students as have fulfilled the requirements of the curriculum of the General Medical Council.

The Scottish Corporations.

THERE are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be separately obtained only by persons who are already in possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board which the three corporations have combined to form. Details concerning this Board and its component colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND.

THIS body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P. Edin., L.R.C.S.Edin., and L.R.F.P.S.Glasg. The Board requires all candidates to comply with the regulations of the General Medical Council as set forth on p. 347. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council.

PROFESSIONAL CURRICULUM.

Subsequent to registration as a medical student, the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not exact that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held six times every year—four times in Edinburgh and twice in Glasgow; and it is open to candidates to present themselves for examination at either place. The first examination deals with physics, chemistry, and elementary biology; the second with anatomy and physiology, including histology; the third with pathology and materia medica, including pharmacy; and the final with (1) medicine, including therapeutics, medical anatomy, and clinical medicine; (2) surgery, including surgical anatomy, clinical surgery, and diseases and injuries of the eyes; (3) midwifery and diseases of women and of newborn children; and, if it has not been passed previously, (4) medical jurisprudence and hygiene. Candidates may also be examined on diseases of children, diseases of the ear and throat, insanity, vaccination, etc.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the final examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects; but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

Part or entire exemption from the three first examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own; but all candidates for the conjoint licence must sit for the final examination, and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

FEES.

It is estimated that the total cost of lectures and fees for the conjoint licence is about £152. The separate examination fees are as follows: First, Second, and Third Professional, £5 each; Final, £15. On re-entry for any of the first three examinations £3, and on re entry for the Final, £5. If the re-entry is only in one or two subjects, the fees are smaller.

Information concerning this Board should be sought either from Mr. D. L. Eadie, 50, George Square, Edinburgh, or from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THIS College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, but for the Fellowship women are not eligible. As an original qualification the Licence is only granted after fulfilment of the regulations of the Conjoint Board, but as an additional qualification can be obtained by those already possessed of a registrable qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body. The fee is £15 15s., of which £10 10s. is returned to unsuccessful candidates. On due cause being shown, a special examination may be granted, the fee being £20, of which £10 is returned to a candidate if he is not approved.

Candidates for the Fellowship must be not less than 25 years of age, and have been in practice subsequent to registration for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or an approved diploma obtained as the result of an examination which includes surgery as well as medicine. Candidates are examined in surgery, including clinical and operative surgery, surgical anatomy, and one other subject which they may choose from among the following: Ophthalmology, laryngology including aural and nasal surgery, dental surgery, advanced midwifery with obstetric surgery, gynaecology, surgical pathology and operative surgery, and advanced anatomy. The examination is written, oral, and clinical or practical. A candidate who desires to be examined must give one month's notice, his application for admission being supported by two Fellows of the College, one of whom must be resident in Edinburgh, or, in default, by testimonials obtained specially for the purpose.

No changes in the curriculum or examinations have been made in consequence of the war.

Licentiates of the College pay £35, and others £45. For further information application should be made to the Clerk of the College, Mr. D. L. Eadie, 50, George Square, Edinburgh.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THIS College has three grades—Licentiateship, Membership, and Fellowship; to the two latter women are not admissible. The regulations applying to candidates for the Licentiateship have already been generally indicated. If desirous of receiving it apart from those of the other two corporations, they must be holders of a surgical qualification recognized by the College, and must pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in materia medica. The fee for examination is 15 guineas, a special examination

being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take place monthly on the first Wednesday, except in September and October. A candidate for the Membership must be either a Licentiate of a Royal College of Physicians or a graduate in medicine of a British or Irish university, and in either case not less than 24 years of age. He is examined in medicine and therapeutics, and in one further subject at his choice. This may be either (*a*) one of the departments of medicine specially professed; (*b*) psychology; (*c*) general pathology and morbid anatomy; (*d*) medical jurisprudence; (*e*) public health; (*f*) midwifery; (*g*) gynaecology; (*h*) diseases of children; or (*i*) tropical medicine. Licentiates of the College pay £21, others £36 15s. The examination is held quarterly, and application for admission to it must be made a month previous to its date. For the Fellowship, the candidate must have been a member of the College for at least three years, and, if accepted, pays fees amounting altogether to a little less than £65. Any further details required can be obtained on application to the Secretary of the College.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

This body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s., and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. The Faculty can also elect two Fellows annually without previously submitting them to examination, provided they "have highly distinguished themselves in medical science or practice." They must be of not less than ten years' standing and 40 years of age. Further information can be obtained from Mr. A. Duncan, B.A., LL.D., Faculty Hall, St. Vincent Street, Glasgow.

The Irish Universities.

There are three universities in Ireland, and each of them has a medical faculty. These are the University of Dublin, usually known as Trinity College, Dublin, the Queen's University of Belfast, and the National University of Ireland. The two former teach students, examine them, and grant or withhold degrees accordingly; while the third is by way of being an academic body only, inasmuch as its practical work is divided up among three constituent colleges, situated, one at Cork, another at Galway, and the third in Dublin. The regulations of all these universities in respect of medical degrees are given in the following sections; while specific information as to the arrangements for the education of medical students made at each of them will be found in the section relating to Irish Medical Schools.

UNIVERSITY OF DUBLIN.

This university, better known, perhaps, as Trinity College, Dublin, grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), two in midwifery (B.A.O. and M.A.O.), and diplomas in the same subjects and in public health. It also confers two degrees in dentistry. The degrees are granted to those who, besides having passed the Professional Examination, have graduated in arts.

Professional Examinations.

A candidate for the Final Examination for the M.B., B.Ch., and B.A.O. degrees must be a matriculated student of at least five years' standing; and though he need not have taken his degree in arts before admission to the Professional Examination, he cannot take his medical degrees until he has been admitted B.A. At least three years of the five years' medical curriculum must be pursued at the School of Physic of the university. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final. Before admission to any of these examinations, students must be duly signed up as regards study in the subjects involved.

Preliminary Scientific.—This covers (*a*) chemistry and physics, (*b*) botany and zoology; the two divisions may be taken together or at different times.

Intermediate Medical.—This is divided into two parts: (*a*) Anatomy, physiology, organic chemistry, and histology; (*b*) applied anatomy and applied physiology. The two parts may be taken separately or together.

Final Examination.—Part I: Hygiene and medical jurisprudence, pathology, materia medica and therapeutics. *Part II:* (*a*) Midwifery, gynaecology (clinical, paper, and viva voce); (*b*) medicine, clinical medicine, and mental diseases; (*c*) surgery in all branches, including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the final cannot be taken before the end of the fifth year.

M.D.—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must read a thesis before the Regius Professor of Physic.

M.Ch.—The candidate must be a B.Ch. of not less than three years' standing, and have been engaged in practice for two years. Graduates of ten years' standing may be given a special examination.

M.A.O.—The candidate must have passed the qualifying examination in medicine, surgery, and midwifery. The examination is specially directed to obstetrics and practical gynaecology.

For the university diplomas mentioned above the candidate must have completed two years in arts and five in medical studies. The examination and courses required are the same as for the degrees.

Fees.

Matriculation, 5s.; M.B., B.Ch., B.A.O., £17; M.D., £13; M.Ch., £11; M.A.O., £5; L.M., L.Ch., L.A.O., £11. Further information regarding courses of instruction, etc., may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY, BELFAST.

The degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), Master of Obstetrics (M.A.O.). The university also confers a diploma in public health. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his professional examinations, a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine.

Professional Examinations.

The examinations for the M.B., B.Ch., B.A.O. are four in number. The first deals with: (1) Inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which botany and zoology form one. The Second Examination covers anatomy and physiology, and may be taken at the end of the second year of the student's career. The Third Examination includes: (1) Pathology, (2) materia medica, pharmacology and therapeutics, (3) medical jurisprudence, and (4) hygiene. To be valid a certificate in regard to the study of the subjects of this examination must show that the work has been done after the First Examination has been passed.

The Final Examination includes: (1) Medicine, (2) surgery, (3) midwifery, (4) ophthalmology and otology. The student may pass in all subjects at once at the end of his fifth year, or he may divide the examination into two parts—namely, (1) systematic, (2) clinical, practical, and oral. The first part may be taken at the end of the fourth year, but for the second part the candidate may not present himself until the end of his fifth year. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done

subsequent to passing in all the subjects of the Second Examination.

The Higher Degrees.

Candidates for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science. In that case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (*a*) after a formal examination, or (*b*) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (1) Human anatomy, including embryology, (2) physiology, (3) pathology, (4) pharmacology and therapeutics, (5) sanitary science and public health, (6) forensic medicine and toxicology, (7) mental diseases. The regulations for the degrees of M.Ch. and M.A.O. are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND.

The National University of Ireland carries on most of its educational work through three constituent colleges—one in Dublin, one in Cork, and one in Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation or recognition as a student of the Medical Faculty obtained in some other fashion. The candidates at each constituent college are examined thereat by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the Board of Studies of the University. In addition to the ordinary degrees in medicine and surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public Health, and Bachelor and Master in Dental Surgery, as well as diplomas in Public Health, in Mental Diseases, and in Tropical Medicine.

Professional Examinations.

There are four examinations. The first, which should be passed at the end of the first year, includes Part A (chemistry and physics) and Part B (botany and zoology), which parts candidates may take separately or together. At the end of the second year they should pass in anatomy and physiology; and at the end of the third year in pathology, materia medica and therapeutics, hygiene and public health, forensic medicine, and toxicology. The final examination is divided into three parts, each of which may be taken separately—namely, (*a*) Medicine, including mental diseases; (*b*) surgery, including ophthalmology and otology; (*c*) midwifery and gynaecology.

The higher degrees are obtainable either by examination or on presentation of an approved work, but in each case not less than three years must have elapsed since the candidate acquired the corresponding degree of Bachelor. Further information as to the constituent colleges will be found in the section relating to Irish Medical Schools.

The Irish Corporations.

There are three licensing bodies other than the Medical Faculties of the Universities, and, just as in London, there are two Royal Colleges of Physicians and Surgeons and an Apothecaries' Hall. The similarity is still more complete, for in Ireland also the two colleges have formed a Conjoint Board, as in London, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall gives its Licence separately.

THE CONJOINT BOARD IN IRELAND.

This body requires of candidates the passage either of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council.

Professional Examinations.

There are four professional examinations, the first of which cannot be passed earlier than the end of the first winter session, nor the fourth before the conclusion of full five years of medical study, and before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The first and second examinations deal respectively with (*a*) chemistry and physics, and (*b*) biology; and (*a*) anatomy, and (*b*) physiology and histology. All parts of these examinations, as also of the following one, which deals with (*a*) pathology, (*b*) materia medica, pharmacy, and therapeutics, (*c*) public health and forensic medicine, may be taken separately.

Final Examination.—This is divided into three divisions, which cannot be completed until at least four years have passed in medical studies other than those for the first examination, and five years, at least, since the beginning of the curriculum. The divisions are (*a*) medicine, including fevers, mental diseases, and diseases of children; (*b*) surgery, including ophthalmic and operative surgery; (*c*) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination. Candidates are recommended to present themselves in all the subjects of the Final Examination at one time, but a candidate at or after the end of the fourth year may present himself in any one of the divisions (*a*), (*b*), or (*c*), provided he has completed his curriculum as far as concerns the division in which he presents himself.

Fees.—Preliminary Examination, £2 2s.; re-examination, £1 1s. First Professional Examination, £15 15s.; Second, £10 10s.; Third, £9 9s.; Final, £6 6s.; re-examination fee is £2 2s. for each division.

Further information can be obtained from Mr. Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, 123, St. Stephen's Green, Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

Those whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College, and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included in the examination for the Licence in Medicine. For the Licence in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to all university graduates in medicine and Licentiates in medicine of Royal Colleges of Physicians, and deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members.

Fees.—For the Licence in Medicine, 15 guineas; for the Licence in Midwifery, 5 guineas; or 16 guineas for both if they are taken within an interval of a month. Special examinations cost in each case 5 guineas extra. For the Membership, 20 guineas to a Licentiate of the College; 35 guineas to others; a special examination costing 10 guineas extra. The Fellowship £35, in addition to stamp duty, £25. Information as to special examinations and other points can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

This body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided that the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf

by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship.—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology; and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly viva voce; while the final examination includes the performance of operations. All subjects of either examination must be passed at one time, and to neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle the holder to admission to the *Register;* if, however, the candidate is a person whose name is on the Colonial or foreign medical *Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees.—Candidates for the Licence pay 5 guineas for examination, which sum, if they pass, is counted as part of the fee payable on admission to the Licence, this being 25 guineas. Candidates for the Fellowship pay 5 guineas for each examination, the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND.

A DIPLOMA is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Two periods of dissection, each not less than six months, must be included, and twenty-seven months of hospital attendance, or its equivalent. Three professional examinations have to be passed; they are held three times a year. The Primary Examination deals with biology, physics, and chemistry, practical and theoretical; the Intermediate Examination is in practical anatomy and physiology, and histology and materia medica. A candidate who has passed tests in any of the subjects of these examinations before another licensing body is exempt from further examination in such subjects. The Intermediate Examination, Part II, consists of pathology, medical jurisprudence, and hygiene. The Final Examination deals with medicine, surgery, midwifery, and pharmacy. The Hall's own examination in all these subjects must be passed. Women candidates are eligible.

Fees.—Primary Examination, £4 4s.; Intermediate Examination, £8 8s.: Final Examination, £12 12s.; Final alone, when the others have been passed elsewhere, £15. Application for other information should be made to the Registrar, 40, Mary Street, Dublin.

MEDICAL SCHOOLS AND COLLEGES.

LONDON.

APART from post-graduate and other special schools, the medical schools of London number as many as fourteen, including in the count two institutions which provide education only in the preliminary and intermediate subjects, under the title of "university centres."

Little guidance can be given in these columns as to choice of one school rather than another, for such choice must depend largely on personal factors. In a general way, however, it may be said that while to the student of to-day it may, perhaps, be almost a matter of indifference to what school he belongs, there is often in after-life a certain advantage in having been an alumnus of one of the more celebrated schools. On the other hand, at the smaller schools more opportunities, perhaps, present themselves to the average man for obtaining student appointments, and especially the coveted posts of house-physician and house-surgeon.

Information as to the fees at the different schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages, and should be carefully studied by those who have no personal reason for preferring one school to others. The courses which they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the Conjoint Board or the Apothecaries' Society, not less than of those who have London or other university degrees in view. At all, too, as has been said, special facilities are offered to men who have commenced their professional education at the older universities, Oxford and Cambridge. Apart from these facts, the only point to which attention can usefully be directed is that on personal inquiry and investigation reason may perhaps be found for regarding the teaching accommodation and general arrangements for students at some schools as superior to those at others.

CHARING CROSS HOSPITAL.

THIS school, with its hospital, is situated in the very centre of London, and is accessible from all parts by train, tram, tube, or 'bus, a convenience to students which at once solves the difficulty of where to reside. Indeed, it is quite possible to live twenty miles away in the heart of the country and still attend the teaching in its entirety. Its courses of instruction are specially designed to meet the requirements of the University of London, the Conjoint Board, and the final studies of other universities. The hospital contains 300 beds. Over 3,000 cases pass through its wards each year, and some 24,000 out-patients and casualties are treated. There are special departments for mental diseases, midwifery, diseases of women, of children, of the skin, eye, ear, throat, nose, and teeth, for tuberculosis, orthopaedic cases, *x*-ray work, and for electrical examination and treatment.

Appointments.—Demonstratorships and assistant demonstratorships are open to students of the school. Medical, surgical, and obstetric registrars to the hospital are appointed annually. Six house-physicians, six house-surgeons, and two resident obstetric officers are appointed each year after competitive examination.

Primary and Intermediate Studies.—These are taken in the laboratories of the University of London King's College, situated within four minutes' walk of the school and hospital. This arrangement has proved most successful. It enables students to obtain the best university education in their earlier studies from a large professorial and teaching staff, whilst allowing them to take advantage of their own school for social and collegiate purposes.

Final Studies.—The final studies are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for the qualifying examinations. Departments are also available for the other final subjects of bacteriology, clinical pathology, materia medica, toxicology, public health, operative surgery, and for research work.

Public Health Laboratories.—An exceptionally fine series of laboratories in the school has been taken over by the University of London King's College, to which a full professorial and teaching staff has been transferred. The course of instruction for the Diploma in Public Health is given in these laboratories.

The *Museum* contains over 4,000 specimens, including a notable collection of over 800 gynaecological specimens—"The Cuthbert Lockyer Collection."

Students' Club.—The social comfort and convenience of students are met by library, reading and smoking rooms, refreshment room, etc. The club, which is under the control of a committee of students, provides needful athletic recreation, and includes the Medical Society.

Women Students.—The council of the hospital has recently decided to throw open the Medical School and hospital to women students. They are received upon the same terms and conditions as men. This step, which has been taken after mature consideration, adds very greatly to the facilities for medical education in London, and, by placing men and women students terms of equality through-

out the whole of their curriculum, gives to the meaning of "education" a fuller and wider significance, which cannot be otherwise than to their mutual advantage.

Fees.—These are arranged upon the simplest and most comprehensive plan. An entrance fee of 10 guineas and 8 guineas is payable by full-course and final-course students respectively, and an annual fee of 26 guineas covers all other expenditure, with exception of 7 guineas for vaccination, dispensing, and fever hospital attendance, which must be taken outside the hospital. Membership of the Students' Club is included in these fees.

Post-Graduate Work.—Special facilities are offered for post-graduates desiring to do research work in the school or hospital or to attend the regular courses of instruction. The fees are low and inclusive.

Further information may be obtained on application to the Dean, W. J. Fenton, M.D., F.R.C.P., Medical School, Charing Cross Hospital, London, W.C.

GUY'S.

THE hospital contains 643 beds in constant occupation. Thirty-three beds are set apart for diseases of the eye and 40 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There is a special ward of 32 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, to the orthopaedic department, to the department for the treatment of diseases of the genito-urinary system, and the children's department; there are as well some special beds for the treatment of syphilis.

The medical college fronts the east gate of the hospital, providing accommodation for 60 resident students. This contains a dining-hall, reading-rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs Union. The athletic ground at Honor Oak Park is reached from the hospital in twenty minutes. The Gordon Museum of Pathology, the Wills Library, the newly built Departments of Chemistry, Physics, Pathology, and Pharmacology, and the school buildings in general, afford unrivalled opportunities for a liberal education and for research. Special classes are held for the First and Second Examinations for Medical Degrees of the University of London and for the first F.R.C.S.Eng. Special teaching is provided to meet the requirements of the universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are given to students without extra payment, and according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty assistant house-surgeons, eight house surgeons, two ophthalmic house-surgeons, and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, and ophthalmic house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant, dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, electricity, anaesthetics, and dentistry. More than 150 additional appointments have been added to the list of those annually open to students of the hospital, the majority of them being in the special departments.

Scholarships, Prizes, etc.—The following entrance scholarships are awarded annually in the month of September: A. Junior Scholarships in Arts, Classics, Mathematics, and Modern Languages, and Science, of the value of £120, £100, and £50, open to candidates under 21 years of age. B. Senior or University Scholarships of the value of £75 and £35, open to candidates under 25 years of age, who have completed their study of Anatomy and Physiology. Subjects, any two or the following: Anatomy, Physiology, Pharmacology, General Pathology, Organic Chemistry. Junior prizes for general proficiency, £20, £15, £10; Hilton prize for Dissection, £5; Michael Harris prize for Anatomy, £10; Sands-Cox Scholarship for Physiology, £15 for three years; Wooldridge Memorial prize for Physiology, £10; Beaney prize for Pathology, £34; Treasurer's gold medal in Medicine, Treasurer's gold medal in Surgery, and the Golding-Bird gold medal and scholarship for Bacteriology (£20) are awarded annually after competitive examination. The Gull Studentship in Pathology, and the Beaney Scholarship in Materia Medica, of the annual value of £150 and £31 10s. respectively, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Douglas Research Studentship in Pathology, value £300 per annum, is awarded without examination.

Fees.—An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School.

KING'S COLLEGE HOSPITAL.

THE medical school carried on in connexion with this institution, at Denmark Hill, deals with the advanced or final subjects of the medical curriculum. The arrangements for education in these subjects are complete. The new and up-to-date hospital contains over 600 beds, many of which are given up to the 4th London General Hospital (T.F.). There are special departments for diseases of women and children, nervous diseases, ophthalmology, otology, laryngology, dermatology, dental surgery, etc.; pathological and vaccine departments are also included.

Appointments.—Sixteen resident medical and surgical officers are appointed yearly, as well as dressers and clerks in the wards, out-patient departments, *post-mortem* room, and special departments. Each of the special departments has several clinical assistants. There are three registrars and three tutors, all of whom receive salaries. There is also a Union Club, which combines athletics, music, and other societies connected with the school, and provides also a common room.

Fees.—The composition fee is 70 guineas if paid in one sum, or 72 guineas in two instalments (one of 40 guineas at entrance and the other of 32 guineas at the commencement of the second year). Entrance fee 10 guineas.

The prospectus of the school can be obtained on application to the Dean, H. Willoughby Lyle, M.D., B.S.Lond., F.R.C.S., or to the Secretary, S. C. Ranner, M.A.Cantab., King's College Hospital, Denmark Hill, S.E.

THE LONDON.

THIS hospital, with its medical college and dental school, are situated in the Mile End Road, E. The hospital contains 922 beds, and, during 1915, 18,933 patients passed through the wards and 149,507 patients received treatment in the out-patient departments; these numbers include 8,578 accident cases. The number of major operations which were performed amounted to 6,480.

From the beginning of the war to the close of 1915 3,277 military patients were admitted, while the naval patients (who were first admitted at the end of September, 1915) totalled 375.

The building of the wards for the treatment of syphilis ha now been completed, and it is estimated that 2,000 patients will pass through the 16 beds in the course of a year.

All the departments are modern and adapted for the teaching of all subjects in the curriculum. Special classes for the first and second M.B.Lond., the primary and final Fellowships, and other examinations are held. A residential hostel on hospital ground has been opened for the convenience of students who wish to live near the wards and casualty departments. The athletic ground is at Highams Park, and is open to all members of the Clubs Union.

Appointments.—The salaried appointments open to students are those of medical registrar (3), surgical registrar (3), obstetric registrar, registrar in the ear, nose, and throat department (2), medical, surgical, and obstetric tutors; senior dressers to out-patients; clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments. There are 2 resident accoucheurs, 6 resident house-physicians, and 9 resident house-surgeons, 7 receiving room officers, 2 emergency officers, 1 assistant director of Pathological Institute, and 3 pathological assistants, also paid and unpaid clinical assistants in the various special departments. In addition there are numerous assistantships, clerkships, and dresserships in the various departments.

Scholarships and Prizes.—The following is a list of scholarships and prizes: At Entrance: Price Scholarship in Science,

£100; in Anatomy and Physiology, £52 10s.; Entrance Scholarship in Science, £50; Epsom Scholarship, £126; Buxton Scholarship in Arts, £31 10s. After Entrance: Anatomy and Physiology Scholarship, £25; Letheby Prizes, £25; Prizes in Clinical Medicine, Surgery, and Obstetrics, £20 each; Duckworth Nelson Prize, £10; Hutchinson Prize, £40; Sutton Prize, £20; Sir Andrew Clark Prize, £26; Anderson Prizes, £9; Dressers' Prizes, £40; Practical Anatomy Prizes, £10; Wynne Baxter Prize, £5 5s.; Harold Fink Prize in Dental Surgery, £5 5s.; Prize in Dental Microscopy, £5. The London Hospital Medical College and the Eliza Ann Alston Medical Research Funds amount to over £21,000.

Fees.—Entrance fee, 10, 15, or 30 guineas, according to examinations passed; annual fee 30 guineas. Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.

The Middlesex.

The school and hospital are in Mortimer Street, W., close to Oxford Circus, Goodge Street, and Portland Road stations. There is a residential college for a limited number of students overlooking the hospital garden, a gymnasium within the precincts of the hospital, and an athletic ground within easy distance at Park Royal. The hospital contains 447 beds, including a wing containing 92 beds for patients suffering from cancer, and special cancer investigation laboratories, which offer unrivalled opportunities for the study of this disease, both in its clinical and pathological aspects. In connexion with the investigation laboratories there are several valuable scholarships awarded.

There are special wards for maternity and gynaecological cases, and for diseases of children and of the skin and eye.

The Bland-Sutton Institute of Pathology is under the charge of a director. The institute includes a pathological and anatomical museum, a lecture theatre, large pathological and public health laboratories, and smaller rooms for original investigation. Bacteriological, chemical, and microscopical examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories. Senior students are eligible for clerkships in the laboratories of the institute, and every facility is given for original investigation.

In the electro-therapeutical department special attention is given to the treatment of lupus and cancer by the *x* ray, and opportunities are afforded to students wishing to become acquainted with the use of the apparatus employed in this method of treatment. An electro-cardiographic department has also been established.

Appointments.—Twenty-two resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residental college free of expense. Two casualty medical and two casualty surgical officers, and two resident officers to the special departments, are appointed annually. Eight house surgeons are appointed every year at intervals of two months, after examination; six house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house surgeon is appointed every six months. In the out patient departments the appointments are: clerk and dresser to the physicians and surgeons to out-patients; clerk in the departments for diseases of the skin and nervous diseases; dresser to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, and to the dental surgeon. Extern midwifery clerks and *post-mortem* clerks are also appointed. The appointments are so arranged that every student may, during his course, hold all the out-patient and in patient clerkships and dresserships. Students must have held an out patient clerkship and dresserships before being eligible to hold in patient clerkships or dresserships. Non resident qualified clinical assistants are appointed in the Medical, Surgical, Skin, Neurological, Ophthalmic, Throat and Ear, Odontological, Children's, and Electro therapeutical Out patient departments.

Scholarships.—Three Entrance Scholarships, value £100, £50, and £25 respectively, are open to students commencing their medical studies in April or October, 1915. An annual Entrance Scholarship, of the value of £50, is open to students of the universities of the United Kingdom who have completed the curriculum for, or passed the examinations in, anatomy and physiology. The examination for these scholarships will take place on September 13th, 19th, and 20th. Application for admission must be made on or before September 9th. Students joining the school in the previous April are eligible. The Freer Lucas Scholarship is annually awarded on the nomination of the head master to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, value £50, awarded annually to students from New Zealand. In addition to the Entrance Scholarships, there are numerous other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Brodrip Scholarships, value £60 and £40; Lyell Gold Medal and Scholarship, value £55 5s.; Freeman Scholarship, value £30; John Murray Gold Medal and Scholarship, value £25; Hetley Clinical Prize, value £25; Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas.*

Fees.—The composition fee for students taking the University of London degree is 145 guineas, or by five equal annual instalments of £32 11s. For those who have passed the first examination for medical degrees the fee is 120 guineas, or by four equal annual instalments of £34 2s. 6d. Students taking the Conjoint Board diplomas pay 135 guineas, or by five equal annual instalments of £30 9s. Students who have passed the First Professional Examination pay 115 guineas, or by four equal annual instalments of £32 16s. 3d. For members of universities and others who have completed their anatomical and physiological studies the fee is 70 guineas, or three equal annual instalments of £26 5s.

Further information may be obtained on application to the Dean.

St. Bartholomew's.

This institution fills one side of Smithfield and Giltspur Street, sharing with the Post Office buildings a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 750 beds. Extensive new buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library and the chemical, physical, biological, and physiological laboratories, and anatomical department have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to a new and extensive *post-mortem* room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. Within the precincts of the hospital also there is a residential college for a large number of students. The Students' Union owns, moreover, grounds of some 10 acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

Special classes are held for students preparing for the Preliminary Scientific and other examinations for the M.B., M.D. of the Universities of London, Oxford, and Cambridge, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.C.Cantab., M.S.Lond., and F.R.C.S.Eng. Special laboratory instruction for the D.P.H. of Cambridge, Oxford, Durham, and London is also given.

Appointments.—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (Ophthalmic, Orthopaedic, Gynaecological, Laryngological, Aural, Dermatological, Electrical, and Dental), and in the *post-mortem* room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in the special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "Junior" house-physicians and house-surgeons, and receive a

* Certain of these Scholarships have been modified for the period of the war.

salary of £25 a year. During their second six months they become "Senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two resident assistant anaesthetists are appointed annually, and receive salaries of £120 and £100 a year respectively. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships. — Five entrance scholarships are annually awarded after an examination held in September. The subjects of examination and conditions of eligibility for these scholarships are: (1) Two scholarships, value £75 each, in not fewer than two and not more than three of the following subjects—Chemistry, Physics, Botany, Zoology, Physiology, and Anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One scholarship, value £150, in not fewer than three of the following subjects—Chemistry, Physics, Botany, Zoology, and Physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (3) The entrance scholarship in Arts, of the value of £100, will be given in Latin and mathematics, with one other language—Greek, French, or German. (4) The Jeaffreson Exhibition in Mathematics, Latin, and one other language—Greek, French, or German—and of the value of £50. The value of the scholarships and prizes is over £1,000 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical School, St. Bartholomew's Hospital.

ST. GEORGE'S.

THIS school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital founded by Atkinson Morley at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centres of London University established at King's College and University College. As a temporary measure for the duration of the war a small and strictly limited number of women students have been admitted to the clinical course in the school. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well-filled library of medical and scientific books. A register of accredited apartments, and a list of medical men and others willing to receive St. George's men as boarders, may be seen on application to the Dean.

Appointments. — Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. There is a large number of resident appointments, which may be held for six, twelve, or eighteen months, and are open without fee to every perpetual student of the hospital, and are made strictly in accordance with the merits of the candidates. Besides this, after the student has held a house appointment, the following are, among others, open to him: Medical registrarship at £200 per annum; surgical registrarship at £200 per annum; assistant curatorship of the museum at £100 per annum; obstetric assistantship, resident, at £50 per annum; the post of resident anaesthetist at £100 per annum; the post of senior anaesthetist at £50 per annum; the posts (2) of junior anaesthetists, each at £30 per annum.

Scholarships. — Two university entrance scholarships in anatomy and physiology (70 guineas and £50) are awarded at the commencement of each winter session. The William Brown Exhibition of the value of £112 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition of £42 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year (preliminary science or first conjoint), £26 5s., or £21, according to course. Second and third years, £63 in two equal instalments. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £31 10s. No entrance fee is payable by St. George's students who have studied at King's and University Colleges.

Further information may be obtained from the Dean of the Medical School.

ST. MARY'S.

THIS school and its hospital are situated in Praed Street, in the neighbourhood of the residential districts of Paddington, Bayswater, and North Kensington, and are thus especially convenient to students who wish to reside in the immediate vicinity. A register of approved lodgings is kept in the office of the Medical School.

The athletic ground at Park Royal, Acton, is easily accessible from the Medical School. It is seven acres in area, and provides ample accommodation for the various athletic clubs; the pavilion is large and well equipped.

The hospital contains 305 beds, of which 31 are devoted to treatment by therapeutic inoculation.

The Medical School provides complete courses in the preliminary and intermediate subjects of the curriculum which are recognized by the University of London as approved courses for internal students. Students may join in October, January, or April.

The departments of biology, chemistry, anatomy, physiology, and pathology are under the direction of full-time lecturers, and special courses are provided twice yearly for the Primary F.R.C.S. In addition, special tuition is provided for the Intermediate and Final Examinations of the universities of Oxford, Cambridge, and London, and for the Final F.R.C.S.

All clinical appointments in the hospital are free to students of the school, and the resident medical officers are chosen by competitive examination. Six house-physicians, six house-surgeons, four obstetric officers, and two resident medical officers to the inoculation wards are appointed each year, and receive board and residence in the hospital. A large number of salaried appointments are open annually to qualified students, including those of medical registrar, surgical registrar, casualty physician, casualty house-surgeon, resident assistant anaesthetist, assistant curator, together with several demonstratorships. In the inoculation department there are nine assistantships, the salaries of which amount to £1,600 per annum.

Scholarships.—There are Entrance Scholarships in Natural Science; one of £100, one of £50, one of £25, and two University Scholarships of £52 10s. awarded annually by competitive examination in September.

Fees.—The composition fee for students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in anatomy and physiology are admitted on payment of a composition fee of 65 guineas (£68 5s.) paid in one sum, or 70 guineas (£73 10s.) if paid in two annual instalments. A system of annual fees is also in operation for students who prefer it. Separate courses of lectures, laboratory work, or hospital practice may be taken.

The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

ST. THOMAS'S.

THIS school, and the hospital in connexion with which it works, are situated in Lambeth, the joint buildings on the Thames facing the Houses of Parliament, and forming one of the well-known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and class-rooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading-room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 2 p.m. The Students' Club premises contain a dining room and smoking and reading room supplied with daily and illustrated weekly papers, and a gymnasium. Good meals are obtainable at a moderate tariff. The Terrace affords facilities for exercise and recreation. A cloak-room with lockers, and

a lavatory with bath-rooms, are in the main school building. Students are thus able to spend the whole day at the school. The sports ground of more than nine acres in extent is at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 604 beds, and temporary huts erected in the quadrangles afford accommodation for 336 additional patients. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample sitting accommodation, so that large numbers of students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room; it is arranged also for lantern demonstrations. The maternity ward, containing 20 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies can thus be fully complied with.

Appointments.—All hospital appointments are open to students without charge. A resident assistant physician and a resident assistant surgeon are appointed annually at a salary of £150 each, with board and lodging. Two hospital registrars, at an annual salary of £150 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. An obstetric tutor and registrar is appointed each year at an annual salary of £50. Eight resident casualty officers and anaesthetists are appointed every six months. Four house-physicians, four house-surgeons, two obstetric house-physicians, two ophthalmic house-surgeons, and eight clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Two research assistants (bacteriological and chemical) are paid £200 per annum each. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships.—There are five entrance scholarships: Two in Arts, giving one year's free tuition; one of £150 and one of £60, in Chemistry, Physics, and Biology, for students who have not received instruction in Anatomy or Physiology; one of £50 in any two of the following subjects: Anatomy, Physiology, or Chemistry, for students who have completed their examinations in Anatomy and Physiology, for a medical degree in any of the universities of the United Kingdom, and have not entered as students in any London medical school. Valuable scholarships, prizes, and medals are open for competition throughout the whole career of a student, including a Fellowship of £100 given by the Salters' Company for research in Pharmacology, and the Louis Jenner Research Scholarship of the annual value of £60 for Pathological research.

Fees.—The entrance fee for second year's students is 20 guineas; for third year's students 10 guineas. The annual composition fee is 30 guineas. For Preliminary Science students the fee is 15 guineas. The fees cover all tutorial classes given by the school teachers, and there are no extra charges made for materials required in practical courses. Special courses of instruction are given for various examinations, and a register of lodgings is kept at the school. A list of medical practitioners, clergymen, and others who receive students is also available. Further information may be obtained from the Secretary of the School, St. Thomas's Hospital, Albert Embankment, S.E.

University College Hospital.

THE school, which forms part of the Corporation of University College Hospital, is in immediate proximity to the hospital in University Street and opposite University College. It comprises departments of medicine and clinical medicine, surgery and clinical surgery, midwifery and gynaecology, pathology including morbid anatomy, clinical pathology and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear, and throat, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The Hospital and School have acquired the National Dental Hospital and College as their Dental Departments, thus providing every facility for the study of dental subjects.

The school thus provides the final course of study for the degrees of the universities of London, Oxford, Cambridge, and Durham, and for the diplomas of the Royal Colleges of Physicians and Surgeons in Medicine and Dental Surgery, and the Licence of the Society of Apothecaries. Special bacteriological classes are also held in preparation for the various diplomas of public health. Each department is also equipped for more advanced work, and provides facilities for research.

A student may enter the medical school at the commencement of his career, in which case he will pursue his preliminary and intermediate studies at the University of London, University College, and his final studies in the school. He may also enter the school for the final studies after having completed his preliminary and intermediate studies at any recognized university or school.

Scholarships.—The following scholarships and prizes are open to competition: Two Entrance Exhibitions of 80 guineas each, awarded after a competitive examination in anatomy and physiology; the Graham Scholarship in pathology of a sum not exceeding £200 per annum; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies; the Magrath Clinical Scholarship, value about £100; the Filliter Exhibition in pathology of £30; the Percival Alleyn Prize for the advancement of surgery by research, value about £60; the Graham Gold Medal for research work; four Fellowes Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology, and the Erichsen Prize for practical surgery.

Appointments.—All the appointments at the hospital are reserved for students of the school, the dresserships and clerkships being open, of course, to those who have still to qualify. The qualified appointments, in addition to a number of posts as house-physicians and house surgeons and obstetric assistants, include the appointments of resident medical officer, surgical registrars, obstetric registrar, casualty medical officers, casualty surgical officers, assistant in ear, nose, and throat departments, assistant in ophthalmic department, registrar in anaesthetic department, and deputy anaesthetists.

Fees.—The fee for the full course of final studies at the school is 80 guineas if paid in one sum, or 82 guineas if paid in two instalments.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School.

Westminster.

THIS school, with its hospital, situated in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College. The rest of the work is done in the school buildings near the hospital, which contains upwards of 200 beds, and affords most ample facilities for instruction in all branches of medicine and surgery.

Appointments.—A medical and surgical registrar are appointed annually, each with a salary of £50. Two house-physicians, three house-surgeons, one assistant house-physician, one assistant house-surgeon, and a resident obstetric assistant are appointed after examination, and are provided with rooms and commons, except the assistant house-physician and the assistant house-surgeon, who are provided with commons only. The assistant house-physician after three months' service becomes house-physician for a further period of six months, and the assistant house-surgeon, after two months' service, becomes house-surgeon for a further period of six months. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students. Every student must perform the duties of out-patient dresser for four months, and afterwards hold the office of in-patient dresser for four months. He is also required to serve two terms of four months each as medical clinical clerk to in-patient physician and one term as gynaecological clinical clerk. Two pathological clerks are appointed every four months to assist in

the *post-mortem* room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed. So far as vacancies permit, students of other hospitals are admitted to in-patients' dresserships or clerkships.

Scholarships.—The following scholarships are offered for competition during the year 1916–17. In the summer session two natural science scholarships, £60 and £30, and one in Arts, £60. In the winter session two scholarships in anatomy and physiology, £50 each. In the spring two scholarships in anatomy and physiology, £50 each.

Fees.—The annual composition fee is 25 guineas, and an entrance fee of 15 guineas is payable by every student, including scholars. Under certain conditions 10 guineas of the entrance fee are returnable on qualification. Special terms are given to the sons of medical men. These fees include subscriptions for membership of the Clubs Union.

Further information can be obtained on application to the Dean at the Westminster Hospital Medical School, Caxton Street, Westminster, S.W.

London (Royal Free Hospital) School of Medicine for Women.

This school is carried on at 8, Hunter Street, Brunswick Square, in connexion with the Royal Free Hospital. An agreement has also been made under which students of the school receive clinical instruction at St. Mary's Hospital, Paddington. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of the Medical Faculty of London University. The school buildings, among the best of their kind, were completed in 1900 at a cost, with equipment, of over £35,000. An extension of the school, to be opened by Her Majesty the Queen on October 2nd, 1916, will be completed by the end of September at a cost, with equipment, of £30,000. The laboratories are large and well lighted, and are fully equipped for the first and second medical examination courses of the University of London. Research laboratories are attached to all departments. A Pathological Research laboratory is also provided.

A large, well-equipped library, common-room, union-room, and refectory are provided for the use of students. There is also some residence accommodation for students in the school buildings.

The Royal Free Hospital has 184 beds, all of which are available for clinical instruction. A new block has recently been completed, containing a Maternity Department, with a lying-in ward of 8 beds, new and enlarged students' quarters, a new Out-patients' Department, with special operating theatre, and departments for massage, electrical and *x*-ray work, dentistry, and casualty. There are also separate departments for gynaecology and obstetrics and diseases of the eye, ear, and skin. Instruction is given in anaesthetics, bacteriology, etc., in addition to the ordinary clinical lectures and demonstrations and tutorial classes. Students attending at St. Mary's Hospital are admitted to the full clinical course and educational facilities of the hospital. Students attend the practice of one of the fever hospitals of the Metropolitan Asylums Board, and receive special instruction in lunacy at Bethlem Hospital; they are also admitted to the practice of a number of special hospitals.

The work of the school includes preparation for the M.B., B.S.Lond., the diplomas of the Royal Colleges of England (including the Primary Fellowship examination), the Conjoint Boards of Scotland and Ireland, and the Society of Apothecaries, London; also for the greater part of the course required by the University of Durham and the other universities of England which admit women to their degrees, and the University of Glasgow; also for the medical school and general hospital course for dental students.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical and medical registrars, pathologists, anaesthetists, medical electrician, skiagrapher, curator of museum, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne Entrance Scholarship value £30, the St. Dunstan's Medical Exhibition value £60 a year for three years, which may be extended to five years, and the Mabel Sharman-Crawford Scholarship value £20 a year for four years, are offered for competition in each year. The Sarah Holborn Scholarship of the value of £20 a year for three years, which may be extended to five years, is awarded in alternate years. The Bostock Scholarship, value £60 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London. The holder of the scholarship must enter the London School of Medicine for Women. The Agnes Guthrie Bursary for Dental Students, value £60, is awarded each year. The Ellen Walker Bursary of £25 for two years is awarded each year to a student beginning her fourth year of study. The John Byron Bursary of £20 a year for two years, the Helen Prideaux Prize of £40, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Butler Scholarship of £14 10s. a year for four years, together with many other scholarships and prizes, are offered on sundry conditions. The Dr. Edith Pechey-Phipson Post-Graduate Scholarship of £40 is awarded annually. Various missionary societies also offer scholarships on certain conditions, and assist ladies who wish to go to India and other countries as medical missionaries.

Fees.—Courses for the University of London, diplomas of Royal Colleges of England, and other qualifications: First medical examination, £28; course for second and third, £141; course after the second medical examination, £91. These sums include library and laboratory fees.

The Students' Union exists to promote corporate action of the students on matters of common interest, and to promote and maintain athletic and other clubs. All students are required to become members of the Union.

Further information can be obtained from the Secretary.

King's College.

Since the incorporation of King's College in the University of London, the instruction given to medical students is carried out there in the classes of the Faculty of Science (Medical Division), and deals only with the subjects of the preliminary and intermediate parts of the curriculum. King's College Hospital (see p. 361) is now a separate institution, and the studies for the final examinations only are carried out there.

A special class for the Matriculation Examination is also held.

There is a large athletic ground at Wormwood Scrubbs, managed by the Students' Union Society.

Scholarships.—The entrance scholarships are: 1. Three Warneford Scholarships, each £25 for four years; subjects—mathematics, classics, divinity. 2. One Sambrooke Exhibition of £25 for two years, open; subjects of examination—mathematics, elementary physics, inorganic chemistry, botany, and biology. The holders of the preceding awards must proceed to King's College Hospital. 3. *Rabbeth Scholarship, value £20, in July, for the best student of the first year. 4. *Second year's scholarship, value £20, for the best student of the second year.

Fees.—Information as to fees can be obtained from the Dean of the Medical Division of the Faculty of Science at the College (Professor W. D. Halliburton, M.D., F.R.C.P., LL.D., F.R.S.).

Women Students.—King's College is now open to women students for the Preliminary and Intermediate portions of the medical curriculum. The number of women is at present limited, and application for admission should be made to the Dean.

Information as to scholarships and subjects of examinations can be obtained from the Secretary of the College.

University College.

This institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy, physiology, and pharmacology. The Department of Hygiene and Public Health prepares for the diplomas in public health of the Royal Colleges and of the various universities. Research work is undertaken in all the above-named departments, as well as in pathological chemistry, the work of which is entirely post-graduate. It undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of

* Suspended during the war.

advanced medical studies. The work is somewhat differently arranged, accordingly as whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. The general arrangements for the benefit of students include membership of the Union Society, with its gymnasium and athletic ground. There is also a collegiate residence for about forty students at Ealing.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 135 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School), and two entrance exhibitions on the same subject, each of the value of 55 guineas.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 84 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England come together to 79 guineas. These fees may be divided into payments for the different courses which it may be desired to take out, but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Provost of University College.

COOKE'S SCHOOL.

THIS school is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half a dozen students in the course of the year; these have special advantages, both as regards anatomy and physiology. The operations of surgery are performed on the dead body. Special classes in surgery are constantly held.

The school, which is open all the year round, possesses a good collection of anatomical models, physiological and chemical apparatus, and gentlemen preparing for the higher examinations (F.R.C.S.Eng., M.B.Cambridge, Oxford, London, etc.) receive special instruction in the more difficult subjects. Other information may be obtained from the Secretary on the school premises, Handel Street, W.C.

THE PROVINCES.

THERE are in England and Wales, not counting London, ten medical schools, each, with one exception, supplying instruction in the full medical curriculum. Accounts of them here follow. In several cases there is appended information concerning other hospitals than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

OXFORD AND CAMBRIDGE.

BOTH at Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently equipped, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them, but this is not commonly done. The local hospitals are comparatively small, so the authorities encourage the students, as soon as they have completed the earlier examinations, to join some London school, and thus spend the time of their preparation for the final examination in a city where the opportunities for gaining clinical knowledge are greater and more varied.

BIRMINGHAM.

THE school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessaries devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for this purpose. Together they have upwards of 500 beds for medical, surgical, and special cases, and with an array of special departments of all kinds, including one for lying-in women. Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures delivered weekly throughout the winter and summer sessions. Special tutorial classes are also held alike for the degrees of Birmingham and some other universities and for the diplomas of corporations.

Appointments.—The large number of appointments open to past or other students includes the following:—At the General Hospital: one resident medical officer, salary £100 a year; one resident surgical officer, salary £100 a year; one resident pathologist, salary £50 a year; two non-resident casualty assistant physicians, salary £50 a year; three non-resident surgical casualty officers, salary £50 a year; two non-resident anaesthetists, salary £50 a year; four house-surgeons, office tenable for nine months, £50 a year; one house-surgeon to the gynaecological and one to the ophthalmic and aural departments, each tenable for six months, £50 a year; three house-physicians, post tenable for six months, £50 a year; one resident medical officer at the Jaffray Branch Hospital, salary £150 a year; one resident assistant at the Jaffray Branch Hospital, tenable for three months. At the Queen's Hospital: three house-physicians and three house-surgeons (posts vacant in January and April); one obstetric and ophthalmic house-surgeon (posts vacant in April and October). These appointments are tenable for six months. Salaries at the rate of £80 per annum, with board, lodging, and washing. One resident dresser, tenable for three months; candidates must previously have attended their lectures, etc., and need not be qualified. At the Maternity Hospital: one house-surgeon, salary £50 a year. At the City Workhouse and Workhouse Infirmary: five resident medical officers. At the Birmingham General and Branch Dispensaries: twelve resident surgeons. At the Birmingham Lunatic Asylums: five assistant medical officers. At the City Fever Hospitals: three assistant medical officers. At the Children's Hospital: one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital: four resident surgeons. At the Orthopaedic and Spinal Hospital: two clinical assistants (non-resident). At the Ear and Throat Hospital: one house-surgeon, £70 a year; four clinical assistants (non-resident). There are also four non-resident Poor-Law appointments in the gift of the Board of Guardians.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: The Walter Myers Travelling Studentship of £150; the Sands-Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on matriculation marks); four Queen's Scholarships of £10 10s. each, awarded annually at the second, third, fourth, and final university examinations respectively; one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men. The Ingleby Scholarship of £10 for proficiency in midwifery and diseases of women. There is also an entrance scholarship of £37 10s. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical Prize, Gold Medal; Senior Surgical Prize, Gold Medal; Midwifery Prize, Gold Medal; Junior Medical Prize, Silver Medal; Junior Surgical Prize, Silver Medal.

Fees.—The composition fee for university classes is £85. This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State medicine, and some other special work. The total cost for the five years' curriculum, including hospital and examination fees, is estimated at £158 2s. 6d. Other information should be sought from the Dean of the Medical Faculty.

BRISTOL.

THE school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and diplomas. The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them about 600 beds and extensive out-patient departments, special clinics for diseases of women and children, and those of the eye, throat, and ear, in addition to arrangements for dental work and large outdoor maternity departments. At each of these institutions there are well-arranged pathological

departments, comprising large pathological museums, *post-mortem* rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for *x*-ray work both in diagnosis and treatment, the various forms of electrical treatment, including high-frequency currents, electric baths, Finsen light treatment, and massage.

The students of the school have also the advantage of attending the practice of the Royal Hospital for Sick Children and Women, containing 108 beds, and that of the Bristol Eye Hospital, with 40 beds. Excellent facilities are thus afforded to students for obtaining a wide and thorough acquaintance with all branches of medical and surgical work. Each student has the opportunity of personally studying a large number of cases and acquiring practical skill in diagnosis and treatment. All classes are open to women.

Appointments.—(1) Undergraduate: Clinical clerkships, dresserships, also ophthalmic, obstetric, and pathological clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate—At the Bristol Royal Infirmary: Four house-surgeons, £100 each per annum; four house-physicians, £100; resident obstetric and ophthalmic house-surgeon, £100; throat, nose, and ear house-surgeon, £100; dental house-surgeon, £100. All these appointments are made for twelve months. From the resident officers a senior resident officer is appointed at an additional salary of £30. At the Bristol General Hospital: Senior house-surgeon, £200 per annum; casualty house-surgeon, £100 per annum, if another resident appointment has been previously held; two house-physicians, £80 per annum; house-surgeon, £80 per annum, obstetric house-surgeon, £80 per annum; dental house-surgeon, £200 per annum. All these appointments are for six months, except those of senior house-surgeon and dental house-surgeon, which are for two years.

Scholarships.—The following are among the scholarships and other awards open to students of the school: Two Martin Memorial Pathological Scholarships, of £10 each; the Tibbits Memorial Prize, value 9 guineas, for proficiency in practical surgery; the Committee's Gold and Silver Medals for fifth-year students for general proficiency; the Augustin Prichard Prize, value 7 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for general proficiency; the Crosby Leonard Prize, value 7 guineas, for proficiency in surgery; the Suple Surgical Prize, a gold medal and 7 guineas; the Suple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £12, for dressers; the H. M. Clarke Scholarship, value £15, for proficiency in surgery; the Sanders Scholarship, value £22 10s., for general proficiency.

Fees.—The fee for all the courses required for the medical curriculum, including hospital practice, is 135 guineas if paid in one sum. It amounts to 150 guineas if paid by annual instalments.

CARDIFF.

THE school in this city is carried on by the University College of South Wales and Monmouthshire, and devotes itself at present principally to training students during the first three or four years of the medical curriculum, all classes being open to women students. The courses of instruction given are recognized by all licensing bodies in Great Britain, and after passing the tests corresponding to the first three years of the curriculum, the student can complete his course, for whatever degree he is aiming it, in London or elsewhere. Besides this, there is an arrangement with the Management Committee of the infirmary by which students at the school can take advantage of the opportunities for acquiring experience afforded in the wards of this large, well-ordered hospital. Hence many students, especially from Wales and Monmouthshire, find it convenient to avail themselves of the advantages of being able to pursue the earlier part of their medical curriculum near home. They can also obtain instruction in vaccination and in the administration of anaesthetics, and with a little additional work can qualify for the B.Sc. degree of the University of Wales. This degree includes the subjects which comprise the first three years of a medical student's curriculum, and it (or the B.A.) is a compulsory degree for those students who propose to sit for the M.B., Ch.B. of the University of Wales. There is also a department of public health, in which all the work for diplomas in State medicine, whether for the University of Wales or other Examining Boards, can be done. A Chair of Pathology and Bacteriology has been established. It is hoped that before long a complete Welsh National School of Medicine will be established at Cardiff, owing to the munificent offer of Sir William James Thomas to erect and present to the college a school of preventive medicine and medical school buildings, in addition to the Physiological Laboratory he has already provided.

Post-graduate vacation courses are carried on in association with the Cardiff Infirmary.

Scholarships.—There is a considerable number of scholarships connected with the college, and open to students of the School of Medicine, information as to which can be obtained on application.

Fees.—The composition fee for the three years' courses required for students proceeding to the M.B.Lond. is £63; that for the two years' courses for students proceeding to a diploma of the licensing corporations being £41 10s. The composition fee for D.P.H. classes is £30. Further information may be obtained on application to the Dean of the Faculty of Medicine.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

THIS, the Medical School of the Faculty of Medicine of the University of Durham, is in the neighbouring city, Newcastle-on-Tyne. Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants, and also those of the other examining bodies. The students do their work in the preliminary sciences at Armstrong College, also part of the university, and their clinical work in the new Royal Victoria Infirmary, an institution with over 400 beds and special accommodation for the benefit of students. In a new wing of the school itself there are the departments of bacteriology and physiology. There are also in this wing a gymnasium and a set of rooms for the use of the Students' Union.

Appointments.—Assistant demonstrators of anatomy and prosectors for the professor of anatomy, assistant physiologists, pathological assistants, assistants to the dental surgeon, and assistants in the eye department, throat and ear department, and department for skin diseases, are elected annually. Four times in the year clinical clerks and dressers are appointed for three months.

Scholarships.—A University of Durham Scholarship, value £100, for proficiency in arts, open annually at the beginning of the winter session to intending students. The Pear Scholarship, value £150, for proficiency in arts (when vacant). The Dickinson Memorial Scholarship, interest of £400, with a gold medal, for medicine, surgery, midwifery, and pathology, open to perpetual students in their fifth year. The Tulloch Scholarship, interest of £400 annually, for elementary anatomy, biology, chemistry, and physics, for students at the end of their first year. The Charlton Memorial Scholarship, interest of £700 annually, open to full students entered for the class of medicine, at the end of their fourth or fifth winter. The Gibb Scholarship, interest of £500 annually, for pathology, at the end of summer session. Gibson Prize, interest of £240, for midwifery. Outterson Wood Prize, interest of £250, for psychological medicine. The Goyder Memorial Scholarship, proceeds of £325; subjects: Clinical medicine and clinical surgery. Luke Armstrong Memorial Scholarship, proceeds of £680, for best essay in some subject in comparative pathology. The Stephen Scott Scholarship in Surgery, interest on £1,000 annually. The Heath Scholarship in Surgery, interest on £4,000, awarded every other other year. First award in 1896.

Fees.—The composition fee for lectures at the college is 80 guineas. Composition fee for hospital practice 35 guineas, *plus* £2 2s. yearly for three years payable to the Committee of the Royal Victoria Infirmary. Other information should be sought from the Secretary of the School at Newcastle.

Other Hospitals.—The Hospital for Sick Children and the Infirmary for Diseases of the Eye throw open their various departments to students.

LEEDS.

THE School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, several well-arranged

laboratories for physiology, pathology, and bacteriology, three lecture theatres, and several similar class-rooms. In addition there are a library and reading room and two museums, one being devoted to pathology and the other to anatomy. The comfort of the students is secured by common rooms and a refectory in which they can take meals. It is estimated by the authorities that the approximate cost of medical education to a student in this university is £195, *plus*, of course, the expenses of living during the five years covered by the curriculum. The General Infirmary has over 420 beds in constant use, and includes gynaecological and ophthalmic wards and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the infirmary, has over 80 beds. The West Riding Lunatic Asylum at Wakefield is also open for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary (where the practical instruction in dental subjects is also given), the City Fever Hospitals (100 beds), the Hospital for Women and Children, and the Leeds Maternity Hospital.

Appointments.—One senior anaesthetist, £50; seven assistants, £25 each; medical and surgical tutor, at £125 each per annum; one resident medical and one surgical officer, each at £150 per annum; one casualty officer, at £125 per annum; one resident ophthalmic officer, at £100 per annum; one resident aural officer, at £100 per annum; one resident obstetric officer, at £50 (attached to the gynaecological ward and an extensive external maternity department); one ophthalmic house-surgeon, at £50 per annum; three house-physicians, each holding office for six months, and four house-surgeons, holding office for six months. Surgical dressers are appointed every six months; physicians' clerks, ophthalmic and aural dressers, gynaecological ward clerks, gynaecological out-patient clerks, maternity clerks, assistant physicians' clerk, dermatological clerk, and assistant surgeons' dressers, dressers in the casualty room, *post-mortem* clerks, and laboratory assistants every three months. A clinical pathologist (£300 per annum), together with an assistant clinical pathologist (£150), has charge of the pathological laboratory. A resident medical officer (honorarium, £30) is also appointed every six months for the Ida Semi-convalescent Hospital. Appointments are also open to students at the Leeds Public Dispensary (one senior and four junior resident medical officers, with salaries commencing at £80), at the Hospital for Women (two house-surgeons, at £50 per annum, and two anaesthetists, £20), and at the West Riding Asylums.

Scholarships.—The university awards annually a scholarship on the results of the July Matriculation Examination in the form of a free admission to the lectures and classes given in the university, which are covered by the composition fee. The Infirmary also awards a scholarship on the results of the first examination, of the value of 40 guineas, in the form of a free admission to the clinical teaching of the infirmary.

Fees.—The fee for a complete course for the First M.B. is £27 11s.; the composition fee for the course for the second and third examinations is £73 2s. 6d. (for students who have passed the second examination, £48 16s. 6d.), and for the clinical work at the infirmary, £42.

Further information can be obtained from the Dean and Clinical Subdean, School of Medicine, Leeds.

LIVERPOOL.

THE Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well equipped class-rooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratories and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which an account is given below, have amalgamated to form the clinical school of the university.

Appointments.—The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,000. They include the following: Two Holt Fellowships, one in Pathology, the other in Physiology; a Robert Gee Fellowship in Anatomy; an Alexander Fellowship for Research in Pathology and Bacteriology; a John W. Garrett International Fellowship in Bacteriology; a Johnston Colonial Fellowship in Biochemistry; an Ethel Boyce Fellowship in Gynaecology; and a Thelwall Thomas Fellowship in Surgical Pathology, all of the value of £100; a University Scholarship of £25, awarded on the results of the Second M.B. Examinations; a Scholarship in Mechanical Dentistry of £20; two Lyon Jones Scholarships, of the annual value of £21 each for two years, one for the junior and the other for senior students; the Derby Exhibition of £15; the Clinical School Exhibition of £15; the Owen T. Williams Prize; the Torr Gold Medal in Anatomy; the George Holt Medal in Physiology; the Kanthack Medal in Pathology; the Robert Gee Prize of £5 5s. in Children's Diseases; two Robert Gee Entrance Scholarships, each of the value of £25 per annum for two years; Orthodontia Prizes, Senior £3 3s., Junior £1 1s.; one Thomas H. Bickerton Prize in Anatomy; Dental Operating Prizes, Senior £4 4s., Junior £2 2s.; Ash's Prize in Dental Surgery, value £2 2s.; and other Entrance Scholarships.

Fees.—Information as to the fees paid for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School.

As many as nine hospitals have combined to form the clinical school of the university, these being: The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Infirmary for Children, the Hospital for Women, the Eye and Ear Infirmary, St. Paul's Eye Hospital, and St. George's Hospital for Diseases of the Skin. Between them they provide about 1,140 beds.

MANCHESTER.

THE staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature. The clinical work of the undergrates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains about 592 beds, and has associated with it a large convalescent home and the Royal Lunatic Asylum at Cheadle. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition: A surgical registrar, at £75 per annum; a pathological registrar, at £100 per annum; a medical registrar, at £75 per annum; a surgical tutor, at £30 per annum; a director of the clinical laboratory, at £250 per annum; and one assistant director at £75; three assistant medical officers and three assistant surgical officers, each at £35 per annum; one assistant surgical officer, Aural department, at £35 per annum; five anaesthetists, at £50 per annum each; one medical officer for skiagraphy and electricity, £100 per annum; one medical officer for home patients, one year, £150 per annum; one resident medical officer, one year, £150 per annum; ditto, at Cheadle, one year, £150 per annum; one resident surgical officer, one year, £150 per annum; two resident medical officers for Central Branch, £100 per annum; one accident room house-surgeon, six months, £100 per annum; one assistant medical officer at the Convalescent Hospital at Cheadle, appointed every six months, at a salary of £80 per annum; eight senior and eight junior house-surgeons and ten house-physicians, appointed during the year for a term of six months. Resident officers are appointed to the Gynaecological, the Eye, and the Ear and Throat departments every six months. Four or more clinical clerks are attached to each physician and assistant physician, and four or more dressers to each surgeon and assistant surgeon, to the Gynaecological surgeon and assistant Gynaecological surgeon, to the Ophthalmic surgeon, and to the surgeon for the Ear and Throat department, and four or more clerks to the Pathologist, two clerks to the Director of the Clinical Laboratory, and a number of clerks, not exceeding six, are appointed to assist the medical officer for home patients. Accident-room dressers are appointed every three months, three senior dressers and twelve or more junior dressers.

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school: Rogers and Seaton Scholarships in Arts (in alternate years), £40 per

annum, tenable for two years. Two Dalton (entrance) Scholarships in Mathematics, tenable for two years, value £40, one being awarded annually, except in such years as a Cartwright Scholarship is awarded. Cartwright Scholarship, £35 per annum, tenable for three years. Three Hulme Scholarships, tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35, tenable for two years, one being awarded annually for proficiency in the branches of Mechanics and Chemistry. A Dora Muir Scholarship, £30 per annum, tenable for three years, and open to the competition of women students only. This is awarded triennially; next competitition in May, 1917. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, open to the competition of scholars from Sedbergh School, Giggleswick School, and Burnley Grammar School. Subjects: Mathematics, Chemistry, and Mechanics. Dreschfeld Memorial Scholarship, value £30, tenable for one year and awarded triennially on the result of the Entrance Examination (next award in 1916). A Theodores Modern Languages Exhibition, £20, awarded annually. Two Dauntesey Medical Scholarships, value £45 and £35, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification. Subjects: Zoology, Botany, and Chemistry. Two Entrance Scholarships in Medicine, value £100, awarded annually for proficiency in Arts or Science respectively. Two Research Fellowships in Public Health of £50 each, awarded annually. Tom Jones Exhibition in Anatomy, £25, offered annually. Robert Platt Physiological Exhibitions: Two, about £15 each, offered annually. A Robert Platt Physiological Scholarship of £50, tenable for two years. A Robert Platt Zoological and Botanical Scholarship, £50. A Leech Fellowship of £100 for original research after graduation. A Graduate Scholarship in Medicine, value £25, tenable for one year, awarded annually for proficiency shown at Final M.B. Examination. A Dumville Surgical Prize, value £15, awarded annually at graduation. The Tom Jones Memorial Surgical Scholarship, value £100, tenable for one year, awarded usually triennially; next award in September, 1916. The Turner Medical Scholarship, value £20, awarded annually for proficiency in certain subjects of the Final M.B., Ch.B. Examination. The John Henry Agnew Scholarship of £30, awarded annually for proficiency in the Diseases of Children. The Bradley Memorial Scholarship in Clinical Surgery of £20. The Ashby Memorial Scholarship, tenable for one year (£100), for research in the Diseases of Children; offered triennially; next award, 1916. Sidney Renshaw Exhibition in Physiology: One, offered annually. The details and regulations of the Dickinson Scholarships—(1) for Anatomy, (2) for Pathology, (3) Research Scholarship in Surgery, and (4) Travelling Scholarship in Medicine—will be announced later. The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £40 per annum, tenable for not more than four years, to women students who have passed the First M.B. Examination. The conditions under which these scholarships are awarded can be obtained from the Registrar.

Fees.—The composition fee for the university course in medicine is 70 guineas, payable in three instalments of 30, 20, and 20 guineas, but this sum does not include the fee to cover the work required for the First M.B. Examination. This is £25, payable in one sum. A prospectus and further information about the school and scholarships may be obtained on application to the Registrar.

Clinical Work.—The Royal Eye Hospital, the Manchester Northern Hospital for Women and Children, the well-known Hospital for Children at Pendlebury, and St. Mary's Hospital for Diseases of Women and Children all make arrangements for the instruction of students.

SHEFFIELD.

IN this city the Medical School is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the firs and second examinations — namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangements and scientific equipment, on the most modern and complete lines. No expense has been spared in the matter of apparatus for teaching or research work, and the facilities for practical study in these subjects are as excellent as all the other arrangements of the school.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a museum devoted to materia medica specimens, and a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms both for men and women students. In the university buildings there is a refectory open to all students of the school, and a university journal, *Floreamus*, edited by a joint committee of the staff and students, is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 500 beds for the treatment of medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at either institution by the anaesthetists, and the *post-mortem* examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students also have the advantage of being able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Asylum.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) Casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. Except in the case of casualty dressers, these appointments are made for three months, commencing on the first day of October, January, April, and July. The casualty dresserships last two months, beginning on the first of any month. All students are required to hold them, and to have attended the tutorial classes for casualty dressers, before being eligible for any other of the above appointments.

Scholarships.—Entrance Medical Scholarship, value about £130, open to both sexes. Two Town Trustees' Scholarships, each of the value of £50, tenable for three years, for boys or girls under the age of 19 years who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees' Scholarships, value £50, for boys or girls under 19 years of age, educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, for proficiency in anatomy and physiology, value £22 10s. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—The composition fee of £80, payable in three instalments, covers attendance on all the courses of lectures and practical classes, except pharmacy, required for a degree course in the university, or for the ordinary qualifications in medicine and surgery of the Examining Boards. It does not include hospital practice, the fee for which is £49 17s. 6d., payable in three instalments.

SCOTLAND.

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of its different medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified or offer valuable opportunities for post-graduation work.

ABERDEEN.

THE school is conducted by the Faculty of Medicine. This comprises twelve chairs, from which instruction is given in all the main branches of medical science—namely, botany, zoology, physics, chemistry, anatomy, physiology, materia medica, pathology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in Public Health and in Tropical Medicine are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary (accommodating 270 patients), the Royal Lunatic Asylum (900 patients), the Sick Children's Hospital (85 patients), the City Fever Hospital (250 patients), the General Dispensary, Maternity, and Vaccine Institution (10,000 out-patients annually), and the Ophthalmic Institution (3,000 patients annually). Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fiver Hospital; in insanity at the Royal Asylum; in diseases of ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in diseases of the skin at the Royal Infirmary.

Bursaries.—Scholarships and Fellowships, to the number of fifty and of the annual value of £1,180, may be held by students of medicine in this university. They range from £8 to £100 per annum, and are tenable in most cases for two or three years.

Fees.—The fee for each university course is, as a general rule, £4 4s.; and for a second attendance, £3 3s. An inclusive fee of 90 guineas is now payable, covering the necessary instruction within the university. Matriculation fee, both sessions, £1 1s.; summer session alone, 10s. 6d. Royal Infirmary, perpetual fee, £10; or, first year, £5 10s.; second year £5. The winter session begins on October 12th.

EDINBURGH.

THERE are three Schools of Medicine: the School of the University, the School of Medicine of the Royal Colleges, Edinburgh, and the Edinburgh School of Medicine for Women.

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; Zoological Laboratory and Museum of Science and Art; Physical Laboratory; Chemical Laboratories; Dissecting Room, Bone Room, and Anatomical Museum; Physiological Laboratory; Medical Jurisprudence Laboratories; John Usher Institute of Public Health; Materia Medica Museum and Laboratory; *Post-mortem* Department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; Tutorial Classes of Practice of Physic, of Clinical Medicine, and Clinical Surgery, Surgery, and Midwifery; and the practice of certain other hospitals.

Fees.—The sessional fee for zoology, botany, chemistry, anatomy lectures, physiology, pathology, materia medica, medical jurisprudence, surgery, medicine, midwifery and gynaecology, clinical surgery (winter), clinical medicine (winter), is £4 4s. each. Second course £3 3s. Third free. A perpetual ticket taken at the beginning of the first year is £6 6s. Physics, practical chemistry, advanced practical physiology, practical pathology, practical anatomy (winter), operative surgery, obstetric operations, practical materia medica, including pharmacy, pathological bacteriology, experimental pharmacology, vertebrate morphology and comparative embryology, are £3 3s. Clinical surgery, £2 2s. per term. Clinical medicine, first term, £3 13s. 6d.; subsequent terms, £2 2s. No perpetual ticket in these subjects. Practical botany (besides garden fee of 5s.), elementary practical zoology, practical physiology (experimental), practical physiology (histological), practical botany (advanced), practical zoology (advanced), practical anatomy (summer), anthropology, anatomy demonstrations, diseases of children, diseases of the eye, diseases of the larynx, ear, and nose; diseases of tropical climates, clinical instruction on diseases of the skin, regional anatomy, physiological chemistry, invertebrate zoology, organic chemistry, mental diseases, £2 2s. Applied anatomy (medical and surgical), £1 1s. Vaccination, £1 1s.

Scholarships.—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself. No other university is in a better, even if in as good, a position to smooth the financial path of earnest students.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons, and also recognized by the university through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board consisting of five members elected by the Royal College of Physicians, of five members elected by the Royal College of Surgeons, and of five members elected by the lecturers in the school. This board, with the assistance of the standing committees of the school, supervises the whole management, and especially the maintenance of the efficiency and discipline of the school. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street; (2) New School, Bristo Street; (3) Nicolson Square; (4) Marshall Street; and other places. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the school. The fees payable for class and other instruction, and including the sums payable on admission to the examination of the Conjoint Board for the triple qualification, amount to about £120. The Calendar, giving full information regarding classes and fees, can be obtained gratis on application to the Dean of the School, 11, Bristo Place, Edinburgh.

WOMEN STUDENTS IN EDINBURGH.—Until the close of the past summer session the women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. They were taught by a body of lecturers who were appointed from year to year by the university for the purpose, and who also were recognized as lecturers in their respective subjects by the Royal Colleges of Physicians and Surgeons. With the decision of the University Court[1] to admit women students not only to examinations for the medical degrees of the University, but also to the medical classes within its walls, the whole situation was changed, and it became necessary to effect a number of rearrangements, some of which are still incomplete. Meanwhile the need for a separate school for women having ceased, the Edinburgh School of Medicine for Women was brought to an end as a corporate body by its lecturers omitting to apply for university recognition as such for the ensuing academic year. Notice of its cessation was sent to all the students (between 160 and 170) who had been in attendance. Only a very few of the women students were studying for the triple qualification of the Royal Colleges, and no difficulty was anticipated in securing teaching for them either in the university or in the classes of some of the extramural lecturers. All the arrangements have not yet been made, but, as matters now stand, the women students who intend to proceed to the university degree will receive their medical teaching (save in the clinical classes) in the university during the forthcoming winter session. The systematic lectures will be given to them by the professors in the ordinary classes, which will therefore be mixed; but in two subjects, namely, midwifery and gynaecology and materia medica, the women will be lectured to separately from the men. All the practical classes will be taught to men and women separately save in a few advanced classes. But, further, the women students will in future have the same privileges as in the past have been given to the men of attending a certain proportion of the extramural classes taught by the lecturers of the School of Medicine of the Royal Colleges. It is understood that these classes likewise may be mixed so far as the systematic lectures are concerned, and possibly also so far as several of the practical classes are involved; there will at any rate probably be some elasticity in the arrangements during the coming winter session so as to enable a big change to be effected with as little friction as possible. The women students intending to present themselves for examination for the triple qualification of the Royal Colleges will be permitted by

the university to attend the intra-mural classes, or they may attend the classes of individual extra-mural lecturers. The arrangements for the clinical teaching in the infirmary and other hospitals have not yet been made, but when completed they will be at once announced. At present certain medical and surgical wards in the Royal Infirmary are reserved for the instruction of the women students alone.

GLASGOW.

THERE are five medical schools in this city: the two schools of the university, one of which (Queen Margaret College) is for women students; St. Mungo's College (the school of the Royal Infirmary), Anderson's College, and the Western Medical School.

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: Surgery, Pathology, Public Health, Pharmacology, Physiology, Anatomy, Chemistry, Zoology, Physics, and Botany; the Botanic Garden and the Hunterian Museum (Zoology and Pathology) are also open to students. New buildings and equipments have been provided for botany, for practical anatomy, for operative surgery, as well as for pathology; the very large additions made a few years ago to the Chemical Laboratory rendered it one of the most extensive in Scotland. The class-rooms and laboratories for the departments of Physics, Physiology, Pharmacology and Materia Medica, and Medical Jurisprudence and Public Health, are also of recent erection, and are elaborately equipped. Four additional chairs of Medicine, Surgery, Obstetrics, and Pathology have been recently established, the Professors being specially attached to the Royal Infirmary; and a number of University Lectureships in Clinical Medicine, Clinical Surgery, Venereal Diseases, Laryngology, Dermatology, Otology, and Psychological Medicine have been founded there. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduate and research work. Three very extensive general hospitals in the city afford exceptional opportunies for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached; the Royal Infirmary (630 beds); and the Victoria Infirmary (260 beds); while the Royal Asylum (460 beds), the Royal Hospital for Sick Children (200 beds), the Maternity Hospital (108 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35 beds), the fever hospitals at Belvidere (680 beds) and Ruchill (540 beds), and other institutions afford facilities for the practical study of special branches. During the present year (1916), as in 1915, special qualifying examinations in Medicine, Surgery, and Midwifery have been held, in order that candidates who had completed their full curriculum might be enabled to graduate without delay. Nearly all the successful candidates have received commissions in the R.A.M.C.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in Arts. Some of the bursaries are described below.

Fees.—The matriculation fee for each year is £1 1s. In most cases the fee for each university class is £4 4s., but in some cases it is £3 3s. For hospital attendance students pay an entrance fee of £10 10s. at the Western Infirmary, with an additional fee of £3 3s. for each winter and £2 2s. for each summer clinical course; at the Royal Infirmary the fees are somewhat similar. The university fee for the four professional examinations is £23 2s. (£6 6s. each for the first and second examinations, and £5 5s. each for the third and fourth). For the whole curriculum the fees for matriculation, class attendance, hospital attendance, and professional examinations amount to £150.

For further information apply to the Registrar, Glasgow University.

Bursaries.—The following bursaries are open to undergraduates of both sexes: The Gibson Bursary, annual value £36, tenable for four years. This is open to medical students who are preparing for service as medical missionaries in connexion with the Church of Scotland, and will be awarded to the eligible candidate who has gained the highest number of marks in the First Professional Examination. One Logan Bursary, annual value £16, tenable for four years; appointment by the Senate. The Mackintosh Mental Science Bursary in medicine, of the value of £31, is awarded annually to the student (of either sex) attending the class of insanity who stands first in an examination in that subject, the bursar to continue the practical study of the subject to the satisfaction of the Faculty of Medicine. The Gardiner Bursary, annual value £14, tenable for two years, will be awarded after the autumn professional examination to the candidate who has passed in physiology at the Second Professional Examination, and whose aggregate of marks in that subject and in chemistry and physics of the First Professional Examination is the highest. The following are tenable in any faculty: Two Pratt Bursaries (each £20 and tenable for four years); and two Taylor Bursaries (each £10, tenable for four years). Andrew and Bethia Stewart Bursaries (£50 each, tenable for three years); candidates must have taken the M.A. degree of Glasgow. There is a special examination. Nine Glasgow Highland Society's Bursaries, for students of Highland descent, of the annual value of £25, and tenable for five years; two vacant each year. The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction, under conditions given in the *University Calendar*. The Dobbie Smith Gold Medal is awarded for the best essay on a prescribed subject within the science of botany. The Brunton Memorial Prize of £10 is awarded annually to the most distinguished graduate in medicine of the year. The University Commissioners issued an ordinance to make regulations for the admission of women to certain bursaries, scholarships, and fellowships. Scholarships and fellowships are offered by the Carnegie Trust in science and medicine for post-graduate study. There are also four McCunn Medical Research Scholarships (£100 for one year) for graduates in medicine of the Scottish universities.

QUEEN MARGARET COLLEGE.—In this, the Women's Medical School of the University of Glasgow, the courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings, with class-rooms, reading-room, library, etc. They are taught in some classes apart from male students, in others together with them, but in either case have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, where wards containing 520 beds are available for their use, and in its dispensary; also in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal Asylum, Gartnavel; the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidere and Ruchill; and the Glasgow Royal Maternity and Women's Hospital.

Scholarship.—The Arthur Scholarship, annual value, £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October each year. This scholarship is the gift of Mrs. Arthur, of Barshaw, and is restricted to women medical students.

Board for Students.—A house of residence for women students, Queen Margaret Hall, is situated near the college. The cost of board and residence is from 19s. to 27s. per week, according to accommodation. Full information can be obtained from the Mistress, Queen Margaret College, or from the Warden, Queen Margaret Hall, Bute Gardens, Glasgow.

ST. MUNGO'S COLLEGE.—This is the Medical School of the Royal Infirmary, which is the largest in Glasgow. The infirmary is situated in Cathedral Square, Castle Street, and has car communication with every part of the city. St. Mungo's College is in the infirmary grounds.

The infirmary has (including the ophthalmic department) over 660 beds, the average number occupied in 1913 being over 600. There are special beds and wards for diseases of women, of the throat, nose, and ear, venereal diseases, burns, and septic cases. In the out-patient department the attendances in 1913 numbered over 180,000. In addition to the large medical and surgical departments, there are departments for special diseases—namely, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. There is also a fully equipped electrical pavilion, and year by year the latest and most approved apparatus for diagnosis and treatment is added.

Appointments.—Five house-physicians and ten house-surgeons, who must be fully qualified, are appointed every six months, and board in the hospital free of charge. Clerks and dressers are appointed by the physicians and

surgeons. As many cases of acute diseases and accidents of a varied character are received, these appointments are very valuable.

Fees.—The average class fee is £2 2s. The fees for all the lectures, practical classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £70. The classes are open to male and female students.

The Anderson College of Medicine.—This school provides education in all subjects of the curriculum both for medical and dental students. The school buildings are situated in Dumbarton Road, immediately to the west of the entrance of the Western Infirmary, within two minutes' walk of that institution and four minutes' walk of the university. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary; pathology in the Western or Royal Infirmary; vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, and also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions which are stated in the school Calendar). The courses (lectures and laboratory) in public health are also recognized by the Scottish Licensing Board, Queen's University of Belfast, the Irish Colleges, and the University of Cambridge.

Fees.—The fees for the lectures and practical work required by ordinary students range between 1 and 5 guineas a session. In the Public Health Department the fee for a six months' course is £12 12s. The Carnegie Trust pays the fees of students at Anderson's College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a post-card by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow, W.. who will forward any further information which may be desired.

Glasgow Western Medical School.—This school has been closed until after the war.

St. Andrews and Dundee.

The medical departments in these two teaching centres cater specially for students proceeding to the degrees of the University of St. Andrews, but admit other students as well. In the former city the United College provides education in all subjects of the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain fully equipped laboratories. The clinical work of the school is facilitated by various institutions. The class fees are 4 guineas for systematic classes, and 3 guineas for practical classes. The hospital ticket is £1 1s. for three months, £3 3s. a year, or perpetual £10 in one sum or £10 10s. in instalments. Added up, the fees for the curriculum, exclusive of the examination fees, amount to £136 10s. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St. Andrews. Information regarding the clinical facilities may be obtained from Professor Kynoch, Dean of the Medical Faculty, Medical School, Dundee.

A special Final Examination will be held in October, 1916, in order to facilitate early graduation.

Clinical Work.

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given thereat being recognized for purposes of graduation by all the Scottish universities, the University of London, the University of Cambridge, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND.

There is a choice of six schools for those prosecuting their medical studies in Ireland, and for clinical instruction the choice is equally satisfactory and varied, though the hospitals themselves are comparatively small. Some account of the schools follows.

Dublin.

The School of Physic.

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians in Ireland; the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board. A three weeks' post-graduate course is given each autumn, and covers all departments of medicine and surgery. Information concerning the post-graduate course can be obtained from Dr. Alfred Parsons, 27, Lower Fitzwilliam Street, Dublin.

A special Final Examination was held on September 4th, 1916, for students who had at least five years' credit for attendance in the school and who are volunteering for active service in connexion with the war.

The Schools of Surgery.

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the college's own school, combined with two famous old medical schools—Carmichael and Ledwich; they are attached to the college by charter. The buildings contain spacious dissecting rooms, one set apart for lady students, and special pathological, bacteriological, public health, chemical, and pharmaceutical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the college.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£26 5s.); the Carmichael Scholarship (£15); the Mayne Scholarship (£8); the Gold Medal in Surgery, and the Stoney Memorial Gold Medal in Anatomy; class prizes of £2 and £1, accompanied by silver medals, will also be given in each subject.

The next session begins October 16th. A prospectus can be obtained post free on application to Mrs Albert Miller, Registrar, Royal College of Surgeons, Dublin.

University College.

This is one of the constituent colleges of the National University of Ireland, and at present conducts its work at buildings on St. Stephen's Green, at those formerly occupied by the Cecilia Street School of Medicine, and at the University Buildings in Earlsfort Terrace. Its permanent home is not yet ready. It possesses a good library, and the arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. The teaching staff is numerous, and through it the college is connected with many of the hospitals of the city. Students, however, are allowed to pursue their studies at any of the hospitals recognized for the purpose by the university.

Clinical Work.

There are numerous well-arranged hospitals in and around the city, and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the United Kingdom. Among them are the Mater Misericordiae Hospital, with 345 beds; Dr. Steevens's Hospital at Kingsbridge, with 200; Meath Hospital and County Dublin Infirmary, with 160; Mercer's Hospital, close to Trinity College, with 120; the Royal City of Dublin Hospital, with 124; the Adelaide Hospital, with 140; the Royal Victoria Eye and Ear Hospital, with 100 beds; Sir Patrick Dun's, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Hospital, with an aggregate of 230 beds. As for that known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the United Kingdom. It receives nearly 3,000 patients every year, and, apart from ordinary out-patient work of a gynaecological order, annually attends approximately 2,000 women at their own homes during their confinement. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to post-graduates of any nationality.

BELFAST.

The Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in connexion with the departments of biology, chemistry, physiology, pathology, anatomy, physics, and materia medica are all excellent, and there is a Students' Union which gives students the advantage of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are: The Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital; the Benn Ulster Eye, Ear, and Throat Hospital; the Union Infirmary and Fever Hospital; the Fever Hospital, Purdysburn; the District Lunatic Asylum, the Samaritan Hospital, Forster Green Hospital for Diseases of the Chest, and the Belfast Hospital for Skin Diseases.

Scholarships.—(1) Twelve, of the value of £40 each, are assigned as Entrance Scholarships in the Faculties of Arts, Science, and Medicine, tenable for one year; (2) sixteen Professional Scholarships, value from £15 to £40 each; (3) one Hutchinson Stewart Scholarship, £12, in mental diseases; (4) one Mackay Wilson Travelling Scholarship, £100, awarded triennially; (5) Isabella Tod Memorial Scholarship, tenable for three years, awarded triennially to a woman student; (6) Magrath Clinical Scholarship, awarded annually, value about £112; (7) numerous sessional prizes. There is also a post-graduate research fund, open to all graduates of not more than three years' standing. Gold medals are awarded at the M.D. examination.

Fees.—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately, £120. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital, but not fees for the special hospitals. The course for the Conjoint Board costs about the same amount. The Calendar containing full information can be obtained on application to the Secretary, Queen's University, Belfast, price 1s.

UNIVERSITY COLLEGE, CORK.

This institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the new National University. It holds examinations for all the faculties of that university, in addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees of the new university, but students proceeding for the examinations of the Conjoint Boards of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South infirmaries (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (60 beds), the County and City of Cork Lying-in Hospital, the Maternity, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglington Lunatic Asylum. The session extends from October to June.

Scholarships.—Over £4,000 are available annually for scholarships in the college. Particulars as to each of them can be obtained on application to the Registrar.

Fees.—The fees for the lectures and hospital attendances required by the National University of Ireland course, including examination fees, come to about £120. Further information can be found in the college regulations, or obtained on application to the Registrar.

UNIVERSITY COLLEGE, GALWAY.

This institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Arts, Science, Law, Engineering, Commerce, and Medicine. Candidates for degrees in medicine must reside for three years. For the remaining two years certificates from any recognized medical school are accepted. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Galway County Hospital, the Galway Union Hospital, and the Galway Fever Hospital. The former is a general hospital, and at the two latter students have ample opportunities of studying zymotic and chronic diseases. The Union Hospital has a special ward for diseases of children. The college entrance scholarships number twelve, and range in value from £30 to £25 each. They are open to all students, including those of the Faculty of Medicine. For students in their second, third, and fourth years, two scholarships are in each year reserved for those belonging to the Faculty of Medicine. Further information can be obtained on application to the Registrar.

CLINICAL HOSPITALS IN ENGLAND.

THERE are a great many hospitals in the United Kingdom which, though not connected with any medical school, open their doors either to those who have yet to become qualified, to those who are doing post-graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Their honorary staffs commonly make a point of giving what instruction opportunity offers, and at those which are situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments for resident medical officers, house-physicians, and house surgeons. These are usually paid offices, which may be held for periods varying from six months to a year. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in these localities, but it should be added that there are many other provincial hospitals where admirable work is done, and at which much valuable experience can be gained by both senior and junior students, and by those already admitted to the *Medical Register*. Cases in point are the Royal Infirmary, Bradford; the Royal Sussex County Hospital, Brighton; the Royal United Hospital, Bath; the Kent and Canterbury Hospital; Derbyshire Royal Infirmary; the Royal Albert Hospital and Eye Infirmary, Devonport; the Royal Devon and Exeter Hospital; the West of England Eye Infirmary, Exeter; the Gloucestershire Royal Infirmary and Eye Institution; the Royal Infirmary, Leicester; the County Hospital, Lincoln; the General Hospital, Northampton; the Norfolk and Norwich Hospital; the General Hospital, Nottingham; the Royal Portsmouth Hospital; the Royal South Hants and Southampton Hospital; the Staffordshire General Infirmary, Stafford; the North Staffordshire Infirmary at Hartshill; the Royal Hants County Hospital, Winchester; the Wolverhampton and Staffordshire General Hospital; and the County Hospital, York. As for hospitals in the metropolis, so many of these play the part of clinical schools that it is worth while to classify them.

General Hospitals.—These include the Dreadnought Hospital at Greenwich, and its annexe at the Albert Dock, which form the head quarters of the London School of Clinical Medicine and the London School of Tropical Medicine; the West London Hospital and the Prince of Wales's General Hospital, Tottenham, both of these being described in the article on post-graduate work; the Great Northern Central Hospital, Holloway Road, an institution containing 185 beds; and the Temperance Hospital in Hampstead Road.

Children's Hospitals.—There are at least seven of these, the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 240 beds. There are also the East London Hospital for Children,

Shadwell, with 124 cots; the Queen's Hospital for Children, Bethnal Green, with 134; the Victoria Hospital for Children, Chelsea, with 104; the Belgrave Hospital for Children, which has a considerable out-patient department, but in-patient accommodation for only 40 children; the Paddington Green Children's Hospital, an institution of about the same size; and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds.

Hospitals for Women.—These include Queen Charlotte's, which specializes in the teaching of midwifery; the Samaritan Hospital for Women, Marylebone Road, to which qualified practitioners are admitted as clinical assistants to both the in- and out-patient departments. Demonstrations are given daily in both departments, the fees—payable in advance—being £3 3s. for three months. Full particulars may be obtained on application to the secretary at the hospital. In addition may be mentioned the Hospital for Women, Soho Square; the Chelsea Hospital for Women, Arthur Street, Chelsea; and the New Hospital for Women in Euston Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Moorfields Eye Hospital, City Road, with 138 beds and a very large out-patient department; others are the Royal Westminster Ophthalmic Hospital, near Charing Cross, the Royal Eye Hospital, Southwark, each with about 40 beds; and the Central London Ophthalmic Hospital, Judd Street, W.C., with 28.

Fever Hospitals.—The Metropolitan Asylums Board has under its control a good many institutions for the treatment of the more serious zymotic disorders, and makes special arrangements for the instruction of students in this subject, and grants certificates at the end of the courses. Detailed information should be sought from the Clerk to the Board, Victoria Embankment.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 333 beds and a large sanatorium at Frimley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 175 beds, and the Royal Hospital for Diseases of the Chest, City Road, which has recently reorganized its various departments with the object of better fitting itself to act as a tuberculosis school.

Nose, Throat, and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose, and ear all make special arrangements for the benefit of senior and post-graduate students. They are the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square; the Royal Ear Hospital, Dean Street; the Central London Throat and Ear Hospital, Gray's Inn Road; and the Hospital for Diseases of the Throat, Golden Square—the latter, which possesses 75 beds, being the largest of the four institutions.

Miscellaneous Special Hospitals.—Among these are the Bethlem Royal Hospital, Southwark, which confines its work to the treatment of mental diseases; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street, Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; St. John's Hospital for Diseases of the Skin, in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; and the National Hospital for the Paralysed and Epileptic, Queen Square, W.C., an institution possessing 200 beds and a world wide reputation.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

MEDICAL EDUCATION OF WOMEN.

Women are admitted to the medical examinations of the following qualifying bodies: All the universities of Great Britain, with the exception of Oxford and Cambridge; the Royal College of Physicians, London, and the Royal College of Surgeons, England; the Society of Apothecaries of London; the Conjoint Colleges of Scotland and of Ireland.

The regulations of each differ considerably, so that it is necessary for a student to decide, before beginning her course, which degree or diploma she will aim at obtaining. The ordinary regulations of the General Medical Council (see page 347) must be observed, and women can pursue their education either at certain schools only open to women, or at ordinary schools where they do their work more or less in common with men students.

The schools which admit women only are the London (Royal Free Hospital) School of Medicine for Women, which is one of the constituent schools of the Medical Faculty of the University of London; the Edinburgh School of Medicine for Women (see page 370), and Queen Margaret College, Glasgow (see page 371). Women are also admitted to the schools of medicine conducted in connexion with King's College, London, the Universities of Dublin, Dundee, Durham, Liverpool, Manchester, Birmingham, Leeds, Sheffield, Bristol, and Aberdeen; St. Mungo's College, Glasgow, the Schools of Surgery of the Royal College of Surgeons in Ireland and of the National University of Ireland in Dublin, Cork, and Galway. Women can also attend classes for the first three years of the medical curriculum at University College, Cardiff.

Year by year the openings for women who adopt a medical career have increased, and the field open to their energies is now wide. Women hold many appointments as resident medical officers in general hospitals and in hospitals for women and children all over the country, and in a large number of sanatoriums, infirmaries, fever hospitals, and asylums. Many medical women are also engaged in public health and school inspection work.

As regards the London School of medicine for Women, particulars will be found at p. 365 in the article on London Medical Schools.

DEGREES FOR PRACTITIONERS.

At one time it was almost the universal custom for medical students educated in London not to seek a university degree, and as that custom still prevails to a considerable extent, a very large proportion of medical men in actual practice in England possess diplomas to practise but not degrees in medicine. This is a fact which they sometimes find reason to regret, and to such practitioners the following paragraphs may be of interest. It should be noted that the M.D. degree of the University of Brussels is not registrable when it has been obtained subsequently to June, 1886, but this fact does not lessen its value to those who see any utility in possessing a degree as well as a registrable diploma.

University of London.

Registered medical practitioners who have passed the First Examination for medical degrees and the Second Examination for medical degrees, Part I, may proceed to the Second Examination for medical degrees, Part II, and M.B., B.S. Examinations without observing the intervals prescribed by the regulations, on producing certificates that they have gone through the required course of study at a school of the university; subject to the proviso that no degree of the university can in any circumstances be granted by examination to any one in less than three years after passing the Matriculation Examination or after admission by the university of the candidate's right to exemption therefrom.

University of Durham.

The degree of M.D. is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions without residence: The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. Should he not have passed an examination in arts previously to the professional examination in virtue of which his name was placed on the *Register*, he is examined in classics and mathematics; if otherwise he is required to translate into English passages from any one of the following Latin authors: Caesar, *De Bello Gallico* (first three books), Virgil, *Æneid* (first three books), or Celsus (first three books).

Professional Examination.—The candidate must pass an examination in the following subjects: (i) Principles and practice of medicine, including psychological medicine, hygiene, and therapeutics; (ii) principles and practice of surgery; (iii) midwifery and diseases of women and children; (iv) pathology, medical and surgical; (v) anatomy,

medical and surgical; (vi) medical jurisprudence and toxicology. The examination is conducted by means of printed papers, clinically, and viva voce, at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Victoria Infirmary, Newcastle. The classical portion of the examination may be taken separately from the professional on payment of a portion (£10 10s.) of the full fee.

Foreign and Colonial Practitioners.—Natives of India or the British Colonies are placed on the same footing as natives of Great Britain. Natives of India must produce evidence from an Indian university that they have passed within one year an examination in Latin.

Fees.—The inclusive fee is 50 guineas; if a candidate fail to pass, 20 guineas are retained, but if he present himself again, 40 guineas only are required.

Dates, etc.—The examinations are held twice a year, towards the end of March and of June. Notice, accompanied by the fee and certificates, must be sent to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

University of Brussels.

This university grants its M.D. to such foreign candidates as are already duly qualified in medicine and surgery in their own countries, provided they pass the three examinations imposed. Information can be obtained either from the Secretary of the University, 14, Rue des Sols, Brussels, or from Dr. Arthur Haydon, Honorary Secretary of the Brussels Medical Graduates' Association, 11, Welbeck Street, Cavendish Square. The examinations for the degrees are still going on at the University of Brussels, but for internal students only at present during the German occupation. This is due to the mobilization of the examining staff with the Belgian army.

POST-GRADUATION STUDY.

THE value, and in some circumstances even the necessity, of post-graduation study is now so generally recognized that there is no occasion to dilate upon it here. The need for some means of acquiring direct knowledge of the technique of the new branches which are constantly springing up is indeed so generally felt among otherwise experienced practitioners that several institutions designed solely for their benefit have been at work now for some years. Of these institutions some account follows. Beyond this it need merely be said that in most medical centres it is now exceptional for one or more courses for qualified men not to be held once or more often during the year; that most of the institutions mentioned in the section on Clinical Hospitals make special arrangements for the benefit of qualified men desirous of studying work of the kind undertaken within their wards; and that valuable adjuncts to post-graduation study exist in the shape of the Library of the British Medical Association—one specially rich in recent works—of the libraries of the several universities, and in those of the Royal College of Surgeons of England and of the Royal College of Physicians in London and in Edinburgh.

West London Post-Graduate College.

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895, and the present building was opened in 1901; it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. In the five years before the war the yearly entry has averaged over 220. The work of the college is eminently suitable for men taking up war work.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2.15 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments dealing with diseases of the eye, ear, throat, nose, skin, orthopaedics, *x*-ray work, electrotherapeutics, gynaecology, and mental diseases of children. Post-graduates are appointed to act as clinical assistants for three or six months. There is no charge to members of the college. Practical classes are held in medicine, general practical surgery, gastro-intestinal surgery, surgical diseases of children, analysis of blood and urine, cystoscopy, venereal disease, tropical diseases, retinoscopy, ophthalmic operative surgery, and, when material is available, in operative surgery. The size of the classes is limited so as to ensure that each student shall have full opportunities of gaining experience in methods of examination and treatment.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the post-graduates, and in any case making arrangements so that they can readily see what is going on. The anaesthetists give instruction in the administration of different anaesthetics, including spinal analgesia, on the operating days, students being allowed to administer them under supervision, while special classes are held in each session.

The pathological laboratory is in charge of a pathologist who attends every day. In bacteriology and microscopy special instruction is given on three mornings a week, the students working at other times under the general guidance of the pathologist.

Demonstrations are given every day in the morning by the assistant physicians, assistant surgeons, and by the medical and surgical registrars in practical medicine and surgery. Lectures of a practical kind are given daily (except Saturday and Sunday) at 5 p.m. During the war, however, class demonstrations and lectures are discontinued.

The fees are as follows: Hospital practice, including all ordinary demonstrations and lectures, £1 1s. for one week, £3 3s. for one month, £4 4s. for six weeks, £6 6s. for three months, £10 10s. for six months, £15 15s. for one year, and £30 for a life ticket. Every year in August there is a special vacation class lasting four weeks, for which the fee is £3 3s. Three months' instruction in the administration of anaesthetics costs £5 5s. Subscriptions for any course can be taken out from any date. The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, and the University of London (for higher degrees).

A prospectus concerning the school can be obtained on application to the Dean.

London School of Clinical Medicine (Post-Graduate), Dreadnought Hospital, Greenwich, S.E.

The school buildings, lecture rooms, operative surgery class-rooms, pathological laboratories, museum, library, etc., are in the Seamen's Hospital at Greenwich. The whole hospital of 250 beds, with its out-patient department, is open to students from 10 a.m. till 5 p.m.

At present the sessions are in abeyance in consequence of the war. In normal times medical, surgical, and special department in-patient clinics are held every afternoon except Saturday by the senior members of the staff, whilst out-patients are demonstrated daily in the forenoon in the medical, surgical, and special departments by the assistant physicians and surgeons. Practical classes are arranged each session in the following subjects: The practice of medicine, diseases of the nervous system, medical diseases of women, medical diseases of children, diseases of the skin, practice of surgery, operative surgery, diseases of the eye; diseases of throat, nose, and ear; surgical diseases of women, midwifery and gynaecology, surgical diseases of children, pathology, clinical pathology, bacteriology, surgical and medical pathology, hygiene and public health; anaesthetics, skiagraphy, and mental diseases.

Two sessions of five months (October-February) and four months (April-July), are held in each year. The session's work is arranged so as to enable individual students to join the demonstrations, etc., at any time during the session.

Affiliated to the London School of Clinical Medicine for the purposes of extension of the variety of clinical material and teaching are the Royal Waterloo Hospital for Children and Women, the Miller General Hospital, Greenwich, and the Bethlem Royal Hospital for Mental Diseases. These hospitals are directly linked to the Dreadnought both by rail and by tram. The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology. There is also a wide field for

the study of venereal diseases, on which special clinics are given, and there is a department with open-air wards for the treatment of tuberculosis. Every variety of disease may be studied in the wards and out-patient rooms of the Dreadnought Hospital and at the affiliated hospitals. The certificates of the school are recognized by the University of London (for the higher degree), the Admiralty and the War Office, the India Office, and the Colonial Office.

Appointments.—There are a medical superintendent, surgical and medical registrars, two house-physicians, and two house-surgeons at the Dreadnought Hospital, Greenwich. The pay of these officers varies from £50 to £150.

Full prospectuses, lists of special lectures, and other particulars can be obtained on application to the Dean at the School.

North-East London Post-Graduate College.

The head quarters of this post-graduate school are situated at the Prince of Wales's General Hospital, which is in the midst of a densely populated North London neighbourhood containing about a quarter of a million inhabitants. It contains 125 beds, and its precise situation is South Tottenham, N., where it is within a few minutes' walk of South Tottenham Station on the Midland Railway, Seven Sisters Station on the Great Eastern Railway, and Tottenham Hale on the Great Eastern main line. It is also readily accessible from Finsbury Park and Hackney by electric tram passing the hospital door, and by corresponding means may be reached easily from Dalston, Edmonton, Hackney, and other parts of North London.

The college is recognized by the Admiralty and the India Office for the purposes of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its D.P.H. diploma, and there are ample arrangements for the convenience of men who are thus working, or who are general practitioners desirous of getting themselves into touch with modern methods. There is provided for their use a reading and writing room, and they can obtain afternoon tea and receive telephonic messages; similarly there is a reference and lending library for their benefit, and a museum and pathological laboratory in which they can work. The hospital as a whole certainly affords excellent facilities to qualified medical practitioners who wish to take part for a time in the work of an active general hospital, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, skiagraphy, and the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed every afternoon of the week except Saturday. Special classes are arranged in modern methods of the investigation and treatment of diseases of the lungs and heart, gynaecology, diseases of children; diseases of the throat, nose, and ear; diagnosis of diseases of the nervous system, ophthalmoscopy and refraction, diseases of the skin, abdominal surgery, surgical anatomy, surgery of the uro-genital tract, skiagraphy, anaesthetics, bacteriology, clinical pathology, vaccine therapy, pathological chemistry, and medical electricity. In all these classes the numbers are carefully limited, so as to give every member full opportunity for work.

As for fees, these are as follows: One guinea for a three months' course of study in any one department, which may be began at any time; a fee of 5 guineas admits to the whole practice of the hospital for a similar term (one month, 2 guineas), and a perpetual ticket for the practice of the hospital may be obtained on payment of a fee of 10 guineas.

Additional information about the college and its work can be obtained on application to the Dean of the Post-Graduate College, at the hospital, or at 19A, Cavendish Square, London, W. It should, however, be stated that, owing to the war, the number of lectures and set demonstrations has of necessity been reduced.

TROPICAL MEDICINE.

THERE are Schools of Tropical Medicine in London and Liverpool, and several examining bodies have instituted diplomas or degrees in the subject. The Colonial Office now expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees follows.

Diplomas and Degrees.

LONDON UNIVERSITY.—Tropical medicine is one of the six branches in which the M.D. degree may be obtained, the regulations relating to the curriculum and examination corresponding to those applying to the other branches.

LONDON CONJOINT BOARD.—This body grants a diploma in tropical medicine to candidates after an examination usually held in the months of April and July. Ordinary candidates must present evidence of having attended, subsequently to obtaining a registrable qualification in medicine, surgery, and midwifery, (1) practical instruction in bacteriology, parasitology, medical zoology, and haematology, in a laboratory recognized for this purpose during not less than six months; (2) instruction in hygiene applicable to tropical countries; (3) the clinical practice of a hospital recognized for the study of tropical diseases during not less than six months. These conditions may be modified in the case of candidates who have had practical experience in tropical countries deemed likely to have furnished them with the same kind of training. The fee for admission to the examination is £9 9s. No further examination will be held until the termination of the war.

UNIVERSITY OF EDINBURGH.—This university grants a diploma in tropical medicine and hygiene after an examination which is usually held twice a year. It is open to those who are graduates of the university in medicine and surgery, and to registered practitioners who have had experience of tropical diseases in a tropical country, who may be approved by the Senatus on the recommendation of the Faculty of Medicine. In addition to this the candidates must show that they have attended approved courses of instruction in practical bacteriology (including the pathogenic micro-organisms of tropical diseases), in diseases of tropical climates (including the zoological characters and life-history of disease-carrying insects), in tropical hygiene, and in clinical study of tropical diseases. They must possess, too, certificates of efficiency in the conduct of *post-mortem* examinations. The examination is in the four subjects indicated, the fee being £4 4s.

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to students who have been through the courses provided by the Liverpool School of Tropical Medicine, and have passed the examination held twice yearly by the university examiners. The examination lasts three days, and consists (1) of three papers dealing with tropical medicine, tropical pathology, and tropical sanitation and entomology respectively; (2) of a clinical examination; and (3) of an oral examination. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF CAMBRIDGE.—This university grants a diploma in tropical medicine and hygiene to any person whose name has been on the *Medical Register* for not less than a year provided that he passes the examination of the university in this subject. Previous to admission to the examination he must produce approved evidence that he has studied pathology (including parasitology and bacteriology in relation to tropical diseases), clinical medicine, and surgery, at a hospital for tropical diseases, and hygiene and methods of sanitation applicable to tropical climates.

The examination deals with the following subjects:

1. The methods of pathological and bacteriological investigation. The examination of the blood. The characters, diagnosis, and life history of animal and vegetable parasites. The examination, chemical and microscopic, of poisonous or contaminated foods and waters.

2. The origin, pathology, propagation, distribution, prevention, symptoms, diagnosis, and treatment of the epidemic, endemic, and other diseases of tropical climates, including

malaria, blackwater fever, trypanosomiasis, relapsing fever, dengue, yellow fever, plague, tetanus, beri-beri, dysentery and hepatic abscess, cholera, enteric fever, Malta fever, and specific diarrhoeal affections of the tropics; diseases due to cestode and other worms; filariasis, bilharzial disease; specific boils, sores, and other cutaneous affections; mycetoma, ophthalmic affections of the tropics, affections caused by poisonous plants and animals, and by poisoned weapons; sunstroke.

3. The general effects on health in the tropics of seasons and climate, soil, water, and food. Personal hygiene, acclimatization. Principles of general hygiene, with special reference to food supplies and water supplies, sites, dwellings, drainage, and the disposal of refuse. The sanitation of native quarters, camps, plantations, factories, hospitals, asylums, gaols, pilgrim and coolie ships. Principles and methods of disinfection.

Examinations are held in January and August each year, and last four days. The fee for the examination and diploma is 9 guineas on admission or readmission. Application for further information should be made to Dr. G. S. Graham-Smith, Pathological Laboratory, Cambridge.

Schools.

LONDON SCHOOL OF TROPICAL MEDICINE.—This school is under the auspices of the Seamen's Hospital Society. Its buildings, laboratories, museum, library, etc., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock (Station, Connaught Road, Great Eastern Railway), and excellent opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the services or going abroad. In the hospitals of the society are to be found cases of tropical disease such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning October 1st, January 15th, and May 1st respectively. The course is so arranged as to equip men for the Cambridge and English Conjoint Board diplomas in tropical medicine. A prospectus and other information can be obtained on application to the Dean, London School of Tropical Medicine, India Office, Whitehall, London.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—This school is affiliated with the University of Liverpool and the Royal Infirmary of Liverpool. Two full courses of instruction are given every year, commencing on January 6th and September 15th, lasting for the term of about thirteen weeks, and followed by the examination for the diploma of tropical medicine given by the University of Liverpool. Each course consists:

(1) Of a systematic series of lectures on tropical medicine and sanitation delivered by the Professor of Tropical Medicine at the university; (2) of systematic lectures and demonstrations on tropical pathology, parasitology, and bacteriology by the Professor of Parasitology and the Lecturer on Parasitology at the university; (3) of similar instruction on medical entomology by the Professor of Medical Entomology and the Lecturer on Entomology at the university; and (4) of clinical lectures and demonstrations delivered at the Royal Infirmary by the professor.

The instruction given occupies six hours a day for five days a week during the term. Teaching under headings (2) and (3) above is delivered in the laboratory of the school at the university, which contains accommodation for thirty students, with all necessary appurtenances, including a well-equipped museum, a class library, and access to the general departmental library. Teaching under heading (4) is given in the tropical ward and the attached clinical laboratories of the Royal Infirmary and the Royal Southern Hospitals on two or three afternoons a week.

In addition to the full courses, an advanced course of practical instruction in tropical pathology and medical entomology, lasting one month, is given every year in June; it is of such a kind as to be very useful to medical men returning from the tropics on short leave. A special course of instruction in entomology, etc., is also given three times a year to officers of the East and West African Colonial Services.

Students of the school who do not care to undertake the examination held by the university at the end of each term for its diplomas in tropical medicine are given a certificate for attendance if the latter has been satisfactory.

It is proposed to institute at an early date a course of instruction in tropical sanitation. Full particulars will be issued as soon as possible.

The new laboratories of the school adjoining the university, which are now completed, have been taken over temporarily by the War Office authorities as a hospital.

Since it was instituted the school has dispatched to the tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by them has been published in twenty-one special memoirs, with many plates and figures, besides textbooks and numerous articles in the scientific press.

Fees.—The fee for the full course of instruction is £13 13s., with an extra charge of 10s. 6d. for the use of a microscope if required. The fee for the Diploma Examination is £5 5s., and that for the Advanced Course is £4 4s. Further information about the school may be obtained on application to the Secretary, 10B, Exchange Buildings, Liverpool.

PSYCHOLOGICAL MEDICINE.

THE study of mental diseases has long been a necessary part of the ordinary medical curriculum, and mental psychology is one of the branches of medicine which candidates for the M.D. degree of the University of London can take up. In addition diplomas in psychiatry or psychological medicine can be obtained from the universities of Cambridge, Edinburgh, Leeds, and Manchester. The Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination and encourage study of psychology and connected subjects by the offer of prizes for competition.

Those who take up psychological medicine as a career work as medical officers either of private mental hospitals, or of county or other public institutions of the same order. In all cases they are resident officers, those in the lower ranks always receiving board and lodging in addition to their salary. As a whole, they fall into three ranks—junior-assistant medical officers, senior assistant medical officers, and medical superintendents. The salaries of those belonging to the junior rank have hitherto been in the neighbourhood of £150 a year, and those of senior assistants about £300 a year, but have recently shown some tendency to rise. Medical superintendents, whose pay commonly ranges between £500 and £1,500 a year, are always provided with a house in the grounds of their asylum, and usually draw various allowances.

However, asylum work as a career is by no means growing in favour, and is unlikely to do so until all the public asylums throughout the country have been linked up in such fashion that their officers can be regarded as members of one common service. At present it is quite possible for a man who does excellent work to remain in the lower rank all his life, and this fact, coupled with the desirability of minimizing as far as possible other existing drawbacks to asylum life, has recently led to the starting of a movement for reform; and in this the British Medical Association is co-operating.

PUBLIC HEALTH SERVICES.

THE Public Health Service, to use the term in a strict sense, consists of medical officers of health appointed by local public health authorities and holding office under varying conditions of tenure. In addition, there are county medical officers appointed by the county councils. The latter are not, strictly speaking, public health authorities; the duties of their medical officers are somewhat similar to those of other medical officers of health, but include few executive functions. In many of the county boroughs and counties, assistant medical officers of health or assistant county medical officers are appointed, and such appointments may afford stepping stones for promotion to higher offices. The service is, however, not unified throughout the country, and there is no regular system of promotion; appointments are to be obtained only by application to some particular local authority which has advertised a vacancy.

Also ungraded are two other services which have been brought into existence by recent legislation, and whose members are charged with duties which bring them into more or less direct relation with public health authorities or county councils and their officers. The members of the one are called school medical officers, and those of the other tuberculosis officers. Appointments as school

medical officer are made by education authorities, while appointments as tuberculosis officer are made in fulfilment of the duties imposed directly on the county councils and the county borough councils, and indirectly on the Insurance Committees by the scheme for the treatment and prevention of tuberculosis which was worked out by the Local Government Board for England in consultation with the Insurance Commissioners.

The Local Government Board for England, it may be noted, employs a staff of medical inspectors in connexion with the performance of its duty as the controlling department of the Government in matters of public health, and the same is true of the corresponding boards in Scotland and Ireland. The medical men forming these staffs are, however, appointed to their position directly by the head of the Local Government Board in each country, and the posts are not open to public competition.

Medical Officers of Health.

The office of medical officer of health in a county borough—a designation which now includes nearly all the larger towns—is in practice a permanent appointment so long as the incumbent desires to retain it, and is the same by law in administrative counties and metropolitan boroughs. The position of a medical officer of health to an urban or a rural district, or to a combination of districts which have joined together to obtain the services of a whole-time medical officer of health, is much less satisfactory, for his appointment is terminable at the will of the public health authority served by him. This fact tends to militate against the efficiency of the service, and consequently the British Medical Association, in co-operation with some other bodies, has long been endeavouring to induce Parliament to establish security of tenure of office and superannuation for medical officers of health. In view of statements recently made by the Government, security of tenure, at any rate, seems likely soon to be granted. A medical officer of health to a district or combination of districts having 50,000 inhabitants must hold a diploma in public health. The first step which must be taken by any medical man who desires to follow the career of medical officer of health must be therefore to obtain such a diploma.

School Medical Officers.

School medical officers are appointed by local education authorities under schemes of medical inspection of school children which must be approved by the Board of Education. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard the education of such children, and to inform their parents of its existence. But practically their duties vary considerably in different areas. This is because most approved schemes of inspection include systems of work which aim at facilitating the task of parents in obtaining for their children the necessary treatment, at checking the results of the latter, and at keeping each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. The general object of all schemes alike is to make the inspection imposed by law of benefit not merely to the individual child, but to the community at large, by preventing conditions which lead to the existence of a large proportion of inefficient citizens among the adult population. In short, the work is so far related to that of a medical officer of health that in most areas the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole or part-time assistants. Whole-time assistants are commonly paid salaries ranging between £250 and £300 a year, the chief attraction of the posts being that they may lead on to appointment as medical officer of health of some large area where the combined salary of medical officer of health and school medical officer will represent a fair income. In view of this consideration, if for no other reason, it is desirable for a prospective whole-time school medical officer to obtain a diploma in public health.

Tuberculosis Officers.

The prescribed duties of tuberculosis officers are to act as advisers to Insurance Committees in connexion with the operation of the sanatorium clauses of the National Insurance Act and to take charge of the work of the tuberculosis dispensary, which is the main unit of the Departmental Committee's scheme. A tuberculosis officer is a whole-time officer; he should have special training in tuberculosis work, and be of suitable age and attainments to command general confidence. At present the number of appointments is small, and the salary generally attached to them is in the neighbourhood of £500 a year.

Sanitary Science.

In June, 1915, the University of Cambridge issued regulations for the Examinations in Sanitary Science, conducted by the State Medical Syndicate of the University. Two examinations will be held during the year 1916—one in April and one in October. Any person possessing a registered qualification in medicine, surgery, and midwifery may be a candidate, provided that he has satisfied certain demands laid down in the regulations. The examination will consist of two parts, the first having reference to the general principles of sanitary science, the second to State medicine and the applications of pathology and sanitary science. All applications for information respecting these examinations should be addressed to Mr. J. E. Purvis, M.A., The Chemical Laboratory, Pembroke Street, Cambridge.

Diplomas in Public Health.

Most of the universities and licensing corporations now grant diplomas in public health to candidates who pass the examinations imposed by them. Since all such tests must conform to the requirements of the General Medical Council, there is considerable similarity in their nature, though they differ not a little in their reputed difficulty. All of them aim at excluding any candidate who does not appear to have a thorough knowledge of his work in theory and in practice, for the regulations of the General Medical Council demand that the granting of a diploma in Sanitary Science, State Medicine, or Public Health shall be proof of the "possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health." The tests, in short, are supposed to constitute an honour and not a mere pass examination. As regards the special tuition required, it is now easy to obtain this in practically every centre of medical education, and at almost every medical school of any importance. It is desirable to note in this connexion that the chemical and bacteriological examinations for many of the health diplomas are so practical, and the time allowed so short, that unless a candidate—even though familiar with the duties of M.O.H.—has a considerable amount of the manipulative dexterity only to be acquired by ample work in a laboratory, he would not be likely to satisfy the examiners.

The regulations of the General Medical Council require that every candidate (subsequent to obtaining a registrable qualification in medicine and surgery) shall have passed through a stated curriculum in the subjects of sanitary science. This must last not less than nine calendar months, and include four months' study in a laboratory in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught, six months' practice study of the duties involved by public health administration, and attendance at least twice weekly for three months on the practice of a hospital for infectious diseases, at which instruction is given in methods of administration. These rules do not apply to practitioners registered or entitled to be registered before January 1st, 1890, while that regarding six months' practical study of public health administration is waived in the case of a candidate who has himself been in charge of a sanitary district with a population of not less than 15,000 for a period of not less than three years. The study in question must be passed under the personal supervision of a medical officer possessing certain definite facilities for affording it, these being carefully described in the regulations. The period may be reduced to three months in the case of a candidate who has undergone a corresponding period of study in the public health department of a recognized medical school, or who has been resident medical officer at a hospital for infectious diseases with accommodation for 100 patients for not less than three months. The laboratory study must include at least 240 hours' work, not more than half being devoted to practical chemistry.

The examinations imposed by the diploma-granting bodies must extend over not less than four days, one at least being devoted to practical work in the laboratory, and one to practical examination in, and reporting on, subjects within the duties of a medical officer of health, including those of a school medical officer.

The steps which examining bodies take to ascertain the candidate's fitness for a diploma are in all cases much the same, though the order in which the subjects are taken is not always identical. Every candidate, therefore, should, when he has settled what diploma or degree in State medicine he wishes to obtain, seek the schedule relating to it from the authority concerned. A certain number of the universities grant degrees in the subject as well as diplomas, but only the latter constitute a legal qualification in State medicine.

THE PUBLIC SERVICES.

THE ROYAL NAVY, THE ARMY, AND THE INDIAN MEDICAL SERVICE.

THE medical departments of the Royal Navy, the Army and the Indian Government normally employ between them some three thousand medical men, and fill vacancies in the ranks of the services thus formed by offering commissions for competition once or more often each year. All candidates must be between the ages of 21 and 28 years, and besides possessing registrable qualifications to practise medicine and surgery in Great Britain and Ireland must be adjudged by the Medical Boards appointed for the purpose to be physically fit for service before permission is accorded them to compete at the entrance examinations. Special attention is given to a candidate's power of vision; a moderate degree of myopia is not considered a disqualification, provided that it can be corrected by glasses so as to secure adequate vision for the performance of operations, and that no organic disease of the eye exists. Testimony has also to be furnished, or is sought by the authority concerned, with regard to the candidate's moral and general character, and the Secretary of State in each service reserves the right to refuse permission to compete to any candidate he pleases.

In the case of a candidate for the Indian Medical Service, the certificates submitted must include one showing that he has studied in an ophthalmic department for not less than three months, the work including refraction, and candidates for the other two services who have qualified in the Officers' Training Corps, or who have been employed in active service, receive an allowance of marks. In all three services the prospect of a medical officer attaining to the highest administrative grades depends to a large extent on the regulations with regard to compulsory retirement at the age of 55 (if below a certain grade at that age), so there is a distinct advantage in entering them at the earliest possible age.

In peace and apart from climatic conditions the lives of officers in these three services are of a less trying nature than those of civilian practitioners, and in the Royal Army Medical Corps, and still more in the Indian Medical Service, the opportunities for professional work of the highest kind are exceptionally great. In regard to emoluments, the pay in no rank is high, but in all it is sufficiently good to make the possession of private means not absolutely necessary. An officer in the Indian Medical Service, for instance, can retire after seventeen years' service on £300 a year, and after thirty on £700 a year with large additions should he have been employed in certain positions. In the other two services twenty years is the lowest pensionable length of service (the minimum is £365 a year, the maximum £1,125); but from either of them an officer whose record is good can retire while still under 30 years of age, with a gratuity of £1,000. In the Indian Medical Service, after working for three years in a military capacity, officers are allowed as a rule to transfer, if they please, to the civil department. Therein they do work not essentially dissimilar from that performed by civilian practitioners in other warm climates, but retain their military titles and are promoted from one grade to another as their service lengthens. It should be added that during the last few years competition for admission to the Navy has been very slight, while that for admission to the Indian Medical Service has greatly fallen. The reason is that the attractions of both services set forth above are to some extent counterbalanced by removable causes of discontent among their members. The nature of these can be learnt from recent issues of the BRITISH MEDICAL JOURNAL.

Candidates for all three services have to fill in printed forms before the question of permitting them to compete is considered, and copies of these, together with detailed information as to what each service has to offer, can be obtained on application to the Director-General of the Royal Navy, the Secretary of the War Office, and the Military Secretary of the India Office, respectively.

PRISON MEDICAL SERVICE.

CANDIDATES for the medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. The Chairman of the Board is Sir Evelyn Ruggles-Brise, K.C.B. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to give their whole time to the service.

In the case of those required to give their whole time to the service the appointment in the first instance is to the post of deputy medical officer, and from the seniors of this rank the medical officers are selected as vacancies occur. The deputy medical officers are paid £225 yearly, rising to £400, with unfurnished quarters. The whole-time medical officers are paid £450, rising to £550, with unfurnished quarters. There are twenty deputy medical officers, and nine whole-time and thirty-eight part-time medical officers. The number of vacancies is never large.

APPOINTMENTS UNDER THE COLONIAL OFFICE.

MEDICAL appointments are from time to time filled up by the Colonial Office in various Crown and other Colonies, and vacancies in the West African Medical Staff are of fairly frequent occurrence. As a rule, officers are required on appointment to undergo a three months' course of instruction at the London or Liverpool School of Tropical Medicine, and to obtain a certificate of proficiency before taking up their appointment. In addition to the ordinary medical appointments, vacancies also occasionally occur for which specialists are required—for example, to take charge of a lunatic asylum.

The nominal value of the appointments varies very considerably; but, as a general rule, it will be found on close examination that the rates of pay correspond in real value pretty closely when questions of climate, opportunities for private practice, the cost of living, and the actual work demanded are taken into consideration. The posts to which the lower salaries are attached commonly involve work which can be regarded as merely an adjunct to ordinary private practice, while high pay means either few opportunities for practice, an undesirable climate, or work of a special character demanding high administrative ability. Taken as a whole, all these appointments may be put down as offering their occupant the opportunity of gaining his livelihood, and possibly saving a little money, in a fashion which will test his abilities to the full. Pamphlets relating to the various appointments in its gift are published by the Colonial Office, and copies can be obtained on application by letter to the Assistant Private Secretary, the Colonial Office, Downing Street, S.W.

It may be added that, apart from the Government appointments mentioned, a large number of men find employment as medical officers of mining and other companies carrying on their operations in various parts of the tropics. Much caution should be exercised in accepting these appointments, and those to whom they are offered would find it worth while to read what was said on the subject in our issues for May 25th and August 24th, 1912.

Considerable increases have been made since 1914 in the salaries and allowances attaching to posts in the different grades of the West African Medical Staff. These improvements will, it is hoped, render these posts more attractive to the young and well-qualified medical men for whom they are intended. As a result of the war, however, the

Colonial Office has found it very difficult to obtain the services of medical men for any of the Colonies and Protectorates to which medical officers are appointed from this country.

MEDICAL MISSIONARIES.

To medical men suitably endowed the mission field seems to offer increasing opportunities for interesting work. We find that at the beginning of last year over 450 medical practitioners holding British degrees or diplomas were employed in different parts of the world by missionary societies, and the latter seem to stand in constant need of men and women to fill vacancies as they occur, and also to enable them to take advantage of fresh openings. It is not usually expected, or indeed considered desirable, that a medical missionary should take a position such as would otherwise be occupied by an ordained clergyman or minister. But it is essential that he should be willing to take his share of definite missionary work in any hospital in which he may be placed, and that he should be adequately prepared for this purpose. As for scientific and other qualifications for the work, a medical missionary, apart from being physically capable of sustaining what may prove to be a trying life, should be a thoroughly well trained physician and surgeon. It is very desirable that he should have held a resident appointment at a general hospital and have a good knowledge more particularly of practical surgery, tropical medicine, and the treatment of eye diseases. Societies from whom useful information on these subjects can be obtained are the London Medical Missionary Association, 49, Highbury New Park, N.W.; the Edinburgh Medical Missionary Association, 56, George Square, Edinburgh; and the Society for Promoting Christian Knowledge, Northumberland Avenue, S.W.

MEDICAL PRACTICE IN BRITISH COLONIES AND FOREIGN COUNTRIES.

MEDICAL Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are always admissible merely on payment of a fee, provided they produce evidence that they are of good repute and eligible for registration in the United Kingdom. The only exception to this statement that need be made relates to the Dominion of Canada. Until quite recently each of its provinces acted in medical connexions as an independent State, but in 1913 a Medical Act which established a State examination and a common register for the whole country came partly into operation. It could not come into complete operation until each province had amended its existing Medical Act so as to come into line with the new Act. This step is understood to have now been taken by all of them; but it is not clear how far the reciprocity with the United Kingdom previously accorded by all but Ontario and the three Western provinces has been affected. Consequently, any medical man proposing to practise in Canada should first communicate with the Registrar of the Medical Council of Canada, 130, Cooper Street, Ottawa, stating what degrees or diplomas he holds and the length of the curriculum he has undergone, and asking for information as to the precise steps he must take in order to obtain admission to the Dominion Register.

Italy, Egypt, and the Principality of Monaco are the only foreign States which accord a right to practise in virtue of British degrees and diplomas, though the authorities in Spain occasionally issue a temporary permit in favour of British practitioners, and those of Holland and Greece sometimes exempt British practitioners from portions of the examinations imposed on ordinary candidates for registration. In all other Continental countries a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. The same observation applies to all foreign States in the South American continent, while each of the United States of North America has its own laws and regulations; some of them admit any holder of a degree or diploma to their Register, but the majority require a candidate for registration to submit to an examination.

Dental Surgery.

THE profession of dentistry in this country is on the same footing as that of medicine; that is to say, only those who have complied with certain stipulations laid down by the General Medical Council have a legal right to practise dental surgery. This, unfortunately, by no means implies that the practice of dentistry is confined to legally qualified practitioners, for the Dental Acts offer even less protection to dental surgeons than do the Medical Acts to doctors. An ordinary medical man is within his legal rights if he practises dental surgery, but since owing to his lack of the necessary technical training he could not do so with success, dental surgery is in effect legally practised solely by men of two classes—those who hold a qualification both in dental surgery and in medicine and those who hold a qualification in dental surgery alone or have otherwise obtained admission to the *Dentists Register*. The early stages of the education of dental and medical students cover the same subjects, and it is both possible and advisable to combine the two educations.

In any case a prospective dental surgeon must obtain registration as a dental student (see p. 347) and thereafter pursue a curriculum which lasts a minimum of four years.

During the last two years, which must be spent at a medical school and hospital, concurrently with attendance at the dental hospital, in addition to studying anatomy and physiology, surgery and pathology, he will include in his work the more specific subjects—namely, dental anatomy and physiology, dental histology, dental surgery and pathology, and practical dental surgery, for all of which he must be "signed up" before entrance to the Final Examination for the Licence.

Recognized dental schools are numerous: in London there are those connected with the Royal Dental Hospital, Leicester Square; the National Dental Hospital, Great Portland Street; Guy's Hospital, and the London Hospital. In the Provinces and Scotland and Ireland there are those connected with the universities of Sheffield, Manchester, Liverpool, Leeds, Bristol, Durham, and Birmingham, and the Devon and Exeter Dental Hospital; the Edinburgh Incorporated Dental Hospital; the Glasgow Incorporated Dental Hospital; the Royal Infirmary, Glasgow; and the Dental Hospital of Ireland, Dublin. As for qualifications in dental surgery, these are almost equally numerous. There are considerable variations in the order in which different licensing bodies require various subjects to be taken up, and every prospective dental student should consequently study not only the regulations of the General Medical Council, but also those of the body whose licence or degree he hopes to obtain.

OPENING OF THE WINTER SESSION IN THE MEDICAL SCHOOLS.

INFORMATION received from the deans of the various medical schools in London shows that in most of them the winter session begins on October 2nd or 4th. Few ceremonies will mark the beginning of the session. Her Majesty the Queen has graciously consented to open the extension of the London School of Medicine for Women on October 2nd; and at the Middlesex Hospital Her Royal Highness Princess Alexander of Teck will distribute the prizes, and an address will be given by Surgeon-General M. W. H. Russell, Deputy Director-General A.M.S.

In the country the medical schools will begin their winter sessions on various dates between September 15th and October 16th.

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GAS GANGRENE AS SEEN AT THE CASUALTY CLEARING STATIONS.

BY

CUTHBERT WALLACE,

CONSULTING SURGEON TO THE EXPEDITIONARY FORCE IN FRANCE.

GAS GANGRENE is still a very striking feature in the surgery of this war. It has from its very frequency ceased to arouse very much wonder, and is, I think, a little in danger of being accepted as a necessary evil, and treated by routine measures.

Two very interesting papers have recently appeared by d'Este Emery and Kenneth Taylor.

d'Este Emery's views seem to be as follows: The toxin kills the leucocytes which are the natural protection of the body. To have a sufficient supply of these it is necessary that the circulation be intact. Therefore, tissue devitalized by trauma, by constriction of the limb, or by actual damage, will favour the disease. Why, however, does the disease not stop when healthy tissue is reached? The explanation lies in the fact that the toxin, when present in large amount, inhibits emigration and kills the leucocytes. If there is no free escape the toxin accumulates to such an extent that it soaks through into the healthy tissue and kills the defensive leucocyte, and so the gangrene spreads.

Taylor's view may be summarized as follows: The mechanical action of the pressure produced by the gas is usually, if not always, the most important part of the infection. It brings about the death of the tissues from (*a*) the resulting anaemia, (*b*) the actual mechanical fragmentation of the muscle substance, (*c*) the mechanical scattering of the infection. He shows in the earlier part of his paper that the experimental injection of the exotoxin produces softening of muscle and parenchymatous degeneration of the liver cells. His experiments *in vitro* show the same effect on pieces of muscle. He suggests that the rapid systemic intoxication is produced by the breaking down of the muscle substance, as injection of the exotoxin does not produce an effect comparable to that seen in the clinical course of the disease.

If these two theories of the disease are compared, it will be found that they differ mainly in the part played by the gas. Taylor thinks that it plays an important part; d'Este Emery denies this and believes that the bacteria toxins are the important factor. Taylor believes that the disease is mainly one of the muscles; d'Este Emery thinks that this is a mistake, and that it is only the fact of the bacteria being able to produce gas by the aid of the muscle sugar that leads to this assumption.

These views reflect two somewhat different conceptions of the disease, but it seems probable that both observers have some right on their sides.

I have thought that a statement of some of the features of the disease as it presents itself to me may be of interest. I will commence by quoting some cases that illustrate some points that I want to emphasize.

CASE I.

A soldier (under the care of Captain Anderson) was hit by a shell fragment which made a large wound involving the adductors and hamstrings and smashing the femur in the upper third.

The superficial and deep femorals were injured and had to be ligated. The wound, which was a large open one, was cleansed and drained in the ordinary way. The limb was fixed in a Thomas splint.

Within thirty-six hours the leg was dead but non-tympanitic, the thigh was tympanitic over all its circumference. It was still warm, as such infected limbs often are, about the seat of the actual injury. No crepitation could be obtained by palpation, but with a stethoscope distinct crackling could be detected on passive movement of the limb and on relaxing or increasing deep pressure; the stethoscope was applied over the vastus externus. The limb was removed through the fracture, but the patient died quietly in his sleep some twelve hours later.

Examination of the Ablated Limb.

The subcutaneous tissue appeared normally yellow in its fatty layer, and no gas could be demonstrated by pressure. The deeper layer immediately over the fascia lata was oedematous but not discoloured. On incising the fascia lata, which appeared normal, a similar oedematous condition of the areolar tissue over the vastus externus was observed. No gas could be demonstrated here. The vastus externus was normal in colour, and contracted in a lively manner when pinched or when cut with a knife.

The adductor longus was of a dirty brick-red colour, more opaque and less translucent than healthy muscle. It was non-contractile, and gave no sign of life when pinched. It was non-crepitant to the squeezing finger and cutting scalpel. The hamstring muscles were the same colour, non-contractile, and frankly gaseous and crepitant.

The areolar tissue was oedematous and infiltrated with blood, but not black.

Cultures were made from portions of the vastus externus and adductor longus by taking pieces from the heart of the muscle after searing the surface. Both, as reported by Captain Emrys Roberts, showed anaërobic bacteria.

Pieces of muscle taken from vastus externus, adductor longus and biceps were examined microscopically by Captain McNee, Captain E. Roberts, and Lieutenant Dunn.

1. *The Vastus Externus.*—The fibres were normal, and no bacteria were to be seen in the tissues.

2. *The Adductor Longus.*—The fibres had lost their transverse striation. The muscle substance was broken up in transverse plates or presented longitudinal markings, as if painted with a coarse brush. Between the fibres, which were obviously separated from one another, were bacteria in varying quantities in the interfibrillar spaces. There were some polymorphonuclear leucocytes.

3. *The Biceps.*—The appearances were similar to those seen in the adductor longus, but the separation of the fibres was more marked and there were more bacilli and leucocytes.

CASE II.

A man under the care of Major Cuff, who had been hit with a shell fragment in the middle of the leg. The anterior tibial was divided and was tied. (The man was also wounded in the liver and coeliotomy performed to stop the bleeding.)

About forty-eight hours after the receipt of the injury the leg became tympanitic and died. The skin of the thigh was crepitant and the gas in the crepitant area could be displaced by pressure in the same manner that surgical emphysema can be.

An incision in the crepitant area showed normal looking fat without oedema, and the knife drawn over the deep fascia gave the typical hollow sound. The subfascia connective tissue contained gas. A culture taken from this locality remained sterile.

The leg was taken off through the knee. The thigh never gave any sign of infection, although it was crepitant. A good recovery followed.

CASE III.

Pte. B. was wounded in the thigh with a shell fragment. The femoral was exposed in the wound. The thigh became tympanitic on the fourth day, and was treated with incisions, which arrested the gangrene. The foot died in the following night, and the leg was tympanitic in the morning. Exploration showed that the femoral had become thrombosed. The leg was amputated at the seat of election.

Examination of the Ablated Part.

It was drummy, but not crepitant. The anterior tibial muscle group was of a dirty red colour and non-contractile. The posterior tibial muscle group was brick-red, but non-crepitant. The calf group was contractile and purple. The fascial planes between the muscles appeared normal. The subcutaneous tissue in the cut surface of the amputated leg was oedematous and greenish, but contained no gas.

Cultures from the subcutaneous tissue and the purple contractile calf groups both gave *B. aërogenes capsulatus.*

CASE IV.

A man was wounded on the flexor aspect of the forearm. He exhibited all the signs of "gas infection." The hand was warm but anaesthetic. Incisions through the deep fascia arrested the disease, but the superficial flexors sloughed; otherwise the man made a good recovery.

CASE V.

A man was shot through the flexor aspect of the forearm. The bones were intact. He was admitted with a tense swollen forearm. The hand was cold and insensible and showed a line across the back of the hand suggesting that the outer half of the hand was about to mortify.

Incisions into the flexor aspect of the forearm and into the thenar eminences showed the superficial muscles and those of the thenar eminences in a state of "red death." Next day the hand was warm and the circulation returning. The improvement was of short duration and the hand and flexor muscles were ablated. The extensor muscles were uninfected. The man made a good recovery.

CASE VI.

A man was shot though the middle of the humeral biceps. He developed all the classical signs of gas gangrene. The medical officer in charge thought that amputation would be necessary. The surgical specialist (Captain Neligan), however, made a long incision over the muscle, and found that the muscle was dead and gaseous in the middle at the site of the wound. The two ends of the muscle were still normal in colour and contractile. The whole muscle was ablated.

There was some doubt as to the state of the triceps, but an incision through the fascia showed that this muscle was healthy and contractile.

CASE VII.

A patient hit in the buttock suddenly developed gas gangrene in this region. It was freely incised. Before death, which occurred within a few hours, the upper arm became crepitant to the finger, though there was no wound at all in this region.

CASE VIII.

The case quoted by Captains Mullally and McNee in the *Lancet*, April 1st, 1916, where gas gangrene appeared at the sites of subcutaneous injections.

CASE IX.

A case quoted by Lieutenant-Colonel Gordon Watson where the opposite thigh to that injured became distended with gas shortly before death.

CASE X.

Many cases in which, after amputation, one muscle is found in the stump dead and gaseous and separable from the others if the insertion or origin is divided.

CASE XI.

A man was shot through the popliteal space. The leg was cold and dead, but was not drummy or crepitant. Amputation through the knee was performed. The popliteal space was full of blood. There was a large hole in the artery.

Dissection of the ablated leg showed that the muscles were non-contractile but purple in appearance.

Microscopical sections showed the normal striation of the fibres, which were not separated from one another.

My own impressions of the disease as seen at the front and gathered from the cases above quoted, and many others, may be briefly stated as follows:

1.

It is rare to meet gas gangrene without a muscle injury.

2.

It is chiefly a disease of the muscles, and is rarely dangerous unless muscle is involved.

It occurs, it is true, in retroperitoneal haematoma, but here there are wounded muscles in which it can at first obtain a lodgement, and there is, in addition, the blood clot and the tissues devitalized by the extravasated blood in which it can spread.

It has been said that one of the most remarkable features about the *B. aërogenes capsulatus* is the fact that a bacillus usually but little pathogenic becomes suddenly extremely virulent. Barger and Dale have shown that an allied bacillus—the vibrio-septique—becomes at once extremely toxic when grown on muscle.

Cannot, then, the difference in the toxicity of the *B. aërogenes capsulatus* depend on the nature of the medium in which it is implanted? Will not this account for the difference in the clinical course of many gunshot injuries? If inoculated into subcutaneous or areolar tissue it finds difficulty in establishing itself, but if it gains entrance to muscle it finds itself in favourable surroundings and is enabled at once to produce such toxins as will quickly destroy its host.

3.

The lesion in its early stages may be described as a longitudinal one, running up and down the wounded muscles from the seat of the lesion (see Case VI). Muscles and groups of muscles are involved while others escape.

4.

It is rare to find all the muscles of a segment of a limb involved, save in a segment distal to one in which the main blood supply has been cut off. Thus the whole leg dies and becomes gaseous when the femoral artery has been blocked in the thigh.

5.

The muscles affected are in the first instance the wounded ones. If the pressure caused by the disease is relieved, the gangrene will most probably be confined to these muscles, but if the pressure is not relieved the other muscles may so have their blood supply checked as to fall victims to the infection.

6.

Muscles contained in rigid compartments, such as the anterior tibial group, are especially prone to die if wounded.

7.

There is but little tendency for the infection to pass from one muscle to another. This is well shown in amputation stumps, where one muscle dies and becomes gaseous, while the rest of the cut muscles remain healthy.

8.

The infection is further advanced in the muscles than in the intermuscular areolar planes.

In legs amputated for gas gangrene the only visible abnormality may be the brick-red colour of the dead muscles. So normal-looking may be the appearance of the cut surface of the limb that I have known people unacquainted with the peculiarities of the disease express unbelief in the infection of the limb until the bacilli were demonstrated in the non-contractile muscle. Again, the internal appearance of a limb affected with gas gangrene is quite different from that of such a disease as cellulitis of the neck, in which the areolar tissue is infected and the muscles normal.

9.

The muscles become resonant from the presence of gas long before they become crepitant to the finger, though this phenomenon may be perceptible at an early date by means of the stethoscope. This was pointed out to me by Captain Maybury.

10.

The presence of gaseous crepitation does not necessarily mean microbic infection (see Case II).

11.

Crepitation is usually a comparatively late phenomenon, and is due to the escape of gas into the areolar and subcutaneous tissue.

12.

In an infected limb a vascular lesion will be followed by the death of the muscle or muscle group, which death would not have followed in an uninfected limb. It is believed that the pressure produced by the gas so raises the tension in the limb as to finally arrest the circulation.

13.

In an infected limb there are several conditions of the muscles:

(*a*) Normal purple red contractile muscle, which may or may not be infected, as judged by cultural experiments.

(*b*) Dead, non-contractile, non-crepitant muscle, which has a peculiar red colour and is less translucent than normal muscle.

(*c*) Dead, non-contractile, crepitant muscle, which has the same appearance as the last.

(*d*) Brown, black, or diffluent muscle.

(Muscle dead from the cutting off of the blood supply is a purplish brown and its naked-eye appearance quite different from (*b*) and (*c*).)

14.

The microscopic appearances of muscle dead from cutting off its blood supply are different from those of a muscle dead from infection. The striation is present in the former and absent in the latter.

15.

The bacteria are between the muscle fibres and not in them.

16.

Microscopical examination suggests that the gas may find its way between the muscle fibres in front of the bacterial invasion.

17.

In dead infected muscles the fibres are separated from one another. This separation is more marked in muscles that are crepitant than in those that have not yet reached that stage.

Death of a Muscle with an Intact Blood Supply.

A muscle deprived of its usual blood supply, or with a restricted supply, falls an easy prey to the gas bacillus. Muscles with an intact blood supply seem liable to die, but the method of their death is not quite clear. Cultures show that normal-looking and contractile muscle may be infected. What proportion of such infected muscles would ultimately die if left untreated is not known. Nor is the way in which the infection spreads known.

Case VI shows that the infection and death spreads in both directions from the seat of injury, for in this case the centre of the muscle on both sides of the wound was dead, but the extremities were still living and contractile. Small bomb or shell wounds which would not affect the main blood supply may be followed by gas gangrene; and experience shows that if left untreated such infection will spread rapidly and compass the death of the wounded muscle. Incisions will save this spread of the gangrene. It seems, therefore, that pressure is a great factor, but whether it wholly acts by cutting off the blood supply or by allowing the gas to penetrate the muscle and produce an anaemia of the fibres, or by favouring the penetration of the yet living muscle by the toxins derived directly or indirectly from the bacilli, is yet undetermined.

In the first instance the infection is possibly due to the fact that the local damage affords a medium in which the bacteria can grow and multiply. The extension is brought about in two ways.

1. *The Toxins Produced by the Bacteria.*

One of the most striking things seen in microscopic sections of muscles dead of gas infection is the loss of striation and the breaking up of the muscle-fibre substance. These appearances are quite different from those seen in uninfected dead muscle. There must be some cause for this difference.

In some microscopic sections of an infected muscle all stages of the change can be seen from normal striated fibres to the totally disorganized. The appearances are seen in sections in which the bacteria are scanty or absent and in which the amount of the separation of the fibres—presumably by gas—varies in great degree.

The change in the muscle fibre may, therefore, be due either to some toxin produced directly or indirectly by the bacteria.

Both d'Este Emery and Taylor seem disposed to credit some action to this source. Taylor is of opinion that the bacterial exotoxin is not powerful enough to account for the constitutional symptoms, and suggests that these are due to toxin produced by disintegration of the muscle substance by the bacterial toxin. He does not suggest it, but it seems possible that the toxic muscle substance produced in the traumatized portion of the muscle may be carried into the more distal parts of the muscle and cause its death.

2. *Part Played by the Gas.*

This may be divided into two categories:

(*a*) The part it plays within the limb.
(*b*) The part it plays within the muscle.

One of the most striking and most important signs of gas infection is the tense and tympanitic state of the limb and the rapidity with which this condition is reached.

There is nothing but the rapid evolution of gas that could bring about such a condition in so short a time. An incision into such a limb shows that the increased tension is caused by the swelling of the muscle due to the gas within it. There may be gas in the areolar planes, but this is not usually the case to any great degree. It has been pointed out that a muscle may be dead and full of gas and yet not crepitant to the finger; if, therefore, crepitation is taken as the criterion of gas infection, a mistake may be made and a gaseous muscle passed as non-gaseous.

When the gas is present in the areolar tissue it follows the path of least resistance and finds its way along the intermuscular planes and around the vessels. It will disseminate itself into the subcutaneous tissue a considerable way from the wound.

It has been stated above that in a segment of a limb that has been wounded it is only the wounded muscles that yield to the infection in the first instance. The injured muscles will induce a deleterious effect on the uninjured one by raising the intrafascial pressure of the limb and thus causing pressure on the blood vessels and consequent checking of the circulation. Even if the areolar planes are grossly infected, they cannot influence the pressure in the limb, since the muscle sugar is necessary for the production of gas.

Taylor is of opinion that the pressure of gas within the muscle itself leads to disintegration of the muscle fibre substance. The pressure produced by the gas will in addition tend to drive the toxins into the circulation and thus be a factor in the production of the systemic poisoning and lowering of the resistive power of the body.

d'Este Emery, in combating Taylor's contention that the gas production plays an important part in the disease, says: "Gangrene may occur and the patient may die without the formation of any gas in the tissues." This statement is opposed to what is seen of the disease in the casualty clearing stations. The great sign on which reliance is placed is the swollen and tympanitic condition of the limb, usually preceded by constitutional symptoms. What can cause such sudden swelling unless it be gas? In such cases there is no crackling or crepitation to the finger palpating the skin. An examination of the muscles that have suffered the "red death" may even yet reveal no crepitation, but microscopic sections of such non-crepitant muscles show the fibres separated from one another, and the spaces often free from leucocytes and bacteria.

Men who die of the effects of gas gangrene in the casualty clearing stations die before there is any marked suppuration. It may be that the suppuration and involvement of the fascial planes are seen after the patients have left the front, being a later manifestation of the disease.

The Path of the Infection when an Unwounded Segment of a Limb from which the Blood Supply has been cut off becomes Infected.

When a muscle has been wounded the method of infection is obvious. The path of the infection is not so obvious when there is no wound. For instance, the leg below the knee will become infected when the femoral vessels are occluded, although there is no wound in the leg proper. There seem to be three possible avenues: (1) Direct extension; (2) extension along the blood vessels; (3) systemic infection.

1. *Direct Extension.*—The anatomical appearances do not favour this route. The only muscular tissue that crosses the knee is contained in the two heads of the gastrocnemius. It has been pointed out above that direct extension to an intact muscle is rare, and as a matter of fact the soleus and gastrocnemius are the last muscles to become infected and die. The appearance of the fascial planes does not suggest them as the path.

2. *Extension along the Blood Vessels.*—Possibly the infection travels inside the vessels, just before or after the circulation has ceased, the open ends of the vessels on the infected wound being the starting point. H. Dunn has found the *aërogenes* bacilli in the clotted vessels in the brain after a wound of the carotid artery.

3. *Systemic Infection.*—Mullally and McNee have pointed out that gas formation may take place at the sites of subcutaneous and saline injections, the slight trauma being sufficient to afford a resting place for the bacteria circulating in the blood. Case VII and Case IX, above quoted, point in the same direction. It is therefore possible that bacteria in the blood are implanted in the distal segment of the limb before the circulation is quite brought to a close. It may be that they first gain a footing in the muscles mostly affected by the cutting off of the main blood supply, and by the production of gas within them finally and completely arrest the blood stream.

CONCLUSIONS AS REGARDS TREATMENT.

(*a*)

The circulation should be helped in every way. It is unnecessary to insist on the bad effects of tight bandages and tourniquets—they are appreciated now by all. Tension in a limb due to blood effusion should be relieved, no matter how small the wound. Bleeding from a small branch may produce pressure on the main vessel, and even without this may cause such pressure as to embarrass the circulation. In cases where haemorrhage into a limb is continuing, there is no doubt as to the advisability of finding the bleeding point. If the artery is a main one an attempt should be made to suture, instead of to ligate, the vessel.

Suture also would seem to be worth trying when a main vessel is locally thrombosed from the effects of trauma. If there is difficulty in bringing the cut ends of the vessel into apposition a Tuffier's tube may be tried.

Injuries of the popliteal artery are so uniformly followed by gangrene, if the vessel is ligated, that every means should be tried to re-establish the lumen if only for a few hours

In the case of circumscribed arterial haematoma accompanying a small wound of the limb, time alone can show if an attempt to suture the artery is good. One should most probably be guided by the state of the circulation in the distal portion of the limb.

(*b*)

In dealing with gas gangrene in a wounded segment of a limb and deciding on the advisability of amputation, it should be borne in mind that it is usually only the wounded muscles that become gaseous and that incision or ablation of such muscles is often sufficient to arrest the disease and stop the infection (see Case VI)

In the case of the thigh the ablation of muscles may present difficulties, but in the leg this part of the limb can often be saved by the ablation of the anterior tibial group, and the same applies to the muscles of the forearm. The brick-red colour and the non-contractility will show at once which muscles are past saving.

(*c*)

When gas gangrene occurs in a segment of a limb distal to the segment wounded it nearly always means that the main artery is blocked, and amputation of the gangrenous segment is the only course.

(*d*)

The presence of crepitation in tissues apart from other signs is of no special importance. A limb should not be sacrificed on account of crepitant skin (see Case II). The state of the muscles and the number dead should be ascertained before amputation is performed, otherwise a limb or a very considerable portion of its length may be sacrificed unnecessarily.

The disease is the great bugbear of the surgeon at the front. It involves much labour and complicates the evacuation of the wounded. It occurs in all sorts of wounds, whether small or large, and with all sorts of projectiles. There is no wound, however insignificant, that one can feel happy about if not opened up. It is true that the disease is not so dangerous now as it used to be, because of the universal opening up of wounds, but the amount of trouble that it entails and the amount of disturbance that it is necessary to inflict on a grievously wounded patient makes one long for some remedy other than surgical interference.

THE DIRECT TRANSFUSION OF BLOOD:

*ITS VALUE IN HAEMORRHAGE AND SHOCK IN THE TREATMENT OF THE WOUNDED IN WAR.**

BY

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THE direct transfusion of human blood from one individual to another is an operation of great antiquity, but in the history of medicine it has never been as extensively employed as it is to-day. From time to time transfusion of blood has been abandoned, largely because of technical difficulties in its performance, but of late years, as the result of the introduction of more perfect and less complex methods, the operation has become much more generally employed. Its value as a therapeutic measure in the treatment of many pathological conditions has in recent years been established on a scientific basis. Thus it has proved of great service in the treatment of haemorrhage, shock, illuminating gas poisoning, and of more doubtful value in pernicious anaemia and certain toxaemias.

We will not review the observations which have been made in recent medical literature regarding the value of transfusion in the multitudinous conditions in which it has been used; we propose to restrict our observations to the value of direct transfusion of blood in the emergencies of military surgery. There may be some question as to its efficacy in many of the conditions in which it has been employed, but in haemorrhage and shock, more particularly in shock accompanied by haemorrhage, its value has been proved beyond a shadow of doubt. We may assert that we have no more efficient means at our command to save life in cases of severe haemorrhage than by the direct transfusion of human blood from one individual to another. This has been proved not only in traumatic haemorrhage (primary and secondary), but in haemorrhage from such conditions as gastric ulcer, typhoid ulcer, ruptured extra-uterine pregnancy, the haemorrhages of the newborn, and in haemophilia.

If we inquire into facts which are known regarding the effect of introducing human blood into the vascular system of an individual suffering from haemorrhage, we realize the difficulty and complexity of the problem involved in our effort to appreciate the full result of transfusion. As regards the transfused blood, we have no precise knowledge concerning the fate of the corpuscular elements, nor of the plasma. The possibility of the harmful effect of lysins or agglutinins in the blood of the donor or recipient has been feared, but this has been greatly exaggerated. A large amount of clinical evidence has accumulated to warrant us in assuming that no serious harm is to be anticipated from such sources. The laboratory tests for haemolysis and agglutination may be carried out if time and facilities permit, but they are not necessary and are by no means trustworthy. The laboratory findings in haemolysis, for example, have been found at times at variance with the actual results obtained in the living body. No fatal result from either haemolysis or agglutination has hitherto been reported.

The danger of the transmission of disease makes it essential we should inquire into the past record of the donor, particularly as to whether or not he has had syphilis.

Two results of transfusion stand out prominently and are unquestionably of enormous value in the treatment of haemorrhage. These are, first, it increases the power of coagulation of the blood, and second, it improves the local resistance of the tissues to infection. These facts have been recorded by a number of observers over a large series of cases and have been shown in the most striking fashion in the cases of secondary haemorrhage which we have personally treated by transfusion. If we stopped there and claimed no more for transfusion our contention in urging its employment in such cases would be justified. There are, however, other effects which are more difficult to analyse, and yet which we are warranted in believing are of great service. If we introduce, say, a litre of blood with all its constituent elements into the vascular system of an individual suffering from the direct effects of a severe haemorrhage, and if we have reason to believe the transfused blood takes on its normal function in the recipient, the ideal therapeutic measure has obviously been employed. This is admittedly a very complex problem, and we acknowledge our ground is not as sure in the matter of conclusive evidence as it is regarding the effect upon the coagulability of the blood and the increased resistance to infection. If, however, we employ all known tests after transfusion and find no evidence of haemolysis, we have strong ground for assuming that the donor's blood, in all its elements, circulates and functions in the recipient. If, for example, we find no evidence of haemoglobin in the urine, we certainly have no laking of the red cells in the circulating blood. The possibility of phagocytic destruction of red cells in the liver cannot so readily be disposed of, and we have no means of determining this factor. The blood count does not help us to any extent, because we find, for example, that if a litre of blood is transfused into a patient who is exsanguinated, the blood count is not necessarily altered in spite of the fact that the red cells are low in our patient at the time. Thus, recently a patient with a red count of 3,000,000 received a litre of blood from a donor with a red count of 5,000,000. Two hours subsequently the red cells in the recipient were still 3,000,000, but his colour was markedly improved and his blood pressure and pulse were maintained at normal. Obviously the introduction of the more concentrated blood resulted in an osmosis which quickly restored the former equilibrium and resulted in a dilution of the mixed blood now circulating. There was no evidence of haemolysis and the result of transfusion was to increase

* Read before the Salonica Medical Society, April 5th, 1916.

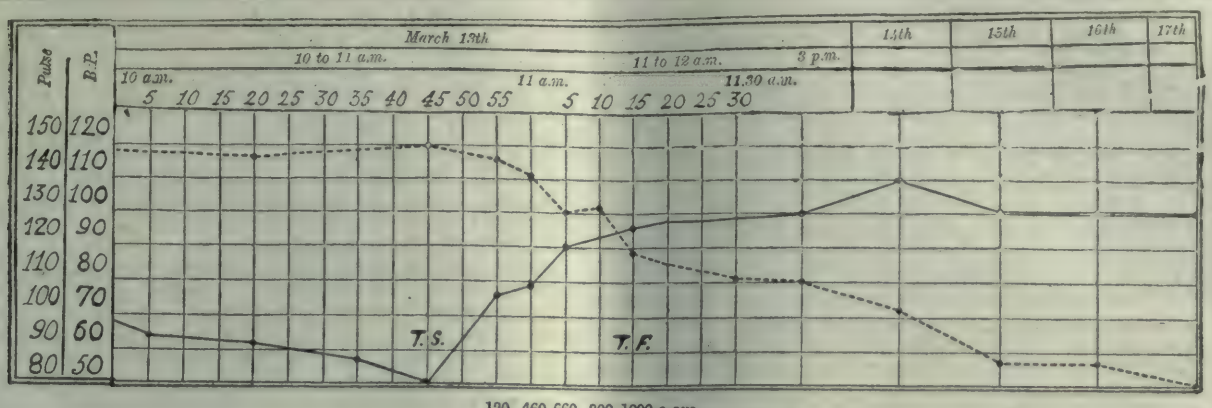


Chart indicating the rapidity of the pulse and the condition of the blood pressure before, during, and after the operation of transfusion in a man who was in a desperate condition from secondary haemorrhage. The details of the history of the case are recorded in the paper. Continuous line = blood pressure. Interrupted line = pulse rate. T.S. = beginning of transfusion. T.F. = end of transfusion.

probably by one-third or more the amount of blood circulating in his vascular system. The result was vast improvement in his general condition, with cessation of haemorrhage and rapid healing of his wound.

Illustrative Cases.

Cases illustrating the beneficial effect of the direct transfusion of human blood in haemorrhage have come under the observation of each of us. Unfortunately our clinical notes of cases occurring at home are not available for the record of complete details in this paper, but the main facts regarding two such may be cited. A lad, 16 years of age, had a deep cut, inflicted by an axe, in the calf of the leg. The wound suppurated and secondary haemorrhage from the posterior tibial artery occurred. He was sent to hospital and in the clinic the artery was tied high in the wound; haemorrhage recurring, the vessel was ligatured through a fresh incision at the lower end of the popliteal space. Subsequently the wound continued to suppurate, the pulse was rapid and thready, and he steadily lost ground. Direct transfusion of blood was undertaken; the lad's brother acted as donor and the operation was performed by means of Crile's cannulae, and a considerable amount of blood was transfused. Towards the end of the operation the lad spontaneously expressed himself as feeling better, his pulse was no longer rapid and the blood pressure improved. Subsequently the wound became healthy, no further haemorrhage occurred, and he made an uninterrupted recovery.

Another instance in the clinic of one of us was the case of a girl exsanguinated by repeated haemorrhages from a gastric ulcer. Her physician considered her condition most critical; she was blanched, with a rapid pulse, low blood pressure, and sighing respirations, with restlessness. After transfusion she immediately improved, and made an uninterrupted recovery, with no recurrence of haemorrhage. Several other instances might be quoted from our experience at home were our notes available. Two examples from our hospital in the field at Salonica may be noted in some detail.

Case I.

A corporal, aged 42, admitted to No. 4 Canadian General Hospital on December 17th, 1915, had been knocked down by a motor lorry, the wheel passing over his left thigh and left arm. There was a compound comminuted fracture of the upper third of the femur, and a compound fracture of the humerus above the insertion of the deltoid muscle. In both arm and thigh torn muscle protruded from the wounds, which were of a "bursting" character, and in the thigh, on palpation, the muscles seemed to be extensively torn away from their pelvic attachments. He had lost a great deal of blood, and was in a condition of profound shock. The fractured limbs were secured on splints, with as efficient reduction as his condition would permit. It was impossible to administer a general anaesthetic. Morphine was administered to relieve his pain and combat shock. He rallied somewhat, but remained for some days in a critical state in spite of the administration of normal saline solution.

On Christmas day (one week after admission) his condition seemed desperate and it was determined to transfuse human blood. A donor was easily found and we transfused 815 c.cm. of blood. The patient expressed himself as feeling better; he said he felt "warm," his pallid lips became red, and his condition of utter exhaustion gave place to one of comparative comfort. The pulse became slow, regular, and full. During the next few days improvement in his general condition was maintained. Unfortunately the record of the blood picture before transfusion has been mislaid, but subsequently the record is as follows:

Dec. 26th. Haemoglobin, 36 per cent.; red blood cells, 3,050,000.
Dec. 29th. Haemoglobin, 40 per cent.; red blood cells, 3,700,000.
Jan. 20th. Haemoglobin, 41 per cent.; red blood cells, 3,650,000.
Feb. 11th. Haemoglobin, 58 per cent.; red blood cells, 4,460,000.

The urine was tested for haemoglobin for a few days after the transfusion, with negative results.

This patient left hospital on a hospital ship in good condition; the fractures had united, but a sinus still persisted in the thigh.

Case II.

A second case treated by transfusion in the Canadian Hospital at Salonica was one in which haemorrhage threatened to prove fatal. Pte. H., aged 47, had been operated upon by one of our colleagues for haemorrhoids. The operation performed was excision and ligature. On the third day after the operation a considerable haemorrhage took place; this recurred on the fourth day when, under a general anaesthetic, the area of operation was examined and some additional sutures inserted. The wound looked sloughy and unhealthy. Normal saline solution was administered and the general condition improved and bleeding ceased.

On the fifth day haemorrhage once more occurred, and the patient's case became critical. He was blanched, with rapid pulse, sighing respirations, and exhibited restlessness. It was determined to transfuse him without delay, and he was transferred to the operating tent for that purpose. The pulse was 150 and blood pressure 50. While waiting for the final preparation of instruments, etc., his condition became so bad that we feared he would die ere we started the operation. His pulse was hardly perceptible and very rapid. We transfused 1,000 c.cm. of blood, with excellent immediate results. The actual operation lasted thirty minutes, and when completed the patient had a pulse of 116 and a blood pressure of 96. The improvement was more than maintained. On the following day the pulse was 100 and the blood pressure 110.

The accompanying chart gives a detailed record of the pulse and blood pressure not only before and after, but during the process of transfusion. It will be seen that the response was immediate.

A point worthy of note in this case is that not only did haemorrhage not recur, but the wound subsequent to transfusion took on healthy action and healed readily. On the other hand, while on a previous occasion the patient showed an immediate beneficial response to the action of normal saline solution, then the haemorrhage recurred and the wound remained unhealthy.

Subsequent to the transfusion of human blood in these two cases we tested the urine but found no haemoglobin. In neither case did we find any appreciable immediate increase in the red cell count. In the first case the record has already been given. In the second case the red cells before transfusion were 3,000,000, with 50 per cent. haemoglobin, and three days subsequently the record was practically unaltered, as it was also three hours after the operation. In both cases a normal blood picture was, however, slowly attained.

These cases sufficiently illustrate the beneficial effect of the direct transfusion of human blood. It may be added that no harm resulted to the donors from the withdrawal of such seemingly large quantities of blood. They complained of little or no discomfort, and were able to return to duty after a brief interval.

METHOD.

The apparatus used is very simple. The accompanying diagram illustrates it sufficiently well. A glass cannula is introduced into the median basilic vein and is attached to a 20 c.cm. glass syringe by an intervening piece of rubber tubing. One glass cannula is placed in the proximal end of the vein of the recipient and another in the distal end of that of the donor. There should be at hand, if possible, ten syringes. These are all sterilized by heat and are all coated internally with liquid paraffin. This is accomplished by first dipping the plunger of the syringe in the paraffin and then, after attaching the tube and cannula, the paraffin is drawn up

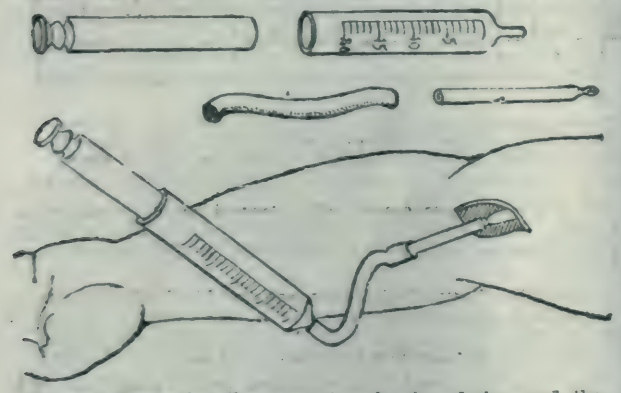


Diagram illustrating the apparatus for transfusion and the method of its employment as described in the text.

through the whole apparatus and expelled. An essential part of the procedure is to prevent any stagnation in the flow through the cannula during the operation. This is accomplished by using normal saline solution as a substitute for blood where a syringeful of blood is not available. Thus, for some reason the assistant who is drawing off blood from the donor may encounter some momentary cause of delay; under such conditions the surgeon takes a syringeful of normal saline solution, and by slowly pressing the piston of the syringe, keeps a current of fluid moving in the cannula of the recipient until such time as the syringeful of blood is available.

The uncoupling of the syringe is always made at its junction with the rubber tubing; pressure on the tubing between thumb and finger is sufficient to control the flow during the process.

A current of blood or normal saline solution is constantly kept up. The amount of normal saline solution thus introduced is negligible, as it is introduced very slowly. Conditions may arise where there is some delay which necessitates the similar use of normal saline solution in the case of the donor. Here, too, the current of flow must be constant. Another point of some importance which one learns by experience is that after about 500 c.cm. have been transfused it is advisable to employ syringes newly coated with paraffin, otherwise there is a tendency to clot. The operation may be carried out very rapidly and, in our experience, without difficulty. One great advantage over any method in which the donor and recipient are buckled together by cannulæ is that both individuals are free to move about, and are able to alter their position, or take a drink, etc., without interfering with the operation. Those who have tried both methods will realize the tremendous advantage in this, particularly if the recipient is very ill.

The apparatus we have described is not new. The principle of the syringe and cannula method was first brought to our attention by Captain L. Bruce Robertson, one of our colleagues in Toronto at the Hospital for Sick Children there. He had employed it in a considerable number of instances with most gratifying results in such cases as "haemorrhage in the newly born," and in haemophilia. Captain Robertson in turn obtained the idea from one of the New York clinics. Unfortunately we are unable to obtain the literature which would enable us to place the credit where it is due.

ITS VALUE IN MILITARY SURGERY.

The advantage of the direct transfusion of human blood in the cases of severe haemorrhage which we encounter in the emergencies of military surgery cannot, to our minds, be overestimated. In cases of secondary haemorrhage with sloughy wounds it is the ideal treatment, and has great advantages over normal saline solution. We know that the latter diminishes the coagulability of the blood while the former increases it. Further, the transfusion of human blood acts locally upon the wound, and induces healthy reaction there. Lastly, we have reason to believe that all the elements of transfused blood function in the recipient. If such be the case it is undoubtedly the ideal therapeutic measure in haemorrhage, and in cases where there is shock *plus* haemorrhage.

Recent articles show that haemorrhage is one of the main causes of the fatal issue in bullet wounds of the abdomen—most writers indeed placing it as the chief cause of death. If such cases live long enough to reach the operating table their chances of recovery would undoubtedly be vastly improved if transfusion of human blood were undertaken either while the operative procedure were in progress or immediately afterwards. The symptoms due to haemorrhage and shock will be lessened and immediate beneficial results will be obtained.

Our former colleague, Captain L. Bruce Robertson, has successfully demonstrated the value of the treatment in Northern France, where he has employed it in No. 2 Canadian Casualty Clearing Hospital. Unfortunately we cannot give details of his cases, but in private correspondence he asserts that the results obtained have been most gratifying. The apparatus is simple and could well be employed in hospital units near the front. Captain Robertson was prepared to carry it out in a field ambulance unit if necessary.

NOTE.—Since preparing this paper for the press we learn that Captain Robertson has published the details of seven cases successfully treated in France, in an article entitled "The Transfusion of Whole Blood: a Suggestion for its more Frequent Employment in War Surgery," in the BRITISH MEDICAL JOURNAL for July 8th, p. 38.

TRENCH FEVER: THE FIELD VOLE A POSSIBLE ORIGIN.

BY

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VARIOUS more or less unsatisfactory suggestions have been put forward in explanation of the occurrence of "trench fever" among the troops in the western front. It is the object of this note to suggest still another tentative theory as to the mode of origin of this quite definite condition.

It is now well known that a new disease, to which this name has been applied in default of a better, has appeared among the soldiers in the trenches, and also to a very much lesser extent among the medical personnel of the field ambulances through which the sick are evacuated. New troops occupying an old line of trenches remain healthy for the first four or five days or so, and it is only towards the end of that time—so far as my experience goes—that cases begin to turn up suffering from a fever which, as the experience of the regimental medical officer increases, can be recognized as being of this nature without delaying diagnosis until the temperature curve has been followed over a considerable period.

The question naturally presents itself when a new disease is encountered, Is there any other new condition or association of conditions existing with regard to those attacked by this disease, and, if so, is it possible to correlate it with the presence of the disorder in question? Looked at in this way, it is not difficult to assert that there is such a new condition of biological importance, this being the commensal association (if the term be permissible) with human beings of the long-tailed field vole, or field mouse, as it is commonly called.

The trenches along the western front have for some considerable time swarmed with rats and mice; they haunt the shelters with incredible boldness, while by night they scuffle and squeak in the roofs of the dug-outs, and run freely along the top of the trenches. Rats, as is common knowledge, are the disseminators of plague as well as of the less familiar sokodu, or rat-bite fever (so-called), besides being subject to the bacillus of pseudo-leprosy and acting as the source of trichiniasis by conveying

that infection to the pig, while some years ago the possibility was suggested that they might even act as a reservoir for the virus of rabies. Mice are not generally indicted as disseminators of anything worse than favus. The mice of the trenches, however, are not the ordinary house mice that have always lived in domestic association with humanity, but are mainly field mice of the species particularized zoologically as the long-tailed field vole, a creature which, it is well known, is subject to extensive epizootics of high mortality while living in a state of nature.

These field voles, like certain other creatures—the subarctic lemming, the sand grouse of Tibet, the clouded-yellow butterfly, and so on—seem to follow a vague periodic law of irregular waves of excessive multiplication, and on reaching the summit of their wave of increase they fall victims to the action of another vague law, whereby upon the specific population having exceeded a certain (unknown, but no doubt quite definite) figure to unit area, it adjusts itself with great suddenness, owing to the rise and rapid spread of some virulent infection, the progress of which offers many parallels to the incidence and spread of typhoid and other intestinal infections in the past in crowded camps of soldiers unprotected by appropriate inoculation, or in congregations of pilgrims in the East. The infective agents in these sudden epizootics do not all seem to have been traced, but in the case of guinea-pigs, bred in overcrowded hutches, it is probably the paratyphoid bacillus.

In the trenches field voles have been observed (as is only natural) lying dead in considerable numbers as the result of a gas attack, and the stray trench cats doubtless do something towards keeping down their numbers.* There is some reason to believe that weasels are on the increase in the neighbourhood of the trenches, and from a French source I understand that owls have been seen quarrying the ground near the firing line hunting for mice; but any checks on their increase have as yet been only temporary.†

Field mice have been blamed as the source of a disease now extinct, the sweating sickness or *sudor anglicus* of the Middle Ages, of which a small epidemic, however, is said to have broken out in the south-west of France in the early years of the present century; it seems reasonable to suggest, in view of what has gone before, that they may perhaps be the source from which the infection of this new "trench fever" is derived as well.

There are innumerable opportunities for the spread of infection from the rodents in the trenches, apart altogether from dissemination by their parasites. I have made no flea census of either the mice or the rats in the trenches,‡ but at present fleas give little or no trouble to the troops during their turns in the trenches, though body lice, and to a lesser extent crab-lice, do. The field mice (and the rats), however, run about over their food, get into the men's mess tins at night, and eat their way into the bags of provisions that come up as rations; I have caught a mouse in my own iron ration in its bag. In the food their habits are never of the most sanitary, and even where they do not obviously soil it they nibble here and there where it is not noticed, and rub their bodies over everything as they scramble about. I have even seen the leather lining of the brim of an officer's cap nibbled away by these trench mice (and since writing this they have attacked my own in the same way, and tunnelled a hole into my greatcoat as I lay wrapped up in it for warmth at night), and I have heard, at second hand, of a man's ear being bitten during his sleep; they nibble books and magazines, tear letters to shreds, and make their nests with the fragments; I have even caught them running off with latrine paper to furnish their happy homes. The chances of infection by organisms carried by the field voles in the trenches are endless.

It appears safe to predict that if the increase of these rodents, rats and voles alike, is not checked in some way or other, their rate of multiplication during the warm weather will result either in the excess of this four-footed population overflowing the districts adjacent to the line held by our troops and causing considerable damage to the crops as they migrate from what may be described as their "endemic centre"; or else in the development of a sudden epizootic of some virulent disease which will effectually keep down their numbers. In this latter case, if trench fever has anything to do with these creatures, the possibilities of human infection will, of course, be greatly increased.

* Human beings seem much more easily affected by chlorine gas than are other forms of life. After a German gas attack I have seen larks, swallows, sparrows and blow-flies in apparent undiminished numbers, while partridges were still present near the trenches. Dead rats lay stinking over the top of the parapets and breeding maggots, but all the rats were not killed, and plenty of field voles survived, being less affected than are the rats.

† The Danysz virus has been used to a certain extent against the rats in the trenches; phosphorus, strychnine, and arsenic are too dangerous to be made use of where there are so many human beings; ratting with dogs or ferrets has many obvious drawbacks, but it is said that powdered squills seem to offer some prospects of usefulness as a safe poison for trench rats if laid down well mixed with food. Traps and wire snares are comparatively useless; the rodents are too well fed to be tempted by the former; while humanity forbids the use of such means as cork chippings fried in suet, or the mixture of dry pea-flour with plaster of Paris. The buried pitfall for field mice that is said to act well at home—an empty jam-pot or pickle jar sunk into the ground so that its open mouth is flush with the surface, cannot be made use of in the trenches.

‡ Short-tailed field voles examined in May were infested with ticks.

A CASE OF ULCERATING GRANULOMA SUCCESSFULLY TREATED BY INTRAVENOUS INJECTIONS OF ANTIMONY.

BY

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ULCERATING granuloma, also called ulcerating granuloma of the pudenda, granuloma pudenda, sclerosing granuloma, granuloma venereum or granuloma inguinale, is a disease very rarely seen in England. In some parts of the tropics the condition is, however, far from rare, and causes serious ravages amongst the population. It is very common, for example, in British Guiana, Brazil, and other parts of South America, while it has also been reported from the West Coast of Africa, Australia, India (Madras), South China, and other places.

It is a true venereal disease—for example, is acquired by sexual connexion, but has nothing to do with syphilis or the other usual venereal diseases. The character of the lesions resembles in some ways the type of change seen in lupus or rodent ulcer, and the ulceration most frequently attacks the groins, pubis, and body of the penis in the male, and the labia majora and other parts of the vulva in the female. The glans penis is not so frequently attacked, perhaps, but, as the case to be described shows, does not entirely escape. Once started, the disease slowly progresses and new areas appear.

The lesions are auto-inoculable—for example, from the side of the scrotum to the contiguous thigh, or from one labium majus to the other in the female. The ulceration spreads concentrically, healing or a tendency to healing occurs in the centre, and is accompanied by scarring, resulting in dense fibrous tissue formation. Ultimately the whole of the sexual parts with the perineum and anus become involved, and horrible lesions are produced, which resist most forms of treatment, such as mercury and iodides, local escharotics, and cauterization. The only treatment hitherto found in any way effective has been by *x* rays, which has quite frequently been successful in cases seen in Madras. South American cases, however, have not done so well under its influence, though de Souza Araujo in Brazil reported as recently as 1915 a cure, and at the same time drew attention to the pioneer work of MacLeod and Sequeira in this connexion.

The disease is believed by some to be of protozoal nature; Donovan and Carter in India, Cleland, Strangman, and others in Australia, Wise in British Guiana, and Flu in Surinam, have all seen and described bodies of an apparently identical nature in the lesions. The true nature of these bodies and their zoological affinities are nevertheless still unknown.

The use of antimony in tropical medicine was first suggested by Mesnil and Nicolle for trypanosomiasis in 1906. Plimmer and Thomson followed this up by employing the potassium and sodium tartarate of antimony in rats infected with such parasites. Subcutaneous injections of this drug quickly cleared the parasites from the blood and

no very serious action appeared to be caused locally. So promising were these results that Sir Patrick Manson tried a similar treatment on some of his human cases in 1907, but the local reaction on the tissues was so severe that it had to be discontinued. He then gave it by the mouth. About this time Breden and Rodhain, and independently of them Leboeuf, tried intravenous injections of tartar emetic in natives of West Africa suffering from sleeping sickness. No bad effects followed and the improvement of the patients was rapid. Still later Kérandel, a French doctor, who had himself become infected with trypanosomiasis, adopted the same line of treatment with completely satisfactory results. Since that time intravenous injections of antimonium tartaratum have been constantly used in cases of human trypanosomiasis under the care of Sir Patrick Manson and Dr. Daniels at the Albert Dock Hospital, London School of Tropical Medicine.

Stimulated by these results, within recent years, different authors have employed antimony intravenously in the treatment of ulcerating granuloma, American leishmaniasis, Mediterranean and Indian kala-azar, and Oriental sore. To Aragao and Vianna, in Brazil in 1913, we are indebted for its use in the first named of these diseases. In one case they gave twenty-one injections as follows: First day 0.05 gram, second 0.08 gram, third to thirteenth 0.1 gram, fourteenth to seventeenth 0.08 gram, eighteenth to twenty-first 0.1 gram, or a total of about 1.8 grams. In another case, a woman, ten injections were given within a period of thirty days. Rapid healing of the lesions took place in both these cases, as in others, the results being permanent.

Terra and Rabello confirmed this work, using the same method of treatment for their cases. Intravenous injections of a solution of tartar emetic, dissolved in physiological saline, were given one every day at first, and then one on alternate days; after a few injections the ulcers began to show signs of healing, and completely disappeared after the fifteenth injection. According to their experiences tartar emetic is a specific for this disease.

Recently Mr. Cantlie asked one of us (G. C. L.) to see a peculiar case of ulceration on a man's penis, which had been treated with antisyphilitic remedies without effect. A knowledge of such cases acquired in British Guiana enabled it to be said that the condition was ulcerating granuloma, and Mr. Cantlie kindly consented to the patient's admission to the Albert Docks Hospital, London School of Tropical Medicine, for treatment by injections of antimony intravenously. Dr. Daniels saw the case before treatment was commenced and confirmed the diagnosis, and full advantage was taken of this chance of confirming Aragao and Vianna's South American work.

History of the Case.—The patient, a man aged 36, had served on the Gold Coast with usual leaves home since 1908; on the whole he had enjoyed good health there.

Previous Illnesses.—Pneumonia left lung 1914, ill six weeks; gonorrhœa 1915, malaria once, no dysentery; climatic buboes fifteen months ago; both groins operated upon; bubo in left groin when young. As far as he is aware has never had syphilis.

Present Illness.—In the beginning of 1916, when on the Gold Coast, he had a casual connexion with a black woman, about whom he knew nothing, never having seen her before nor since. Two days after this a small sore appeared on the under aspect of the glans penis beside the frenum. As this spread, and showed no signs of healing, it was treated with mercury perchloride washes. This did not do very much good, but four and a half months afterwards apparent healing had taken place. Six weeks later, however, when in England, another sore appeared just at the same place. A diagnosis of syphilis was made; three injections of salvarsan, and seventeen injections of mercury were given, but had not the slightest effect on the lesion. It progressed, and two other sores appeared, one on the point of the glans just below the meatus, the other on the skin of the body of the penis a short distance above the glans. Destruction of tissue in all of these was rapid, especially in the initial sore, which soon burrowed into the substance of the glans, and almost penetrated the urethra.

Condition on Admission, May 1st, 1916.—The patient was healthy looking; there was nothing abnormal in the heart, lungs, or abdomen. The liver was not enlarged, the spleen was perhaps slightly enlarged, but nothing of importance. There were old scars in the groins. The urine did not contain albumin, blood, or sugar. The skin was perfectly healthy, and there were no eruptions or spots.

Penis.—A deep crateriform ulcerated and eroded area, over half an inch in its longest diameter, was present on the under surface of the glans penis. This passed into the substance of the organ for a considerable depth, the edges being raw and irregular, with a semi-purulent to purulent discharge coming from the interior. The sore on the point of the penis was circular, ulcerated, but not to any great depth. The sore on the skin of the body of the organ was just commencing. It was oval, and quite typical of ulcerating granuloma. At this time the condition distinctly resembled a rodent ulcer, and, as a matter of fact, this diagnosis had been actually made. Epithelioma was also suggested, but the age of the patient and the history were against this. Former experience of the condition in British Guiana enabled us, as already stated, to diagnose the case correctly as ulcerating granuloma. Wassermann's reaction was negative. The treatment was begun on May 1st, 1 grain of antimonium tartaratum dissolved in 2 oz. of normal saline being injected intravenously on that day.* The patient fortunately had large veins, and the injections could therefore be given directly into the vein, dissection being unnecessary. By this method also the same vein has been used time after time for the different injections. The injections have always been well borne; no rise of temperature has followed them, and, apart from a general feeling of lassitude amounting to a definite seediness on the day of the injection, other symptoms have been negligible. Slight coughing, which so often follows these injections, was not observed in this case. The following table shows the number of injections given, with notes on the appearance of the lesions from time to time. From this it will be seen that the injections were given bi-weekly.

Date.	Dose of Ant. Tartaratum Injected Intravenously	Remarks.
1916.		
May 1	gr. 1	
,, 4	gr. 1	Condition looks a little better if anything.
,, 8	gr. 1½	Distinct improvement of sore on point of glans.
,, 11	gr. 1½	
,, 15	gr. 2	Both sores on glans healing now fast; one on body of penis cleaner, a tendency to healing.
,, 18	gr. 2	Sores about the same, tending to heal, but slowly.
,, 22	gr. 2½	Condition seems a little worse.
,, 25	gr. 2½	
,, 29	gr. 2½	Sore on body of penis in very good condition, that on the under-surface looks worse. That at meatus healing at one side, but poor at the other side.
June 1	gr. 2½	Sore on body healed, that at meatus much better, epithelium spreading in at side. That underneath also much better.
,, 5	gr. 2½	Progressing favourably, epithelium has spread further in, sore at meatus almost half covered; that underneath also much better.
,, 8	gr. 2½	Progress continuing.
,, 12	gr. 2½	Progress continues, but very slow.
,, 15	gr. 2½	Improvement more noticeable to-day after dry dressing.
,, 19	gr. 2½	Slight improvement since last time.
,, 22	gr. 2½	
,, 26	gr. 2½	
,, 29	gr. 2½	Practically cured, only two little places open now.
July 3	gr. 2½	Only one tiny place open at side of sore on under surface. That at meatus healed.
,, 6	gr. 2½	Place still open.
,, 10	—	Tiny spot size of pinhead.
,, 13	—	Same condition.
,, 18	—	Place still open, and looks a little inflamed round edge.
,, 20	gr. 2½	Place if anything a little larger, and looks as if it might spread. Begin injections again to-day.
,, 24	gr. 2½	Place looks better again—almost healed.
,, 27	gr. 2½	
,, 31	gr. 3½	Place completely healed now.
Aug. 3	gr. 2½	Place completely healed now.
,, 7	gr. 2½	Place completely healed now.
,, 17	—	Place completely healed now. No signs of breaking down.

An examination of the table shows that the case under discussion was an even more stubborn one than those described by Aragao and Vianna, for it was necessary to give 53½ grains in order to effect a complete cure. A halt was made at 43½, but as it looked as if the small unhealed place would break out again it was considered advisable to go on with the injections. Four other injections (10 grains) were therefore given, and complete cure resulted, but two additional injections were given as a precautionary measure.

As a result of the injections, then, the course and progress of the disease has been arrested; this bears out Aragao's and Vianna's observations in Brazil.

Since writing this paper a review of a thesis by Dr. de Souza Araujo has appeared in the BRITISH MEDICAL JOURNAL (July 29th, 1916, p. 146). In this it is stated that the author and his colleagues have used the method of intravenous injections of antimony in 25 cases of granuloma, with three relapses; two patients, old and grave cases, dying. Good results are also stated to have been

* Two oz. = 56.8 c.cm.—roughly, 60 c.cm.

obtained by means of *x* rays. We purposely did not employ *x* rays in our case as we wished to try the pure antimony treatment alone.

That the treatment by antimony alone may succeed is thus proved, and this is saying a great deal, as granuloma up to the present time has been a most intractable disease. In the present instance it meant much to the patient, as otherwise, apart from *x* rays, there was nothing left but amputation of the penis.

A judicious combination of *x* rays and antimony injections might be worthy of trial, and might shorten the length of the treatment, which is, of course, very prolonged, and requires a fairly long stay in a hospital. After it was seen that the injections did not cause the patient any great inconvenience, however, he was allowed up the day after the injection, and only took to bed again just before having the next.

It is, perhaps, too early to say yet that relapse may not occur in this case, but the places are so perfectly covered with new epithelium that it seems by no means likely. Workers in the tropics meeting with such cases should certainly try this new treatment, as much useless suffering can be saved, and distinct hopes of a cure can reasonably be held out, especially if the case is seen at an early stage of the disease.

LAMBLIA INFECTIONS IN MEN WHO HAVE NEVER BEEN OUT OF ENGLAND.

BY

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AND

J. R. MATTHEWS, M.A.EDIN.

IN view of the prevalent idea that infections of *Lamblia intestinalis* are associated with residence abroad, it may be of interest to record the occurrence of this flagellate in two soldiers who have never been out of England. These cases were discovered by us in the routine examination of stools conducted at the Liverpool School of Tropical Medicine.

CASE I was that of a non-commissioned officer who joined the army in August, 1914. Owing to gastric trouble he proved unfit for service abroad and had ultimately to be treated in hospital for gastric ulcer. While under treatment his stool was examined and was found to contain the cysts of *Lamblia intestinalis* in fair number. The patient had previously suffered slightly from diarrhoea. Before he joined the army he was a clerk and had never been out of England. We have been unable to follow this case further, as the patient has been discharged.

CASE II was that of a man called up to join the army on June 5th, 1916. He had six weeks' training and then entered hospital to be treated for diarrhoea. Before he joined the army he was a farmer in Shropshire and had never at any time been out of England. He suffered from diarrhoea at irregular intervals for twelve years. During the more acute attacks he passed four or five or even more stools daily. This diarrhoea was very liable to follow exposure to cold. His stool was found to contain on three successive occasions while he was in hospital many *Lamblia* cysts. This case is being kept under daily examination.

CASE III.—In addition to these two cases relating to soldiers, mention may here be made of the case of a sailor whose stool contained cysts of *Lamblia intestinalis*. As this man has only been out of England for two days, which were spent in Holland, he comes almost into the same category as the two previous cases. Before the war he was a fisherman in the North Sea, and it was during this period that he spent two days in Holland. At the outbreak of war he joined the navy, and was somewhere in the North Sea. He was sent from his ship into hospital suffering from cardiac and gastric trouble. Two examinations of his stools were made. In the first, *Lamblia* cysts were found in very large numbers along with a few free *Lamblia* flagellates. In the second, cysts were still very numerous, but no free flagellates were found. The man recovered from his ailment and was discharged from hospital so that we were unable to follow the case further.

The interest of these cases lies for us in the fact that certainly in the first two and almost certainly in the third the infection of *Lamblia* was contracted in England. As to the probable date and circumstances of the infection, and as to the possible or probable connexion of the *Lamblia* infection with the attacks of diarrhoea we do not make any observations, for on these points the facts at our disposal afford no evidence. It may be observed that it is almost impossible now, and will shortly become quite impossible, to offer any evidence as to whether *Lamblia* is indigenous in England. The presence of the very numerous cases of returned soldiers carrying *Lamblia* will make it impossible to state whether any future case is of native origin.*

We publish this note at the suggestion of Professor J. W. W. Stephens, whose interest in this work we take the opportunity of acknowledging.

A CASE OF INTRAUTERINE SCARLET FEVER.

BY

R. M. LIDDELL, M.B., CH.B.EDIN.,

AND

C. E. TANGYE, M.D.LOND., D.P.H.,

RUGBY.

DURING a recent small village outbreak of scarlet fever in the practice of one of us a case of rather unusual interest occurred under the following circumstances:

Four of the five children of Mrs. B. developed scarlet fever and were removed to the isolation hospital on May 26th. Mrs. B. was expecting to be confined at any time, and was therefore warned to keep away from the children as soon as the first suspicion arose as to the nature of their illness. No doubt, however, some contact took place prior to May 25th and especially whilst the children were in the incubation stage.

Mrs. B.'s child was born on June 6th, and after a thorough washing, which removed all traces of lanugo, was found to be desquamating freely over the whole of the trunk and limbs. The desquamation continued for several days, and the urine showed distinct traces of albumin. Apart from these two features, the child appeared perfectly healthy and is now quite normal. These features were so typical that we agreed on the desirability of notification of the case as one of scarlet fever.

Mrs. B. had been rather unwell during the last week or so of her pregnancy, and complained of a "burning pain inside." She had no sore throat or rash, and her temperature was normal. She is positive that she had a severe attack of scarlet fever when about 10 years old, and describes the desquamating stage vividly.

It would seem that the fetus was infected *in utero* some time prior to May 26th, but that the mother escaped infection through the protection of her previous attack. Presuming the fetus to have been infected from the children of the family, the period elapsing between the infection and the peeling stage must have been only about a fortnight. But as other cases of scarlet fever were present in the village previously with whom the mother may have had direct or indirect contact, one cannot definitely conclude that the course of the disease in the fetus was unusually short.

There does not appear to be a great deal of literature on intrauterine scarlet fever. Galabin states that it has been inferred that the disease may be conveyed to the fetus *in utero* because the child, at or shortly after birth, has sometimes shown desquamation of the skin or other sequelae of the disease.

Goodall says that it is extremely doubtful whether infants have been born suffering from the disease, but they may become affected within a few days or weeks of birth.

Osler's statement that sucklings are rarely attacked is borne out by our common experience. It is a usual practice when a nursing mother contracts scarlet fever and cannot be properly isolated at home, to send mother and infant to hospital. No infant so admitted locally has contracted the disease.

Whilst the rarity of the condition may be somewhat against the diagnosis in this particular case, the clinical facts were so striking that it seemed to us worthy of note.

* Fuller particulars of these and other cases of interest occurring in our investigations will be published later in the *Annals of Tropical Medicine and Parasitology*.

THE California State Board of Health is conducting, in co-operation with the University of California, a malaria mosquito survey under the supervision of Professor W. B. Herms, Consulting Parasitologist to the State Board. The work began on May 10th, and was continued through the summer. Probably three summers will be required for a complete survey of the State. Thus far endemic malaria has been found at a maximum elevation of 5,500 ft., and anopheline carriers have been located. Two or three new species of mosquitos have been found.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE NEED OF A VISION TEST FOR DRIVERS.

THE need for a systematic examination of the vision of drivers of motor cars and horse-drawn carts has been deeply impressed on me while doing duty as ophthalmic specialist to the South London Recruiting Board. At the present time any person, no matter how defective his vision, can obtain a licence to drive a private or trade motor car; there is no vision test made. Without examination, any person may drive a horse drawn vehicle through busy thoroughfares. Taxi-cab drivers have to pass a sight test on first obtaining their licences, but there is no periodic re-examination.

To illustrate the necessity of introducing some form of test, and incidentally to point out the very defective vision of some drivers, I will quote a few of the cases that have come under my observation:

CASE I.—V. T. T., a taxi-cab driver. Vision is $\frac{6}{9}$ in each eye, and the vision cannot be improved with glasses. The corneae are nebulous, and there is old and extensive disseminated choroiditis. Three years ago he obtained his licence at a garage. He was employed there, but was discharged after a month or two because of defective vision. He still drives a taxi-cab.

CASE II.—G. T., a taxi-cab driver, obtained his licence four years ago. Since then he has had several attacks of iritis in the right eye. As a result of occlusion of the pupil, the vision of this eye is reduced to counting fingers at 2 feet. He is still driving.

CASE III.—B. J. T., a coachman, has never worn glasses. He is myopic to the extent of −12 D. There is marked choroidal atrophy, with pigmentary degenerative changes at the macula. An important point in this case is the marked increase of the light minimum sense. This is a common occurrence in cases of higher degrees of myopia. As a result, these people see badly at night. This man has had several accidents while driving.

CASE IV.—H. B. drives a fast-going cart. Vision is $\frac{6}{9}$ in each eye. The right eye can be brought up to $\frac{6}{6}$ with suitable glasses. As a result of old iridocyclitis there is seclusion and occlusion of both pupils, with a secondary cataract in the left eye.

CASE V.—G. G. drives a single-horsed four-wheeled cart. Vision, $\frac{6}{9}$ right, $\frac{6}{36}$ left. There is right internal squint, and fixation is lost in this eye. There is old extensive peripheral choroiditis in this eye. Seven months ago, while crossing a main road, he did not see a tramcar approaching from his right. The tram broke up the cart, but no one was injured.

CASE VI.—H. S. drives a slow-going one-horse cart. He, slowly and with great difficulty, reads $\frac{6}{9}$ right and $\frac{6}{18}$ left. There is nystagmus in all directions of gaze, and the optic nerves are the seat of secondary atrophy. Two years ago a tramcar ran into his cart. The cart was smashed up and the man was in hospital for four months.

CASE VII.—J. S. drives a single horse cart. Vision $\frac{6}{9}$ in each eye. Right vision cannot be improved; there is detachment of the retina. The left can be improved to $\frac{6}{6}$ with −12 D sphere, and in this eye there is marked choroidal changes, and a very large posterior staphyloma. He complains of inability to see at night, and the light minimum sense is markedly increased. Last year, one night at dusk, he collided with a tramcar. Three months ago a man fell from a tram; the patient's story is that he did not have time to pull up his horse. The result was that the man was killed.

There is no need to multiply cases, but I have notes of many others. The foregoing will show how defective is the vision of some men engaged in driving, and throws an interesting sidelight on a possible cause of street accidents. It seems very necessary that all persons engaged in driving should at least once a year be submitted to a vision test, and this applies equally to men driving slow going carts, for there is about as much danger in the mixed traffic of city streets from men with defective vision driving slow as fast travelling vehicles.

JAMES MCHARDY, Captain R.A.M.C.(T.),
Ophthalmic Specialist, South London Recruiting Board;
Hon. Assistant Surgeon, Royal Eye Hospital, S.E.

MR. ADOLPHUS CHURCHILL, of the firm of medical publishers, J. and A. Churchill, left estate valued at £47,152.

AFTER an agitation of twenty-five years the College of Physicians and Surgeons, Columbia University, New York, not long ago consented to admit women students. Now it is announced that Dr. Rosalie Slaughter Morton has been appointed attending surgeon at the Vanderbilt Clinic, and Dr. Vera Dantschakoff instructor in anatomy.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

Clinical Meeting.

A MEETING of the Bombay Branch was held at the Jamsetji Jeejeebhoy Hospital on June 29th, when Lieutenant-Colonel ASHTON STREET, I.M.S., occupied the chair. There were twenty members and visitors present. Dr. C. FERNANDES showed a case of lichen planus, and demonstrated the points of difference between that disease and syphilis, for which it is always mistaken. Lieutenant-Colonel ASHTON STREET, I.M.S., showed a patient with very large and severe glandular enlargements in the neck, with a small melanotic sarcoma in the inside of the mouth over the left superior maxilla. He also showed a boy whose cystic kidney he had successfully removed, and the specimen. He also showed a twig of the Babul tree, used by Indians as toothbrush, accidentally swallowed by a man from Kathiawar, and successfully removed after opening the stomach. Major E. F. GORDON TUCKER, I.M.S., showed the thorax and uterus and its appendages of an extreme case of osteomalacia. Dr. A. POWELL showed specimens of double ruptured aneurysms of the ventricle, and of ruptured aneurysms of the ductus arteriosus and of the arch of the aorta. Dr. S. R. KOTHARE showed a splint useful for compound fracture of the leg and foot. Dr. J. R. JAGOSE showed some interesting skiagrams on behalf of Dr. S. B. Nayak.

Reviews.

STUDIES IN BLOOD PRESSURE.

THE untimely death of Dr. GEORGE OLIVER prevented him from carrying to completion the third edition of his *Studies in Blood Pressure*.[1] The greater portion of it, however, was found to be ready for the printer and to have been entirely rewritten.

At the request of his widow the preparation of the new edition was placed in the hands of Professor W. D. HALLIBURTON, who has carried out the work as "a true labour of affection and respect," leaving the new and greater part in the same form as it was left by the writer, and supplementing the volume by reprinting from the 1908 edition such parts as were wanting to make the whole subject complete.

The book is prefaced by a short obituary note, and by the reprint in full of an article published in a contemporary journal in January, 1916, in which the present position of sphygmomanometry is fully set forth and its value as a guide to diagnosis and treatment critically examined. The question is often asked as to the practical outcome of mechanical observations on the circulatory apparatus. The article in question supplies the answer in full. Much has undoubtedly been achieved, and, although still more remains behind, the genius of Dr. Oliver will always be recognized as having shown the way by which such knowledge may be acquired and demonstrated. In the present series of *Studies* he does more than justice to the labours of other observers of all nationalities, and in some respects the loyal desire to present all sides of the question may leave the reader in doubt as to the conclusion to be drawn. All users of the sphygmomanometer in ordinary clinical practice must have been occasionally puzzled by widely varying results under similar, or apparently similar, conditions. The earlier chapters of the book are devoted to the consideration of the fundamental data upon which clinical observations must be founded, and a clear comprehension of these must be essential to the intelligent use of the instrument.

Of the many different influences that may be combined to affect arterial pressure, by far the most important from the clinical point of view are the bio-chemical substances

[1] *Studies in Blood Pressure, Physiological and Clinical.* By George Oliver, M.D.Lond., F.R.C.P. Edited by W. D. Halliburton, M.D., F.R.S. Third edition. London: H. K. Lewis and Co., Limited. 1916. (Demy 8vo, pp. 263; 10 figures. 7s. 6d. net.)

formed within the body that have now been proved to exercise a definite influence over the circulatory apparatus. Of these adrenalin is the most prominent, but the action of pituitrin and of the products of putrefaction within the intestinal tract have to be taken into account. A direct connexion between the presence of these and vascular hypertension has not as yet been satisfactorily proved, but experimental evidence is gradually accumulating upon this point. The fact that in almost all cases of hypertension there has been found a greater or lesser degree of kidney change is indisputable, but the relation between the two and its mode of production still continue to be matters of controversy. It is known that adrenalin may pass from the suprarenal medulla to the kidney, and hence those organs are supplied with a larger proportion of it than other parts of the body. Clamping of the adrenal vein was found to arrest the flow of urine, the adrenalin being thereby diverted in excess to the kidney. Dr. Oliver expressed his own impression that the output of adrenalin might exercise a definite influence on the incidence of high tension and that the circulatory disturbances associated with emotional conditions might be due to variations in the amount produced. Hypertension obviously precedes any visible changes in the kidney substance, but it is suggested that other substances, as yet unidentified, may be at work to produce this result. Hypotension, on the other hand, may occur under certain conditions, even in the presence of renal sclerosis.

A full account of the difficulties which may be encountered in reading and interpreting the indications of the sphygmomanometer is followed by a short but important summary of the sources of fallacy. The application of manometric observations under various conditions of disease and its uses in treatment are presented in the same form as in the second edition, with a few notes and additions by the editor and by Dr. Alfred Mantle of Harrogate.

Among the many ingenious instruments devised by Dr. Oliver for the observation and record of circulatory phenomena, the sphygmomanometer holds a prominent place, but the inventor himself would not claim for it any higher value than as an adjunct to personal observation. Throughout the whole work there are many indications of uncertainty both as to methods and results, and it is only when numerous observations tell the same tale that definite conclusions are warranted. The recognition of high tension in its earlier stages has already proved its value in many pathological conditions. Its presence and degree can be far more accurately gauged by the instrument than by the unaided finger, and, although the variations and uncertainties may at present prove too numerous to enable the method to be of direct practical use to the busy practitioner, there can be no doubt that in time to come the sphygmomanometer will take its place as a routine clinical instrument.

MIXED INFECTION IN TYPHOID FEVER.

TYPHOID or enteric fever is one of the acute specific infections in which relapse or rapid recurrence of the disease is particularly common, being met with in perhaps 10 per cent. of the cases. The old-fashioned view of such relapses would be that a reinfection of the patient's alimentary tract with the original infecting agents had, by some mischance, taken place. Alternatively, it might have been held that the second attack was due to the fact that the patient's resisting powers had not been adequately enhanced by the first attack of the disease, with the result that the microbes already present in the alimentary tract or its immediate neighbourhood were able to reinfect the patient and bring on the relapse or second attack. Quite a different view of the occurrence of relapse in typhoid fever is advanced[2] by Dr. GRIMBERG in a work based on the observation of 160 typhoid patients in Paris hospitals. As everybody knows, typhoid fever is closely simulated by paratyphoid fever, of which there are two varieties, speaking bacteriologically—namely, paratyphoid A and paratyphoid B. Dr. Grimberg has been led to conclude that in many cases clinically described as typhoid fever with relapse the infection is in reality mixed, and due to *Bacillus paratyphosus* A or B as well as to *Bacillus typhosus*. He believes that in such patients the invasion of the patient's organism is progressive, as if one of the bacterial varieties present prepared the ground for the subsequent attack by another of the bacteria. In other words, the patient has an initial attack of, say, true typhoid fever due to *B. typhosus;* the relapse or recurrence that follows is often due to an attack of paratyphoid fever. Similarly in cases of paratyphoid fever a relapse may be due to a secondary invasion by the true typhoid bacillus. Such secondary infections Dr. Grimberg characterizes as pseudo-relapses or pseudo-recurrences.

The evidence on which he bases these interesting views is twofold. In part it depends on repeated quantitative examinations of the agglutinating powers of the patients' serum for the three bacterial varieties mentioned. If, for example, a patient has an attack of paratyphoid B fever with a relapse, and the agglutinating power of the patient's serum for *B. paratyphosus* B falls steadily after the initial attack and during the relapse, while the agglutinating power for *B. typhosus* rises considerably during the relapse, Dr. Grimberg concludes that the relapse was in reality a pseudo-relapse, a secondary attack of typhoid following soon after a primary attack of paratyphoid B fever. His second line of evidence depends on particular methods of cultivation of the patient's blood, the object being to make sure by a special technique that apparently pure blood cultures of, say, the typhoid bacillus do not in fact contain *B. paratyphosus* A or B, or both, in addition. One practical conclusion drawn from his work is this—that a mixed vaccine should always be employed in antityphoid inoculation. Dr. Grimberg's paper is full of views, facts, and figures, and his conclusions seem to merit the attention of clinicians and pathologists alike.

DISEASES OF CHILDREN.

THE twenty-seventh annual meeting of the American Pediatric Society was held at Lakewood, N.J., in 1915. A number of interesting papers and reports were read to the members of the society, and are published in the yearly volume of its *Transactions*.[3] The President, Dr. G. N. Acker, in his opening address gave an instructive account of the light thrown on the problems of infantile disease and mortality by the work of the Children's Bureau of the Department of Labor, a governmental establishment. The result of the investigations of the bureau in Johnstown, Pa., was to show that the infant mortality (presumably during the first year of life) was as high as 271 per 1,000 in the poorest and most insanitary section of the town; it was at a rate of 256 where the earnings of the father were less than 10 dols. a week, at a rate of only 84 where the earnings were above 25 dols. a week. In houses where the water had to be carried in the death-rate was 198, as compared with 118 where the houses had their own water supply by pipes. The Census Bureau estimates that at least 300,000 babies die annually in the United States of America, and that one-third of the children born die by the age of 15. Dr. Acker considers that this high mortality is capable of almost indefinite reduction, and discusses the best means for effecting this. He holds that hitherto "too much attention has been devoted to an attempt to destroy infectious material at the expense of a building up of individual resistance by good food and proper hygiene." He proposes a number of remedies, excellent for the individual child no doubt, but less excellent for the parents, the family, and society in general. These remedies include the supply of meals at nominal prices in schools, the forcible and legalized removal of children from the homes of parents with tuberculosis, and the standardization of infant feeding—a subject now in a chaotic condition. Most of the thirty-four papers and reports read to the society were of the clinical type, dealing with problems of infant feeding, the use of the *x* rays in diagnosis, the alleged connexion between chorea and syphilis (of which Dr. Koplik can find no evidence), and with rare or specially interesting cases; a few of the papers were of what may be called the laboratory type. The *Transactions* afford much interesting reading, and give abundant evidence of the activity of the American Pediatric Society.

[2] *Les typhoïdes intriquées : Pseudorechutes—Pseudorecidives.* Par le Dr. Arthur Grimberg. Paris: Imprimerie de la Cour d'Appel, L. Marotheux, Directeur. 1916. (Roy. 8vo, pp. 64; illustrated.)

[3] *Transactions of the American Pediatric Society.* Edited by L. E. La Fétra, M.D. Vol. xxvii. Chicago: American Medical Association Press. 1915. (Med. 8vo, pp. 380; illustrated.)

Dr. G. F. STILL's well known textbook on the *Common Disorders and Diseases of Childhood*[4] has now reached its third edition. It has been brought up to date by such alterations in the prescriptions as have been demanded by the new (1914) edition of the *British Pharmacopoeia*. A chapter on coeliac disease has been added. Dr. Still has seen 24 cases of this rare anomaly. The book shows numerous other and less important additions. It is full of facts, figures, and illustrative cases, and covers a vast amount of ground with great thoroughness. It may be cordially recommended to medical students and practitioners who want a trustworthy practical book on the subject with which it deals.

Vol. vii of the American translation of the massive German textbook on the *Diseases of Children*[5] deals with diseases of the eye and disorders of speech. Needless to say, these subjects are here treated at full length, not to say exhaustively, with the use of large print, wide margins, and thick paper, as in the previous six volumes of this edition. The illustrations, many of them highly coloured, are in general excellent; the so-called "genuine optic atrophy" of Plate XIV should surely have been described as "primary" rather than "genuine." For those who have ample bookshelves and wish for the fullest accounts of children's diseases irrespective of their frequency and clinical importance, this translation should prove highly satisfying.

Children's Nursing,[6] by C. SEYMOUR YAPP, can be heartily recommended with regard both to the nursing and the general management of sick children. We have nowhere seen more useful hints for the help of the private nurse, but the insertion of pages of advertisement into the substance of the book is to be condemned.

SIR PETER EADE.

SIR PETER EADE, who died a year ago at the ripe age of 90, left behind him an autobiography, or rather the materials for an autobiography, which have been piously edited by Dr. SYDNEY LONG, and are now published in a volume of some size.[7] Not a clever man, but an eminently capable man, Peter Eade, the third of the name in lineal succession, contrived to turn to good purpose every ounce of the qualities he possessed, and to attain a success far greater than has been attained by many a cleverer man. He gauged his own qualities exactly. He knew exactly what he could do and what he could not. He never attempted a task beyond his strength, and consequently he never failed in anything he undertook. Of small stature and slight physique, he had yet a splendid constitution. He was never ill. He had great power of work, great industry, and strong common sense. Add to this that he was a most upright, honourable, kind-hearted, charitable, generous, and wide-minded man, and we can understand the confidence reposed in his judgement and in his integrity, the popularity that he attained, and the success that he achieved. His interests were numerous and diverse, and few men have lived fuller lives or contrived to extract out of life more satisfaction. Not that his activity was selfish. Few men have been more public spirited or devoted more time and thought and work to the service of the public. His life was satisfying because he had many interests and was able to pursue them all.

He had a leading consulting practice in the very extensive district of which Norwich is the centre, and since he there times lost heavily by the failure of banks, but yet always lived in good style, and entertained lavishly, his practice must have been large enough to occupy pretty well the whole time of a man of ordinary industry; but to read his autobiography, or to have known the man, it would seem that his practice was little more than an incident in his life. There was probably not a public institution or undertaking in Norwich with which he was not connected. Guardian of the poor, town councillor, alderman, mayor (three times), sheriff, director of the Norwich Union Insurance, director of the Accident Assurance, founder of the temperance society, governor of the hospital and of the convalescent home for children, director of the Public Café Company, chairman of the Library Committee, chairman of the Museum Committee, the list of all his offices would be too long to give here, and in none of them was he a perfunctory official. He left his mark upon every one of them. He was the first man in Norwich to stir in securing open spaces, and it was on his initiative, and largely by his efforts, that Mouschold (Mussold) Heath was secured for the city of Norwich. It was he who led the local forces in the matter of Sir Thomas Browne's statue. It was in one of his mayoralties that the old castle of Norwich was acquired by the liberality of Mr. John Gurney and entrusted to the corporation, which converted it into a museum, or rather, removed the contents of the old museum thither.

Even in so hospitable a city as Norwich, Sir Peter Eade's hospitality was notable and exceptional. In addition to his private hospitality, which was great, he celebrated the holding of all his offices by dinners given to his colleagues, his officers, and to every one who could be colourably held to have a connexion with the corporation, or the museum, or the library, or whatever the institution might be. Every visit of a congress or society, or association, whether the British, or the British Medical, or the Institute of Journalists, or the Church Congress, or the Trade Union Congress, was an opportunity for dinners, or conversaziones, or some form of hospitality. Once a year he entertained seven or eight hundred old people to supper, and he was always contriving some scheme of public or private benevolence.

The editor of his autobiography laments that Eade left behind him scarcely any record of the many interesting people that he met, and the many interesting conversations that he had with them, and we must add our own to the editor's lamentation, and lament also that we hear so little of Eade's early professional years in the time before chloroform. It is doubtful whether there was any other person living last year who had seen a man punished in the stocks, or who remembered rushlights as the common illuminant for kitchen use, the flint and steel as the only means of lighting, or who had collected from his own garden the poppy, hemlock, and henbane wherewith to make the pharmaceutical preparations he employed in his own practice.

The book is well edited and well printed, and is a worthy record of a typical English worthy.

NOTES ON BOOKS.

THE seventeenth edition of that well-known friend of the house-surgeon and dresser, CAIRD and CATHCART's *Surgical Handbook*,[8] has followed the sixteenth at an interval of two years. With the exception that it contains two pages on the subject of antiseptics in time of war, the new edition resembles its immediate predecessor, which received notice in the BRITISH MEDICAL JOURNAL of September 19th, 1914. The book is deservedly a favourite, and enjoys a well-merited reputation. Many of its readers will perhaps wonder at the peculiar spelling ("phymosis") of the word phimosis adopted by the authors (p. 121). Phimosis is derived from the Greek word φιμός, a muzzle. We cannot find any justification for the spelling "phymosis."

It is two and a half years since we published a review of Mr. J. F. BINNIE'S *Operative Surgery*, then in its sixth edition. The seventh edition[9] is 100 pages longer than its immediate predecessor, and contains 160 more illustrations. There are new chapters on cardiac surgery and on retroperitoneal neoplasms; a touch of local colour, happily

[4] *Common Disorders and Diseases of Childhood.* By G. F. Still, M.A., M.D. Cantab., F.R.C.P. Lond. Third edition. Oxford Medical Publications. London: H. Frowde, Hodder and Stoughton. 1915. (Demy 8vo, pp. 644. 4 figures. 10s. net.)

[5] *The Diseases of Children: A Work for the Practising Physician.* Vol. vii. Edited by Dr. M. Pfaundler and Dr. A. Schlossmann. English translation edited by H. L. K. Shaw, M.D., and L. Im Thurn, M.D.; with an Introduction by J. Lionel Taylor, M.D. Philadelphia and London: J. B. Lippincott Company. 1915. (Imp. 8vo, pp. 515; 31 figures. 21s. net.)

[6] *Children's Nursing.* By C. Seymour Yapp, Matron the Poor Law Hospital, Ashton-under-Lyne. London: Poor Law Publications, Ltd. 1916. (Demy 8vo, pp. 141. Cloth, 2s. 6d.; Soup-covers, 1s. 6d.)

[7] *The Autobiography of Sir Peter Eade, M.D., F.R.C.P.*; with Selections from his Diary. Edited by Sydney H. Long, M.D. London: Jarrold and Sons. 1916. (Demy 8vo, pp. 211. Illustrated. 2s. 6d.)

[8] *A Surgical Handbook for the Use of Students and Practitioners, House-Surgeons and Dressers.* By F. M. Caird, M.B., F.R.C.S.Edin., and C. W. Cathcart, M.B., F.R.C.S.Eng. and Edin. Seventeenth edition, with Appendix. (Fcap. 8vo. pp. 379; 208 figures. 8s. 6d. net.)

[9] *Manual of Operative Surgery.* By J. F. Binnie, A.M., C.M.Aberd., F.A.C.S. Seventh edition, revised and enlarged. London: H. K. Lewis and Co. Limited. 1916. (Roy. 8vo, pp. 1378; 1,597 figures. 32s. net.)

far removed from America, is furnished by Mr. W. S. Sutton's "Appendix on War Surgery" at the end of the volume. As in its predecessors, great care has been taken to avoid the perspective of a textbook in which the common operations of surgery must be emphasized, while the unusual operations are briefly dismissed. Mr. Binnie's constant endeavour has been to help the surgeon when he is in trouble, and the bulk of the book is therefore devoted to the difficulties and rarities of surgical practice. It contains a vast amount of information, collected from the literature of surgery for the most part and illuminated by the author's own experience, and seems well up to date as well as encyclopaedic.

The exhaustion of the second edition of Dr. T. LEWIS'S book, *Clinical Disorders of the Heart Beat*,[10] has given him the opportunity of making a few verbal emendations in the third edition, adding a short note on the influence of auricular fibrillation upon thrombosis and infarction, and referring to the view of Dr. White of Boston that alternation of the heart is as frequent as auricular fibrillation. In other respects the third edition is identical with the second.

Professor MAXWELL-LEFROY'S pamphlet on the *Extermination of Flies, Lice, and Other Vermin*,[11] gives an account of some of the more trustworthy methods of preventing the multiplication of noxious insects, and destroying them in wards, trenches, or on the person. This account is thoroughly practical, and not overburdened with alternative measures or formulae, and will prove useful to those whose work bring them in conflict with these insects. The sections on the flea and the bug are so short as to be of no very great value. One feels that, despite all that has been done or written during these last two years, the "minor horrors" will still have the upper hand.

[10] *Clinical Disorders of the Heart Beat.* By T. Lewis, M.D., D.Sc., F.R.C.P. Third edition. London: Shaw and Sons. 1915. (Demy 8vo, pp. 128; 54 figures. 5s. net.)

[11] *Measures for the Avoidance and Extermination of Flies, Mosquitos, Lice, and Other Vermin.* By H. Maxwell-Lefroy, M.A., F.Z.S., Professor of Entomology, Imperial College of Science and Technology. Second edition, revised for the tropics. Calcutta and Simla: Thacker, Spink and Co.; London: W. Thacker and Co. 1916. (Demy 8vo, pp. 17; 5 figures. 1s. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Wristlet Ligature Holder.

MR. VICTOR BONNEY writes: It will interest Mr. Percival Cole to learn that I designed, and have been using for three years now, a wrist ligature carrier on the same principle as that described by him in your issue of September 1st. The reel in my carrier is made of glass, and hence I have not experienced the drawback in regard to iodine catgut which he mentions. I can fully confirm the usefulness of the device, but to obtain its full advantage the surgeon must be able to tie the single-handed knot. The war has delayed me in publishing an account of the special operative technique for which I invented my ligature carrier, but I hope very shortly to do so.

MEDICINAL AND DIETETIC PREPARATIONS.

Emetine Bismuth Iodide.

THE firm of W. Martindale, manufacturing chemist, asks us to state that it is able to supply emetine bismuth iodide either in powder or in stearettes containing three grains; this name is applied to a method of coating drugs which the firm considers to be superior to the use of keratin. The name is derived from the fact that the coating contains stearic acid.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee held on August 8th, twenty-three cases were considered, and £201 10s. granted to eighteen of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 25, of M.B.Oxon., M.R.C.S.Eng., who joined the R.A.M.C. on qualifying in 1914, and was killed in action on July 13th, 1916. Applicant is left with two children, aged 4 years and 11 months, totally unprovided for, and up to the present has not received any pension or allowance from the War Office. Voted an immediate grant of £10, and referred to the Guild, and to other organizations that will probably help until the War Office pension is arranged.

Widow, aged 36, of M.R.C.S.Eng. who died in June this year after four days' illness from diphtheria, and left his wife and two daughters, aged 14 and 16, quite unprovided for. Lives in own house, which is heavily mortgaged, and her solicitor informs her that when the debts are paid there will not be anything left. Husband's mother, aged 81, is also dependent on her. Requires some immediate help. Voted £10, and referred to the Guild.

Daughter, aged 64, of M.R.C.S.Eng. who died in 1892. Applicant, whose general health is bad and her eyes very weak, has for some years lived with a widowed sister who is a teacher in France, but owing to the increase in the cost of living she cannot continue to keep her. Only income an occasional small gift from her brother. Her father for many years subscribed to the Fund. Voted £10.

Daughter, aged 67, of M.D.Glas. who died in 1871. Until the war commenced was able to make a bare existence by giving music lessons. Too old to obtain other work. Her sister is an annuitant of the fund. Voted £10.

Widow, aged 49, of M.R.C.S.Eng. who died in 1906. Applicant's health is very bad; she was left with an income of only £22 per annum, and a young daughter who is at the Drapers' Company School, but home for holidays. Her rent is paid by a brother. Owing to the high price of food she is in difficulties. Voted £10 in two instalments, and referred to the Guild.

Daughter, aged 69, of M.R.C.S.Eng. who died in 1869. Was left without means, and managed to earn a living as a governess until ill health and old age overtook her. Only income two pensions, a total of £45, from other societies, and she has a great nephew aged 4½ years dependent on her. Received some help ten years ago. Voted £5, and referred to the Guild.

Daughters, aged 44 and 52, of L.S.A.Lond. who died in 1903. One suffers from epilepsy and the other from rheumatism and persistent headaches. Joint income only £48 per year. Relieved eight times, £95. Voted £18, in twelve instalments, jointly.

Widow, aged 58, of L.R.C.P.Glas. who died in 1902. She was left entirely without means, with two young daughters, who are now earning a little and paying for their board. The applicant is able to earn about £20 per year by needlework. Relieved ten times, £106. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

HEALTH OF LONDON.

ONE of the wonders of the world is London. There has never been such an aggregation of people in such an area before, and there has never been a city with a better health record than modern London. Therein lies the wonder. The orange book of the Medical Officer of Health for London gives some information as to how this is done.* Londoners are accustomed to gird at the chaotic arrangements attending the local governance of their county and its many boroughs, and if that complaint be justified (and few who attempt to master the several Acts of Parliament that ordain the work of these many authorities will fail to realize that it is) then there is the more credit due to the men who get such excellent results out of such a machinery. The medical men in charge of the public health administration of London may well be proud of their work, and go on with it unwearied in well-doing.

The report for the year 1914 follows the usual practice. It is illustrated with charts, many of them so good that their message is conveyed without the necessity for reading the text. There is one point on which we would venture to suggest there is room for improvement. There is no index. There is a table of contents, but this is not sufficient to give facility in hunting up any point of particular interest; and since the report covers the work of several departments, a general index would bring the report of the work of these several departments together.

VITAL STATISTICS.

The population of the County of London reached a maximum on the census of 1901. There was a slight decline recorded in 1911. The estimated population for mid-year 1914 shows a further small decline. This is held to be the result of the very great difficulty experienced by poor persons with four or five children in obtaining accommodation in tenements within the county. The young married persons move outside the county area. Similar migration of population is held to explain many of the curious anomalies of sex distribution. London attracts females of the ages of 25–35 in greater degree than males.

* The Annual Report of the London County Council, Public Health, including the report of the County Medical Officer of Health and School Medical Officer, Main Drainage, Housing of the Working Classes. London: P. S. King and Son, Ltd. (Price 2s. 6d.)

A reverse movement takes place when there is ill health. It has often been pointed out that, especially in the case of females, the mortality of young adults from phthisis is understated in large towns and overstated in rural areas, owing to the fact that young immigrants to the towns when disabled return to their homes in the country, and in many cases die there. This fallacy in the returns is not restricted to phthisis, and it is not susceptible of full correction. On the other hand, young women in rural areas show a higher mortality from appendicitis than the town women, and the explanation of infection in the towns and death in the country will not apply for an acute disease like appendicitis.

The expectation of life for London men and women is greater in the latest returns than ever before; the increase is found for all periods for the women and nearly all for the men.

The marriage-rate for the year was higher than any year since 1874, no doubt the phenomenon is due to the war. The decline in the number of marriages of "infants" continues, although there is some indication of a pause. The birth-rate continues to fall. It is now 24.3 per 1,000, as against 25.0 for the years 1909–13. There is scarcely a metropolitan borough that does not show a decline; only one shows a small rise, and that is Chelsea.

The death-rate is again very low, only 14.4 per 1,000, against 13.7 for England and Wales. Shoreditch still has the highest rate, and Lewisham the lowest. The first quarter of the year has the highest incidence; the second the lowest.

The effect of London migration on the birth-rate is discussed. It is pointed out that the young women of to-day cannot fairly be compared with the young women of London of fifty years ago, and differ very widely in respect of the extent to which they may be expected to contribute to the London birth-rate. An obvious difference in this respect is due to the fact that the large unmarried domestic servant class consists of women who in very many instances when they marry leave London; there is, moreover, a distinct selective influence exercised, under modern conditions of London life, which materially affects the constitution, as regard social status, of the young married women transferred from the country to London. The young early Victorian married women of child-bearing age cannot, therefore, legitimately be compared with the married women of like ages to-day.

The infant mortality-rate again shows a fall; it is 104 per 1,000 births, as against 107 for the last quinquennium. Shoreditch has the highest rate and Chelsea the lowest. The third quarter of the year takes the heaviest toll. Wasting diseases account for the greatest number of deaths, premature birth being the chief primary cause, then debility and marasmus, next comes diarrhœa, and infectious diseases follow a long way behind. There is a fall in the incidence of deaths from nutritional causes but a small rise in the effects of diarrhœa. The Registrar-General in his annual report for 1913 commented on the low rate of mortality from abdominal tubercle in London, whereas meningeal tubercle causes a heavier mortality than in other classes of area. The explanation is thought to lie in the better certification. The possibility that the improved milk supply accounted for the difference is negatived by the fact that in Manchester clean milk for an even longer period has not brought about an equal decline.

Epidemic Fevers.

Small-pox.

Especial care has been taken owing to the fear of the importation of infection during the war. Cases were discovered at the Port of London on entry, but, owing to the measures taken, no ill consequences followed. The danger of the introduction of infection in the unvaccinated state of the community, especially in densely populated regions, is great. In the last year recorded no less than 41 per cent. of the children born were unaccounted for as regards vaccination. The failure was highest in the poor quarters—Stepney 64, and Bethnal Green 55.9 per cent.

Measles.

There is an interesting return of the values of two different systems of notification coming from Paddington. There was in that borough a system of notification before the general order came into force. For a time two systems were running together. Cases occurred in 95 houses, and 87 per cent. of them contained school children, 78 per cent. were reported through the school organization, whereas only 66 per cent. were made known through compulsory notification. "These figures show that under a school system almost all the cases concerning which knowledge is of practical value come under the notice of the sanitary authorities and school authority." A similar double notification of whooping-cough occurred in Lambeth; 72 per cent. of the cases were discovered through the schools, as against 53 through compulsory notification. In many cases the schools informed the sanitary authority before a doctor had been called in.

Scarlet Fever.

The rate for the year was slightly higher than the last quinquennium. Females are the more often affected, but the death-rate is higher in the males. A steadily increasing proportion of cases are admitted to the Metropolitan Asylums Board hospitals.

"*Vermin Inquiry.*"

In studying the relation of flea prevalence to distribution of scarlet fever in London in recent years two main preliminary considerations are mentioned: (1) Scarlet fever is wont to display major waves of prevalence in which the interval between crest and crest is some six to eight years. A wave crest due in 1914 appeared. There is found to be a correspondence in this wave curve with one showing the prevalence of fleas. (2) Scarlet fever displays a remarkable inverse correlation with rainfall; on the whole, there is a general correspondence between the annual prevalence waves of dryness and scarlet fever. A similar correspondence has been noted in India for rat fleas. In the educational section of the report there are further observations on this point. It is observed that the wave of flea incidence precedes that of scarlet fever by some three to eight weeks. It is further noted that there is a persistence of infection in certain schools and in certain classrooms of those schools. In this connexion the chart showing the age incidence of scarlet fever is of much interest. The curves for two London boroughs are given, one borough of the worst social conditions, the other of the best. In the worst borough the incidence of the fever was highest in the youngest years, the peak was sharp, and the decline fairly rapid. In the best borough the rise was delayed and the decline slower. By contrast the curves of two sets of schools showed that the children in a group of the poorer class schools had less fever than those of the better class; presumably the poorer children had had the fever before joining school or had become immune to flea bites.

Typhoid Fever.

There was a smart outbreak in one part of London at the turn of the year 1913–14, investigations narrowed the focus of infection to one particular establishment, and suspicion was directed to the food supply and the kitchen arrangements generally. As to the way in which, if it were at fault, the food supply became infected, no certain conclusion could be reached. Out of a total number of 789 cases notified in London in 1914 information was given in some 400, and the ascribed sources of infection were:

Fried fish	72	Wearing clothes of previous case	1
Shellfish	88	Contracted abroad	38
Other fish...	26	Contracted in country ...	10
Watercress	22	Contracted from cases in house	40
Other food	19	Contracted from other persons	20
Water supply	7		
Drainage	8		
Smells	4		

There is given a most interesting and critical review of the changing fashions of etiology during the past fifty years. In the Spanish-American and South African wars flies were believed to be largely concerned in spreading the disease; in Germany the healthy carrier is held to be all-important; in Scotland, milk; in Belfast, cockles; in other towns, mussels; in London fish has been held to be a not infrequent source of infection; in some of the large English towns, public water services. The London sources of infection appear to be the "trash" sold in the streets, and evidence points to infection being brought into London in the large majority of cases by fish and shellfish coming, generally speaking, from a considerable distance. The great improvements as regards sanitation effected in the

last fifty years, and particularly in the last thirty years, have made London itself an eminently unfavourable field for growth and cultivation of the typhoid poison; the areas from which infection is derived are no longer near at hand, but are to be found on distant polluted foreshores and in remote estuarial waters. The question was raised as to the likelihood of importation of infection into London by soldiers and refugees coming from the seat of war, and during the later months of 1914 there were some alarmist rumours as to the spread of the disease by persons who had recently arrived from the Continent. The experience acquired subsequent to the South African war and the knowledge gained of the common method of spread of typhoid fever in London made it clear that these fears were groundless. Altered nomenclature and better means of diagnosis, such as the extended use of the Widal test, is held to be partly accountable for a decline in the incidence of the disease. The whole of this section of the report is well worthy of study, and the tentative finding of the health department of London that the importation of cheap and nasty food is at the root of cases that occur in London should be carefully examined.

Cancer.

In almost all the epidemic diseases there is an unenviable prominence of boroughs like Shoreditch and Bethnal Green; again and again one or other of these boroughs heads the list of returns. But this is not the case with cancer. The figures for 1914 confirm previous conclusions —that there is no relation between cancer mortality and social condition, whether measured by the degree of overcrowding or by the percentage of children scheduled for compulsory education, and in this respect the behaviour of cancer differs altogether from that of phthisis.

Cerebro-spinal Meningitis.

The year gave the lowest return of cases since the disease was made notifiable; 73 were notified and classified as follows: Cerebro-spinal meningitis 40, posterior basal meningitis 19, purulent meningitis 2, pneumococcal meningitis 2, doubtful 11. The age distribution shows how heavy is the incidence in the first few years of life. The Council's medical officers visited 51 cases with a view to assisting in diagnosis and to obtain material for bacteriological examination. Specimens were taken in 40—in 28 the organism commonly associated with the disease was found, in 12 cases the meningococcus could not be found; 329 contacts were selected for bacteriological examination by reason of their having been closely associated with the patients. Of the total number, 31, or 10 per cent., proved to be carriers of the meningococcus. Extended inquiries are being carried out into the effect produced by these "carriers," but up to the present no untoward effects have been discovered.

Influenza and Cerebro-spinal Fever.

Attention is called to the inter relation of these diseases. Records of the fifteenth and sixteenth centuries show the conjunction of "sweating sickness" and "febrile cerebritis." In recent attacks the number of cases giving a history of contact with or affection from influenza "is certainly large enough to afford justification for further examination." "*It is greater than might have been expected as a matter of chance.*" (Italics in original.) One difficulty in correlating the two diseases is that there are no returns for influenzal infections, only for deaths. To obtain data on the point examination was made of the returns of illness furnished by the various departments of the London County Council concerning 3,000 officials in its employment. It is acknowledged that this is no random sample of the London population, but the fit of the case curve based on these figures with the mortality curve for London is remarkably close. Taking the influenzal rate for the 3,000 as representative of the London population, it is found that the chance of influenzal infection is very small, and the chance of a close occurrence of attacks of influenza and cerebro-spinal fever infinitesimal. Whereas the actual returns were high, no fewer than 27 of 462 cases of the fever gave a history of suffering from influenza within seven days of the onset of the illness.

The seasonal maximum of influenza usually occurs in winter or very early spring, so also with cerebro-spinal fever; cases of poliomyelitis and polioencephalitis occur at all seasons of the year, but the numbers are greatly increased during the late summer and autumn months. Of the last-named diseases the greatest incidence was in the Stepney area; this may be accounted for by the attention paid to exact diagnosis at the London Hospital. No evidence has been discovered to show that there is any association between the incidence of poliomyelitis and insanitary conditions.

HOUSING.

The death-rates among tenants of the Council's buildings relate to dwellings within the county which were occupied during the whole of the year 1914. The population comprised 30,867 persons, the death-rate at "all ages," after correction for age and sex distribution, was 8.8 per 1,000, compared with 14.4 for London. That is a lower return than for the best borough of London. The figures for individual diseases are better all round, with the one exception of that for "tuberculous diseases other than phthisis," for which the Council dwellings return is 0.4, against 0.3 per 1,000 for London.

THE MENTAL DEFICIENCY ACT.

The measures taken to carry out the obligation of the Act are stated; 995 cases came under examination, most of them through the agency of the education authority. A detailed return of the characters presented by the first 600 cases shows how little there is in "type." No less than 306 are entered as of no type; next come the epileptics, 76; whilst the "characteristic physical types" come far away down the list in small numbers and in many varieties.

MIDWIVES.

The fee a midwife receives for attending a confinement and for the subsequent ten days' visiting varies in different localities from 7s. 6d. upwards, but the usual fee of 10s. to 15s. is expected. The charities employing midwives pay 5s. to 6s. a case, and provide the midwife with registers, forms, antiseptics, etc. It is apparent from the number of cases taken by midwives and the small fees paid that very few can rely solely on their practice as a means of livelihood. Many of them are married women who do not trouble to obtain large practice; a few keep lying-in homes; others, especially those with a fairly large practice, are approved by the Central Midwives Board to give practical instruction to pupils preparing for the Board's examination. The pupil resides with the midwife and goes with her to cases. The fees for pupils are usually about £1 1s. a week, and this includes board and lodging in addition to the practical instruction given by the midwife. From information received under the Notification of Births Act, it is computed that (excluding the cases attended by midwives in infirmaries) some 30,000, or 25 per cent. of the total births in London, are attended by midwives. There is a general tendency to an increase of the calls made by the midwives for medical help; such calls were made in 11.78 per cent. of the cases, in 6.89 per cent. on behalf of the mother, and in 4.89 per cent. on account of the child. The number of cases of puerperal fever notified in the county in 1914 was 393; 113 proved fatal, a case mortality of 28.7 per cent.

Ophthalmia Neonatorum.

Five hundred and thirty-seven cases were investigated by the committee; 456 were reported completely cured. In 6 there was impairment of vision; in 1 there was a definite history of gonorrhoea in both parents, the onset was on the day of birth and medical aid was obtained on that day; both eyes were affected. "Visits to hospital were not continued, and there was loss of sight of both eyes." A history of vaginal discharge was obtained in the mother in 213 cases, or 39.6 per cent.; 20 babies died whilst suffering from the disease; in 53 cases the result was unknown owing to the removal of the parents, who could not be traced. The Council has endeavoured to secure accommodation for the mother and infant, so that while the child was being treated it would not be deprived of being breast-fed, but only two institutions have at present sufficient accommodation for this purpose.

EDUCATION.

During the year 294,026 children were examined by the school doctors, and of these 101,432 were found to require treatment for one or more defects. The parents were present in 68 per cent. of the cases examined. Dr. Thomas,

of the head office staff, has examined the returns in comparison with previous years. There is found a gratifying improvement in many directions. The number of children with tonsils and adenoids requiring operation is lower than formerly. There is a steady improvement in neatness and cleanliness of all children, which reflects great credit upon the unremitting efforts of the school nurses, head teachers, and care committees. "In comparing the incidence of defect upon age and sex it is found that, although starting school life on an equality with boys, the girls at the leaving age show an excessive incidence compared with boys in respect to visual defect, deformities, heart defect, anaemia, and nervous disease. This excessive incidence suggests that girls as a whole spend a less healthy and hygienic life than boys, and one of the problems of hygiene remaining to be solved is how to give the girls an equal place in the sun with the boys."

There is an important growth of the provision for dental treatment; the provision authorized for the year 1915 was for 63,000 cases, or roughly for three and a half times as many as two years ago. For all classes of ailments treated under the Council's scheme the centres, including hospitals, at the end of the year numbered 42, providing for 98,976 children, as against 34 centres, providing for 84,359 children, at the end of 1913.

The personal cleanliness of the children showed an improvement. Entrants are still cleaner than the other groups, by some 5 per cent., so that there is still evidence that the complaint of the cleaner parents that their children "bring things home from school" is justified. No mention is made of the influence of cloak-rooms in the dissemination of vermin, and we do not recollect that attention has been drawn to the matter, but there is good ground for making some distinction between the cloak-room accommodation and also the sitting places of the known dirty children and the cleaner. There is no necessity that the distinction should be known generally, but, for the protection of those mothers who keep up a constant and valiant combat against vermin, there is much to be said for the suggestion.

There is an interesting comparative return of the vision of the younger and older children. Boys and girls at the age of 8 to 9 years who get full vision in both eyes total 42 and 37 per cent. respectively. Boys and girls who leave school get full vision in superior numbers, reaching 54 and 47 per cent. respectively. This improved vision is probably due to the influence of education in sharpening the child's wits. On the other hand, the number of children whose vision falls short of the standard, and only attains $\frac{6}{12}$ or worse, increases with age, boys and girls aged 8 to 9 total 18 and 20 per cent., but on leaving they total 20 and 25 per cent. respectively. The middle ranks of those with full vision are depleted—some whose early failure was merely due to lack of judgement improve and get full vision before they leave; others whose failure was due to a defect in the eyes tend to get worse with the strain of school work. The special incidence of visual defect amongst girls, and especially girls of the older age, as compared with boys, is to be noted. There can be little doubt that this is due to some fault in the training of girls tending to deterioration of vision.

The percentages of phthisis and other tuberculous diseases remain exceedingly low for children examined in the age groups. There are distinctly more cases, however, found at the leaving age than at the other ages. The differences between the sexes in phthisis are so small as to be negligible; there is, however, a distinctly greater incidence of boys in every age group in the case of other tuberculous diseases. It is interesting to note that amongst children examined as urgent cases 571, or 3 per cent., were found to be suffering from phthisis, and of the children out of school 917, or 9 per cent., were certified to be suffering from the same disease.

The number of children returned as suffering from rickets was 3,928, or 1.72 per cent., as compared with 2.1 per cent. in 1913 and 1.69 per cent. in 1912. At each age the results of rickets are much more often seen in boys than in girls; and, as school life progresses, they become in each sex more difficult to recognize as such. But there is a gradual increase in non-rickety deformities during school life, the increase being heaviest in the girls on leaving school. This exceptional increase in older girls is due to spinal curvature, and is associated with the hygienic defects in the training of girls as compared with boys, producing in the former excess of severe visual defect, of anaemia, and of heart defect as school life proceeds.

All cases reported by the doctor as suffering from malnutrition of a certain degree are subject to special investigation. These children are considerably under the average height and weight for their age. Comparing children of equal age the fall below the average may be as great as 22 cm. in height and 10 kg. in weight. Height is not so frequently below normal as weight, and 40 out of 150 were above normal height. Many of these children are overgrown and thin. Change to a suitable diet makes a marked difference in both height and weight. The most striking instances recorded were: Girl aged 8½, was given milk and the home was visited; nine months later weight had increased 7.8 kg. Boy aged 6 years and 9 months, early illness, home poor, milk at school, attended tuberculosis dispensary, gained 6.6 kg. in seven months. Other less striking cases are quoted. But all did not gain, some lost weight under similar treatment and no adequate cause could be found. Chief amongst the cause of malnutrition are cited poverty, tuberculosis, congenital debility; whilst such causes as neglect, improper feeding, and rickets, come a long way down on the list.

The scheme for the treatment of children found on inspection to be defective includes 12 hospital and 30 medical treatment centres, providing in the aggregate for 98,976 cases. When the scheme was started in 1910 provision was made for 12,000 children. For the year 1915 provision is made for no fewer than 125,496 children; the large increase is due to the extension of dental treatment, which now covers 63,140 cases. A table showing the provision and the usage of the facilities provided shows that accommodation for eye cases is still insufficient to meet the demand.

The effective co-operation of the medical officers of the clinics and the school medical officers has been productive of many advantages to the children, and not least in the case of defective children, where the defect is so great as to necessitate some form of special education. The difference between this effective co-operation on the one hand and the difficulties attending arrangements for children who are being treated in hospitals was so great that the Council circularized all the eye hospitals, giving an account of the special provision made for short-sighted and partially blind children. The circular letter asked for the co-operation of the hospital surgeons in the matter, for "such children are usually far better in attendance at school, where they spend a part of the day under reasonably good conditions and are subject to discipline, than at home, where conditions are often unsatisfactory. If excluded, it is difficult to maintain supervision over their mode of life, unless they are really ill, and they tend either to loaf aimlessly about the house and streets, or they are made to do household drudgery or other unsuitable work."

A return of the conditions of ill health responsible for prolonged absence from school is given. Rheumatic conditions, acute rheumatism, heart disease, and chorea head the list with 24.31 per cent. Tuberculous conditions follow with 13.36 per cent.; anaemia and debility account for 12.34 per cent.; diseases of the eyes, 8.82 per cent.; those of the nose, ear, and throat, 4.71 per cent.; infectious diseases, 3.58 per cent.; ringworm has fallen to 1.83 per cent., or half the average, and the time of absence from school is distinctly shorter than formerly.

TREATMENT OF TUBERCULOSIS.

The account given of the arrangement for the State control of tuberculosis does not suggest that all is for the best. The Council is responsible for the institutional treatment of such cases, but the dispensary treatment is in the hands of the City Corporation and the borough councils. But not all the cases fit for institutional treatment are dealt with by the Council. Such persons as are insured are declined, since the Insurance Commissioners are responsible for them; and again, it was found that no fewer than 2,300 cases of chronic tuberculosis were in the care of the Poor Law authorities, and these the Council do not propose to interfere with. Between so many authorities one is inclined to wonder if any satisfactory scheme can be evolved. Up to the present schemes for the provision of dispensary treatment have been submitted by eleven borough councils and approved.

British Medical Journal.

SATURDAY, SEPTEMBER 16TH, 1916.

THE MEDICAL SERVICE ON THE SOMME.

THE battle of the Somme had, at the end of last week, continued for some ten or eleven weeks, according as to whether we date it from the beginning of the intensive artillery preparation or from the actual infantry advance. On the fourth day of the battle, when what may be called its first stage ended, the Commander-in-Chief, Sir Douglas Haig, addressed a Special Order of the Day to Sir Arthur Sloggett, Director-General of Medical Services in France, conveying to him and through him to the Directors of Medical Services and all concerned under them his high appreciation of their hard work and the efficiency of the arrangements for dealing with the medical aspect of the situation. This efficiency was due in the main to two causes—the care and skill with which all administrative arrangements for the collection, treatment, and evacuation of the wounded had been thought out, and the fine spirit with which the officers of the Royal Army Medical Corps responded to the demands which the large number of wounded made upon their energies.

And the same thing has been going on ever since, not with the same intensity, but without a stop. We may speak of the first stage, but the battle has gone on without pause, though with fluctuations in intensity; the rumbling and groaning of the guns does not cease day or night, every night the horizon is lit by the flashes of the howitzers and the glare of the rocket flares thrown up from the trenches. At all sorts of times the wounded are coming in from the field ambulances in larger or smaller parties, in char-à-bancs and motor omnibuses, and in motor ambulances to the casualty clearing stations; there they are sorted, and all are dressed and fed, while the most severe cases—men collapsed by wounds of abdomen or chest or thigh—are kept for some days, operated on, if necessary, and in any case carefully nursed and tended. At intervals which vary in length with the pressure at the moment they, or others who have been retained in the clearing station from previous days for treatment, are being loaded into ambulance trains which take them to the base. A casualty clearing station is a place of continual coming and going, and in any twenty-four hours there may pass through it many times as many wounded as it keeps. It is on or very near a railway, usually at the furthest point to which the line can be worked. Very often one of its boundaries is formed by the siding for the ambulance trains, and these trains seem always to be there when they are wanted; this is a fact which may easily escape a visitor's attention, because it seems to be taken as a matter of course, but it calls for elaborate organization and constant vigilance on the part of the senior medical officer responsible for seeing that the shuttle of his ambulance train works easily through the web of all the supply and troop trains constantly moving up and down from base to front and front to base.

When the full story of the work done by the British medical service in France can be told it will reflect undying honour on all the actors in it. The story will be all the more to the honour of the medical profession because so large a proportion of the officers concerned were men who a couple of years ago, or in many cases much more recently, were engaged in civilian practice at home. How well they have lived up to the motto of their Corps, *in arduis fidelis*, is best shown perhaps not by statistics or accounts of individual acts of heroism, but by the feeling which the whole British army now serving in France has for the Corps. It is not possible easily, or perhaps at all, to put into words, but it is none the less very real, and any one who moves about the zones of the army is aware of its existence. We say at home that nothing is too good for the wounded man, and that no energy or skill can be better spent than in easing his sufferings and helping him along the road to recovery. We say that here; the military medical service in France says very little about it, but it is always and everywhere putting the principle into practice. It is to be seen in the regimental officer when he is summoned from his dressing post to some wounded man whose condition is such that he must have immediate surgical attention before he can be moved. It is seen in the officers of the field ambulance, who throw out advanced dressing stations so far forward that the wounded, whether walking or carried on stretchers, can reach them quickly, and who establish their main dressing station in a position as well protected from shell fire as the nature of the ground allows, but always necessarily within reach of modern long range guns. It is seen in the casualty clearing stations a few miles further back, which are reached by the wounded within a few hours, and where serious cases find physical comfort, surgical skill, and nursing attention which in all essentials cannot be surpassed in a permanent hospital. It is seen also along the lines of communication, in the ambulance trains by which the men are evacuated to the hospitals at the bases, in those hospitals, and in the hospital ships which carry them to this country. In all these places the one governing motive is to do the best possible for the men, and that best is so good that it seems impossible to think of anything that could be done to make it better. Yet small improvements in matters of detail are continually being devised, and there is a healthy rivalry among units, each one aspiring to be the most efficient of its kind.

The officer in command of a medical unit must be a man of resource. General principles are always the same; but in their application a host of difficulties in detail have to be overcome, and the amount of thought and ingenuity displayed in overcoming them is altogether admirable. The heads of the medical service in the British armies fighting in France carry an immense load of responsibility; their policy has been to give all possible elasticity to the medical arrangements from front to base. They have encouraged individual initiative, and have taken pride in making known throughout the armies any new plan or device which has been found to work well.

It is obvious that the work the Royal Army Medical Corps has to do at and immediately behind the firing line cannot be done without risk of death or wound. The regimental medical officer and the officers of the field ambulances cannot do their duty without taking risks. It is sometimes said at home that they are too ready to take risks; but we believe that the officers of

the Corps are too deeply imbued with a sense of duty to take risks which they ought not to take. The regimental medical officer knows that his primary duty is to help the wounded man by giving him the best surgical treatment possible while the regiment is in action, whether advancing or resisting a counter attack, on the trenches or craters it holds. To do this he must be at his regimental dressing post, to which the wounded find their way or are carried. He must be at his dressing post also or return to it as quickly as possible if called away, so that it may be known where to find him when he is wanted in an emergency, for there are occasions when duty calls him forward to give surgical aid to sorely wounded men in the zone of greatest danger. Into this zone must go also the non-commissioned officers and men of the Corps, who rival their officers in their devotion to duties which are not only extremely trying and fatiguing, but demand also the highest courage. We can only pay a reverent tribute to the gallant men who, when they see their duty clear, never hesitate to give their lives.

The losses in the Royal Army Medical Corps at all fronts officially reported and recorded in our columns from July 8th to our issue of this week number 46 killed or died of wounds, and 153 wounded. This is a large number in proportion to the strength of the Corps. It is true that the British armies are now far flung in three continents, but probably the large majority of the casualties during the period taken have occurred in France. It is a serious matter for a profession which is straining every nerve to supply the army with medical officers to lose so many men, young or in their early prime, but their sacrifice has not been in vain; they have died or suffered doing their duty, and the army, silent but observant, knows it, and lets the Royal Army Medical Corps, officers and men, understand that it knows it. It also knows, and in the same silent way makes it understood that it knows, that all officers and men of the Corps, from the regiments, through the field ambulances and the casualty clearing stations, to the coast, are leaving nothing undone to help. The country has supplied them with the means to give that help, and they are using these means not only with precision and energy but with sympathy and enthusiasm.

UNCLEANLINESS AND SCARLET FEVER.

THE system of inspection of the children in London elementary schools with regard to personal cleanliness appears to work very well. The school nurses make their rounds of the schools systematically and examine heads, bodies, and clothing; parents whose children fail to reach the ordinary standards of cleanliness receive a warning that speedy improvement is necessary; the homes of the children are visited and the parents shown how to effect and maintain the necessary improvements. The equipment of the local borough authority at the baths and washhouse, can, when necessary, be requisitioned for the effective cleansing of the body and the clothes of the child. When parents are contumacious the child is brought up before the school doctor for examination; and in some cases prosecutions have been undertaken so that the authority of the law may be vindicated at the hands of the magistrates.

Those who have experience in the matter entertain no doubt that the children in the poorer schools are far cleaner than they were a dozen years ago. It is equally certain that the efforts of the school authorities have effectively dispelled the belief of the careless parents that these plagues are "bred by the weakness of the child," and established the knowledge that they are the outcome of dirt and lack of washing. But notwithstanding all these clear gains there is room for further improvement, especially in the schools where the children are for the most part of the clean order. In those schools there is an established, albeit unrecognized, standard of fitness which a child must attain before the head teacher admits it; but for all that there are dirty children in the best elementary schools, even though their dirtiness is masked by a fair exterior. It is the presence of these children, or rather the live stock they carry and fail to keep to themselves, that brings trouble to the rest. There is room for some better sort of cloak-room accommodation in the elementary schools; not necessarily larger and more elaborate rooms, although these are necessary in some schools which have still no more than the primitive hooks and pegs on the passage or staircase walls. What is wanted is some sort of grading of the accommodation, so that the hats of the dirty and the clean should not be hung up side by side, to the great disadvantage of the clean. Similar improvement in the seating arrangement of the classrooms is needed, more especially where the common dual desks are in use, so that dirty and clean should not sit cheek by jowl. There is no necessity for any disagreeable publicity in such arrangements—only the good sense of the teachers to effect a desirable selection. But even if the division were known there would be no great harm done—probably the reverse—for the knowledge that dirt is a bar to the social distinction of the school would be as effective a stimulant to good deeds as any moral grading in the wider field of life. There was an occasion some dozen years ago, before school cleansing schemes were born, when such a suggestion was made to the head mistress of a London school. She indignantly denied that there were any dirty children in her school, but the demonstration of the state of the heads of the first row of one room only made her unwilling to see the next row. The horror of her discovery is little compared with the distress, the tears, and the most righteous indignation that at times come to those careful mothers who are for ever striving to keep the creeping enemy at bay.

So far the case has been considered rather from the parental or domestic view. But the same conditions have a very definite medical aspect. The manner in which various plagues are spread by vermin—bugs, fleas, and lice—is common knowledge. It has been proved of the plague in respect of fleas, and of typhus fever in respect of lice. Now, in the current report of the Medical Officer of Health for London we have the results of a "vermin inquiry"; they suggest that there may be a connexion between vermin and scarlet fever. Two main preliminary considerations are mentioned. The first is that scarlet fever is wont to display major waves of prevalence in which the intervals between the crest is some six to eight years. Such a wave crest was due in 1914, and appeared. A correspondence between this wave and one showing the prevalence of fleas is found to exist. The second is that scarlet fever displays a remarkable inverse correlation with the rainfall. On the whole, there is a general correspondence between the annual prevalence of dryness and scarlet fever. A similar correspondence has been noted in India for rat fleas. In London it has been observed that the wave of flea incidence precedes that of scarlet fever by some three to eight weeks. In this connexion charts are given showing the different incidence of the fever in different

types of schools. In one borough of the worst social conditions the incidence of the fever was highest in the youngest years, the peak was sharp, and the decline fairly rapid. In another borough of the best social conditions the rise was delayed and the decline slower. The curves of the two sets of schools suggested that the better class children were protected in their younger years by home care but got the infection at the schools.

The demand for cleanliness is a real necessity of health, both individual and public. Not only is uncleanliness an index of neglect; it may be an active disseminator of infectious disease. We would press this view of the case upon the magistracy of the country, for with them lies the final arbitrament between the school authorities and the contumacious objectors to cleanliness. We also commend this view of the situation to the thought of certain educational reformers who insist upon the wastefulness of our caste system of educational aloofness, and urge the superior advantages, both economic and social, of a "common school system." Much of the failure of our common school system to materialize into schools to which any and every child could be taken arises from this suspicion of dirt. Dirt and diction are the two great enemies of the common school; the one is certainly in the control of the authorities if not the other.

The relation of dirt and disease is so certain that there is a good case for the institution not only of such simple modes of protection as have been indicated above, but also for a generous expenditure on school baths and cleansing appliances; the cost of these would be a small premium for an insurance against the heavy losses incurred through disease.

BRITISH MEDICAL OFFICERS AND THE CIVIL POPULATION OF NORTHERN FRANCE.

AMONG the multifarious duties which fall within the province of the British medical officer in France may be not only the sanitation of the town, but also the supply of ordinary medical attendance to its inhabitants. Many places are virtually denuded of their ordinary doctors, who were called up at the beginning of the war to serve with the army. Only those beyond military age remain, and even in a considerable town may number only one or two. In one town it fell to the lot of the medical officer responsible for attendance on the civil population to have to do a great deal of work, including several important operations. The inhabitants recently showed their appreciation of his services by presenting him with a work of art, accompanied by a testimonial signed by the mayor and principal inhabitants. A local newspaper has recently published an account of the sort of work that is done for the civil population. "In the absence of any permanent system of control (says our contemporary) it is impossible to furnish complete statistics of the work done, but the following figures speak for themselves: Within the zone of a single army the English doctors give 245 consultations a day. In that of another army, from October, 1914, to April, 1916, they performed 463 important operations, and treated more than 16,000 cases. This beneficent activity is infinitely varied in character. The English doctors have had to combat all the common diseases and to take measures against the epidemics which always threaten to develop in time of war. With that object they have vaccinated all the inhabitants against typhoid fever. They have treated the civilians, unfortunately very numerous, who, in fields or towns, have been wounded by the fire of the enemy. They are constantly called upon to attend women in labour. Their stations have almost everywhere been enlarged by the addition of dispensaries, where they give advice to all comers. They have even established children's hospitals. The chief medical officer of one of these hospitals has been baptised by his little patients 'The English papa.' It would likewise be impossible to praise too warmly the tact of the British medical officers. The general rule adopted by them when called to a patient is to give only the treatment most urgently needed; then the patient is sent back to his French doctor, unless he is mobilized. Universal gratitude is felt towards them. On their part the medical officers of the English army are constantly expressing their admiration of the courage and patience of the people so sorely tried."

SIGHT TESTS FOR THE BRITISH ARMY.

FOUR months ago we called attention to the standard of vision required for the British army, and suggested that its application sometimes resulted in the rejection of men who would be regarded as fit for the armies of other nations. The matter was the subject of a careful article by Paterson and Traquair,[1] of Edinburgh, who summarized their conclusions by stating that the present sight test for general service for recruits for the British army is by far the highest in Europe, and excludes from the fighting line large numbers of men freely used as combatants in the armies of the chief Continental powers. This they attributed to the fact that in the sight test for the British army it was vision without glasses (uncorrected vision) which counted, whereas in the chief Continental armies it was vision with glasses (corrected vision) which counted. We are advised that it is well known to ophthalmic surgeons that many men are still being rejected on account of defective vision for the British army who might safely be accepted. To-day a man who has a visual acuity with both eyes together of 6/3—that is to say, an individual who may be an excellent shot, and who in civil life is conscious of no disadvantage, may be relegated to garrison duties because one of his eyes does not reach the standard of 6/60; whereas another with an acuity with both eyes together of only 6/24, a man who cannot see the bull's-eye at any reasonable distance, is held to be fitted for field service. Any Continental army would jump at the large number of men with practically perfect sight whom we condemn to garrison duty. The plain truth is that by the British system a good sighted man may be rejected and one with vision one-quarter of the normal may be accepted. If the French army and every other Continental army tests its recruits with spectacles on, when these are necessary to good vision, may it not be that they, with their longer experience of a nation in arms, are right? The best shots are the men who see best, and a soldier who has 6/4.5 vision will as a rule shoot better than one with the regulation acuity of 6/24, even if the former gain his good sight with spectacles. The fact that the tests are made without correction of the errors of refraction renders it possible for men to be enlisted who are hypermetropic to a dangerous degree, and even those who have serious disease of the eye. There are, we are told, men to be found in many eye hospitals at home with high degrees of hypermetropia who, after a long and expensive training, have broken down under the stress of active service, and also men with cataract, with retinitis pigmentosa, with extensive choroiditis, or other serious eye disease. Many of these imperfect eyes have done excellent service, and yet the man with one perfect eye is rejected. The War Office would probably be well advised to consult the Ophthalmological Society or to appoint a committee containing ophthalmic surgeons of repute to consult with the army medical officers and overhaul a system which, it is asserted, is now robbing the active army of thousands of fine soldiers—a system which at the same time may admit recruits who are only fit for non-combatant duty to the combatant line. In the navy the question is different. A very high standard is necessary, and the senior service

[1] *Lancet*, May 6th, 1916.

has always been able to demand and obtain the very best. But even here it would seem that a stoker with one perfect eye could fulfil his duties in a completely satisfactory manner.

IONIZATION OF CICATRICES.

A strong plea for the treatment of contracted or adherent cicatrices of the limbs by ionization with potassium iodide is made by Chiray and Bourgnignon.[1] neurologists to one of the French military regions. They used the town supply reduced, and zinc or tin electrodes covered preferably with asbestos. The solution contained 1 per cent. of potassium iodide in distilled water. The current was localized as far as possible to the cicatrix. A negative electrode, with its covering soaked in the iodide solution, was applied over the cicatrix, and a positive wetted with water only was placed on the other side of the limb. The intensity of the current used with an electrode 60 cm. square was generally 10 milliampères, and each sitting lasted half an hour. The first effect noticed was a change in colour; the cicatrix became paler by degrees. At the second stage of treatment the cicatrix became thinner and less indurated and the epidermis more supple. At the third stage the cicatrix was loosened from the deeper parts and moved easily over them. At this stage it might be necessary to use other means to relax or break down adhesions about joints, but by the ionization treatment alone the muscles and nerves involved in the cicatrix might be freed and contractures might then disappear. A sitting was given at first every day, and from an early stage the surgeon began to mobilize the skin and, if possible, the joint. In some cases an extraordinary improvement was observed in eight or ten days, but in the majority not until after five or six weeks; in some treatment had to be extended over three or four months before improvement was marked, and it is said that as a rule treatment should not be discontinued until some such period has elapsed.

HIGH ALTITUDES AND NEURASTHENIA.

Dr. George Molern, of Denver, Colorado (*Journ. Amer. Med. Assoc.*, August 12th, 1916, p. 477), has made investigations concerning the class of patients who are able to live with more comfort at relatively low altitudes and manifest irritable neurotic disorders on going to higher elevations. He finds that the demand for oxygen-carrying elements of the blood increases directly with the altitude. In normal individuals this requirement is met through an increase in the red blood corpuscles and haemoglobin in from three to five weeks—the normal acclimatization. This power of adaptation is diminished or wanting in certain individuals. Deficient acclimatization results in limited oxygen supply or relative anaemia. The increased excitability or irritability of the nerve structures may be explained as a result of diminished oxygen supply. If by therapeutic or other means the blood-forming mechanism can be stimulated, individuals should find no more difficulty in living tranquil lives in the high altitudes than at the sea level. Molern insists that neurasthenic cases do not occur more frequently in high altitudes than in low. He admits that rarefied air may cause discomfort where neurasthenia has already developed, but contends that neurasthenia is infrequent in districts where the air is rarefied. The general standard of living, he says, is always better in high altitudes than in congested centres of population in great towns and populous valleys. Work is seldom carried on in small rooms under artificial light. There is a greater average of bright cloudless days, and intensity or actinism of the light at high altitudes is favourable to health.

SWEATING IN NERVOUS DISORDERS.

In many lesions of the central or the peripheral nervous system the readiness with which the affected areas of skin perspire is altered. This fact has, of course, long been known, but Professor Negro of Turin has recently described[2] a neat method of demonstrating such changes in the perspirational activity of the skin. It consists in applying to the patient's skin by means of a powder-puff a mixture of three parts of blue litmus and one part of tartaric acid, both as finely pulverized as possible and dry. The patient is also given a hypodermic injection of a sixth or a quarter of a grain of pilocarpin nitrate or hydrochloride in the middle line of the back. This causes him to break out into a perspiration, which shows itself at once by turning the blue litmus powder red. Any delay or acceleration, as the case may be, in the reddening of an area of the skin, due to a nervous lesion, is thus readily observed, and its precise limits can easily be noted. Professor Negro adds that the method of recording direct imprints of sweating areas on sheets of litmus paper in cases of nervous lesions was described by him as long ago as the year 1903.

SCIENTIFIC AND INDUSTRIAL RESEARCH.

The report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1915–16 has recently been issued.[3] The sum at its disposal for the financial year 1915–16 was £25,000, out of which £4,250 was granted to the Royal Society. For the current financial year 1916–17 the vote was £40,000, and at the close of the academic year a sum not exceeding £6,000 will have been granted to a number of individual research workers, students and others. In an appendix is the first annual report of the Advisory Council. It consists of Sir William S. McCormick (chairman), Lord Rayleigh, Sir George T. Beilby, Mr. W. Duddell, Professor J. A. McClelland, the Hon. Sir Charles A. Parsons, Professor J. F. Thorpe, and Mr. Richard Threlfall. There are three standing committees—on engineering, metallurgy, and mining respectively. A sketch is given of Government action in the present century previous to May, 1915, when the presidents of the Boards of Trade and Education received a deputation from the Royal and other learned societies, urging the need for Government assistance for scientific research for industrial purposes, and the establishment of closer relations between the manufacturers and scientific workers and teachers. The Government scheme was issued a couple of months later, and the special committee of the Privy Council and the Advisory Council itself were thereupon set up. The object of both committee and council was to be the establishment of "a permanent organization for the promotion of industrial scientific research." Thus was recognized the necessity for organizing the national brain power in the interests of the nation at peace. War has remained as much an art as ever, but its instruments are now not only forged by the man of science, but they need a scientific training for their effective use. This, the report says, is equally true of the weapons of industry. The brains, even the very processes, that to-day are necessary to the output of munitions were yesterday needed, and will be needed again to-morrow, for the arts of peace. The Council was faced from the first with the fact that the war had greatly reduced the number of workers available for research, and it found that certain researches conducted or directed by professional associations in the period preceding the war stood in grave jeopardy of enforced abandonment. The first act of the Council, therefore, was to save as many derelict researches as possible; its second was to confer with professional and other societies concerned, especially with chemical and electrical industries; its third to form a register of researches; its fourth to aid research in educational institutions, and its fifth to form the standing committees already mentioned. The appointment of other standing committees is in contemplation. The sphere of universities

[1] *La Presse Medicale*, August 3rd, 1916.

[2] C. Negro, *Giorn. d. R. Accad. di Med. di Torino*, 1916, lxxix, 233.

[3] H.M. Stationery Office. Cd. 8,356. Price 3d.

and technical colleges in relation to the work with which the Council is concerned is discussed, and finally certain general conclusions are drawn. The first is that a largely increased supply of competent researchers must be found, and the second, that there must be a hearty spirit of co-operation among all concerned, men of science and of business, working men, professional and scientific societies, universities and technical colleges, local authorities, and Government departments. It was found that the output of the universities before the war was altogether insufficient to meet even a moderate expansion in the demand for research. It is hinted that hitherto the scientific army in Great Britain has consisted of a brilliant group of staff officers, and it is bluntly said that we have not yet learnt how to make the most of mediocre ability, though without scientific rank and file it will be as impossible to staff the industrial research laboratories that are coming as to fight a European war with seven divisions. The Council expects to be able to encourage a longer period of training by the offer of research studentships, but "it is useless to offer scholarships if competent candidates are not forthcoming, and they cannot be forthcoming in sufficient numbers until a larger number of well-educated students enter the universities. That is the problem which the education departments have to solve, and on the solution of which the success of the present movement in our opinion largely depends." The Council considers that the organization of research in the interest of various industries must be co-ordinate. "It must be continuous in its operation, and its ramifications will spread as knowledge grows. It will inevitably tend to bring industries into intimate relation which are at present independent of each other; to transform what have hitherto been crafts into scientific industries; and to require co-operation, not only between different firms in the same industry, but between groups of industries in a continuously widening series of inter-related trades. The forces which are at work in this direction have elsewhere found their expression in connexion with the trust and the combine; but we believe, if the real nature of these forces is clearly grasped, that it will be possible to organize them for the benefit, not only of the industries, but of the nation as a whole." The report, as will be seen, has little direct bearing upon medicine except in so far as it relates to the industry in synthetic drugs, but the general principles discussed are full of interest to all who are concerned with medical education.

BELGIAN REFUGEES.

As a result of the inquiry conducted by a committee presided over by the Duke of Norfolk, the President of the Local Government Board has issued a memorandum on the arrangements for the welfare of Belgian refugees in this country. In a covering letter addressed to secretaries of local refugee committees it is stated that about a quarter of a million refugees have come to this country, and that by the action of local committees and private hosts a great deal has been done to secure their welfare. The Duke of Norfolk's committee has now recommended that, with a view to continuing the assistance and securing a closer co-operation between the many organizations looking after the welfare of the refugees, it has become desirable that a chief commissioner should be appointed, and that the work which the War Refugees Committee has hitherto undertaken in the distribution of Government grants should be brought more directly under the control of the Board. Mr. Basil Peto, M.P., has been appointed chief commissioner without salary. At the beginning of 1915 it was found that in many trades to which the refugees belonged workmen were in demand, and the members of the Official Committee of Belgians in this country appealed to their compatriots to make a return for the hospitality shown to them by accepting suitable work when it was offered. This committee strongly pressed the view that, in the interests of the Belgians themselves, it was of great importance that they should not remain idle, and to-day the great majority of Belgian workmen are in employment, and largely supporting themselves and their dependants. But there remain many refugees who are not able to undertake remunerative work, and others who, though in employment, sometimes need financial or other assistance. For them assistance, either by way of money grants or the provision of hospitality, has continued to be necessary. A new Belgian law calling to the colours all males between 18 and 40 years of age will have the effect of increasing the number of women and children needing assistance, and they have special claim on British hospitality. Many local committees have still funds sufficient to carry on their work, but while it is hoped that the committees and private hosts will continue to render all the assistance in their power, and in many cases will be able to do so without outside financial assistance, Mr. Long states that in the event of such assistance being required the Government is prepared, subject to necessary rules and conditions, to continue to afford it through the War Refugees Committee. The memorandum states that the society known as "L'Union Belge" or "De Belgische Eendracht" has recently been approved by the Insurance Commissioners for all parts of the United Kingdom. It is carried on under the auspices of the Belgian Ministry, and any Belgian desiring to join the society should communicate with the secretary at 6, Grosvenor Gardens, London, S.W. Belgians who are not already members of approved societies should be advised to join either the Union Belge, or any other society they may prefer willing to admit them to membership. The Local Government Board has undertaken to pay or provide for the special or institutional treatment of sick refugees without funds of their own, but it is desirable that such cases should as far as possible be dealt with in the locality in which the sufferer resides. With regard to cases of tuberculosis, it is advised that the tuberculosis officer of the county or county borough should be asked to report upon the case. If he advises sanatorium or hospital treatment but is unable to obtain it, a direct application may be made to the Board, which is prepared to pay the reasonable cost of maintenance in an appropriate institution. Cases of lunacy should be dealt with by the guardians of the union in the ordinary way, but the Board is prepared to refund to the guardians the expenditure on removal and maintenance. General correspondence with regard to Belgian refugees should be addressed to the Chief Commissioner, War Refugees Committee (Government Branch), General Buildings, Aldwych, W.C.; or, in Scotland, to the Secretary, the Glasgow Corporation Belgian Refugee Committee, 234, St. Vincent Street, Glasgow.

CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

THE Insurance Acts Committee of the British Medical Association has decided to call a conference of representatives of Local Medical and Panel Committees at a date in the second or third week of October, of which due notice will be given. Earlier in the year the majority of Local Medical and Panel Committees had expressed opinions to the effect that it would not be necessary to hold such a conference this year, but in view of recent events, and in particular of the preparation of schemes for the treatment of venereal diseases, it has been considered that the wiser course would be to hold a conference. Opportunity will be taken to consider any possible modification of the agreement for 1917, and a memorandum, which has been prepared in accordance with the request of the conference held last year, will be presented.

THE WAR.

THE PAVILION MILITARY HOSPITAL FOR LIMBLESS SOLDIERS, BRIGHTON.

THE Pavilion Military Hospital for limbless soldiers has now been open for several months, and an account of the work done there will furnish proof of the wisdom of the War Office in organizing special hospitals for the treatment of special varieties of war injuries. Other hospitals on similar lines have been established at Bray in Wicklow, Belfast, Glasgow, and Kelso. The Brighton hospital contains 610 beds, all reserved for limbless soldiers. The primary function of this institution is to put limbless soldiers into a condition which will enable them to be fitted with artificial limbs at Roehampton or one of the other similar institutions.

Before transference to Roehampton, it is necessary that a man shall be absolutely ready to have an artificial limb fitted. All sinuses must be healed, all bulbous nerve endings removed; the patient must be free from all adhesions limiting the normal movements of the joints, and all joints flexed by scar tissue must have been kept hyperextended for a considerable period.

Of the cases admitted to the Pavilion it is found that some seventy per cent. require further treatment. The treatment required may involve reamputation, or the removal of bulbous nerve ends, or osteophytic growths, or necrosed bone, or there may be some sepsis which needs attention. It is satisfactory to announce that all the cases are put into a condition to have an artificial limb fixed, and the surgeons at Roehampton have stated that they have never had a case in which some form of artificial limb cannot be fitted; the average duration of treatment at the Pavilion is two months. After notification of cure to Roehampton only a few days elapse before the men are transferred from the Pavilion. Owing to the great demand on the beds available, arrangements are being made for sending selected cases on furlough till accommodation can be provided at Roehampton provided they have suitable homes to go to.

A very special feature of the hospital is Queen Mary's Workshop, presented by the Queen to the hospital for the purpose of enabling the patients during their stay to fit themselves for a future career by gaining knowledge in skilled trades. The whole cost of maintaining the workshop is met by charitable persons, who either subscribe money, provide material, or give their services. Mr. Robert Mitchell acts as honorary director, and he and his helpers are to be warmly congratulated on the immediate success of their work. The men appreciate the classes, and are diligent and assiduous in their attendance. It is indeed wonderful to note how skilful they become, in spite of the loss of one or more limbs. Their cheerfulness, too, under circumstances which might well depress Mark Tapley himself, is a thing to marvel at.

So far four special departments have been opened. It is proposed to open others as occasion may arise. Those attending the courses at the Queen Mary's Workshop at Brighton will, when they proceed to Roehampton, be enabled to complete their instruction in similar workshops there, while waiting for their artificial limbs and being instructed in their use.

Motor Department.—Here the men have an opportunity of not only gaining knowledge in regard to motor cars, their management, running, repairs, etc., but also of becoming good chauffeurs. The enormous increase in the use of motor vehicles for all purposes offers an almost endless number of openings at remunerative wages to men with the necessary knowledge.

Electrical Department.—In this department men can acquire a knowledge of electrical apparatus, electrical machines, lighting, telephones, bells, and so on. They are trained also as electrical assistants and attendants in private mansions, theatres, hotels, houses of business, workshops, mills, and coal mines. Special instruction is also given to men to qualify them for posts as switchboard attendants in electric light works.

Carpentry and Woodwork Shop.—In this section men are taught to be expert wood workers in factories, workshops, and houses of business, and they are instructed also in the duties of house and estate carpenters.

Educational Classes.—These classes are intended to instruct the men for such vocations as require a good knowledge of English grammar and spelling, book-keeping, shorthand, typewriting, etc. They also give an opportunity for those who intend to adopt other occupations to improve their general education.

The men are urged not to neglect the unique opportunity offered them to ensure their future. They are strongly advised to take up one or more courses, and thus diminish the handicap due to the loss of a limb. Numbers of employers have expressed their willingness to engage all those men who attain the necessary degree of proficiency. All men who have gone successfully through any one of the trade courses of the workshop at Roehampton Hospital have obtained employment. It is pointed out to the patients still at Brighton that the same advantage will be theirs if they utilize to the utmost the classes available, and thus assist themselves to attain a reasonable degree of independence.

Lieutenant-Colonel R. Neil Campbell, C.B., C.I.E., is the officer commanding at the hospital, Lieutenant-Colonel Davis, I.M.S., is in charge of the division, and Colonel J. Turton, V.D., acts as secretary and registrar. The work, both of treatment and training, is carried out in the best possible manner, and all those engaged in it are heartily to be congratulated on the success of their endeavours.

RUMANIAN ARMY MEDICAL SERVICE.

IN a letter to the *Muenchener medizinische Wochenshrift* of March 21st, 1916, a Rumanian correspondent gave a summary of the events that led to the reorganization of the Rumanian Army Medical Service, which may now claim to be among the most efficient in Europe. This was, apparently, far from being the case only a few years ago. In fact, the blunders committed in the brief campaign of the second Balkan war were so serious that wholesale reforms were inevitable. Though the Rumanian participation in that campaign lasted barely two months, and though not a drop of blood was shed in the advance, which stopped only a little short of Sofia, the casualties from sickness were very heavy. In a few weeks more than 6,000 soldiers had succumbed to cholera, which dogged the heels of the victorious Rumanian army even after its return home. The disease was conveyed to the remotest districts in Rumania, and it was stamped out only after the most energetic measures for its repression had been adopted. The causes of this and other disasters were numerous. There was a shortage of fully trained bacteriologists, of travelling laboratories and of military hospitals. Yet there was no reasonable excuse for this shortage; the men and the materials were available in adequate numbers, but they were not used to the best advantage. The supreme direction of the medical service was then in the hands of men who expected medical skill to be proportionate to rank, who assumed a general knowledge of every branch of medicine on the part of the army doctors, and were oblivious of the need for specialists. Hence the appointment of elderly, retired army doctors to the command of large moving or stationary hospitals, of physicians to important surgical appointments, and of skilled surgeons, including even university professors and teachers, to regiments on the march, or to duty in cholera barracks—all this because appointments went by military rank instead of by professional qualifications. Another cause of the faulty sanitary conditions was a shortage of drugs and dressings in the field.

The thorough badness of this state of things paved the way to wholesale reorganization. The rank of the army doctor was largely determined by his professional qualifications. Third-year students were given the rank of lieutenant, university teachers that of lieutenant-colonel, and twenty years of practice was a qualification for the rank of major. The military age for doctors, chemists, and veterinary surgeons was raised to the end of the 65th year. Doctors with special training were appointed to duties for which that training qualified them; and, generally speaking, the distribution of the doctors aimed at a maximum of efficiency and a minimum of waste. The management of hospitals, laboratories, disinfecting stations, and operating theatres was also completely reorganized, large stocks of drugs and dressings were collected, and the number of motor ambulances and of *x*-ray installations was brought

up to the requirements of modern warfare. The reorganization of the whole Army Medical Service was entrusted to the well-known Bucarest surgeon, Dr. Angelescu. Provision was also made for the medical care of the civilian population in the event of mobilization, doctors too old for service being given this task. Arrangements have been made for the most effective employment of dentists, chemists, and nurses. In short, an almost completely new and thoroughly up to date medical service has been established, and the Rumanians are, in this respect, evidently justified in awaiting the test of war with confidence.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN D. B. MACLEAN, R.A.M.C. (temporary).

CAPTAIN G. S. MILLER, R.A.M.C.(TEMP.).

Captain George Sefton Miller, R.A.M.C., was killed in action on September 8th. He was the son of Mr. Leonard Miller, vice-chairman of the Miller General Hospital for South-East London (Greenwich), and was educated at Colfe Grammar School, Lewisham, and at Guy's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P. in 1912, and graduated M.B. and B.S.Lond. in 1913. After holding the appointments of house-surgeon to out-patients, clinical assistant, and house anaesthetist at Guy's Hospital he became chief clinical assistant in the throat, nose, and ear out-patients' department of that hospital He passed the examination for the F.R.C.S.Eng. in 1914, but was only admitted to Fellowship on attaining the prescribed age of 25 this year. He received his commission in the Royal Army Medical Corps early in 1915, and went to France in April of that year. He was promoted captain on April 27th last.

CAPTAIN H. H. PROUDFOOT, R.A.M.C.(TEMP.).

Captain Harold Heafford Proudfoot studied in the University of Edinburgh, and graduated M.B., Ch.B. in 1911. After holding the office of house-physician to the Edinburgh Royal Infirmary, he was successively house-surgeon to the Bolton Infirmary, and assistant medical officer to Monsall Fever Hospital before being appointed resident medical officer to the Burnley Union Infirmary. He received his commission as lieutenant (temporary) in the Royal Army Medical Corps on May 1st, 1915, and was promoted captain on the anniversary of that day,

CAPTAIN A. J. WAUGH, R.A.M.C.(TEMP.).

Captain Arthur John Waugh, R.A.M.C., was killed in action on August 18th. He was the third son of Mr. Walter Waugh, of Chigwell Hall, Chigwell, Essex, and was educated at Cambridge, where he graduated B.A., and at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1912. He obtained a temporary commission as lieutenant three days after the declaration of war, on August 7th, 1914, was promoted to captain on completion of a year's service, and was attached to the North Staffordshire Regiment when killed.

LIEUTENANT M. W. LOY, R.A.M.C.(TEMP.).

Lieutenant Martin William Loy, R.A.M.C., was reported as killed in action in the casualty list published on September 7th. He was educated at the London Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1894, and was in practice at New Brompton, Kent, till he received a temporary commission in the R.A.M.C. on February 10th, 1916.

Died of Wounds.

CAPTAIN J. M. STENHOUSE, R.A.M.C.(TEMP.).

Captain John Maitland Stenhouse, who was reported as wounded towards the end of July, died of his wounds on August 25th. He was the son of the late Major General W. Stenhouse, of the Indian army, and was educated at Cambridge, where he graduated B.A. in 1900, and M.B. and B.C. in 1903, and at the London Hospital, where he successively held the appointments of clinical assistant in the aural out-patient department, senior clinical assistant for out-patients, resident anaesthetist, receiving-room officer, house-physician, and house-surgeon. He then served for a time as medical attendant to Prince Leopold of Battenberg, with whom he spent two winters at Khartoum. Later he joined the staff of the Union Medical College, Peking, and in the Boxer rising served on the medical staff of the Chinese Imperial forces. He received the decoration of the Double Dragon for his work during the outbreak of pneumonic plague in Harbin, 1910–11. One of his brothers was in command of the guard at the British Legation in Peking during the rising. Another brother has been killed in the present war. Captain Stenhouse obtained a temporary commission as lieutenant in the R.A.M.C. immediately after the war began, on August 24th, 1914, and was promoted to captain on completion of a year's service. He had been recommended for the D.S.O. for his gallantry and devotion to duty during the recent fighting. He leaves a widow and two young children.

CAPTAIN G. H. WOOD, N.Z.A.M.C.

Captain G. H. Wood, of the New Zealand Army Medical Corps, whose death from wounds was announced in the BRITISH MEDICAL JOURNAL of August 26th, where his name was erroneously spelt Woods, was a son of the late Mr. George Wood, shipmaster, of North Shields, and entered the mercantile marine as a boy, gaining an extra master's certificate at the age of 23. He was for a time chief officer on the White Star line, and entered the medical profession at the age of 30. He leaves a widow and two children.

CAPTAIN T. C. HOUSTON, R.A.M.C.(T.).

Captain Thomas Cameron Houston died on August 25th, of wounds received the same day. He was a nephew of Mr. James Houston, of Linkieburn, Muirkirk, Ayrshire, and was educated at Glasgow University, where he graduated as M.B. and Ch.B. in 1915. Immediately after qualifying, on April 2nd, 1915, he joined the Lowland Mounted Brigade Field Ambulance as a lieutenant, and was promoted to captain on completion of a year's service.

Wounded.

Captain H. St.A. Agate, R.A.M.C. (temporary).
Captain A. S. K. Anderson, R.A.M.C. (temporary).
Captain L. Anderson, R.A.M.C. (temporary).
Captain G. M. Campbell, R.A.M.C. (temporary).
Captain R. C. Coatsworth, R.A.M.C. (temporary).
Captain A. A. Cooper, R.A.M.C. (temporary).
Captain D. A. Donald, R.A.M.C. (temporary.
Captain R. H. Fothergill, R.A.M.C. (temporary).
Captain W. K. Fry, R.A.M.C. (temporary).
Captain J. T. Gunn, R.A.M.C. (temporary).
Captain J. Kirker, R.A.M.C. (temporary).
Captain J. Mackenzie, R.A.M.C. (temporary).
Captain B. B. Noble, R.A.M.C. (temporary).
Captain A. O. P. Reynolds, R.A.M.C. (temporary).
Captain F. W. Squair, R.A.M.C. (T.F.).
Captain G. E. St.C. Stockwell, R.A.M.C. (temporary).
Captain W. E. Wallis, R.A.M.C. (temporary).
Lieutenant H. C. W. Allott, R.A.M.C. (temporary).
Lieutenant J. G. Bell, R.A.M.C. (temporary).
Lieutenant S. Bryan, R.A.M.C. (temporary).
Lieutenant W. S. T. Connelly, R.A.M.C. (temporary).
Lieutenant B. M. Courtney, R.A.M.C. (temporary).
Lieutenant J. R. Elwood, R.A.M.C. (temporary).
Lieutenant E. Hudson, R.A.M.C. (temporary).
Lieutenant H. Mitchell, R.A.M.C. (temporary).
Lieutenant C. E. Tucker, R.A.M.C. (temporary).
Lieutenant and Quartermaster E. C. Bowen, R.A.M.C.

Died on Service.

CAPTAIN H. H. TANNER, R.A.M.C.

Captain Harold Herbert Tanner, whose death was announced in the casualty list published on August 28th, was the son of Dr. Herbert Tanner, of Westbourne Grove, London. He was educated at St. Mary's Hospital, where he had acted as prosector in anatomy. He took the M.B. and B.S.Lond. in 1910. He joined the R.A.M.C. in June, 1915, and had recently been promoted captain.

LIEUTENANT W. W. FARRAR, R.A.M.C.(TEMP.).

Lieutenant William Watt Farrar, whose death was announced in the casualty list published on August 28th, was educated at the universities of St. Andrews and Glasgow, graduating M.B. and Ch.B. at Glasgow in 1901. After acting as assistant medical officer at Rainhill County Asylum, he settled in practice at Misterton, Notts, where he was medical officer of health to the Misterton Rural District Council, medical officer and public vaccinator to

the Misterton District of Gainsborough Union, certifying factory surgeon, and medical officer to the post office. He received his commission in the R.A.M.C. on October 10th, 1915.

Prisoner of War.

Captain V. D. O. Logan, R.A.M.C. (temporary), is reported to be wounded and a prisoner in German hands. He was reported as missing in July (BRITISH MEDICAL JOURNAL, July 22nd).

DEATHS AMONG SONS OF MEDICAL MEN.

Adams, Auriol C. A., Second Lieutenant Royal Lancaster Regiment, only son of Surgeon Colonel Adams (retired), killed on August 18th. He was born in India, educated at Bedford, joined the Inns of Court O.T.C. in the spring of 1915, got a commission in the autumn, and had been at the front for five months.

Bernard, Henry Claude, Second Lieutenant Gloucestershire Regiment, attached Worcestershire Regiment, eldest son of Dr. Bernard, of Fishponds, Bristol, killed on September 3rd, aged 22. His commission was dated September 1st, 1914.

Berridge, William Eric, Second Lieutenant Somerset Light Infantry, younger son of Dr. W. A. Berridge, of Radnor Park West, Folkestone, formerly of Redhill, died of wounds. He was educated at Sunningdale, Eton, and New College, Oxford. His commission was dated December 2nd, 1914. He had been at the front for nine months.

Berry, Alexander James, Second Lieutenant Lancashire Fusiliers, elder son of Dr. Jackson Berry, of West Dene, Pendlebury, Manchester, killed on August 21st, aged 22. He was educated at Eccles Grammar School, and should have entered at Caius College, Cambridge, in September, 1914, but on the outbreak of war enlisted in the Public Schools Battalion of the Royal Fusiliers. He got a commission in April, 1915, and went to the front a year later.

Bidie, George Maxwell Vereker, Lieutenant Royal Scots and Royal Flying Corps, only son of Lieutenant-Colonel G. Bidie, I.M.S., met with a fatal accident flying to France on July 8th, aged 22.

Blakely, William Thomson, Private, Cameron Highlanders, younger son of Dr. W. T. Blakely, of Kirkintilloch, killed August 17th, aged 23. He was in the O.T.C. at Glasgow University, enlisted in the first month of the war, and had previously been wounded at Loos. Before enlistment he was in the office of the Linen Thread Company, Glasgow.

Craig, Eric E., Second Lieutenant Royal Irish Rifles, fourth son of Dr. James Craig, of Londonderry, killed recently, aged 20. He was educated at Foyle College, and at Queen's University, Belfast, where he was studying medicine. At the beginning of the war he joined the O.T.C., got a commission in December, 1915, and went to the front two months ago.

Dowker, Frederick Henry, Lance-Corporal Royal Fusiliers, only son of the late Dr. Dowker, of Helmsley, Yorkshire, killed July 27th, aged 39.

Fayle, Gerald Lee Bleeck, Lieutenant Royal Engineers, third son of Lieutenant-Colonel R. J. L. Fayle, R.A.M.C. (retired), of 51, Canninge Road, Clifton, killed recently. He was born in 1894, educated at Clifton College, passed into Woolwich in December, 1912, and got his first commission on August 12th, 1914.

Floyd, H., Second Lieutenant Royal Flying Corps, only son of Dr. Floyd, of Kilkeel, co. Down, died of wounds as a prisoner of war in Germany, aged 21. He was formerly a despatch rider, attached to the Royal Engineers. He was severely wounded while flying over the German lines on August 25th, and taken prisoner.

Grellin, Lionnie J., Captain Royal West Surrey Regiment (the Queen's), second son of Dr. T. F. Grellin, temporary Captain R.A.M.C., of Ridge Hill, Wimbledon, killed on September 2nd, aged 27. He was educated at Wimbledon and at Stonyhurst, enlisted in the 5th Hussars at the beginning of the war, got a commission on March 27th, 1915, and went to the front in July, 1915. He was present in the battle of Loos last year.

Littlewood, George Patrick, Captain Sherwood Foresters, son of Dr. Littlewood, of Highfield, Mansfield, Notts, killed on September 3rd, aged 27. He was a mining engineer, and after serving his apprenticeship with the Blackwell Colliery Company, Derbyshire, became assistant manager of the Wigan Coal and Iron Company at Standish, near Wigan. Enlisting in the Royal Fusiliers at the beginning of the war, he got a commission in August, 1915, became lieutenant in December and captain last January, and had been at the front about six months.

Rankin, Francis Wallace Home, Lieutenant the Border Regiment, second son of the late Brigade-Surgeon Lieutenant-Colonel D. Rankin, R.A.M.C., and 15th Hussars, killed on August 23rd, aged 29. His first commission was dated December 19th, 1914.

Rorie, Thomas Hendricks Baker, Captain Black Watch, eldest son of the late Dr. Rorie, medical superintendent of West Coast Asylum, Dundee, killed recently. He became a member of the Common Chartered Accountants Society in 1897, and practised in Dundee, where he was a member of the Dundee Parish Council, Lochee Ward, of the Dundee District Committee of Forfar County Council, and of the Dundee Harbour Board. He was the oldest playing member of the Forfarshire County Cricket Club. He had held a commission in the 4th City of Dundee Territorial Battalion of the Black Watch for some years past, and retained the rank of captain on March 26th, 1915, but about six weeks before his death had been attached to the Gloucestershire Regiment. He leaves a widow and one child.

Walker, Reginald, Major Royal Engineers, second son of Dr. Dunbar Walker, of Pembridge Gardens, W., died on September 5th, of wounds received on August 31st, aged 39. He was born in July, 1877, got his first commission from Woolwich in January, 1896, became lieutenant in 1899, captain in 1905, and major on October 30th, 1914. From July, 1911, to April, 1914, he was serving on the Anglo-Belgian Boundary Commission in Rhodesia.

MEDICAL STUDENT.

Handford, R. S., Second Lieutenant Rifle Brigade, wounded on August 9th, and died shortly afterwards. He was the eldest son of Mr. William Handford, of Barum, Gerrard's Cross, and was educated at West Buckland School, where he was a sergeant in the O.T.C., and a prefect. On leaving school in December, 1913, he became a medical student, but at the beginning of the war enlisted in the Honourable Artillery Company, and got a commission on May 5th, 1915.

NOTES.

HONOURS.

THE *London Gazette* of September 6th announced the names of a few naval officers upon whom various honours had been conferred. Among them were two medical officers, Fleet Surgeon E. J. Finch, who received the C.M.G., and Staff Surgeon A. F. Fleming the D.S.O.

A CANADIAN SOCIETY IN PARIS.

The sanitary formations sent by Canada to France comprise twenty doctors and about three hundred nurses, male and female. They have formed themselves into a society which is to meet once a month for the discussion of scientific and professional questions. The first meeting took place on September 4th in the great theatre of the Sorbonne. Among those present were most of the professors of the Paris Faculty of Medicine. Professor Landouzy, the dean, who presided, welcomed the Canadians who had come to defend the cause of justice "as much by filial piety towards France as by loyalty to the United Kingdom." Colonel de Martigny, in replying, said "Our brothers in khaki fight side by side with yours, happy, if need be, to sleep their last sleep in the sweet land of France." Professor Albee of New York delivered an address on bone grafts.

FREEMASONS' WAR HOSPITAL.

The Freemasons' War Hospital, established in Fulham Road, London, through the generosity of the craft, is now ready to receive wounded men. It has sixty beds, and is provided with an operating theatre, *x*-ray departments, and apparatus for radiant heat treatment.

RED CROSS STAMPS.

Among the ways of raising money for the wounded in small sums may be mentioned the so-called war stamps which can be used to ornament the back of an envelope. The French stamp is a tricolor, with, in the centre, the French cock over a laurel wreath enclosing the Red Cross. The National Philatelic War Fund has produced a British stamp representing Britannia taking up the sword of justice. It has been engraved and printed in colour gratuitously by Messrs. Perkins, Bacon and Co., the firm that printed the first postage stamp, the historic "Penny Black" English stamp of 1840. The stamps may be purchased at the price of 1d. each, or 6d. a set of six different colours, from the Fund, 151, Strand, W.C. The proceeds go to the British Red Cross and the Order of St. John of Jerusalem.

England and Wales.

NEWCASTLE-ON-TYNE.

British Association.

THE annual meeting of the British Association began here on the evening of September 5th, when the President gave his address. Sir Arthur Evans, who is Professor of Prehistoric Archaeology in Oxford, wisely chose a subject within his own domain, speaking on the light which archaeology had recently thrown on the origin of civilization in Europe, its Magdalenian forerunners in the south-west, and its Aegean cradle. It had been, he said, abundantly made clear that the rise of Hellenic civilization was part of a wider economy, and could not be regarded as an isolated phenomenon. Its relation to the ancient centres in the south and east had been established by its affiliation to the civilization of prehistoric Crete, and by the revelation of the extraordinarily high degree of proficiency that was there attained in almost all departments of human art and industry. The civilization of ancient Egypt was no longer regarded as something apart, but its influence was seen to lie about the very cradle of our own civilization. Civilization in its higher form to-day, though highly complex, formed

essentially a unitary mass. It had no longer to be sought out in separate luminous centres, and still less was it the property of one country or people. After an allusion to the interruption of scientific inquiry, due to the war, he appealed to the country to prepare for the even more serious struggle against the enemy in our midst, against ignorance, apathy, and the non-scientific mental attitude, and the absorption of popular interest in sports and amusements. What, he asked, was the attitude of those in power—of our Government, still more of our permanent officials?

"We hear," he said, "of 'Commissions' and 'Enquiries,' but the inveterate attitude of our rulers towards the higher interests that we are here to promote is too clearly shown by a single episode. It is those higher interests that are the first to be thrown to the wolves. All are agreed that special treasures should be stored in positions of safety, but at a time when it might have been thought desirable to keep open every avenue of popular instruction and of intelligent diversion, the galleries of our national museum at Bloomsbury were entirely closed for the sake of the paltriest saving—three minutes, it was calculated, of the cost of the war to the British Treasury! That some, indeed, were left open elsewhere was not so much due to the enlightened sympathy of our politicians as to their alarmed interests in view of the volume of intelligent protest. Our friends and neighbours across the Channel, under incomparably greater stress, have acted in a very different spirit.

"It will be a hard struggle for the friends of science and education, and the air is thick with mephitic vapours. Perhaps the worst economy to which we are to-day reduced by our former lack of preparedness is the economy of truth. Heaven knows!—it may be a necessary penalty. But its results are evil. Vital facts that concern our national well-being, others that even affect the cause of a lasting peace, are constantly suppressed by official action. The negative character of the process at work which conceals its operation from the masses makes it the more insidious. We live in a murky atmosphere amidst the suggestion of the false, and there seems to be a real danger that the recognition of truth as itself a tower of strength may suffer an eclipse.

"It is at such a time and under these adverse conditions that we, whose object it is to promote the advancement of science, are called upon to act. It is for us to see to it that the lighted torch handed down to us from the ages shall be passed on with a still brighter flame. Let us champion the cause of education, in the best sense of the word, as having regard to its spiritual as well as its scientific side. Let us go forward with our own tasks, unflinchingly seeking for the truth, confident that, in the eternal dispensation, each successive generation of seekers may approach nearer to the goal."

The twelve sections were opened on September 6th, in most cases by an address from the President. In the Section of Physiology the address of Professor A. R. Cushny, of University College, London, was devoted to the subject of the analysis of living matter through its reactions to poisons. In the Section of Anthropology a discussion was raised by a paper by Professor Keith, who described recent modifications in the facial type of the English people. The cheek bones were being modified as a part of the general reduction affecting all the parts concerned in the act of chewing, and changes were occurring in the nasal bones which made the aperture narrower. In every tenth modern woman and in every fifteenth modern man there were deficiencies in the development of the jaw bones. These changes had not become common until within quite recent centuries. A comparison of the skulls showed that the English face was narrower and longer. Though the men of the British army to-day were taller, stronger, and braver than any generation of their ancestors, some of the physical changes which could be traced in recent generations were not for our ultimate good, and he urged the need of a physical survey and census of the British people.

Most of the sections brought their work to an end on September 8th, but a few held meetings on September 9th.

At a meeting of the General Committee on September 7th, Sir C. A. Parsons was appointed president of the Association for 1917–18, when it will meet at Bournemouth, and an invitation to hold a meeting in 1918 at Cardiff was accepted.

Birmingham General Hospital.

Mr. Frank Barnes, assistant surgeon has been unanimously elected honorary surgeon to the hospital in the room of Mr. W. F. Haslam, F.R.C.S. Mr. Frank Barnes, who is M.B. and M.S.Lond. and F.R.C.S., was appointed resident surgical officer in 1903, surgical casualty officer in 1904, and assistant surgeon in 1907, so that he has already served the hospital for thirteen years. He is also honorary surgeon to the Orthopaedic and Spinal Hospital, Birmingham. At the request of the board of management, Mr. Haslam has consented to continue in office as an additional honorary surgeon to help his colleagues in these times of stress.

Ireland.

Irish Medical War Committee.

At the meeting of the Irish Medical War Committee held at the Royal College of Physicians on August 17th, Dr. E. McDowel Cosgrave, President of the Royal College of Physicians, in the chair, a letter was received from Sir Thomas Myles, F.R.C.S.I., asking the co-operation of the committee to form a hospital unit for service in the East. The committee directed the secretary to reply to Sir Thomas Myles that it would be very pleased to give him all the assistance in its power, but expressed the opinion that the doctors who would join should receive rank corresponding to their professional standing.

Hospital Ship at Dublin.

The hospital ship *Salta* arrived at Dublin on September 3rd with 494 wounded men and eight officers from France. Two of the officers and 327 of the men were cot cases. Three of them were Irishmen—two from the north and one from Waterford. By an ambulance train, 20 cot cases and 130 sitting cases were dispatched to Belfast, leaving 309 cot cases and 43 sitting cases to be accommodated in Dublin hospitals. The officers were taken to the Officers' Hospital. The men were allocated as follows: Adelaide, 8; Dr. Steevens's, 50 (10 sitting); Jervis Street, 8; Mater Misericordiae, 28; Meath, 42; Mercer's, 10; National Children's, 12; Royal City of Dublin, 12; Richmond, 70 (10 sitting); St. Vincent's, 2; Sir Patrick Dun's, 8; Dublin Castle Red Cross, 90 (5 sitting); Dublin University V.A.D., 4. The cases were distributed among the Dublin hospitals by the Irish Automobile Club ambulance service with the Dublin Corporation motor ambulance, two motor ambulances belonging to the Pembroke Urban District Council, and two A.S.C. ambulances. The Irish Automobile Club ambulance service now includes two vehicles given to the club, which have been fitted with four stretchers, while, as usual, many members lent their cars. Celerity in distribution was considerably facilitated by the absence of other traffic on the North Wall. As usual, the stretcher work at the ship was done by the British Red Cross and St. John Ambulance joint V.A.D.'s. For the work at the North Wall Extension 120 orderlies were detailed, and for that at the hospitals 149. Rain fell steadily throughout the morning, and it was necessary to erect awnings over the hatchways of the ship and cover the men on the stretchers with oilsheets as they were carried to the motors. In order to obviate discomfort and suffering due to bad weather, gangway shelters are to be fixed on the extension and so arranged that the motor ambulances can back into them, so that the cases may be brought from the ship and put into the vehicles under cover. The work of disembarkation of the patients was accomplished with a precision which is the outcome of good organization and experience. The work of removing the wounded started at 9 o'clock and was completed by 1 p.m.

Health of Belfast.

The annual report for 1915 of the medical superintendent officer of health (Dr. H. W. Ballie) states that the population is estimated by the Registrar-General of Ireland as 403,000; the birth-rate on this estimation was 25.3 per 1,000, a decrease of 2.7 compared with the preceding year. The death-rate was 17.9 per 1,000, a decrease of 1.0 compared with 1914. This is the lowest death rate recorded, with the exception of that of 1911. There was a fall in the number of deaths registered as due to typhoid fever (total 10), diarrhoea (239), scarlet fever (107), whooping-cough (134), measles (177), and diphtheria (27); the number of deaths from phthisis (813) compares favourably with the numbers of the last ten years. The death-rate of

children under 1 year of age was 3.5 per 1,000, as compared with 4.1 of the previous year; 695 deaths were registered as due to the zymotic diseases, and this compares very favourably with 1,107 in 1914. Typhoid fever used to carry off its hundreds yearly; only 10 proved fatal in 1915. The national schools, numbering 292, were regularly inspected, but as both male, female, and infants are occasionally under the same roof, there are not so many buildings. Allowing 10 square feet for each pupil, according to the regulations of the Commissioners for National Education, there is accommodation in these schools for 58,500 pupils; the number on the roll during the year was 65,649, while the average attendance was 49,964. Twenty-five schools were found to be overcrowded on each inspection, and 118 occasionally.

The report makes satisfactory reading. It cannot be hoped that succeeding years will all prove as healthy, but comparison with past years shows a betterment, and will prove a stimulus to further efforts in what seems at times the almost hopeless fight for public hygiene. Dr. Bailie gives some surprising figures in the unromantic department of the removal of domestic refuse, which show the enormous amount of labour involved; for instance, the number of cleansings of ashpits and ashbins amounted to 2,354,801; number of mattresses burnt, 1,157; number of dead animals burnt, 4,139, etc.

Victoria.

EFFECTS OF THE WAR.

VICTORIA, like all parts of the British Empire, has felt somewhat acutely the shortage of medical men absent on war service. Those who, in the interests of the general public, must necessarily remain, have therefore experienced great difficulty in obtaining qualified medical men as assistants or locumtenents, and in a few quarters there has been a tendency to employ fifth year students to make good the deficiency. The Council of the Victorian Branch of the British Medical Association, recognizing the grave dangers which may attend this practice, has notified members of the Branch that they should apply to the Council before appointing a senior student to such positions.

The effects of the war on the entries of medical students in Victoria are indicated by the following figures, which, for the current year, are complicated by the action of the Commonwealth Defence Department in recalling from the front all students of medicine:

1914	116
1915	99
1916	126

VENEREAL DISEASES.

The Minister of Trade and Customs has made available the report on venereal diseases issued by the Committee concerning causes of death and invalidity in the Commonwealth. The report, which is signed by Mr. James Mathews, Chairman, Sir Harry Allen, Professor of Pathology in the University of Melbourne, Dr. J. H. L. Cumpston, Federal Director of Quarantine, and Dr. A. Jeffreys Wood, Physician to the Children's Hospital, Melbourne, states that in the year 1914, 7,189 deaths may more or less correctly be ascribed to syphilis, and that, "however faulty the schedule may be, no one can deny that thousands of lives are lost in the Commonwealth every year by syphilis, that an immense amount of sickness and inefficiency is caused by it, and that the misery entailed is terrible." All forms of venereal disease are covered by the report, and the committee states that it is opposed to any form of contagious diseases Act. The report concludes with some valuable educational and legislative recommendations. Acting on these, it is understood that, subject to each State adopting compulsory notification of venereal diseases, the Commonwealth Government has allocated the sum of £15,000 for the purpose of subsidizing on the £ for £ basis the work undertaken by any of the states in the direction of controlling the spread of venereal diseases.

DEPUTY SURGEON-GENERAL JAMES LANDALE, of Cheltenham, a veteran of the Indian mutiny, left estate valued at £45,436.

Correspondence.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—I note with interest the opening of your columns to correspondence on a medico-social topic of high importance under the caption, "The obligations and consequences of the war to medical and allied sciences and the honour and interests of the medical profession." It is a pity the subject is not defined in less complex terms, and perhaps the author would make the concession of a simplified version as an aid to clear and direct discussion. In their context the first few words are perplexing, and Dr. Rowland Fothergill's explanatory letter gives me no light on "the obligations . . . of the war to . . . the medical profession." Transposed so as to read "the obligations of the medical profession to the consequences of the war," the words carry a very practical meaning.

Unless I misread Dr. Fothergill, he pleads for the approximate unification of the profession into a social apparatus for the public welfare. This admirable ideal is not new, for it has long fascinated many minds, and once it has woven its spell no implement of critic or cynic can expel it. The puzzle is to find a way to the goal. If the only road be one that is going to be paved with the willing combination of most doctors and medical bodies it will be long and toilsome, perhaps interminable. The end is more likely to be attained by other means, and social astronomers who ponder the tendencies of legislation tell us the rim of the new planet, if not the full orb, is already in sight.

Although a mere truism, it is in place to remark that the structure of society is subject to continuous change by the interaction of many forces. The war has deeply modified the speed and volume of some currents and deflected others. By common consent the relations of the medical profession to other bodies in the social system cannot be otherwise than sensibly affected in the general mutations; and it stands to the credit of the Representative Meeting that it has shown sufficient foresight, on the initiative of Dr. Fothergill, to appoint a committee instructed to survey the situation impending before the profession, and to furnish an advisory report. As one who has had long and intimate acquaintance with the corporate work of the Association, I know the task will be undertaken with zeal and ability. I wish I could feel equally certain the effort will be as successful and suitably requited as it promises to deserve. But that issue is for the future, and the event will teach us in its hour.

Meanwhile I welcome what bids fair to become a great movement, and I support the appeal made to all of us to bend our influence in the direction of unity.—I am, etc.,

Birmingham, Aug. 31st. J. T. J. MORRISON.

SIR,—May I venture to suggest that the letter of Dr. F. Rees in your issue of September 2nd only illustrates the Nephelo-Coccygia in which the medical profession lives from the medico-political point of view? There is really no suggestion of any method for the building of a more substantial structure.

Dr. Rees dismisses the recommendations contained in my letter of August 26th with the statement that the British Medical Association already possesses all the office room and the organization necessary for carrying out my suggestions. Is this so? And are the office room and organization used in such a way as to obtain the best results? At all events, later on Dr. Rees affirms that in the last twenty-seven years the medical profession has never been in such bad odour with public authorities as it is at the present time. The result is ascribed to the use of certain phrases. The treatment is summed up in the statement that "if we are to gain the confidence of the public we must base all our schemes on the fact that we are primarily British subjects and only secondarily members of the medical profession."

These brave words are quite worthy of Cloud-Cuckoo-Town. They contain no vestige of a hint of concrete foundations for public confidence. I commend to Dr. Rees the suggestion in my previous letter. "The first necessity is watchfulness, which can only be maintained by a whole-time officer—preferably a layman—trained in keeping an

eye on the earliest symptoms of activity on the part of politicians or philanthropists."

Can Dr. Rees point to the existence of such a watchman, capable of turning, and in a position to turn, his earliest observations to the good not only of the medical profession but also of this country? Until such a man exists I fear that the bad odour will be rather like the smell of the rat—seen in the air, but by no means nipped in the bud.—I am, etc.,

September 11th. ADULT.

NITROUS OXIDE-OXYGEN ANAESTHESIA.

SIR,—The letter of Sir James Barr upon nitrous oxide-oxygen anaesthesia calls for remark, for it is unfortunate that sound views upon the importance of carbonic acid as a stimulant of the respiratory centre should be associated with obscure or loose writing upon the action of oxygen. The natural stimulant for the respiratory centre is carbonic acid, as shown especially by the researches of Haldane and his pupils. "Hyperoxygenation" does not, as Sir James Barr appears to think, produce apnoea. On the other hand, a deficiency in the supply of oxygen may stimulate the respiratory centre so much that the excessive ventilation of the lungs in the effort to obtain more oxygen may wash out too much carbon dioxide and thus produce apnoea. A subject breathing pure oxygen does not pass into apnoea; his rate and volume of breathing are practically the same as when he is breathing air. Apnoea can be abolished most readily by an increased tension of carbon dioxide, and, when it is associated with periods of hyperpnoea and dyspnoea, as in Cheyne-Stokes respiration, can be prevented by breathing oxygen.

The action of morphine and other drugs, which diminish the excitability of the respiratory centre, must be considered in all cases of apnoea during anaesthesia. One effect of apnoea is the abolition of the action of the respiratory pump upon the circulation of the blood from the right to the left side of the heart, and this in some cases appears to be of great importance.—I am, etc.,

M. S. PEMBREY.

Physiological Laboratory, Guy's Hospital, S.E., Sept. 5th.

SIR,—Having had a fairly large experience of the administration of nitrous oxide and oxygen in major surgery, I would ask your leave to make a few remarks on the subject, with special reference to the deaths reported in your issues of July 22nd and August 26th, in which this method of anaesthesia was used. It is, of course, difficult to form an opinion when not present, but, personally, I do not think it is certain that either of the deaths reported were principally due to the administration of nitrous oxide and oxygen.

As Dr. Dudley Buxton has pointed out, the cause of death in Dr. McCardie's case may possibly have been dilatation of the heart; but the patient had received a full dose of scopolamine with morphine, and morphine was again given just before the anaesthesia; he was also infiltrated with novocain, and the greater part of the operation (*vide* report) was done not under nitrous oxide anaesthesia, but under scopolamine, morphine, novocain, and collapse. There was no *post-mortem* examination. For about an hour after being back in bed his pulse was good in volume, regular and steady, respiration quiet, still he remained unconscious. Might this not have been due to the drugs injected, and not to the heart, even if dilated, and may not these drugs have contributed to the result?

With reference to the report on Dr. W. E. Robinson's case, I believe stovaine may have had more to do with the result than the nitrous oxide and oxygen. Anaesthesia and toxicity came on at once. From a large experience of spinal anaesthesia I know that when this occurs the toxicity will be excessive, the anaesthesia probably high, or in some cases an unusual idiosyncrasy to the drug may be present. The usual time for general toxicity and faintness to come on is from twenty to twenty-five, or sometimes even thirty, minutes after injection, and the patient may vomit and be collapsed up to this time, and therefore in the case reported I believe that the vomiting and collapse may still have been due to toxicity. Shock from forcibly pulling on the uterus could occur in the presence of a thoroughly good spinal anaesthesia.

Some years ago Captain Marshall, R.A.M.C., demonstrated by pulse tracings in some perfectly satisfactory spinal anaesthesias of mine at Guy's Hospital that a marked fall of pressure can be produced by the application of heat or traumatism to Douglas's pouch. Dr. Head pointed out long ago that some sympathetic fibres must escape even if the abdomen is completely relaxed. This reaction is as a rule quite temporary and negligible, but it might not be so in a case with hypertoxicity and with a heart "large and very fat walls, extremely flabby, and soft." (*Post-mortem* report.)

Mr. Boyle in his letter questions the use of combining general with spinal anaesthesia. However successful the spinal anaesthesia might be, if I were a woman expected to lie in the Trendelenburg position for an hour or more I should prefer to be unconscious under a minimum of anaesthetic, and from a fairly large experience in the methods of combining general and spinal anaesthesias I am sure that the patient will be in a better condition at the end of the operation if she has been unconscious.

In certain cases in which I have wished to use spinal anaesthesia, with the object of saving shock and facilitating the work of the surgeon as to ease and rapidity, but owing to the condition of the patient have been afraid of the collapse from general toxicity and vasomotor paralysis, I have got good results by cutting down the dose of stovaine or novocain, and combining a general anaesthesia with it. The smaller dose of stovaine or novocain gives perhaps faulty anaesthesia, but there will be muscular relaxation and little or no toxicity. Very little of the general anaesthetic will be required, and the patient's condition at the end will be much better than if a full general anaesthetic had been given.

Sir James Barr, in his letter of September 2nd, has completely condemned the administration of nitrous oxide, though his reasons for doing so are not given, beyond a reference to the views of Yandell Henderson, the point of which I cannot understand, as I gathered from reading his works that he recommends the giving of CO_2 and oxygen for the prevention or cure of apnoea, and there is no method of anaesthesia in which this can be done so certainly as in giving nitrous oxide and oxygen with rebreathing. As Sir James Barr has so uncompromisingly stated his view, and as I believe that this method has its place, I would ask leave to state the following views I hold as the result of my experience in giving nitrous oxide and oxygen.

I think that some means of regulating the mixing and flow of the gases is advisable, and I also believe that it is advantageous to warm the gases. In the case of a patient of averagely sound heart and respiratory organs continuous nitrous oxide and oxygen in the hands of an anaesthetist skilled in the method is, perhaps, the safest and pleasantest method of anaesthesia at present in use. In cases, however, in which the condition of the heart is suspect or respiratory ventilation imperfect ether should be given with the nitrous oxide and oxygen during induction, and in some cases a small quantity also during anaesthesia, either continuously or intermittently, as recommended originally by Dr. Fleming. Ether should be added also in any case in which difficulty is met with, instead of efforts to push the gas. Of course, where there is spinal anaesthesia or novocain infiltration, ether will often not be required or very little will be necessary. Sufficient rebreathing must be used to retain the proper amount of CO_2 in the arterial blood. In a paper I read before the Anaesthetic Section of the Royal Society of Medicine in 1913 I suggested that the most important contraindications to the method were "advanced degeneration of the heart and vessels, a marked degree of emphysema, and the presence of dyspnoea or obstruction in the airway."

I also said in the paper referred to, "That there are dangers to be avoided in this as in every method of anaesthesia is quite certain, as deaths acknowledged to have been due to the anaesthetic have been reported." I believe these dangers can be avoided by careful choice of the cases in which this method is employed, by the addition of ether during induction, and in certain cases by adding a little ether during the continuance of the anaesthesia either intermittently or, more rarely, continuously; and that the small amount of ether inhaled does not much diminish the advantages to be gained by the administration of nitrous oxide and oxygen.—I am, etc.,

London, W., Sept. 9th. H. M. PAGE.

HEALTH VISITORS AND BIRTH INQUIRY CARDS.

SIR,—I wish to draw the attention of your readers to a card which has been issued to health visitors, entitled, Birth Inquiry. This card is divided into sections, headed, Child, Mother, Father, and House. The mother's name is to be filled in, the number of her children (legitimate or illegitimate), pregnancies, miscarriages, stillbirths, wages of husband, habits, occupation, state of the house (clean or otherwise), repairs, occupants, nuisances, and flies—in fact, a very inquisition of the most private nature.

Now, if the health visitor fills in this card openly after plainly telling the head of the house that she intends to do so, and asking his permission to collect the necessary information, she will run the risk of being shown the door more firmly than politely. If, on the other hand, she gets her information (as I have reason to believe) by stealth—that is, by a series of friendly visits and show of sympathy without letting her victims know of the card and its purpose—she is, in my opinion, and I am sure in the opinion of many of my fellow practitioners, acting very wrongly.

How is professional secrecy to be safeguarded in these circumstances? How are we to be assured that no improper use is to be made of these cards with people's names attached, and all their medical secrets set out and tabulated?

In this age of the craze for inspecting everybody and everything, it is time that we made a stand for professional secrecy, and now is the time to nip the activities of these officials in the bud. The poor are as much entitled to domestic privacy as the rich, and I for one shall always warn them against the activities of the modern Mrs. Pardiggle with her card system.—I am, etc.,

Yattendon, Berks, Sept. 4th. F. A. BRODRIBB.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

Instruction of the Young.

SIR,—As some misunderstanding seems to have arisen in regard to the attitude of the National Council for Combating Venereal Diseases towards the question of compulsory notification of venereal disease, we desire to point out that we are determined to adhere strictly to the recommendations of the Royal Commission. That body carefully considered this question, and arrived at the conclusion that notification at the present time was impracticable, and might be detrimental to the operation of the measures it advocated.

A great mass of evidence was taken, and the balance was strongly opposed to compulsory methods of this nature. The Commissioners, however, recognized that, when public opinion became more enlightened, and adequate facilities for treatment had been provided, "the question of notification should then be further considered." They added that, when those conditions have been fulfilled, it is "possible that . . . notification in some form will be demanded."

We are convinced that this view is sound, and the National Council will, therefore, lend no support to any proposals having for their object the establishment of compulsory notification—proposals which would necessarily lead to controversy at a time when unanimity of effort is essential.—We are, etc.,

SYDENHAM,
President.
THOMAS BARLOW,
HUBERT M. SOUTHWARK,
Vice-Presidents.

National Council for Combating Venereal Diseases,
Kingsway House, Kingsway, W.C.,
September 5th.

SIR,—With regard to the letter of "A Public School Master" in your issue of September 2nd, the subject of the instruction of the young is one of particularly vital interest to those of us who are both doctors and the fathers of boys.

"A Public School Master" is not quite convincing in his reference to the percentage of masturbators in a certain school before and after a period of special instruction, but he does suggest that good rather than harm resulted from the "instruction given sanely and privately," and many of us would welcome gratefully some more detailed indications of what should be said and what left unsaid.

I believe that this most difficult problem—difficult alike for the clergyman, scout-master, school-master, and general practitioner—has "warned us off," one and all, not from laziness nor indifference, but from fear—fear lest the word spoken should prove more harmful than helpful, and more suggestive than repressive.

Will "A Public School Master" tell us what he has found it wise and helpful to say in the "two conversations at about 10 and 15"?—I am, etc.,

September 6th. DADDY, M.R.C.S.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—"M.D.," writing on the Midwives Act, recommends Ireland to "put up with the ills she has rather than flee to those she knows not of."

In rural Ireland formerly we had only handywomen practising in our districts. The results were so bad that the Irish Government Board, recognizing its responsibility, and acting in conjunction with the local boards, and with the approval of the medical profession, undertook the duty of limiting the injury which was being done by untrained midwives, and placed in the dispensary districts qualified maternity nurses to afford free treatment to persons whose means prevented them from making competent provision for the lying-in period. The extent to which this movement has developed can be gauged from the fact that in the 741 dispensary districts of this country there are now employed 789 qualified midwives acting under the supervision of the Local Government Board. The movement is decidedly progressive, as in the year 1910 their number was 714. By the co-operation of the dispensary doctors with the official nurses the handywoman is fast disappearing from practice, and that excellent result was brought about by the insistence of the doctor, when summoned under the Poor Law, on the presence of the trained local nurse, in whose charge he places the patient in normal cases, with an instruction to communicate with him if the case at any stage was not progressing favourably. This method has established such satisfactory results that we now find our nurses are primarily called in, and we are only summoned—and that at a proper time—where our presence is actually required. Such an excellent arrangement for the safety of parturient women, and for the protection from unnecessary work and worry of the doctor appeals to me—who have seen human life sacrificed by the handywomen and who have been compelled to undertake long journeys to express a placenta or deliver a woman not needing assistance because of the ignorance of the unqualified nurse in attendance. If unqualified women obtain a legal status we have no option but to attend with them when summoned on the red ticket, and thus rehabilitate them in a position from which they have been displaced by the co-operation of our official nurses and ourselves. Bad as this is it possesses a time limit, after which the now practising handywoman passes from the stage of human destruction to her eternal reward. However, the plague spot in the proposed bill is the woman who does not register, but acting in the guise of a "monthly nurse," is actually performing the work of a midwife under the cover of a dispensary doctor, whom she can easily summon *on a ticket*, so that she may, without incurring punishment, be enabled to carry on her business "habitually and for gain" "under the direction of a registered medical practitioner," and spread sorrow, suffering, and death amongst poor ignorant people, and re-enslave the local medical officer. To the exertions of that class there is no time limit; generation after generation of them may arise and continue indefinitely in existence, and nullify for all time the efforts being made to improve lying-in conditions in this country, and harry the dispensary doctors to death.

It may be said it is as possible for the "monthly nurse" to perpetuate the evils of the handywoman in Scotland as in Ireland. I reply that is not so, because the medical practitioner there will not, generally speaking, attend unless his fee is assured, and as an essential condition to its recovery is [Clause 22 (3)], "That the midwife shall report," etc., and as this provision excludes "monthly nurses," who are not registered, and consequently not midwives, from a position to make such reports, it is obvious

that medical men acting with them would be unable to obtain a fee, and not being liable, as Irish Poor Law medical officers are, to be compelled to attend on a ticket, she will find it impossible to carry on her illegitimate trade "under the direction of a registered medical practitioner" as she so easily could do in this country with the assistance of a friendly guardian or warden. Now as mothers of inadequate means are provided for under the Poor Law, while those in better circumstances can make private provision for capable attendance, and while the Insurance Act confers maternity benefit on many thousands of persons to assist them to do so, it is obvious a Midwives Act must have a very limited scope in Ireland, being restricted to persons whose pride would prevent them from availing themselves of the Poor Law, or whose greed would not sanction the expenditure of the maternity benefit where the safety of a mother and child is involved. Under these circumstances, Ireland cannot be considered a "distressful country"—at least, in the rural areas—while in the industrial districts one would hope that between the Poor Law, and the proper application of the maternity benefit, a safe and rational settlement of the question might be effected without further legislation.—I am, etc.,

Ardfinnan, Sept. 1st. J. POWER, M.B.

SIR,—As a contribution to the correspondence on this subject, may I ask you to publish the following resolutions passed at meetings of medical practitioners in Ireland?

1. *Delegates' Meeting, June 11th, 1912:*
   That in view of the introduction of maternity benefit, the presence of a duly qualified midwife in each dispensary district is essential, and that the extension of the Midwives Act to Ireland is imperatively called for.
2. *Delegates' Meeting, January 14th, 1913:*
   That this meeting of delegates do take such steps as possible to have the Midwives Act, 1902, as amended, extended to Ireland, and that the Conjoint Committee be instructed accordingly.
3. *Delegates' Meeting, July 17th, 1913:*
   That in the opinion of this meeting the Midwives Act should be extended to Ireland.
4. *Annual Meeting, Irish Medical Association, June, 1916:*
   That the principles of the Midwives Acts (England and Scotland) should be incorporated in an Act suitable for Ireland, and made applicable to Ireland.
5. *Special Meeting of President and Fellows of the Royal College of Physicians, June 16th, 1916:*

A resolution was passed urging on the Government the necessity for passing a Midwives Act for Ireland.—I am, etc.,

Enniskillen, Sept. 8th. L. KIDD.

Medico-Legal.

IMPERSONATION.

BEFORE the Recorder, at the Central Criminal Court on September 6th, Thomas Coffey, 32, pleaded guilty to giving a false death certificate. Mr. Bodkin, for the prosecution, stated, according to the report in the *Times*, that the prisoner had for six years assumed the name and personality of a registered medical practitioner named William Joseph Greehy. Dr. Greehy had at one time been assistant to the prisoner's brother, who had practised in the north. In August, 1915, the prisoner, in the name of Dr. Greehy, received a commission in the R.A.M.C. Early in the present year the real Dr. Greehy applied for a commission, when the facts came to light. Counsel for the prisoner said that he had won scholarships, had passed the first medical examination in 1901 and the second in 1902, but had failed at his final examination in 1904, and foolishly did not sit again, but assumed Dr. Greehy's name, and went as an assistant to a medical man at Swansea. Chief Inspector Fowler said that the prisoner held a high character as a civilian medical practitioner, and had also given satisfaction in the army. The Recorder said that he did not understand why the prisoner had not sat again for his final examination. He could not, he said, remember another case in which impersonation had been carried out so effectively. He sentenced the prisoner to six months' imprisonment in the second division.

THE Chelsea Hospital for Women has received £5,000 from the trustees of the Zunz Bequest, being half an amount promised in aid of the rebuilding of the hospital.

Obituary.

R. W. DOYNE, M.A.Oxon., F.R.C.S.,

CONSULTING OPHTHALMIC SURGEON, RADCLIFFE INFIRMARY, OXFORD.

WITH great regret we announce the death of Mr. R. W. Doyne, of Woodstock Road, Oxford. He was the son of the Rev. Philip Walter Doyne, and was born at Monart, co. Wexford, in 1857. He was educated at Marlborough, and matriculated at Keble College in 1875. Illness prevented his remaining at Oxford, and on leaving he entered the Bristol Medical School, and later on St. George's Hospital. He obtained the diploma of M.R.C.S., and was for a short time in practice in Bristol. In 1883 he joined the navy, but left it in 1885 on his marriage, and settled in Oxford. He took the diploma of F.R.C.S.Eng. in 1892, and the honorary degree of M.A.Oxon. was conferred upon him in 1902.

From the outset of his life in Oxford he made a special study of ophthalmology. Beginning in a very small way, with an eye dispensary in a builder's yard, he worked steadily on, encouraged by the loyal support of many good friends, among whom were Sir Henry Acland, Dr. Liddell, of Christ Church, Bishop Paget, Dr. Talbot, the Warden of Keble, and others. Soon the committee rented on a long lease buildings from the County Hospital, and so the Oxford Eye Hospital grew little by little, till it became one of the best known and most useful institutions in the Midland counties. In 1912, after more than twenty-five years' continuous service, Mr. Doyne resigned the post of senior surgeon to the Oxford Eye Hospital, and many of his personal friends and admirers seized the opportunity of connecting his name permanently with the institution by placing within its walls an excellent marble bust with an inscription commemorating his services.

Mr. Doyne was consulting ophthalmic surgeon to the Radcliffe Infirmary. He was also the first reader in ophthalmology to the University of Oxford, a post which he held for eleven years. He was surgeon to the Royal Eye Hospital, London. It was due to his energy that there was started in Oxford a congress of ophthalmologists, which has for years met with such unqualified success, and which has attracted to its discussions some of the most eminent ophthalmologists from every part of the world. For many years Mr. Doyne was the leading spirit of these gatherings. He proved himself a most genial and kindly host, and the success of these meetings depended very largely on the care, forethought, and power of organization he had expended on the arrangements for them. Consequently when ill health prevented his attending the last two gatherings, his work was not forgotten, and formal expressions of regret and sympathy were forwarded to him from the members of the congress present.

To his skill as an ophthalmic surgeon many would be glad to testify. His boundless generosity to patients in needy circumstances was well known to some of his intimate friends. His death at a comparatively early age was due very largely to the intensity of energy he threw into any project he took up, and the scant amount of rest he allowed himself. It was especially owing to this superabundant energy that he bore down the opposition he met with from time to time in carrying out the numerous enterprises connected with his name.

Mr. Doyne was the author of a book entitled *The More Common Diseases of the Eye*, and of papers on Conjunctivitis (*Lancet*, 1910); Visual Sensation, Perception, Appreciation, and Judgement (*Ophthalmoscope*, 1910); Retinitis Pigmentosa (ibid., 1910); The Value and Misuse of Spectacles in Treatment of Headache, Migraine, and other Functional Troubles of the Eyes (BRITISH MEDICAL JOURNAL, 1910); and Description of Hitherto Undescribed Forms of Iritis, Family Choroiditis, and Conjunctivitis (*Trans. Ophth. Soc.*, 1910).

In private life it would be difficult to meet with a more generous friend than Mr. Doyne. In his periods of relaxation he delighted to gather his friends round him, and would do everything in his power to make them enjoy themselves. One of his chief amusements was

fencing, and he was the founder of the Oxford Fencing Club.

Mr. Doyne leaves a widow and two sons, one of whom, a captain R.A.M.C.(T.), is serving in Mesopotamia.

Sir ANDERSON CRITCHETT writes: The malady which overtook our late colleague, Robert Doyne, about three years ago suddenly dimmed an exceptionally bright intelligence, and closed a most promising professional career, but before the blow fell time and opportunity had been afforded him to associate his name with work which must have permanent record. He initiated and brought to a high level of success the Oxford Ophthalmological Congress, and, owing to the deservedly high esteem in which he was held by the authorities, he secured the establishment of a diploma in ophthalmology in connexion with the University of Oxford. Had fate permitted, his marked ability and firm tenacity of purpose might have brought yet further achievement; but now we mourn the loss of an able colleague and a generous friend.

WILLIAM SYMINGTON, M.B., C.M.EDIN., J.P.,

BRAMPTON, CUMBERLAND.

THE death of Dr. Symington of Brampton, Cumberland, which took place on September 3rd, aroused widespread regret in East Cumberland, where he had practised with untiring faithfulness for twenty-eight years. Dr. Symington, who was 51 years of age, was a native of Penicuik, near Edinburgh, and graduated M.B., C.M.Edin. in 1886. Two years later he settled at Brampton, where he obtained the appointments of medical officer of health, district medical officer, medical officer of the workhouse, and public vaccinator. His outstanding characteristic was the earnestness and thoroughness with which he discharged his duties, and he speedily won for himself the trust and confidence of the community in which he worked. He was fond of sport, a keen angler, and a great lover of cricket. He took an active interest in the volunteer movement, and at the time of his death he had reached the rank of surgeon-major of the 4th Border Regiment (T.F.). On the outbreak of the war he was called up for active service, but owing to failure of health he was certified as unfit for foreign service. He was, however, attached to a training camp of the 4th Border Regiment, and took a keen interest in his military duties, being popular alike with the men and with his brother officers. About four months ago he was attacked by a form of blood poisoning which ultimately proved fatal.

Dr. Symington was placed on the Commission of the Peace for Cumberland in 1896, and was regular in his attendance at the police court. He married a daughter of the late Mr. J. B. Lee, solicitor and coroner for East Cumberland, and his wife and two daughters are left to mourn his loss. The funeral, which took place on September 6th, was one of the largest ever seen in Brampton. It was attended by all classes, and was a striking testimony of the esteem and affection which his unselfish devotion to his duties for more than a quarter of a century had procured for him.

MR. WALTER LEY WOOLLCOMBE, of Plymouth, who died on August 30th, at the age of 51, was the son of a local solicitor. He received his medical education at St. Bartholomew's Hospital, became M.R.C.S. and L.R.C.P.Lond. in 1886; five years later he was admitted F.R.C.S.Edin. Soon after qualification he settled in Plymouth, where his family had been long known and esteemed, and he soon acquired a large practice. He was surgeon to the South Devon and East Cornwall Hospital, Plymouth, and consulting surgeon to Tavistock Cottage Hospital and St. Barnabas Cottage Hospital, Saltash. He was president of the Plymouth Medical Society in 1901–2, and in 1914 he was president of the Plymouth Branch of the British Medical Association. He was the author of "Enterectomy for malignant disease" (BRITISH MEDICAL JOURNAL, 1903), "Earlier recognition of cancer" (ibid., 1914), and "Double pyosalpinx with torsion of both pedicles" (*Lancet*, 1901.

DR. W. A. HASLAM, resident medical officer of the Hull Corporation Sanatorium and Fever Hospital, died on September 1st after three days' illness of a fever contracted in the performance of his duties. He was 50 years of age. He received his professional education at Guy's Hospital, and obtained the diplomas of M.R.C.S. and L.R.C.P. in 1892. He was for some time junior house-surgeon at the London Temperance Hospital, and afterwards assistant medical officer at the West Derby Union Infirmary. In 1898 he was appointed medical officer of the Union Infirmary, Prescot, Lancashire. In 1911 he entered the service of the Hull Corporation; at the time of his death, in addition to his appointment at the sanatorium, he was acting as senior tuberculosis officer for the city. There was a large gathering of representatives of the corporation, the Hull Insurance Committee, and of the nursing staffs of the sanatorium and the tuberculosis hospital at the funeral, which took place on September 5th. The Rev. N. Pool, who officiated at the service, said that Dr. Haslam had won from his professional brethren who were best qualified to judge of his work a respect, esteem, and affection which would remain as an inspiration in the noble calling to which they had devoted their lives. Dr. Haslam was a member of the British Medical Association.

DR. GEORGE ALFRED HEBERDEN, of Victoria West, South Africa, who died recently at the age of 55, was a great grandson of the famous William Heberden, author of *Commentarii de morborum historia et curatione*. He studied medicine at St. George's Hospital, taking the conjoint diploma in 1888. In 1889 he went out to South Africa and practised first at Kenhardt. In the early Nineties he went as district surgeon to Barkly West, where he remained till 1906. In that year he removed to Victoria West, where he was district medical officer and resident medical officer till his death. He served as a medical officer in the siege of Kimberley, doing such valuable work that he was rewarded with the Distinguished Service Order. He took a leading part in establishing a cottage hospital at Victoria West. Dr. Heberden was highly respected by all who knew him. He was an active Freemason, and was a P.M. of the local lodge. He leaves a widow and two sons.

PROFESSOR NEISSER, who recently passed away in Breslau at the age of 61, was born in Schweidnitz, and was only 24 years old when his discovery of the gonococcus brought him fame. At this time he was Simon's assistant in Breslau, where, on the death of his chief in 1882, he was appointed extraordinary professor of dermatology and director of the university hospital. It was not till 1907 that he was promoted ordinary professor in Breslau. Although Neisser's name will, no doubt, chiefly be associated with the discovery of the gonococcus, his researches in other fields were far reaching, notably in dermatology, to the study of which he applied the most modern discoveries in bacteriology and serology. His researches in connexion with experimental syphilis occupied many years of strenuous labour, and after Metchnikoff and Roux had shown that syphilis can be transferred to the higher apes, Neisser showed that it could also be transferred to the lower apes. He made an expedition to Java, where, accompanied by several of his pupils, he undertook a series of experiments; the results were published in a bulky volume, *Bericht zur Erforschung der Syphilis*. In it, he discussed the conditions under which syphilis may be transmitted from one animal to another, the distribution of the virus in the body, the infectiousness of syphilis in its various stages, the problems of immunity to syphilis, and other aspects of the disease. It was on the basis of these researches that the details of the reaction which goes commonly by the name of Wassermann were worked out. Leprosy also was a subject to which Neisser devoted much attention, but the venereal diseases undoubtedly claimed most of his time and energy. He advised the treatment of gonorrhœa with protargol, and of syphilis by intermittent courses of mercury after the manner of the French (Fournier) and British (Startin and Hutchinson) schools. He recognized the value of salvarsan in syphilis, but tempered his enthusiasm with discretion, and instead of throwing mercury overboard he, like most clinicians in all countries, insisted on the advisability of combining salvarsan with mercury. He was an inspiring teacher, and in the long list of his pupils there are many distinguished names, including

Scholtz, Marschalko, and Bruck. During the war Neisser gave great attention to combating venereal diseases in the German army.

DR. VALENTIN GILBERT, of Geneva, who died on August 9th, was a leading authority on tuberculosis in Switzerland. He was born at Carouge in 1862 and educated at the University of Geneva, where he graduated M.D. in 1889. In 1890 he was sent by the State Council to Berlin to report on the effects of tuberculin; while not condemning the new remedy he did not allow himself to be carried away by the enthusiasm which it at first excited. In 1893 he was appointed secretary to the first committee formed at Geneva for the prevention of tuberculosis. At the International Congress of Medicine held in Rome in 1894 he read a paper on the treatment of tuberculous pleurisy by the hypodermic injection of small amounts of liquid from the effusion; by this method of auto-serum-therapy, which is known by his name, he claimed to have obtained good results. He was consulting physician of the Federal railways. In 1911 he was elected president of the Société Médicale de la Suisse Romande. Since the outbreak of the war he had been serving as a medical officer of the Swiss army.

Universities and Colleges.

UNIVERSITY OF LONDON.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

A Burney Yeo Scholarship for 1916 has been awarded to E. A. Woods, B.A., of New College, Oxford.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. (France) desires to exchange with M.O. in any capacity at home, or with M.O. in ambulance train, hospital ship, or base hospital. Address No. 3700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical Officer in military hospital, Southern Command, desires exchange to Northern Command, any appointment. Address No. 3699, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

HER MAJESTY THE QUEEN will open the extension of the London (Royal Free Hospital) School of Medicine for Women on October 2nd at 3 p.m.

A BOOK on the practice of gynaecology has been written by Dr. Jellett, Master of the Rotunda Hospital, and will be issued with coloured plates by Messrs. Churchill at an early date.

THE President of the Local Government Board has issued a circular to local authorities stating that he has decided to establish a Register of Work which might be undertaken at the conclusion of the war, and inviting the authorities to supply him with forecasts of what is likely to be requisite and possible in their several areas.

A THREE months' course of lectures and demonstrations in hospital administration for the D.P.H. will be given at the North-Western Hospital, Hampstead, and the Grove Hospital, Tooting, beginning on October 2nd and 5th respectively. Particulars can be obtained on application to the Clerk of the Metropolitan Asylums Board, Embankment, E.C.

DR. WILLIAM BARRETT ROUÈ, recently deceased, has left £300 to the Bristol General Hospital for the purpose of founding a scholarship for medical students of the hospital, to be called the "Barrett Rouè Scholarship." Dr. Rouè was himself an old and distinguished student at the hospital, in which he always took a warm interest. He practised for many years in Clifton, and was physician to the Bristol Royal Hospital for Sick Children and Women.

THE sum of £1,000 has been collected through Mr. T. R. St-Johnston, M.R.C.S., District Commissioner of the Lau Islands, for the purchase of a pair of the latest type of Red Cross Motor Ambulances for the front. The Lau Islands are a group lying about 200 miles to the east of Fiji; and the natives, an intellectual type of the Polynesian race, are intensely loyal, and have previously subscribed largely to various patriotic funds. The islands annually produce about £100,000 worth of the all-important copra.

A FACSIMILE of Lord Kitchener's letter of May 16th, 1915, calling for 300,000 more men, has been prepared by Messrs. Raphael Tuck and Sons, and is issued in an ornamental cover, designed by Mr. Brangwyn, for the benefit of the Lord Kitchener National Memorial Fund and the British Red Cross Fund. The cheapest edition is in a khaki cover, price 1s. The next more expensive is in a white cover, price 2s. 6d. It is also to be obtained in more expensive forms.

THIS is the jubilee year of the Reigate and Redhill Hospital, which was founded on September 1st, 1866. It began with six beds, and in the first year thirty-nine cases were treated, and nine operations were performed. The growth of the hospital may be gathered from the fact that last year the number of cases was 665 and 408 operations were performed. The total number of patients treated since the opening of the institution, not including dental cases, is 11,699, and 4,210 operations have been performed. There have been 276 deaths—a mortality of 2.35 per cent.

ON September 7th the medical and lay staff of Claybury County Asylum presented to the retiring medical superintendent, Dr. R. Armstrong-Jones, a silver tea and coffee service. The presentation was made by Mr. Chapman, Chairman of the Asylums Committee, and speeches were made by Dr. Ewart (who will succeed Dr. Armstrong-Jones) and other members of the staff. On the previous evening Dr. Armstrong-Jones was given a silver inkstand in the name of "a few of the 16,000 patients, present and past," and he received from the Asylums Committee of the Council an illuminated address.

IN the autumn list of forthcoming books announced by the Oxford University Press is one entitled *Dr. John Radcliffe, His Fellows and Foundations*, by Dr. J. Baldwin Nias. It is a commemorative volume containing a sketch of the life of the famous physician who offended William III by saying that he would not have the King's two legs for his three kingdoms, with an account of his generous benefactions to his Alma Mater. It also includes biographical notices of the travelling fellows elected on Radcliffe's foundation at Oxford, "collected as a labour of love in the course of many years by the author, himself sometime Travelling Fellow."

THE *Daily Express* has published for the benefit of its Cheery Fund a *Book of Limericks*, the result of a competition started by that paper. The rhymes are very many, and range from A.B., who was a theatrical sailor, to Ypres and beyond. There are a good many illustrations, some of them good, particularly the one of a gentleman who considered that people drink far too much tea. Although the correspondents tell us that the noise at the front is appalling it would appear that the soldiers desire to add to it, for the Cheery Fund has sent out 50,000 mouth organs, not to mention many other wind instruments and gramophones. It has also supplied 4,500 sets of boxing gloves, nearly 5,000 footballs, and nearly 2,000 cricket sets, as well as a large number of cigarettes and pipes and much tobacco. It has in addition a prisoners of war branch. The book can be ordered (price 1s. 6d.) from any bookseller or newsagent, and all the profits go to the fund.

THE usual monthly committee meeting of the Medical Sickness Assurance Society was held at 300, High Holborn, London, W.C., on August 18th, with Dr. F. J. Allan in the chair. The reports submitted showed that the sickness experience for the year, in spite of claims from many members on active service, which in some cases have been of a protracted nature, has so far been well under the expectation. It is estimated that some fifteen hundred members of the society are serving in the R.A.M.C. or navy and other war services. The society has up to the present invested over £20,000 in various war loans and Exchequer Bonds, and has decided that such investments as they hold which may come under the new loans to Treasury Scheme B, should be lent under such scheme. A resolution of deep sympathy with Lady Horsley was passed at the last meeting on the death of Sir Victor Horsley, who has for many years been a trustee of the society. It was decided to continue to accept new members holding temporary commissions in the R.A.M.C., and to insure them against war risks, within certain limits, without payment of any extra premium. Members of the profession over military age and between the ages of 45 and 55 can insure in the society against sickness and accident and life assurance at rates which compare favourably with the terms offered by other companies for the same benefits. All inquiries should be addressed to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

Letters, Notes, and Answers.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2651, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocre Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

OFFICERS ON ACTIVE SERVICE AND PAYMENT OF RATES.

RATES.—According to law, rates must be paid for all houses, unless empty and unoccupied. If the occupier shuts his house up, but leaves his furniture there, rates are still due. We know of no privilege enjoyed by soldiers in this respect, although it is possible that in some areas the rating authorities do not claim the rates in the case of those on military service, as they have the power to grant exemption at their discretion; but such exemption cannot be claimed by the ratepayer as of right.

NICOTINE IN CIGARETTES.

M.R.C.S.—A number of pipe tobaccos, cigars, and cigarettes were examined for the BRITISH MEDICAL JOURNAL, and a report was published in the issue of April 10th, 1909, p. 911. On the whole, the results showed that the tobaccos and cigars pronounced to be strong by smokers contained more nicotine than those pronounced mild. The analyses showed rather unexpectedly that Egyptian and Turkish cigarettes yielded less nicotine than Virginian. It was found that the greater part of the nicotine in the tobacco was destroyed by the heat during smoking, but it appeared to be true as a general principle that the more nicotine there was in a cigar, or in any form in which tobacco is smoked, the more the smoker was likely to take into his system. We do not know of any substance which can be depended upon to extract nicotine from the smoke of tobacco. Many smokers believe that if the smoke is made to traverse a plug of cotton-wool somewhere between the bowl and the mouthpiece, the irritating qualities of the smoke are much diminished. There are numerous devices on the market to carry this out, and the same principle is applied to cigarette-holders.

LETTERS, NOTES, ETC.

ON THE SALT PACK TREATMENT OF INFECTED GUNSHOT WOUNDS.

DR. D. W. SAMWAYS writes, with reference to the paper by Captains Roberts and Statham in the BRITISH MEDICAL JOURNAL of August 26th (p. 282): Sixteen months' experience in a large hospital in Exeter for wounded soldiers has convinced me that a sinus or wound will seldom fail to heal if syringed out once or twice daily from the bottom with eusol. When all discharge ceases the syringing is stopped, and if a sinus continues patent longer than a day or two I syringe or swab it out with a solution of nitrate of silver, 20 grains to the ounce, at the suggestion of Mr. Marmaduke Sheild, the visiting surgeon.

It appears to me that most of the troubles surgeons have with wounds and sinuses arise from not syringing them out efficiently from the bottom. I have replaced some of the nozzles of my syringes by soft copper tubes about 8 in. long and ⅛ in. external diameter. One end is soldered into the screw attachment which fastens it into the end of the syringe, and the other is rounded off with a little solder; so that the whole resembles a long Eustachian catheter, though not so sharply bent at one point. This will go to the bottom of most sinuses, and leave room for the back flow with a little management. To cut open a sinus which can easily be cured without is surely most undesirable.

No doubt the success of Messrs. Roberts and Statham would result in wounds, passed from one station to another and not dressed for two or three days, arriving much cleaner than by other methods as they contend. Cleanliness, however, is next to good surgery, and not before it.

Shrieking wounds arrive at some base in Exeter from the front which have not been dressed for two or three days. These cause no trouble, but the needless amputations and heroic sections which do not involve the sacrifice of "essential structures" often damage a man for life. Are they necessary? Do they not require more evidence than seems forthcoming to justify them?

LANTERN SLIDES (JAWS AND TEETH).

A SERIES of lantern slides has been prepared by Mr. Smith, Platinotype Company, 66, Beckenham Road, Penge, from original drawings and diagrams made by Captain H. M. Holt, R.A.M.C., Officer-in-Charge of the Jaw Hospital, Stanford Road, Norbury, S.W., for the use of those engaged in dealing with jaw injuries. A set of six slides comprising (1) the muscles of the face, (2) skull, (3) maxillary and adjacent regions, (4) mandible, teeth with roots, (5 and 6) half mandible, inner and outer surfaces, may be had for 10s. post free. Four slides have been prepared showing the daily menu for the week under A, B, C, and D diets in use at the hospital. They may be had for 6s., post free. There is, we are informed, no profit attached to these charges. The slides are produced solely for those who are engaged in jaw work, and who may feel the need of such assistance.

WARM ETHER.

DR. GEORGE FOY (Dublin) writes: The article "Warm Ether" (August 19th, p. 268) should awaken interest in the value of warm anaesthetics. You refer to their use some ten years ago in the University College Hospital, but warm ether was used long prior to that. Pearson, of Birmingham, used it to relieve bronchial irritation, and for the relief of the distressing cough of the advanced stage of tuberculosis in the terminal decade of the eighteenth century, as did Beddoes. As an anaesthetic I saw the late Sir Philip Smyly administer it in the Meath Hospital, Dublin, in 1872–74, with the best results, and I have not infrequently followed his method, which consisted in wringing a large conical Turkey sponge out of very hot water, enclosing the squeezed sponge in a cone of towelling, then pouring into the centre of the sponge the ether and applying it over the patient's mouth and nose. On page 141 of my book, *Anaesthetics, Ancient and Modern* (1889), there is described an apparatus for the administration of warmed anaesthetic vapours. The apparatus is designed especially for the use of nitrous oxide gas, but it can be readily adapted for the use of ether.

THE PARAFFIN TREATMENT OF BURNS.

DR. JOSEPH STARK, L.R.C.P.Edin. (Winchburgh, West Lothian), writes: With reference to your publication on the paraffin treatment of burns and your note that the treatment of ulcers by paraffin spray may possibly prove successful, I beg to state that I remember when a boy, twenty-five years ago, my father treating indolent healing hacks or fissures on the back of my hands, caused by playing marbles on damp soil, by running hot shoemakers' resin into the fissures. The results were good, the parts healing under the hardened resin. I can quite well understand that the resin filling would be aseptic, and that the hot liquid resin would cause the septic crack to become sterile.

MEDICAL MISSIONARIES.

THE secretary for the Medical Missions department of the S.P.G., Dr. Hugh H. Weir, has been good enough to send us the following list of societies in this country which send out or support medical missions, to supplement the note published in the JOURNAL of September 9th, p. 330:

Baptist Missionary Society, 19, Furnival Street, Holborn, E.C.
China Inland Mission, 45, Newington Green, N.
Church of England Zenana Missionary Society, 27, Chancery Lane, W.C.
Church Missionary Society, Salisbury Square, London, E.C.
English Presbyterian Missions, 7, East India Avenue, E.C.
Friends' Foreign Mission Association, 15, Devonshire Street, Bishopsgate, E.C.
London Missionary Society, 16, New Bridge Street, E.C.
London Society for Promoting Christianity among the Jews, 16, Lincoln's Inn Fields, W.C.
Mission to Lepers, 28, North Bridge, Edinburgh.
Moravian Missions, 7, New Court, Carey Street, W.C.
Society for the Propagation of the Gospel, 15, Tufton Street, Westminster, S.W.
Universities' Mission to Central Africa, 9, Dartmouth Street, Westminster, S.W.
Wesleyan Missionary Society, 24, Bishopsgate, E.C.
Zenana Bible and Medical Mission, 33, Surrey Street, Strand, W.C.
Presbyterian Church in Ireland, The Church House, Belfast.
Church of Scotland, 22, Queen Street, Edinburgh.
United Methodist Missionary Society, 202, Gravelly Hill, Birmingham.
United Free Church of Scotland, 119, George Street, Edinburgh.
Welsh Calvinistic Methodist Mission, 16, Falkoner Street, Liverpool.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A NOTE ON WEIL'S DISEASE (SPIROCHAETOSIS ICTERO-HAEMORRHAGICA) AS IT HAS OCCURRED IN THE ARMY IN FLANDERS.

BY

ADRIAN STOKES, CAPTAIN R.A.M.C. (TEMPORARY),

AND

JOHN A. RYLE, CAPTAIN R.A.M.C.(S.R.).

INTEREST in the subject of infectious jaundice has lately been reopened by a monograph from Drs. Inada, Ido, Hoki, Kaneko, and Ito.[1] Weil first described the disease which bears his name in 1886. It was characterized by jaundice, pyrexia, haemorrhages, and the fact that it was apparently infectious, as the cases occurred either in widespread epidemics or localized groups of cases, or sometimes all the members of a single family would be affected at the same time. In the British Isles the epidemic form is rare, but the family type of infectious jaundice is well known. Widespread epidemics have been seen in the United States, and outbreaks have been reported in India, Africa, and the Near East. To quote the Japanese workers: "In the western part of Japan there prevails an epidemic and endemic disease characterized by conjunctival congestion, muscular pains, fever, jaundice, haemorrhagic diathesis, and albuminuria, which is known as Weil's disease, or febrile jaundice. At the end of last year (1914) the same disease was observed in Chiba, in the eastern part of Japan, near Tokyo, where the patients numbered 178." During the operations in the Gallipoli peninsula there was a widespread epidemic of jaundice, and though we are informed that there is little clinical resemblance between the cases that occurred in the Near East and those which we propose to report in this paper it is still possible that they may have been an anomalous type of the same disease. In Osler's *Medicine* we find:

> The symptoms are at first gastric, then fever follows (with the usual concomitants) and jaundice, which may be slight or very intense, and as a rule albuminuria. The liver and spleen are often enlarged, and in the severe forms there are nervous symptoms and haemorrhages. There is often a secondary fever and the attack lasts from ten days to three weeks. The course is usually favourable; fatal cases are rare in the United States and in India and South Africa, but in the Greek Hospital at Alexandria the death-rate was 32 among 300.

ETIOLOGY.

In 1914 Inada and Ito reported the discovery of a spirochaete in the liver of a guinea-pig which had been injected with the blood of a patient who was suffering from Weil's disease. In 1915 these authors came to the conclusion that this spirochaete was the cause of Weil's disease, and later they found that the blood of patients recovering from Weil's disease contained protective substances against the spirochaete they had found. Further, they showed that when they injected the blood of patients with Weil's disease during the first five days of the disease into the peritoneum of a guinea-pig, the animal developed albuminuria, pyrexia, and jaundice, and they were able to show the spirochaetes in the liver and blood of the animal in large numbers. They were able to pass the infection from animal to animal, and in one strain they had reached fifty generations.

The experiments made with normal people and patients suffering from catarrhal jaundice produced no such result. Subsequently the Japanese workers were able to show the same spirochaete in six specimens of patients' blood in the intestinal wall in one case, and in the adrenal glands in another case of 11 autopsied cases. In two cases which came to autopsy on the sixth day of illness they found the spirochaete in the liver in almost as great numbers in the liver of the guinea-pig. They have, with the blood of 13 of a series of 17 cases of Weil's disease, succeeded in producing the disease in guinea-pigs, the animals showing the typical signs of the disease and the spirochaete being found in the blood and liver of the animals. They state that the blood of all cases taken on the fourth or fifth day of illness gives positive inoculations, and after the fifth day the results are inconstant as the disease progresses. They indicate that the spirochaetes disappear from the blood of the patients coincidentally with the appearance of an immune substance in the blood. In the early stages they state that the spirochaetes are in the blood stream, and as the illness progresses they disappear, and they have been unable to demonstrate them in the tissues. At some period after the tenth day the spirochaetes appear in the urine, and they have been able to demonstrate them both by dark ground illumination and by animal inoculation. The appearance of the spirochaetes in the urine is a consequence of the appearance of the immune substance in the blood. They have been able to find the spirochaetes in the urine as late as the thirtieth day.

Mode of Infection.

Weil believed that the infection was through the alimentary canal. Inada supports this view. Ido and Oki have noticed that the disease sometimes begins with a local swelling of the lymph glands, and they have further been able to communicate the disease to animals by applying infective material to the uninjured skin; this leads them to think that there is a possibility of the infection occurring through the skin exposed to infective material. In support of this they found that the disease was frequent in men working in a certain part of a coal mine and that when the accumulated water was pumped out on their suggestion, there were no further cases in that part of the mine. They also noted that there are more cases in wet mines than in dry mines, and that men working on the surface did not contract the disease. Though this does not show that the infection is necessarily through the skin, it makes it worth considering and is important from the point of view of soldiers working in the trenches. They say that, judging from their clinical cases, infection from man to man is rare. There is the further possibility of the infection being carried by mosquitos or vermin, but they state that they do not think that it occurs, though the reasons for this conclusion are not very clear.

GENERAL CLINICAL PICTURE OF THE DISEASE IN THE CASES REPORTED.

Our attention was first called to the disease by a fatal case of jaundice which was under Captain Flood, R.A.M.C. He has given us permission to mention the case.

> The man was admitted with a temperature of 105° and very deep jaundice. On the evening of admission there was severe epistaxis which necessitated the plugging of the nares. Haemorrhagic diarrhoea set in and on the third day after admission the trunk and limbs were covered with haemorrhagic petechiae; death followed on the next day. At the *post-mortem* examination, by Captain Marshall, R.A.M.C., multiple haemorrhages in the pleurae, pericardium, and peritoneum were the most striking thing. The bile passages were free and the duodenum was normal.

This is the only case that we have seen in which the haemorrhages were of more than a trivial degree, and in this case they were apparently the immediate cause of death. At the time no guinea-pigs were available and the tissues for microscopic examination were unfortunately lost by one of us (A. S.). An emulsion of the liver was examined by dark ground illumination and no spirochaetes seen. A second fatal case occurred a few days later, the patient being admitted under Major Young, C.A.M.C., in an advanced state of toxaemia, and he succumbed during the night after a slight haematemesis. The autopsy revealed no marked haemorrhages, and except for the very extreme jaundice there was nothing to find, the duodenum and bile passages showing nothing abnormal: The liver and kidney from this case were examined by Professor Laidlaw, and he tells us that he was unable to demonstrate the spirochaetes. The case terminated on the twelfth day and the absence of spirochaetes is in accordance with the findings of Inada and his collaborators. About fifteen cases of Weil's disease have now come to our notice, and we have been able to confirm the findings of the discoverers of the pathogenic cause of the disease. In two cases we have infected the animals, and they have shown the characteristic pathological changes and we have been able to demonstrate the spirochaetes.

The earliest cases that have come under our notice have been one on the fifth day of illness and four on the sixth day; the latest case was admitted on the tenth day. With the exception of one case all the men at the time of the onset of the disease were, or had recently been, employed in the trenches. In four instances more than one case

occurred in the same unit. They gave a uniform history of onset, and all the men knew accurately the day on which they first felt ill; this indicates the acuteness of the inception of the symptoms.

The characteristic symptoms have been generalized pains in the head and lower limbs. The patients complain of weakness, and of feeling as if they had been beaten all over, and they are reluctant to move their arms or legs. They frequently complain of severe pain in the eyes; some have complained of vague, unlocalized abdominal pain. In the majority the pains appear to be muscular; the patient is unwilling to have his arm extended for the purpose of taking blood. In one case the pain was apparently most felt in the tibiae. All the patients on admission were very weak, and complained of the early feeling of unsteadiness and inability to stand. One man was found in a fainting condition in the latrine, and another fainted in the trenches and was unable to walk.

Most of the men say that they have been vomiting repeatedly, and in a few cases that they have thrown up blood. Some of the patients say that they have had nose bleeding, but this is not very common.

We have only in three cases any evidence as to the early temperature. In one we have only the patient's word for it, but he was very clear that the temperature on the first day of his illness had been 106° F. In the other two cases we have good evidence that the onset was accompanied by a temperature of 103° F.

In only one case was the patient aware of the day on which jaundice appeared, and he dated it on the fourth day of illness. In two other cases the regimental medical officer told us that the men were not jaundiced when he last saw them on the third day of illness.

On admission the most striking characteristic is the jaundice and the extreme injection of the conjunctivae accompanied by great prostration.

Alimentary System.

The tongue is very dry, brown and fissured. We have seen haemorrhagic herpes labialis in five cases. Abdominal examination revealed enlargement of the liver in only one case and in no instance was there enlargement of the spleen. All the patients were constipated. The stools were of normal colour and bulk. In some of the cases there was blood in the dejecta. Vomiting in the early stages occurred in every case. Diarrhoea was not noted in any case. Appetite, which was lost during the period of pyrexia, returned as soon as the jaundice began to fade. Hiccough occurred in the two most severe cases, one of these terminated fatally. One fatal case had uncontrollable haemorrhagic diarrhoea, and in one other case traces of blood were passed by the bowel.

Circulatory System.

The pulse-rate was as a rule slow in proportion to the pyrexia, and there was very definite slowing during the convalescence. In two of the more severe cases there was a rapid pulse during the first week. The tension and volume was good, even late in the fatal case. There was no evidence of cardiac dilatation.

Respiratory System.

There was no evidence of respiratory complications, but in the acute stages a little blood stained sputum was noted.

In two cases in which hiccough occurred a peculiar catchy type of inspiration was at times observed.

Excretory System.

Two cases had difficulty in micturition for which there was no obvious cause. The urine contained bile, and there was a slight albuminuria during the pyrexial period in all cases. Acetone was found in the urine of the fatal case.

Nervous System.

Sleeplessness due to the severe pains was common in the early stages; in the more grave cases torpor was noted, and in one fatal case this progressed to the "typhoid state," with rambling delirium and muscular tremors. Pruritus due to the jaundice occurred in three cases.

Lymphatic System.

All cases showed enlarged glands. The pectoral group of the axillary glands were most often felt as discrete shotty nodes on the thoracic wall of the axilla. Glands in the neck and groin were also felt. These were sometimes tender on pressure. The spleen was never palpable, and percussion did not show an enlarged area of dullness.

The Skin.

Varying degrees of jaundice were seen. It was usually of a lemon or orange tint, and never approached the greenish colour of obstructive jaundice. The colour rapidly increased and as rapidly decreased as convalescence began. The degree of jaundice was not constant for two consecutive days, and was always most striking in the severe cases. The date of appearance of the jaundice as far as we know is on the fourth day. Petechial haemorrhages only occurred in one fatal case.

The Fever.

All cases showed an irregular pyrexia descending by lysis. Subnormal temperature was common in early convalescence, and also preceded death in one case. A few cases presenting all these symptoms with the exception of jaundice were seen, but in the absence of the jaundice they were not investigated.

PROGNOSIS.

From the cases that have been observed it would appear that there are both mild and very severe types of Weil's disease. The jaundice, weakness, and pain in some of the cases have been slight and not of long duration. On the other hand, there have been three deaths, and at least two other cases have been very ill.

The following are short clinical notes of the individual cases, with temperature charts.

CASE I. (Captain Ryle.)

Pte. R., aged 19, was admitted on May 13th, 1916, the sixth day of illness, with the following symptoms and signs: Jaundice; pains in the abdomen, head, and limbs; dry, furred tongue; conjunctival injection; enlarged and painful axillary glands. Liver dullness normal, spleen normal. No other definite physical signs. Epistaxis, haemorrhagic sputum, haemorrhagic herpes labialis; slight albuminuria; difficulty in micturition.

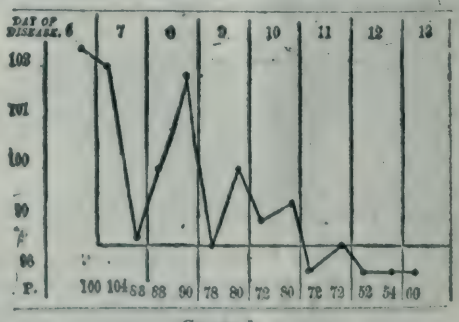


CHART 1.

A guinea-pig inoculated intraperitoneally with blood taken on the sixth day developed jaundice on the seventh day after inoculation, and spirochaetes were found in the liver emulsion by dark ground field illumination.

CASE II. (Major Young.)

Cpl. G. was admitted on May 18th, 1916, with jaundice and a temperature of 102.8° F. Onset May 11th; temperature 103° F. Giddiness, vomiting, abdominal pain, general malaise. No haemorrhages. On May 12th the temperature was normal; on May 13th normal in the morning and 104° F. in the evening. He was sent to the field ambulance.

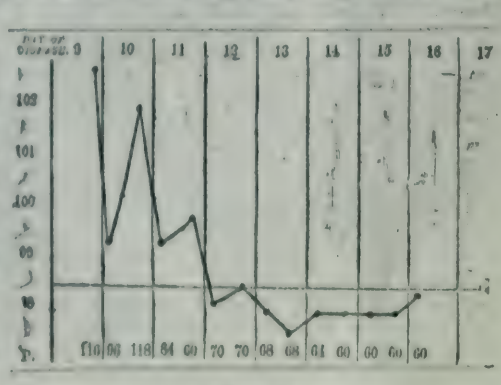


CHART 2.

Date of onset of jaundice, May 16th. On May 18th there was conjunctival congestion, the glands were not enlarged, breathing was short and grunting, aching pains in limbs and head. Slight tenderness over liver, spleen not enlarged. On

May 19th the jaundice was more marked; blood in sputum and epistaxis. Glands of groin and axilla enlarged. Urine showed bile and albumin. May 20th: Vomited twice without cause; brown furred tongue; faeces normal in colour. May 23rd: Jaundice fading. Convalescence uneventful.

No spirochaetes found in blood or urine. Guinea-pig injected on the sixth day was negative.

CASE III. (Captain Ryle.)

Pte. H. was admitted on May 19th, 1916, on the tenth day of illness, with marked jaundice, general malaise, headache, pains in the legs. History of gradual onset with vomiting. He had distressing hiccough and catchy respiration. The pains in the legs were severe, conjunctival congestion very marked, and glands palpable. Liver not enlarged, spleen not palpable, very dry furred tongue. No haemorrhages. Urine showed albumin and bile. Stools normal.

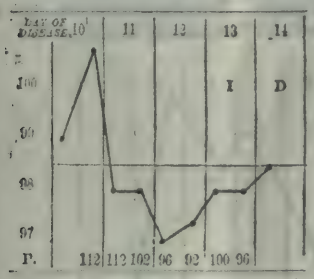


CHART 3.—I, Intravenous saline; D, Death.

May 21st: Mental confusion, very gravely ill, "typhoid state." Inability to micturate. Blood culture negative. May 22nd: Rambling delirium, jaundice more marked, retching and vomiting, pruritus and catchy respiration. Attack of dyspnoea. Incontinence. May 23rd: Muscular twitchings. Two pints of saline intravenously. Acetone in urine. May 24th: Death.

Post-mortem Examination.—Extreme jaundice, two small haemorrhages in the mesentery. Bile passages patent and bile in the intestine. Polypi in the stomach and a pedunculated polypus from which there had been haemorrhages near the pyloric end, which looked like a thrombosed pile. Kidneys enlarged, jaundiced and with multiple haemorrhages. Spleen small. Heart very flabby.

No animal inoculations. No spirochaetes found in blood or urine though repeatedly examined. Emulsions of liver and kidney showed no spirochaetes when examined by dark ground illumination.

CASE IV. (Captain Ryle.)

Pte. B., aged 27, was admitted on the sixth day of disease with intense jaundice, generalized pains, especially severe in the limbs and head. Vague abdominal pains, history of vomiting. Very dry furred tongue. Liver and spleen showed no enlargement. No haemorrhages. Conjunctival congestion very well seen. Urine showed no albumin; on the eighth day albumin was present. The jaundice increased somewhat and then rapidly disappeared until he was almost normal in colour on evacuation.

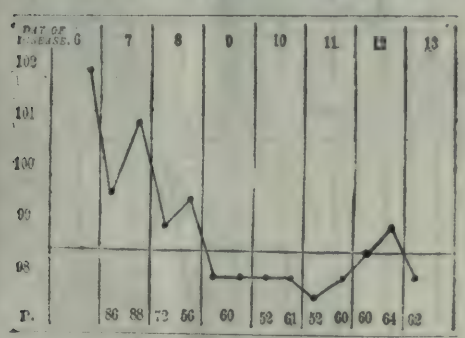


CHART 4.

Guinea-pig inoculated with 2½ c.cm. of blood did not develop jaundice. One spirochaete was seen in the blood on the sixth day by dark ground illumination.

CASE V. (Captain Ryle.)

Pte. R., admitted on the sixth day. Gave history of generalized pains, vomiting, and on one occasion temperature of 106° F.

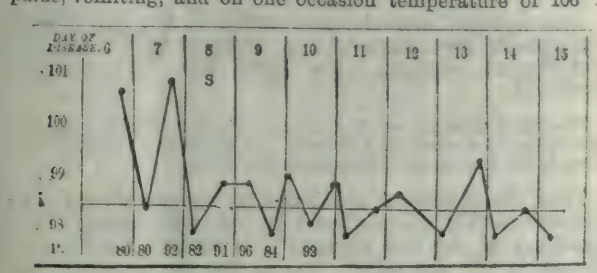


CHART 5.—S, Salvarsan, 0.3 gram.

Found unconscious in the latrines one day. On admission had profound jaundice, headache, dizziness, pains in abdomen and limbs, and a very brown dry tongue. Conjunctival congestion, spleen and liver not apparently enlarged. Albumin in urine; no diacetic acid or acetone. Weakness and malaise very marked on admission.

On the eighth day of illness the patient had 0.3 gram of salvarsan intravenously, which had no apparent effect on the symptoms or course of the disease. Jaundice increased progressively till the ninth day, and then gradually disappeared. Epistaxis on the ninth day. No other haemorrhages occurred throughout the course of his illness. Blood count on fourteenth day gave 6,000,000 red cells, haemoglobin 73 per cent. Evacuated on fifteenth day convalescent.

Guinea-pig inoculated on the sixth day, became ill on the seventh day, and was killed on the ninth day. No jaundice occurred in the animal; spirochaetes were found in the liver and blood in large numbers. The pathological changes in the animal were typical. Plasma of the patient examined for spirochaetes on the sixth day showed them both by dark ground illumination and stained by Giemsa stain.

CASE VI. (Captain Ryle.)

Pte. B. was admitted on the tenth day, and gave a history of having fallen sick with bilious vomiting while in the trenches. Generalized pains and weakness. No albumin in the urine when he was admitted; no positive signs except jaundice, which was slight in degree, and history of pains and weakness. After the first day his temperature was subnormal.

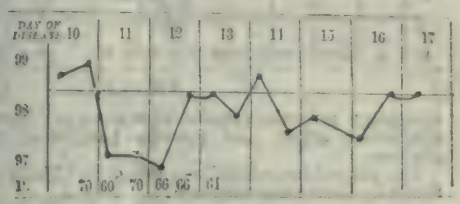


CHART 6.

No animal inoculation.

CASE VII. (Captain Ryle.)

Pte. C. was admitted on the sixth day of illness with history of vomiting at onset and jaundice appearing on the fourth day, which the patient states to have been his worst day. He also gave a history of epistaxis and blood-stained sputum. Generalized pains.

On admission deep jaundice and extreme injection of the conjunctivae, axillary glands, and posterior cervical group also enlarged. Headache, vague abdominal pains, and hiccough. Spleen not enlarged, liver slightly enlarged and tender. Vomited for three days and had very severe pains in the shins.

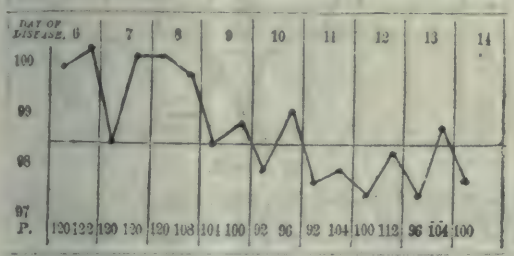


CHART 7.

He was very gravely ill and had deeper jaundice than any other case in the series. The urine contained a trace of albumin. On the ninth day a little blood-stained mucus was passed from the bowel, but the motions were hard and scybalous. Rectal salines given daily. Patient remained seriously ill up to the fourteenth day, when he seemed better. Jaundice still very deep.

Two guinea-pigs inoculated on the sixth day, with negative result. No spirochaetes found in patient's blood or urine.

CASE VIII. (Captain Ryle.)

Pte. C. was admitted on sixth day of disease with history of shivering at onset and vomiting on one or two occasions. Generalized pains.

On admission jaundice, injected conjunctivae, haemorrhagic herpes labialis, dry brown tongue, axillary glands palpable, trace of albumin in the urine. Very ill; jaundice increased for two days and then began to decrease. On the ninth day he was much better and convalescence was uneventful except for the great weakness.

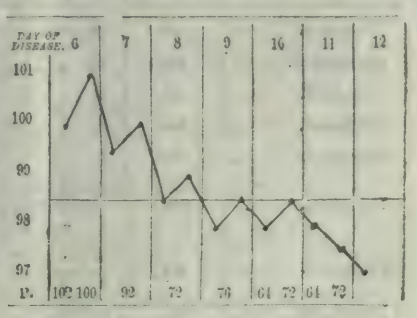


CHART 8.

Two animals inoculated, with negative results. Urine and blood negative by direct examination.

Case IX. (Captain Ryle.)

Pte. M. was admitted on the eighth day with history of shivering at onset, followed by pains in the limbs and head. No account of haemorrhages.

On admission, deep jaundice, slight conjunctival congestion, haemorrhagic herpes labialis. Urine contained a trace of

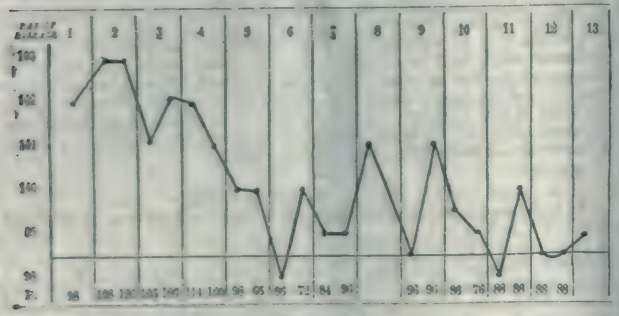


Chart 9.

albumin; no enlargement of spleen or liver. Constitutional symptoms slight, and jaundice decreased from day of admission.

The animal inoculated was negative. Urine: No spirochaetes found by direct examination.

Case X. (Lieutenant O'Connor.)

Pte. H. was admitted on fifth day of illness with history of onset in trenches, characterized by extreme weakness in the legs; no haemorrhages.

On admission, jaundice, brown furred tongue, great prostration, very severe pains in the limbs, head, and eyes. Jaundice

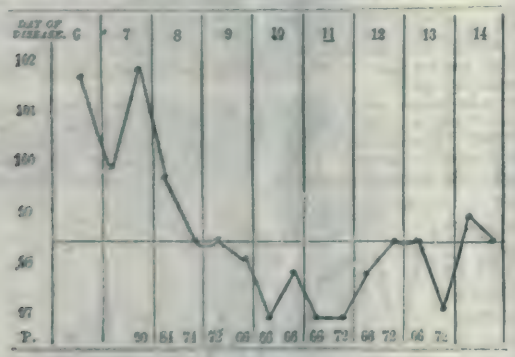


Chart 10.

very pronounced on sixth day, still more so on the seventh day, but began to fade on the eighth day. Haemorrhagic herpes labialis. The patient was very torpid throughout.

Animal inoculated on the fifth day; is not yet ill on the seventh day after inoculation. No spirochaetes found in the plasma on the sixth day. Urine negative by direct examination.

Experimental.

Inada, Ido, and Oki injected the blood of patients with Weil's disease into guinea-pigs, and of 17 inoculations had 13 positive results. They do not state how much blood they injected, or how many animals were used for each experiment. We have had only two positive results in animals from the blood of patients. In each case the guinea-pig was found to have the spirochaetes in large numbers in the liver and blood.

It will be seen from the table that two of the four experiments done on the sixth day of illness were positive, and that no positive results were obtained after the sixth day. The infected guinea-pigs became ill on the fifth day after injection in one case, and on the seventh day in the second case. They were quiet, easy to catch, and stayed in a hunched-up manner in the cage. The temperature went up to over 104° F. in each case, as is seen on the charts.

Table showing the Injections made into Animals, the Day of Disease on which the Blood was taken, and the Amount of Blood used.

Name.	Day of Disease.	Amount.	No. of Animals.	Result.
Private R. ..	6th	2½ c.cm.	1	Positive.
Corporal G. ..	8th	2½ ..	1	Negative.
Private B. ..	7th	2½ ..	1	Negative.
Private R. ..	6th	2½ ..	1	Positive.
Private J. ..	9th	7 ..	1	Negative.
Private G. ..	6th	3½ ..	2	Negative.
		7 ..		
Private C. ..	6th	3½ ..	2	Negative.
		7 ..		
Private M. ..	9th	7 ..	1	Negative.
Private C. ..	8th	3 ..	1	Negative on 7th day.
Private H. ..	5th	5 ..	1	Negative on 7th day.

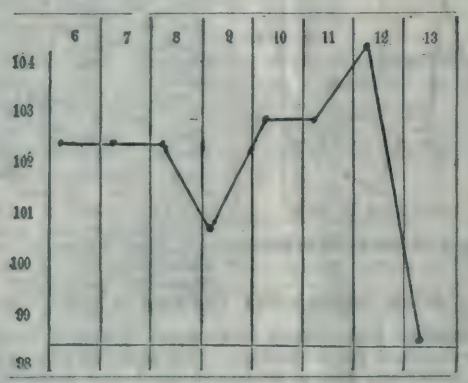


Chart 11.—Pte. R. (first).

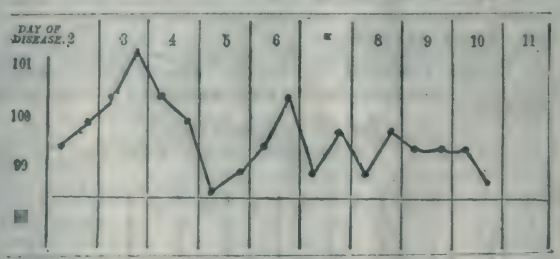


Chart 12.—Negative guinea-pig.

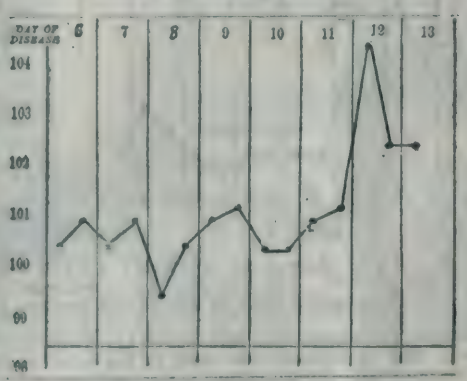


Chart 13.—Pte. R. (second).

Temperature charts of two infected animals and one non-infected animal.

The infected animals were killed and a *post-mortem* examination done immediately. Both showed the typical pathological changes. To quote from the Japanese workers:

> The lungs present small and large haemorrhagic spots, like the wings of a mottled butterfly. This change is one of the most important in the diagnosis of the disease.

This description of the lungs is very good and they resemble nothing more than a very gaudy butterfly. The intestines of the two animals both showed the haemorrhages in the intestines. One of the animals had very deep jaundice, in the other there was no evidence of jaundice. Emulsions of the liver were made and examined with dark ground illumination and very numerous spirochaetes were found. They were rather straight and with curves resembling those seen in *S. refringens* rather than those seen in *S. pallida*. The spirochaetes might be

described as a small replica of *S. refringens* both in shape and movements. The screwing movements of *S. pallida* were not well seen, but the movements from side to side of one end, as described by Inada, were very well seen. The length of the organism varies very much, long forms being more frequently seen, though short forms also occurred. With the dark ground illumination they appeared somewhat granular, and seemed to be composed of closely

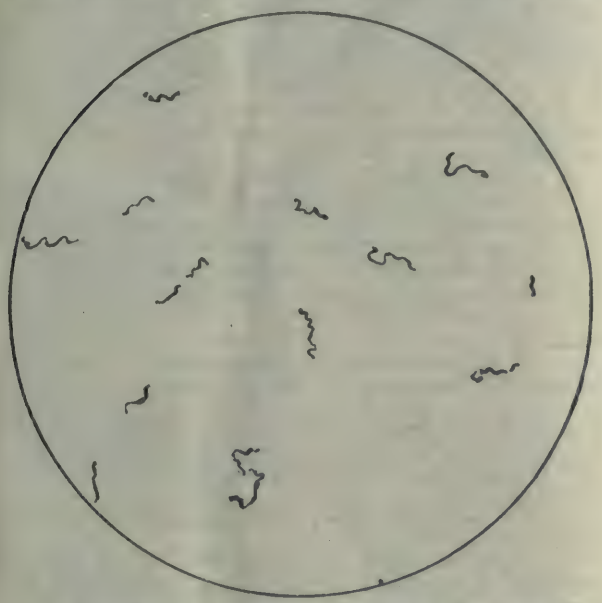


FIG. 1.—Diagram of spirochaetes in guinea-pig liver stained by Levaditi's method. To show number seen in field. They are not drawn to scale, but merely represent the shapes.

packed refractile particles. In smears made from the liver emulsion the spirochaetes were seen stained with Giemsa stain; they were for the most part rather straight and with a hook at one end; some good spiral forms were seen, and some were slightly granular. They stained a pinkish violet colour, and, except in specimens stained for long periods, they were rather hard to define. We found that with the specimen of Giemsa which we were using about

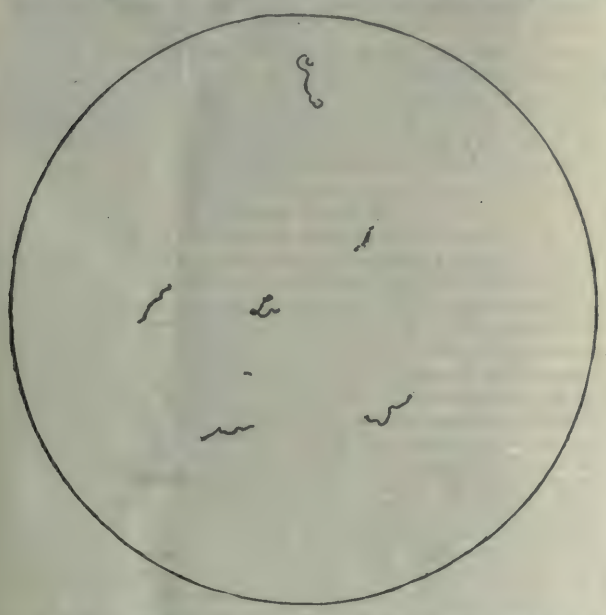


FIG. 2.—Diagram to show spirochaetes seen in one field of the kidney, to represent the shape and forms seen. They are not drawn to scale.

forty hours gave the best results. In some places they were found in groups of four or five, with the appearance of being looped together. They appeared to be somewhat longer than a red corpuscle and about as thick as a typhoid bacillus. Sections of the liver and kidney of both animals stained by Levaditi showed the spirochaetes very well; in the liver they occurred in very large numbers, and in the kidney perhaps not more than three or four were found in a field.

We have not yet attempted to cultivate the spirochaetes, but hope shortly to do so. We have examined the urine of all the cases up to date, but have not so far been able to find the spirochaetes in them. This may be on account of the comparatively early date on which the patients are evacuated to the base. The experiments of infecting



FIG. 3.—Diagram to represent one field of liver in guinea-pig. The organisms are not drawn to scale, but are to represent shapes and forms seen in a field.

guinea-pigs with the urine of the patients are not yet complete. The Japanese authors state that after the fourteenth day the spirochaetes appear in the urine of the patient, and they have succeeded in five out of fifteen experiments in infecting animals with the urine. The examination of the blood of the patient for spirochaetes was done in six cases, and in only one were they easily found. In this case the blood was citrated and allowed to stand, and then the plasma centrifugalized and examined with the dark ground stage and also by staining; the spirochaetes were seen moving and also stained, and the guinea-pig infected with this blood gave a positive result. In another case a single spirochaete was found with the dark ground illumination, but, as only one was found, we are not very confident that it was a real organism. Reinoculation was successful from animal to animal, and Professor Laidlaw informs me that he has also passed the disease from animal to animal from the first strain isolated.

Blood cultures were made in every case for the typhoid group organisms, and were uniformly sterile.

CONCLUSION.

In conclusion, we think that the experimental facts which we have to offer are meagre, but are sufficient to show that the cause of epidemic jaundice (spirochaetosis icterohaemorrhagica) in Japan and in Flanders is identical. We think it also of importance that the infective possibilities of the disease should be recognized. We hope at a later date to have some more evidence to bring forward.

REFERENCE.

[1] *Journal of Experimental Medicine*, March 1st, 1916. See BRITISH MEDICAL JOURNAL, 1916, vol. i, pp. 491, 627.

THE late Dr. John Harold left estate valued at £28,990, with net personalty £18,176.

THE *New York Medical Journal* of August 19th states that, after a trial of the "twilight sleep" in childbirth extending over more than a year, the obstetricians of Johns Hopkins Hospital, Baltimore, have discontinued the use of the method. They came to the conclusion that it is too dangerous and involves grave risk to the life of the child. They found that it could be employed with safety only in exceptional circumstances and under the most skilful supervision.

A Memorandum

UPON

HEART AFFECTIONS IN SOLDIERS,

WITH SPECIAL REFERENCE TO PROGNOSIS OF "IRRITABLE HEART."

BY

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DR. THOMAS LEWIS,

MEMBER OF THE STAFF OF THE MEDICAL RESEARCH COMMITTEE.

THE Military Hospital, Hampstead, of 200 beds has been set aside for the admission and treatment of soldiers suffering from heart affections, and more especially for observations upon those who present a particular group of symptoms. This group of symptoms is frequently indicated by classing the patients as sufferers from "irritable heart," a term less comprehensive than "soldier's heart," yet more comprehensive than "D.A.H." (disorderly heart action). It may be well at the outset to define more exactly the type of affection to which we intend to apply the term "irritable heart" in the following paragraphs. We use it to describe those patients in whom few or none of the graver signs of heart affection can be detected, but in whom there is complaint of breathlessness, palpitation, giddiness, or actual fainting, easy exhaustion, and precordial pain in varying degree; symptoms arising for the most part under exertion or exaggerated by it. At the same time we shall deal briefly with other and more frankly cardiac maladies, reciting our recent experiences. Our present purpose is especially to describe our method of dealing with soldiers in our attempt to sort them into various categories of fitness or unfitness for duty. We shall illustrate our remarks from three fully-equipped and independent services of 50 beds, and confine ourselves to patients who have passed through our hands during the first three months of our work, and have left the hospital. These patients number 251.

FIRST SIFTING.

(By Physical Examination.)

Of these 251 patients, 113 were discharged from the army within a few weeks of their admission, and these fall into four categories:

1. Mitral stenosis	31
2. Mitral stenosis and aortic disease	7
3. Aortic disease	22
4. Myocardial disease with or without enlargement, and with or without mitral incompetence ...	53
	113

The first three categories require little comment; these patients all presented unmistakable signs of grave structural alterations in the heart. The fourth category is less clearly defined, and comprises:

(*a*) A number of patients in whom there was unmistakable and considerable enlargement of the heart with or without mitral incompetence. In estimating enlargement we have been guided by percussion and by the outermost point of pulsation. Diffusion of the impulse to one or more rib spaces, or an impulse or percussion border 4 or 4½ in. from the midline,* are not regarded as sufficient grounds for discharge if they occur alone, and especially is this the case in men who are heavily built, or in whom the heart action is rapid during the examination.

(*b*) Patients in whom there are grave disorders of the heart's action, with or without enlargement of the organ. These are rare, the most notable examples being those in whom gross irregularity is constant from hour to hour and from day to day, and in whom the irregularity is accompanied by rapidity of the heart's action while the subject is at rest. They are examples of fibrillation of the auricles. A very few patients have been discharged as unfit in whom heart-block has been discovered by instrumental examination. There are two further forms of irregular heart action which we encounter in a large proportion of our patients. The first is *extra-systolic irregularity*, giving rise to intermittent pulse or simple groupings of the pulse beats, and an irregularity which may be identified when respiration is deepened, for it then consists of a waxing of pulse-rate during the inspiratory period and a waning during expiration. These two forms of irregularity are easy to identify by ordinary methods of examination, and when identified should not, in our opinion, influence the category in which the patient is placed or the question of discharge. All patients who present them are dealt with as though such signs were absent, attention being centred upon the remaining signs and symptoms.

(*c*) A high percentage of the fourth group is formed by patients in whom a systolic murmur is audible at the apex. When this murmur is harsh in quality and well conducted to the axilla and is at the same time associated with (α) an exaggerated first heart sound and accentuated or reduplicated second pulmonic sound, (β) a thrill, (γ) a history of recent rheumatic fever or of two or more attacks of rheumatic fever, (δ) severity and persistence of symptoms, it is considered, with its associations, a sufficient ground for discharge. Standing by itself, a systolic murmur at the apex is not considered to be a sufficient ground for discharge, whatever the character of the murmur; in our experience many men who present this sign are capable of a great deal, if not of full and continued effort.

(*d*) Rare cases with severe cardiac pain, radiating to the arm.

The signs to which we attach little or no value in this first sifting of cases it may be well to tabulate; they are:

1. Extra-systolic or respiratory irregularity.
2. Acceleration of the heart's action.
3. Diffusion of the heart's impulse.
4. Jerky impulse.
5. Short soft systolic murmur at apex.
6. Systolic murmurs in the aortic or pulmonic region.

In the first sifting we discharge, for the reasons stated, some 35 to 40 per cent. of our patients. It will be evident that we carry over to our second sifting some patients who must ultimately be discharged as suffering from organic heart disease. The total proportion of discharge in first and second siftings as organic heart affections amounts to 45 per cent. The remaining 55 per cent. we class as cases of "irritable heart"; in an unknown percentage of these early structural changes no doubt exist, but it is for the present convenient to place all soldiers in whom no positive evidence of serious organic heart lesions can be found in the category named.

SECOND SIFTING.

(By Continuous and Special Observation.)

In our second sifting we are dealing with 60 to 65 per cent. of our original admissions; in the main there are patients in whom no clear signs of organic heart disease are discoverable, these are the patients to whom we apply the term "irritable heart"; in small part they are patients whose class for the moment is doubtful, but who eventually will be returned in the group of organic heart disease. Continuous observation reduces the percentage to 55. We are now left solely with cases of "irritable heart"—that is to say, with patients who have symptoms, but in whom no sign which we regard as a trustworthy sign of organic heart mischief can be discerned, either at the first or at subsequent examinations. It is in respect of these patients that disagreement as to subsequent fitness for service is likely to arise; and at an early stage we found it impossible to arrive at satisfactory conclusions from physical examination or consideration of the history. Consequently we have instituted a series of test exercises upon which all such patients are placed.

The exercises adopted are a selection from the code of army exercises. These offer many advantages; they are directed by a sergeant-major instructor thoroughly conversant with them, and in a position to maintain discipline amongst the men; they are in large measure familiar to the men; they are exercises which many of the men will be called upon to undertake who return to their dépôts.

* Measurements which are equivalent to the nipple line in most subjects.

They are supplemented by route marches, in light or full kit.

Exercise Table A^{15} (*Fifteen Minutes*).
Heels raise, feet close.
Head backward bend.
Hips firm, arms bend, arms upward stretch.
Trunk turning (with feet closed).
Foot sideways place.
Trunk bending sideways.
Trunk forward bend.

Exercise Table B^{15} (*Fifteen Minutes*).
Heels raise and knees bend.
Arms sideways stretch, one arm upward, one arm downward stretch.
Trunk turning (feet apart).
Feet close and full open.
Trunk bending sideways.
Slow march.

Exercise Table C^{15} (*Fifteen Minutes*).
Heel raising and knee bending quickly.
One arm upward, one arm downward stretch.
Foot placing sideways.
Trunk bending sideways.
Trunk backward bend.
Trunk forward bend.
Slow march.

Exercise Table C^{15} (*Fifteen Minutes*). *Second Part.*
Arms forward bend.
Trunk turning.
Knee raising.
On the hands down.
Quick march.
Knee raising quick mark time.
Slow march.

Exercise D^{30} (*Thirty Minutes*).
Heels raise, knees bend, arm stretching sideways.
Head backward bend.
Arm swinging upward.
Trunk turning quickly.
Foot placing sideways.
Leg raising forward.
Trunk bending sideways quickly.
Lying on the back down, leg raising.
On the hands down, arms bend.
Trunk forward bend, arm stretching sideways.
Knee raising quick march.
On alternate feet hop.
Upward jumping.
Slow march.
Arm raising sideways, upward, sideways, downward.

The individual exercises are grouped under the headings A^{15}, B^{15}, C^{15} (first part), C (second part), each of which occupies fifteen minutes, and under D^{30} which occupies thirty minutes. The exercises are taken daily and in favourable instances a patient moves to a higher grade exercise after three or four days. The patient moves from A^{15} to B^{15} to C^{15}, to AB* (thirty minutes) to BC (thirty minutes) to C^{30} (both parts), and finally to D^{30}. Thus he passes through seven groups of exercises, in a scale of ascending severity. D^{30} is eventually taken in combination with route marches of four or more miles without pack, with light pack, or in full marching order.

At first all the medical officers of the hospital attended the drills and watched small groups of patients through them, making observations upon heart-rate and respiratory-rate and comparing objective signs of distress with the patients' subjective symptoms. Eventually we found this to be unnecessary, and at present we only examine patients immediately after they first take a new exercise, or when they specially report themselves or are reported. Our patients gradually class themselves according to the highest grades of exercise which are borne without distress, and in estimating fitness for duty we are finally and chiefly guided by these tests. The appearance of a man coming from drill—his expression, his colour, his breathing, and excessive heart-rate (140 to 160), are invaluable objective clues to his tolerance of the exercise, and he is put forward or back, or maintained on his exercise after due consideration of these signs and his statement of his symptoms upon the exercises.

That a man's *observed* capacity to accomplish work of a given order is the only dependable test of such capacity would seem self-evident; yet it is the experience that medical officers rely more upon physical signs obtained while the subject is at rest. We are convinced that, with few exceptions, a final sorting cannot be accomplished efficiently in this manner. After the first sifting, which eliminates manifest organic heart cases, exercises alone serve our purpose. In selecting a candidate for a post as typist, it is not by questionings, it is not by examining the configuration of the hands or the electrical responses of the muscles that the desired knowledge of deftness and accuracy in working is to be obtained. The decisive test is an exercise upon the machine which will be used. It is true that specific anatomical defects may divulge incapacity; it is equally true, on the one hand, that anatomical imperfections do not necessarily unfit, and, on the other hand, that seeming anatomical perfection is no criterion of manipulative power or skill. The heart provides no exception from these clearly sound propositions. A large percentage of our patients are discharged on the first physical examination; in a larger percentage we are compelled to fall back upon exercises. A few cases of irritable heart may be discharged at an early date because they present a persistently high respiratory-rate.

It has been our special endeavour to find some relatively simple and quick test which will eliminate the unfit, and for this purpose we have made elaborate observations upon pulse-rate, blood pressure, and respiratory-rate under various conditions of posture and exercise. We have taken numerous instrumental records, polygraphic and electro-cardiographic; we have also noted such physical signs as basal murmurs, jerky impulse, extended impulse, various alterations of the heart sounds and signs of vaso-motor instability; with a solitary exception, we find these to be of no value in gauging the grade of exercise which will ultimately be tolerated or readily be borne. The solitary exception is the rate at which the pulse falls when it is accelerated by a brief exercise. If a patient walks smartly down a flight of twenty steps, along a short corridor, and up the same flight of steps, and the pulse subsequently fails to reach its original level within two minutes, that patient will but rarely reach a high-grade exercise. But quick recovery of pulse-rate is no criterion of ultimate fitness.

We return many patients with minor physical signs as fit for duty in different capacities, and our decisions in these cases have been arrived at after testing their capacity by the direct method. Many go back to duty with systolic murmurs at base or apex. It is our daily habit to place men with these signs on exercises; many of them are capable of undertaking the higher grade exercises for long periods. The exercise system has taught us not to be uneasy in submitting heart cases to exercise tests; in a four months' experience no patient has shown serious symptoms during the progress of his exercises. Immunity from accident we attribute to the first sifting and to our habits of cautiously advancing the grade of exercise, and of limiting the progress of exercises in men who *show* distress. Subjective distress is insufficient for evident reasons; objective distress is to be obtained, and men on exercises should be under close observation.

Men who improve and progress to the highest exercises and carry them out without distress for several weeks in conjunction with route marches, are boarded as fit for duty in army categories (*a*) or (*b*) according to circumstance. Men who improve less, whose progress is slower, and who tolerate the highest grade exercises less perfectly are boarded under army categories (*c*) and (*d*). Those who show continued distress on lower grade exercises are discharged as unfit. Working in this fashion our discharges amongst 138 cases of "irritable heart" have been approximately:

	Per Cent.
(*a*) Duty	18
(*b*) Light duty and likely to be fit for service overseas within three months	23
(*c*) Light duty, and not likely to be fit for service overseas within three months or requiring special medical treatment	6
(*d*) Service at home, but unlikely ever to be fit for service overseas	17
Permanently unfit	36

The system adopted is relatively quick in its sorting. The average stay of "irritable heart" cases in other hospitals has been three and a half months † before they came to us. The average stay of irritable heart cases at Hampstead is two months.

Tabulating our patients under the army categories under which they are boarded, several facts of interest are brought to light.

* The objects of combining exercise groups in this fashion is first to decrease the work of the instructor (thus the three classes A, B, and AB together occupy thirty minutes), and secondly, to use throughout the whole system relatively few exercises, so that they may be readily acquired and thoroughly learnt.

† We would emphasize this fact; for it means that a great deal of sifting has occurred before our cases come to us. For this and others reasons we are of opinion that the cases of irritable heart with which we deal are relatively severe instances of the affection.

A Table of 138 Irritable Heart Cases.

Class of Discharge.	Number of Patients.	Average Age.	Born Foreign Service.	Seen Home Service only.	Chorea or Rheumatic Fever.	No Chorea or Rheumatic Fever.	Usual Duration of Symptoms.	Average Stay in Other Hospitals.	Average Stay at Hampstead.
								Months	Months
Categories: a	25	25	21	4	0	25	1-6 mths.	3	1½
b	31	26	25	6	0	31	4-12 mths.	4	2½
c	9	26	5	4	4	5	1-3 yrs.	3½	2
d	24	29	19	5	7	17		3	2½
Permanently unfit	49	25	30	19	16	33	Several years	4	2

The proportion of favourable results is highest amongst men who have broken down in health *on active service*. Men who develop their symptoms while training at home are distinctly unfavourable subjects.

The prevalence of rheumatic or choreic history amongst cases of "irritable heart" is too high to be a matter of coincidence (19 per cent.); it suggests the presence of early rheumatic heart lesions in many of these soldiers. Patients in whom there is such a history rarely reach the higher grade exercises, though their physical signs do not noticeably differ from the remainder. The majority have to be discharged as permanently unfit*; a few are returned to duty in categories *c* and *d*.

A striking feature of the table is the relation between the duration of the symptoms and subsequent events; 46 per cent. of irritable heart cases give, on careful inquiry, a history of symptoms dating back *prior to enlistment*. The longer the history the worse the prognosis; patients in whom the history is of years' standing make little progress; those soldiers are most likely to return to duty in whom the history is of a few months' duration.

THE EXERCISES AS A THERAPEUTIC MEASURE.

The exercises have an undoubted value as a therapeutic measure. Improvement of the symptoms, objective and subjective, is in many patients rapid and conspicuous. Physically and mentally the men benefit. Some improvement is the rule in most of our patients. Many other remedies have been resorted to, and none has proved efficient, to our knowledge. In agreement with other observers we find confinement to bed and lack of occupation to be detrimental. If circumstances permit, we propose to publish further memoranda † on this subject in the future. For the present we are content to record our chief conclusions—namely, that in sorting patients for discharge as permanently unfit, or in returning them as fit for duty in the several categories of the Army Order, a system of graduated exercises is the only reliable means at our disposal when patients with clear signs of serious heart affections have been eliminated; and such a system is also of distinct therapeutic value.

* The figures of our tables are somewhat but not greatly misleading in this respect, for a history of rheumatic fever or chorea has been taken into account in a number of cases when considering the question of discharge.

† A number of independent researches are being carried out at the hospital; they are enquiries bearing upon the causation of the affection and enquiries into the effects of remedies; many of these are progressing to completion, and we hope to publish our observations in the near future.

THE estate left by the late Dr. John B. Murphy of Chicago is valued at 1,125,000 dollars (£225,000), of which £200,000 is in real estate.

IT has long been felt by the medical profession in the United States that the establishment of a standard examining body for the whole country is desirable. That feeling led in 1915 to the formation of the National Board of Examiners, the purpose of which is to establish a standard of examination and certification of graduates in medicine for the license to practise. The board is to consist of the surgeons-general of the army, navy, and public health services, one representative from each of the Government services, three representatives from the State examining boards, and six members chosen from the profession. The head quarters of the board are to be at Washington.

NOTE ON AN ANTENATAL OR PREGNANCY CLINIC AT THE EDINBURGH ROYAL MATERNITY HOSPITAL.

By J. W. BALLANTYNE, M.D., F.R.C.P.E.,
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SINCE it would appear that in some minds doubts have arisen regarding the value of antenatal or pregnancy clinics, and of a differentiated prematernity department in connexion with or included in a maternity hospital, it may be well simply to describe such a clinic and demonstrate its relations with the maternity hospital and prematernity department.

Some objection has been taken to the word "antenatal." It has been stated to be a comparatively new and an objectionable word, compounded of an adverb and an adjective. Sir James Murray, however, in the *New English Dictionary*, lists it, has no criticism to make upon it, and does not even indicate it (in 1888) as "not-naturalized." Further, the word has been used by authors of repute. Thus Shelley, in 1817, in his poetical fragment *Prince Athanase*, wrote:

> Some said that he was mad, others believed
> That memories of an antenatal life
> Made this, where now he dwelt, a penal hell.

Kingsley, too, in 1848, referred to "heaven, my spirit's antenatal home"; and Farrar in 1879 in his *Life of St. Paul*, spoke of the "antenatal predilection for Israel and detestation of Esau." None of these men would be refused a claim to the title of a literary man, but De Quincey is admitted by all to be a prince amongst the writers of English prose, and he penned the following passage: "All necessity for supposing immediate impressions made upon our understandings by God or other supernatural, or antenatal, or connatal, agencies, is idle and romantic." When, therefore, in 1892 I employed the word "antenatal" in the phrase "antenatal pathology," as a convenient and suitable designation for the department of scientific medicine which should contain all the morbid states found in existence before birth, it appears that I was following the example of the poet, the novelist, the divine, and the justly admired man of letters. I could, of course, have called it the department of teratology, of fetal pathology, and of morbid heredity; but I was looking for a comprehensive name under which to group all the pathological developments of the life before birth, and I am inclined to maintain that I found it. Its extension, first to antenatal hygiene, then to antenatal treatment, and latterly to antenatal clinics could hardly have been stayed by me even had I desired to lay an arresting hand on it; but surely no one can possess an intelligence so curiously mis-orientated as to imagine that antenatal clinics for expectant mothers mean opportunities for the examination of these mothers before their birth. An antenatal clinic is concerned with the investigation of the health or sickness of the antenatal life within the mother as well as with the health or disease of the mother herself, both of which are of course intimately bound up with the unborn infant's wellbeing. At the same time, I am unwilling to differ from any man on so microscopical a matter, and if there is a general desire that these clinics should be termed "pregnancy," "prematernity," or even "gestational," I shall be ready to join in calling them so; but the terms "antenatal pathology" and "antenatal hygiene" are too useful and too well established to be sacrificed for the sake of pedantic purism. As a matter of fact, I have myself employed "pregnancy clinics" now and again as a convenient, if rather ungraceful, synonym.

The particular antenatal clinic which is here to be described was held in the Edinburgh Royal Maternity Hospital on July 25th, 1916. In conducting it I was assisted by two resident medical officers (one of whom is qualified), and by two sisters, one of whom holds the diploma of the C.M.B., and has had an extended experience in dealing with pregnancy cases both inside and outside the hospital. On this day there were fifteen patients in attendance, and this was above the average (between eight and nine) for July. It turned out that one of the women, an albuminuric case, had formerly been in the hospital, but was not now pregnant; and she was dealt with as a puerperal patient. Fourteen pregnancies were therefore left to be investigated.

In each case the urine was tested, the past history

entered in the book for the purpose, the present state both of the general systems and of the reproductive organs was investigated, and the birth canals measured and examined by the hands and sometimes by the pelvimeter. Thirteen of the women were attending for the first time, and one had been at a previous clinic. In her case there was a history that in previous pregnancies the baby had died a week or two before labour; she was now coming to the clinic each week in order to have the fetal heart counted; the occurrence of any irregularity in the heart will be the signal for admission and the induction of labour; and in the meantime tonic medicines are being administered to the mother and her health watched over.

[A fortnight later this patient was admitted to the prematernity ward as she was growing weaker and suffered from grave depression of spirits; two weeks after this the fetal heart showed signs of failure, and induction was begun; most unfortunately, it was then found that she had absolutely central placenta praevia, and, although she did not lose an excessive quantity of blood, she died soon after delivery from exhaustion. The placenta was markedly diseased as well as praevia. This was the only placenta praevia lost.—Note added September 16th, 1916.]

Of the thirteen new cases, four were found to be normal in practically all respects. To them a few words of advice were spoken, to each a copy of the little green book entitled *Hints to the Expectant Mother on her Health* was given, and each was invited to return should any uncomfortable or unusual conditions develop. Amongst the nine remaining cases there were five in which the pelvis seemed on physical examination to be narrow; two of them were clearly cases for induction of premature labour, and were told to come back in a month and three weeks respectively for this. But the other three were difficult cases on which to decide, and were asked to come in the morning and to be prepared for examination under an anaesthetic. Accordingly on the following day I examined them under chloroform. One (within a few days of term), whose pelvis I found to be too contracted to permit of the delivery of a living child, I operated on by the Caesarean section within a week, and got the best result for both infant and mother. The second I found to be suitable for the induction of premature labour, and a few days later Dr. Oliphant Nicholson, the assistant physician, successfully delivered her of a living 7 lb. baby. The third, a primipara, was discovered to have a pelvis near enough to the normal to justify waiting till the supervention of pains at term.

Four cases were left. One of these women was found to have swelled feet, and a rectum so tightly packed with faeces that she was asked to wait behind after the clinic, was given an enema, and was made much more comfortable than she had been. She had no albumin in the urine and no heart trouble. Another had also swollen feet. In her case it was found that the fetal head was lying low and exercising some pressure; but since there was nothing else abnormal, and since she was near her date of delivery, she was allowed to go home. She was delivered normally a few days later and made a complete recovery. Another of the four had pulmonary phthisis as a complication of her pregnancy, and arrangements were made for suitable treatment outside the hospital. Finally, one woman stated that she had had some bleeding. No placenta could be felt, but she was taken into the prematernity ward, was thoroughly examined, and was watched. As, however, no haemorrhage recurred, and since she was anxious to go home, she was allowed to do so with instructions to return to hospital on the appearance of the slightest show. It had probably been a slight accidental haemorrhage.

The cases attending this clinic were not exceptional in any way; I have had others both much more interesting ones and more dangerous. It will be noted that there was not a single pre-eclamptic patient amongst them. For some unexplained reason eclamptic patients have been rare this summer whilst placenta praevia cases have been wonderfully common (the hospital dealt with nine in July). It was rather a large clinic of quite an ordinary kind. Yet I believe two infantile lives at least were saved, those in the case of two of the mothers who had marked pelvic contraction. In the one instance induction of labour could not very well have been postponed for a day if the child was to be saved; indeed, it weighed 7 lb., and could only be delivered by forceps. In the other case, the choice lay between craniotomy and Caesarean section, but had she, instead of coming to the clinic, appeared first after the second stage of labour was initiated, I should in all probability have had to do craniotomy. As it was, I was able to fix my time, do the Caesarean section under good circumstances, and secure a living child and a completely convalescent mother. In each of these instances the prematernity beds were useful; they were also valuable in the haemorrhage case; and throughout the whole progress of the clinic one was conscious of their presence as a means of giving treatment, long or short, slight or important, to any woman who might require it.

There was, however, good of another kind, and in another degree, accomplished by this antenatal clinic. Advice was given to fourteen expectant mothers about their own health and their coming child's welfare. Even the four who were normal went away fortified by knowledge about themselves and about the danger signals by which they were to be warned they had not possessed before; several of the others had things done for them and arrangements made which were unmistakably for their future safety and their immediate comfort.

There can be no shadow of doubt that the differentiation of the prematernity work of a maternity hospital into a special department is a valuable advance in the obstetric hospital system of the country; even the giving to the ward, the clinic, and the patients the distinctive name of "prematernity" increases the respect with which the work is viewed and carried out by residents, sisters, and nurses, and it is an immense boon to the expectant mothers to know that they are not only always welcome, but have an inalienable right to attention in the department which is so named and set aside. Both prematernity beds and antenatal clinics are of great value, but they must exist alongside of each other in a maternity hospital if their full benefit is to be secured; they and their associated means and medical and nursing staff must be welded together into a prematernity department if they are to be really helpful. The most important, the central and essential part, without which all the other parts fall short of entire success, is the prematernity ward in the hospital.

SOME PRINCIPLES OF INVESTIGATION IN BLOOD-PRESSURE PROBLEMS IN HEALTH AND DISEASE.

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A study of the literature of blood-pressure measurements cannot fail to impress the reader with the lack of method shown by some clinicians in the choice and arrangement of their observations. A measurement of blood pressure—in most cases the systolic—is chosen as an item in the routine examination of the physical features of a clinical case. Let us consider what knowledge is really obtained by taking the systolic blood pressure. The information obtained is no more than that during the period of observation the systolic pressure was equal to the weight of a column of so many millimetres of mercury; it may be a high blood pressure, it may be a low blood pressure, or it may be a normal blood pressure during systole. When the systolic pressure only is estimated, the maximum height to which the pressure rises during so many beats of the heart is given, but nothing whatever is shown as to how far it sinks during diastole, nor as to the extent of the swing of pressure between each diastole and each systole of the heart. In the laboratory to record the blood-pressure changes with the maximum manometer alone would be at once recognized as futile.

In recent years some observers have added an estimation of the diastolic pressure, and by subtracting the prevailing diastolic pressure from the prevailing systolic pressure a record of the pulse pressure range is obtained. To these data they have added observations on the rate of the heart beat and the rate of the respiratory rhythm.

When this information is available we have an isolated picture of the heart's activity, and can say that each contraction of the left ventricle is able to add to the existing diastolic pressure a certain increment of pressure, that this increment of pressure delivers a shock to individual organs, for example, the kidneys; that this shock is borne by the walls of blood vessels which are already under a certain measured existing and permanent strain, the diastolic pressure.

Such measurements are complete, but a thorough knowledge is not thus attained of the circulatory phenomena involved in any disease when such observations are carefully made and carefully recorded from day to day.

The feature to be studied in the circulation in health and in disease is the power of the heart in conjunction with changes in the peripheral blood field to adapt itself quickly and efficiently to extra strain. In health every one is constantly making calls on the power of the heart and peripheral field to adjust themselves either to extra strain or to diminished strain. Consequently, although advance is made when the scope of the measurements of the clinicians is broadened from isolated measurements of systolic pressure and pulse-rate to that of systolic, diastolic, pulse pressure range, rate of heart beat, rate of respiratory rhythm, these measurements are still measurements made under the uniform conditions of repose on a bed in a hospital ward.

Physiologists appreciating this point have published observations of blood pressure before and after muscular exercise in healthy subjects. Thus Pembrey has made a series of interesting observations. Records have been taken of blood pressure before and after running and before and after the lifting of heavy weights. Such observations, though useful, are also incomplete, because they do little more than serve to show what changes have taken place in the blood pressure after the exercise is over. They vary with the power of the circulatory system to adapt itself quickly to the change from activity to repose. As all measurements take time to perform and as the circulatory system in healthy individuals has great power of rapid adaptation, the conclusions drawn from the measurements are apt to be vitiated.

Consequently if a satisfactory knowledge of the heart and peripheral circulatory system in the human subject in health and disease is to be gained, it is necessary to examine and record the changes in systolic, in diastolic, pulse pressure range, rate of heart beat, rate of respiratory rhythm, during the strain thrown on the heart by exercise, not after it is over. The systolic pressure can be estimated during exercise either by the auditory or the tactile index, but the diastolic index is estimated by the auditory index alone. Consequently it is best, perhaps, to adhere to the auditory index for both measurements. Previous to the outbreak of war I had found in Aberdeen that it was possible to get satisfactory observations of systolic pressure, diastolic pressure, rate of heart beat, and rate of respiratory rhythm in a series of medical students who kindly volunteered their services. As the auditory method is used the work done must be such that the arms of the individual tested should be reasonably rigid and that the exercise should produce as little noise as possible. The subject was placed on his back on a polished table and the exercise consisted in rhythmically drawing up his feet and legs as in swimming on the back. The mildness of this exercise depends on the length of time that it is kept up.

It was thus possible to draw graphs of the systolic and the diastolic pressure, with observations on the rate of the heart beat and the rate of respiratory rhythm during the exercise. It is true that the observations of systolic and of diastolic pressure cannot be made simultaneously, especially with increased rate of heart beat. But when such observations are numerous, and are plotted alternately over a considerable period, the importance of taking them simultaneously is practically *nil*.

Such graphs give a true picture of the response of the heart and of the peripheral system to a given amount of work over a given period of time. We can trace how the circulation as a whole adapts itself to the changed conditions.

It is also possible to examine the circulatory phenomena during exercise in the erect posture by the auditory method. The exercise employed was the working of a heavy but silent lathe with one foot. Such graphs enable us to see how the heart adapts itself to gravity and to exercise simultaneously, and from such graphs the efficiency of the normal adjustments of the heart and of the vasomotor system can be tested.

The ranges of blood pressure, both systolic and diastolic, in healthy and in unhealthy subjects vary greatly. It is obvious, then, that the response to a given amount of work of normal adults with a blood pressure of, say, 130 systolic, 75 diastolic, and a rate of heart beat, say, 73, should be investigated. Having established the normal graphs, the with abnormal systolic and diastolic pressures. By so doing we may learn to appreciate what is the real significance of any abnormal blood pressure range.

Translating these problems into more concrete form, we may ask how a subject, whose diastolic pressure is originally high, fares when tackling a given amount of work. We know that, theoretically at least, he starts with the disadvantage that a considerable amount of cardiac energy in excess of the normal has to be spent in opening the aortic valve. Or we may take the case of aortic incompetence with initial high systolic pressure and initial low diastolic pressure, and ask what series of blood pressure changes take place during exercise. Does such a case develop during exercise a high diastolic pressure in spite of incompetent valves? I put these questions simply to show that in the whole of the literature of blood pressure we have no guide to the true significance of blood pressure ranges which depart from the normal. We have never isolated these departures from the normal and tested them against the performance of a given carefully graduated amount of work. We do not know how Nature has adapted both the heart and the peripheral circulatory system to overcome initial defects. We may state that breathlessness on exertion is a cardinal symptom, but has the case developed this breathlessness on exertion because the heart has failed or because the adjustments his peripheral circulatory system can make are inadequate?

Enough has been said to show what problems await solution. But by the method of graphs taken during exercise, with the exercise carefully graduated so as not to be injurious in diseased conditions, we may hope to learn something of what is meant by vague terms such as "circulatory equilibrium is restored."

It should be clearly understood that until we know the significance of various levels of pressure, systolic and diastolic, with various rates of heart beat and respiratory rhythm, a mere chronicling of measurements in countless clinical lectures is without significance.

I have carefully refrained from stating what were the results of the investigation made by this method on healthy students because the war has prevented me from checking and rechecking the observations. Enough was accomplished to show me that the method was useful, and that further experimental methods could be applied to it, such as varying the mixture breathed and the temperature of the surroundings. Consequently the influence of such factors as are involved in ventilation problems could be examined.

SEPTIC ENDOCARDITIS: INTRAVENOUS INJECTION OF EUSOL: RECOVERY.

BY

J. ALLMAN POWELL, M.D.,

CHELTENHAM.

THE following case, in which recovery from what seemed to be a hopeless condition followed the intravenous injection of eusol, is worthy of record.

A girl of 18 developed erysipelas of the right foot on December 17th, which spread halfway up the shin and disappeared in a week.

On January 6th a systolic murmur could be heard over the precordium, which was considered to be pericardial in origin; it was accompanied by slight pain. Under treatment with sodium salicylate and bromide, the pain and murmur disappeared by January 25th, and the patient was apparently making an uneventful recovery.

On January 28th she had a severe rigor, with sudden dyspnœa and intense precordial pain, accompanied by hacking cough, with a small quantity of sticky mucus. Scattered crepitations were to be heard over both sides of the chest at the back. The temperature was 102°, and the pulse 166. A diagnosis of ulcerative endocarditis with pulmonary embolus was made.

On January 29th the temperature was 103°, the pulse 146, and she had a slight rigor; 25 c.cm. B. and W. antistreptococcal serum (alternative endocarditis) was given hypodermically. The temperature fell to normal within twelve hours, and her general condition was much improved.

The improvement was maintained for a week, but on February 8th the pulse and temperature began to rise, and her general condition was not at all good.

On February 11th there was a rigor; the temperature was 103°, the pulse 148, and there were pain, tenderness, and swelling of the left elbow. A profuse petechial septic rash appeared on the legs and rapidly spread over the body, and a bedsore formed.

On February 12th the serum was repeated (50 c.cm.).

normal but the pulse was rapid and dicrotic, and the general condition growing progressively worse. The skin was smothered with the septic rash.

On February 14th a large subcutaneous haemorrhage appeared in the left iliac region, possibly caused by an embolus which lodged on February 11th at the time of the rigor. Vulvitis also developed.

Dr. Hebblethwaite saw her in consultation on February 15th. The iliac haemorrhage then seemed to be breaking down. The patient was very bad and appeared to be in a hopeless condition. We considered that she was suffering from a virulent infection of the blood stream and that vaccine could not possibly do any good. As a last resort we decided to give her eusol intravenously as used by Captain John Fraser, R.A.M.C., and Captain H. J. Bates, R.A.M.C., for the toxaemia of gas gangrene, as reported in the BRITISH MEDICAL JOURNAL of January 15th, 1916.

On February 16th 40 c.cm. of eusol were given intravenously preceded by 300 c.cm. of normal saline. Her condition at the time of the injection was much worse than on the preceding day. She was semi-delirious, the pulse was weak and thready; there were sordes on the lips, and she was apparently dying.

After the injection she perspired freely, and an hour later she had another rigor, but that night she slept well without a sleeping draught for the first time for three nights. The next day the pulse was much improved in quality, and her general condition was distinctly better. She steadily improved from that time on; by February 20th the bedsore was almost healed, the vulvitis had gone, and the rash was rapidly fading. She was sleeping well, and her appetite was returning.

On February 24th the iliac haemorrhage broke down, leaving an ulcer which was unresponsive to boric fomentations but cleared up after local treatment with eusol. The rest of her recovery was uneventful except for occasional slight rises of temperature.

She came to see me on June 15th, when she was apparently well except for some rapidity of the pulse and anaemia.

No blood culture was made, so the diagnosis was not proved, but clinically the case was typical of an acute sepsis of the blood stream.

The action of the serum was interesting. The first dose seemed to do a great deal of good, and apparently checked the course of the disease for some days. The second dose brought the temperature down, but did not improve her condition; in fact, she got rapidly worse.

At the time of the intravenous injection she had numerous crepitations over both lungs at the back; they did not seem to be increased by the injection, and disappeared in a few days. She was getting progressively and rapidly worse up to the time of the injection, and was apparently moribund when it was given. She improved rapidly and steadily after it, and I have no doubt whatever that it saved her life.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

"SLING ATROPHY" AND KINDRED DISABILITIES.

IN the EPITOME OF CURRENT MEDICAL LITERATURE (June 10th) a note is published on "Sling atrophy of the arm" by Rochard and Stern. I would like to call attention to a similar condition in the lower limb.

Paralysis of the tibialis anticus and of the everters of the foot is frequently observed after some injury, such as a "crush" to the ankle, which has not seriously injured either the muscles or their nerve supply. On examination a month after the injury there may be no pain and all passive movements may be reasonably free. Although failure to support the foot in a dorsiflexed and everted position may be a contributing cause, the paralysis or paresis may occur even when this precaution has been observed. The lack of voluntary power seems to be due to some peculiar blending of physical and mental causes, the exact pathology being obscure.

The electrical reactions of the muscles concerned are, after this lapse of time, normal, or nearly so. The patient should be shown that all the movements of the foot can be produced electrically, and encouraged to try to produce them himself. These efforts on his part should synchronize with the artificial stimulus, the strength of which must be gradually reduced as his control increases. Daily treatment for two to three weeks will generally restore voluntary power. The exceptions are patients with hysterical tendencies, with regard to whom prognosis should always be guarded. In general, however, a speedy and complete recovery may be looked for in the absence of any demonstrable physical lesion; but some patients, unless specially urged and encouraged, will not make any effort to move the foot even though a relaxation splint, massage, and electricity may have perfectly restored the muscles from a mechanical point of view.

Once a state of physical normality has been reached—which will be in from two to eight weeks, according to the severity of the original injury—continuance of electrotherapy, etc., will do positive harm unless there is definite sign of returning voluntary power. The patient's re-education must be taken in hand with considerable vigour. He should be allowed to walk about with an elastic support to his boot to prevent foot drop. It will generally be found, on holding the foot in a posture of extreme dorsiflexion, that he can cause the tendon of the tibialis anticus to tauten and slacken, even though he cannot at all hold his foot in position. In very bad cases even this movement may be lacking; it must then be patiently elicited. This is best done by holding both feet in the same position, and getting the patient to try to move both tendons in unison. Tapping the muscle lightly with the finger-tip will often give the required impetus. By some means or another this very modest accomplishment must be acquired if the case is to get well, for it is the starting point of all else. The movement should be performed rhythmically for some minutes several times a day, care being taken, however, to avoid fatigue. Much patience is necessary; any manifestation of irritability on the part of the teacher may be fatal. The next step is to get the patient to hold the foot momentarily in position while the supporting hand is withdrawn. Finally, active dorsiflexion is essayed, but this should not be until the patient has learned to hold his foot in position for two to three minutes without difficulty.

The above procedure is seldom needed in early cases. If called for, it is in them nearly always successful. When, however, a patient has been treated for many months by elaborate physico-therapeutic methods, he becomes unconsciously, if not consciously, imbued with the idea that he is incurable. Re-education on the lines above described can now alone do any good, and his restoration is likely to be a matter of months rather than weeks. Moreover, it is only possible at all provided that his confidence can be gained, and that he is willing to face cheerfully the probably long course of treatment. Unfortunately this type of patient is generally, and not unnaturally, anxious to escape from the hands of the doctors; and if a man so affected, who has already spent much time in hospitals, has set his heart on getting out of the army, it is quite useless to waste time on the case.

Hypnotism is sometimes of great value, but six months' unsuccessful treatment may produce a fixed idea, even in a man both mentally and physically robust, which requires for its removal a depth of hypnosis only occasionally obtained.

London, W. FRANCIS HERNAMAN-JOHNSON.

TRISMUS DURING SERUM SICKNESS.

IN the BRITISH MEDICAL JOURNAL of August 12th, 1916, there is an account of this condition by Captain Bolt, R.A.M.C. The symptoms are so disquieting to the medical man in charge of such a case that I record a somewhat similar experience in the hope that further records may show to what extent such occurrences are frequent.

About two years ago I had to treat a case of puerperal fever due, I believe, to severe periodontal disease. The confinement was terminated by instruments. On the next day the temperature began to rise, and reached 104° F. on the third and fourth days with one or more rigors; 10 c.cm. of polyvalent antistreptococcic serum were given, and the uterus explored. A portion of placenta was found, and a swab taken from the interior of the uterus, which yielded on cultivation a pure growth of streptococci from which a vaccine was prepared.

Twenty more c.cm. of serum were administered with the vaccine with most satisfactory results, when a painful condition of the muscles of the neck supervened, with difficulty in opening the mouth. This disagreeable symptom increased till only the spout of a feeder could enter the mouth. There was no rash, or other symptom of serum poisoning, and in forty-eight hours the spasm of the jaw disappeared, during which time 5-grain doses of chloretone had been given every four hours.

Sevenoaks. JAMES E. BLOMFIELD, M.D.

Reviews.

THE CRIMINAL IMBECILE.

In his essay on *The Criminal Imbecile*[1] Mr. H. H. GODDARD describes and analyses three American murder cases in which the criminals were imbeciles, adolescents, or adults with the mental development of children. Mr. Goddard distinguishes clearly between the criminal who knows that he is doing wrong when he commits his crime, and the imbecile or feeble-minded person who is mentally incapable of recognizing that any action he may commit is wrong. The criminal is responsible for what he does, the imbecile is not responsible, yet the law is apt to pass sentence of death on both when they are proved to have committed murder. Mr. Goddard argues that this is an injustice, and that the imbecile murderer should be condemned to no more than imprisonment for life. The first of the murders narrated by Mr. Goddard was committed by a boy of 16, whose intelligence, measured by the Binet-Simon tests, was that of a ten-year-old child. In the second case, which was particularly abhorrent in its details, the murderer was aged 19, but had the mentality of a boy of 11. The third murderer, aged 24, was pronounced sane but of low mentality by two expert alienists; examined by a psychologist who used a modification of the Binet tests, he was found to have the mental development of a child of 9. The weak-mindedness of these three murderers could have been recognized in their childhood, and according to Mr. Goddard it should have been recognized that they were mental defectives, and therefore, as he contends, potential criminals. Had this been done, they could have been guarded and watched and saved from an environment that would lead them irresponsibly to prey upon their fellows. He goes on to point out that at least two-thirds of mental defectives have inherited their defect, and belong to strains of the human family whose intelligence lies below that required for the performance of their duties as citizens. He suggests segregation or sterilization as methods for preventing the propagation of these strains, and concludes that feeble-mindedness as related to crime may be exterminated in a few generations if we set our minds to the task. The book is clearly and, on the whole, temperately written, and profoundly interesting to all concerned in the welfare of the submerged tenth with its crowd of imbeciles and criminals.

PHYSIOLOGY.

PROFESSOR HOWELL'S excellent college *Textbook of Physiology*,[2] first published ten years ago, has now reached its sixth edition—a striking testimony to the favour with which the volume is regarded by students of physiology, particularly in America. The difficulty of keeping the successive editions of a general textbook such as this up to date must be enormous; indeed, the task could only be undertaken with any prospect of success by a teacher in constant touch with the students he has to instruct, on the one hand, and with the enormous literature of the subject on the other. Professor Howell's method in writing the book has been to give the evidence, experimental or other, that bears on the question he is discussing, and to present it to the reader without any particular bias; at the same time, he emphasizes those conclusions that seem to him to be most justified by experiment and observation. A number of references to the recent literature are given, and occasional historical summaries are inserted where they appear to be of particular interest. The text is relieved by a number of well-chosen illustrations, many of them old friends. The book is divided into nine sections, in which the physiology of the chief systems of the body is discussed. Speaking generally, the author gives his physiology both in the form of a literary *précis*, well digested, thoroughly sound in doctrine, and consisting of the conclusions reached rather than the methods and results on which these conclusions have been based. In consequence the text is easy reading; the book appears more suitable for advanced and thoughtful students than Kirkes' admirable textbook with its insistence on mechanical detail and fact, and at the same differs greatly from Professor Starling's textbook of physiology, with its wide views and laboratory atmosphere. Each of these three works is of first-class excellence, and each will make its chief appeal to students of a different class and with a different intellectual appetite. We can commend Professor Howell's to all medical students and practitioners in search of a trustworthy and up-to-date manual of physiology.

The existence of little books from which the misguided student may hope to cram sufficient knowledge to pass his examinations appears to be a necessary evil, rendered inevitable by the examination system from which medical men have all been sufferers in their time. The little books to which we refer are fundamentally faulty, because they attempt the impossible. They must be short, and they must be loaded with facts; hence they inevitably become catalogues taxing the memory, and are unable for want of space to make any demands on the reasoning powers or the intelligence of their readers. The student who trusts to them converts himself into an automaton, and is likely to be at a loss if he is asked a question demanding a little thought, and not directly answered by his cram-book. An excellent book of this class, entitled *Aids to Physiology*,[3] has recently been published by Drs. TAIT and KRAUSE, crowded with facts, unblemished by explanations, and diversified by the use of varieties of type to bring the important points into prominence. It contains, apparently, no reference to the pineal body; "ametropia" should be spelled with only one "m" (p. 219); the symbol of the element fluorine is F, not Fl (p. 4). It may be doubted whether many physicians would agree with the statement (p. 85) that "Suprarenal extract is used for its astringent and haemostatic action in hay fever, and in Addison's disease."

The nineteenth volume of the *Collected Papers* of the Institute of Physiology of University College, London,[4] edited by Professor STARLING, contains twenty-one papers on various physiological subjects, published in either the *Journal of Physiology* or the *Biochemical Journal* in 1915 or 1916. Many of these papers are of no little interest to medical men. Thus, an article by Professor F. A. Bainbridge on the influence of venous filling on the rate of the heart shows that the reflex acceleration of the heart which is brought about by increasing the supply of venous blood to the right auricle is caused by a rise of venous pressure sufficient to raise the diastolic pressure and to dilate the heart. This reflex mechanism must play a part in the quickening of the heart's action during muscular exercise; it also explains why the fatigued heart is a rapidly acting heart. Marey has shown that the pulse-rate tends to vary inversely with the arterial pressure, within limitations: the relation between a rise of venous pressure and the pulse-rate is more constant, and, it may be added, more important. A paper by Y. Kuno on the significance of the pericardium—a problem investigated in 1898 by Barnard—proves that opening the pericardial sac causes a fall in venous pressure, a rise of arterial pressure, and an increase of the heart's output by as much as 25 per cent. When, however, the work of the heart is raised to a maximum, that organ always suffers injury in the form of haemorrhages or valvular insufficiency if the pericardium is open, and it appears that the right ventricle gives out before the left. So long as the venous pressure remains low the function of the heart is improved by opening the pericardium. But in normal life the heart is often called upon to increase its output and do extra work, and so the existence of the pericardium is necessary for its unimpaired working day by day, to prevent acute dilatation. It will be remembered that Barnard found the heart to rupture under a pressure of one atmosphere or less, while the pericardium was inextensible and able to withstand a pressure of 1½ or 1¾ atmospheres. A paper by Y. Kuno on the pulmonary circulation goes to show that the circulation through the lungs is increased by an

[1] *The Criminal Imbecile: An Analysis of Three Remarkable Murder Cases.* By H. H. Goddard, Director of Department of Research, Vineland Training School, New Jersey. New York: The Macmillan Co. 1915. (Demy 8vo, pp. 181; 3 Illustrations. 6s. 6d. net.)

[2] *A Textbook of Physiology for Medical Students and Physicians.* By W. H. Howell, Ph. D., M. D., Sc. D., LL. D. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Med. 8vo, pp. 1011; 317 Illustrations. Cloth, 20s. net.)

[3] *Aids to Physiology.* By J. Tait, M.D., D.Sc., and R. A. Krause, M.D., D.Sc. Students' Aid Series. London: Baillière, Tindall, and Cox. 1915. (Fcap. 8vo, pp. 242; 52 figures. Cloth, 3s. 6d. net; paper, 3s. net.)

[4] *Collected Papers; Institute of Physiology, University College, London.* Edited by E. H. Starling, M.D., F.R.S., F.R.C.P. Vol. xix.

increase in the respiratory excursion; he was unable to solve a question of great interest in pneumothorax—namely, Is the circulation increased or diminished in the collapsed lung? but is inclined to think that it is lessened. A paper by Dr. S. Okada on the secretion of bile, a matter that has often been investigated before, shows that there is little difference between diets of bread, butter, and meat, so far as the biliary secretion is concerned, during the first six or seven hours, if those substances are administered in quantities of corresponding heat value. Starvation diminishes the secretion of bile, while white of egg, fat and oil, soap solution, acids (here the action is very marked), Witte's peptone, and Liebig's extract of meat increase the secretion, though the bile is more dilute; cane sugar, starch, water, and sodium bicarbonate produce little or no effect. Among drugs, sodium salicylate and chloral hydrate produced a considerable increase in the flow of bile; salol, cream of tartar, and large doses of alcohol a smaller increase. Nicotine caused an inconstant increase of secretion. Dr. Okada also concludes that during digestion there is an increase in the force of the rhythmic contractions of the gall bladder, and he finds that while the reaction of bile from the gall bladder is variable, acid, neutral, or alkaline, that coming from the liver is alkaline; corresponding in alkalinity with the pancreatic and intestinal juices. Professor Starling is to be congratulated on the varied excellence of the work done by his pupils, as illustrated by the papers collected in this volume.

In his small textbook of *Physiology for Nurses*,[5] Dr. DRUMMOND gives a straightforward account of the principles of the science, with a little anatomy thrown in here and there. There are eighteen chapters and an appendix; over eighty illustrations, mostly borrowed from standard works, are reproduced with varying degrees of success. The author writes clearly in pedestrian style, perhaps assuming in his readers more knowledge of general chemistry and physics than most nurses possess. If it is difficult to write a good elementary textbook of any science, it is many times more difficult to write one that is interesting and readable.

ANATOMY.

MOST students of anatomy are aware of the debt anatomists owe to the careful observations of German investigators. Nevertheless it is somewhat remarkable that at the present time a book should be published in the Australian Commonwealth on practical anatomy by a distinguished teacher which is frankly designed and intended to be used with Spalteholtz's handatlas of the anatomy of man. Professor RICHARD J. A. BERRY,[6] the teacher referred to, tells us in his preface that the planning and preparation of this book have occupied many years. It must therefore be counted as a great misfortune for him that the publication should coincide with Armageddon and with the attempt of Germany to seize the mastery of the world. The very purpose, indeed, of Professor Berry's leisurely and careful labours is thereby rendered most difficult, if not impossible of attainment. Let us state without any further delay that this textbook of *Practical Anatomy* in three volumes, however valuable from the descriptive point of view—and as we shall show later it is a most careful and accurate work—contains no illustrations. But, as we previously noted, the work, like Krause's *Handbuch* of the anatomy of man, is intended to be used with Professor Werner Spalteholtz's *Handatlas der Anatomie des Menschen*. As this atlas contains more than 1,000 illustrations it is clear that if the student can provide himself with either an English or a German edition of Spalteholtz—and either, says Professor Berry, may be used with equal facility by an English-speaking student, as all the plates are lettered in B.N.A. Latin—the work now under review is in reality the most freely illustrated manual of practical anatomy obtainable. The references to the illustrations are appended throughout on the margins of the page, and always refer to the figure in Spalteholtz, and not to the page. It will be obvious, therefore, that for the satisfactory prosecution of his studies in human anatomy, with Professor Berry's book as his guide, the student must also possess the Spalteholtz atlas. Is the student in this country and in the Dominions overseas likely to be attracted by such a scheme? and are the teachers of such a mind that they can freely recommend it? Apart from the undesirability of having to use an alien publication, some of the teachers seem determined to have nothing to do with the Basle terminology or with any "hand atlases" committed to its perpetuation. However, there are students who are more or less independent of illustrations, who possess powers of observation and of examination to an unusual degree, and to such we can most strongly recommend the book. It is a monument of industry, carefully and accurately carried out on an admirably arranged plan; indeed, Professor Berry seems to us to have succeeded in writing a book for which there is a demand—a book which falls somewhere between a mere practical anatomy guide and a large textbook. It contains more than descriptions of dissections, and yet is not overburdened with the enormous amount of detail usually found in larger books. We have therefore no hesitation in recommending—with a warning as to the absence of illustrations—this work as a most satisfactory guide to the dissection of the human body, and we hope that Professor Berry will at some future date find an opportunity to publish a small atlas of illustrations to go with it.

Gray's Anatomy,[7] which now appears in its nineteenth edition, first saw the light nearly sixty years ago. A book which through all these years has kept its position in the front rank of anatomical textbooks must have great merits. The work has always been noted for its clear and accurate text, for its bold and simple illustrations, and for the wise judgement of its editors, who have all exhibited a studied moderation in the size to which they have permitted the book to grow. All these features are well combined in the present edition. While it is only half the size of Quain's *Anatomy* and three-quarters the size of Cunningham's *Anatomy*, it yet contains all the anatomical information which any but a professed anatomist will ever require. The student will, we think, be well advised, particularly in these days of the crowded curriculum, who selects it for his study in preference to the more voluminous textbooks. The present edition has again been entrusted to the very capable hands of Professor HOWDEN, who has had the collaboration of Dr. A. J. Jex-Blake and Mr. W. Fedde Fedden in the section dealing with applied anatomy. The work is well up to date both as regards text and illustrations.

NOTES ON BOOKS.

SIR EDWARD SCHÄFER'S *Essentials of Histology*, first published in 1885, has now reached its tenth edition,[8] and is, as it has been for a quarter of a century, a book that is indispensable to the medical student. For the convenience of those who use it the text is divided into fifty lessons or chapters; each lesson may be supposed to occupy from one to three hours, according to the amount of the work actually done by the student. Only those histological methods are recommended upon which dependence can be placed, a matter in which the author's great experience both as a teacher and a histologist can be thoroughly trusted. It is hard to find anything new to say in praise of so sound and well-established a textbook as this; the tenth edition is a little larger than the ninth, and contains many additional illustrations, while the text has been completely revised. A word of praise may be given to the publisher, who has surmounted with no little success the many difficulties with paper, printing, binding, and illustrating, from which all publishers must now be suffering acutely.

[5] *Physiology for Nurses*. By W. H. Drummond, M.B., C.M., F.R.C.P.Edin. London: E. Arnold. 1916. (Cr. 8vo, pp. 210; 81 figures. 2s. 6d. net.)

[6] *Practical Anatomy*. By R J. A. Berry, M.D.Edin., M.D.Melb., F.R.S.Edin., F.R.C.S.Edin., Professor of Anatomy in the University of Melbourne. Vol. i., Superior Extremity; Inferior Extremity. Vol. ii, The Thorax and Abdomen. Vol. iii, The Head and Neck, Organs of Special Sense, and the Central Nervous System. Melbourne: Sydney, Adelaide, and Brisbane: G. Robertson and Co. 1916. (Med. 8vo, pp. 428, 402, and 513.)

[7] *Anatomy: Descriptive and Applied*. By H. Gray, F.R.S. Edited by R. Howden, M.A., D Sc., M.B., C.M. Revised by A. J. Jex-Blake, M.A., M.D.Oxon, F.R.C.P.Lond., and W. Fedde Fedden, M.B., M.S. Lond., F.R.C.S. Nineteenth edition. London: Longmans, Green, and Co. 1916. (Roy. 8vo, pp. 1320; 143 figures. 32s. net.)

[8] *The Essentials of Histology, Descriptive and Practical, for the Use of Students*. By Sir E. A. Schäfer, M.D, Sc.D., LL.D., F.R.S. Tenth edition. London: Longmans, Green and Co. 1916. (Med. 8vo, pp. 574; 720 figures. 10s. 6d. net.)

The first volume of the *Medical Clinics of Chicago*[9] has now been completed by the publication of its sixth bi-monthly part. This periodical consists of transcripts of clinical demonstrations of medical cases, held at hospitals in and about Chicago before post-graduate audiences. The contributors are fourteen in number; each has contributed from one to twenty expositions, and the cases selected cover a great deal of the ground of internal medicine. Illustrations are given where they seem desirable, and there are some excellent coloured plates in the volume. The text is easy reading, the medicine taught is practical and to the point. These *Clinics* should be of service to practitioners who have forgotten much of what they learnt as students at the bedside.

The war demands service from all of us. Dr. T. N. KELYNACK has endeavoured in his book *Pro Patriâ*[10] to provide an authoritative directory to the chief societies, associations, institutions, and agencies that are rendering service to the nation, the fighting forces, and the individual. It should be consulted as a book of reference by the countless workers engaged in war work or patriotic labour of any kind, public authorities, administrators of all sorts of relief work, and philanthropists who do not wish to see their time or money misapplied in the cure of hardships due to the war. The book begins with a number of original communications on various subjects, and some dozen messages and short communications relating to patriotic war service. These more stirring and flamboyant pages introduce the reader to the solid and convincing exposition of the aims and work of the countless associations, new and old, that are rendering public and personal service at the present time. Valuable records, reports, and memoranda are given later in the volume, and there are useful appendices and indexes. The editor has done his work efficiently, and has succeeded in bringing together a great deal of useful information that could not be found elsewhere by the ordinary reader or the seeker after facts. We recommend the book to all those whom it is designed to assist.

[9] *The Medical Clinics of Chicago.* May, 1916. Vol. i Nos. 2-6. Philadelphia and London: W. B. Saunders Co. 1916 (Med. 8vo, pp 269-1273. Per year, illustrated, cloth, 50s net; paper, 35s. net.)

[10] *Pro Patriâ: A Guide to Public and Personal Service in War Time.* Edited by T. N. Kelynack, M.D. London: John Bale, Sons, and Danielsson, Limited. 1916. (Cr. 4to, pp. 278; illustrated. 3s. 6d. net.)

AUXILIARY R.A.M.C. FUNDS.

SIR ALFRED KEOGH, K.C.B., D.G.A.M.S., presided over a meeting at the Royal Army Medical College on August 7th, when about thirty officers of the Auxiliary R.A.M.C. Forces were present.

Sir Alfred Keogh said that the meeting was called to consider the replies to a circular containing the scheme which had been sent to all units at home and in France. The replies disclosed the fact that the very large majority were in favour of the establishment of Auxiliary R.A.M.C. funds for benevolent and relief purposes.

The Secretary, Lieutenant-Colonel Davie-Harris, said that of the replies from individual officers of the Auxiliary R.A.M.C., 92 per cent. were in favour of the proposal and only 8 per cent. against it. Various suggestions had been made, which he enumerated, adding that the proposal for a loan fund was seldom alluded to in the replies.

The scheme was adopted with the omission of the words, "orphans of officers who are non-subscribers to the funds shall have no claim to its benefit." Sir Alfred Keogh was elected president of the Funds, and, after some discussion, it was resolved to appoint six vice-presidents and a committee of twenty, and that the president and vice-presidents should be *ex officio* members of the committee, which was given full power to put the scheme into execution and to administer the funds. The administration has been constituted as follows:

President: Surgeon-General Sir Alfred Keogh, K.C.B.

Vice-Presidents: Surgeon-General Sir A. Pinsent, K.C.M.G., C.B., Lieutenant-General Sir Alfred Fripp, Surgeon-General, K.C.V.O., Surgeon-General Sir O. H. Marshall, K.C.M.G., K.C.V.O., Lieutenant-Colonel Sir Anthony Bowlby, Colonel Sir Frederick Treves, Bt., G.C.V.O., Lieutenant-Colonel Sir Ashmead Wright, F.R.S.

Committee: Lieutenant-Colonel H. G. Barling, Colonel Sir J. Ross Fleming, K.C.M.G., C.B., Lieutenant-Colonel W. Collier, Major A. C. Pennington, Colonel Sir James Ramsay Esmarch, K.C.V.O., Lieutenant-Colonel H. F. Hawkins, Colonel Cuthbert James, Major H. H. Johnston, Colonel D. J. MacCarthy, M.V.O., Major Ewen Maclean, Quartermaster, Lieutenant-Colonel C. W. Mansell Moullin, Major D. W. Patterson, Major G. Newton Pitt, Lieutenant-Colonel W. Pasteur, Captain R. J. Sterling, Surgeon-General Alfred Thorne, V.D., Colonel H. H. Tooth, C.M.G., Lieutenant-Colonel F. H. Westmacott, Lieutenant-Colonel W. Hale White, Lieutenant-Colonel G. Sims Woodhead.

Secretary: Lieutenant-Colonel F. W. H. Davie-Harris, 124, Victoria Street, S.W. *Bankers*: Messrs. Holt and Co., 3, Whitehall Place, S.W.

The following circular letter has been addressed to all auxiliary R.A.M.C. officers, inviting them to become subscribers to the Officers' Benevolent Branch:

OFFICERS' BENEVOLENT BRANCH.

Dear Sir,

I am desired by the Committee to bring to your notice and to invite you to become a subscriber to the Officers' Benevolent Branch of the above funds. It has been instituted for the purpose of affording relief to orphans of officers who have served during the present war in one of the three auxiliary branches of the R.A.M.C.—namely, the Special Reserve, the Territorial Force, or the New Armies.

The primary object of the Officers' Benevolent Branch is to assist in the education and starting in life of those orphans who stand in need of such help, owing to their fathers having died without having made sufficient provision for their families.

A similar fund has existed in the Regular R.A.M.C. since 1820, and has proved of great benefit.

The Committee hope that all auxiliary R.A.M.C. officers will feel it their duty to support this Benevolent Branch with a view of assisting the orphans of their brother officers in the corps and ask all either to give a substantial donation to start the fund, or to become annual subscribers, and if possible to do both.

They would especially appeal to those officers whose military duties do not prevent them from carrying on their own practices.

The minimum subscription is one guinea, this gives the subscriber a vote at the annual meetings; but many donations varying from five to fifty guineas, and subscriptions up to five guineas have already been received.

It should be observed that the (*b*) Relief Branch for the dependants of the rank and file is entirely separate from the Officers' Benevolent Branch financially, though administered by the same Committee.

A banker's order is attached which you are urgently invited to sign and to return to me at the above address.

Yours truly,

F. W. H. DAVIE-HARRIS, Lieut.-Colonel,
Secretary.

124, Victoria Street, Sept. 8th, 1916.

RELIEF FUND.

A circular letter has also been sent to all officers commanding R.A.M.C. units at home and abroad, asking for grants from regimental institutes to a relief fund formed on the lines of the R.A.M.C. General Relief Fund, to afford relief to the widows and orphans of the rank and file of the Auxiliary R.A.M.C. Forces. The letter points out that nearly all the Regular R.A.M.C. are now serving abroad; that the companies and other units R.A.M.C. now at home consist almost entirely of the auxiliary branches; that consequently the profits which are now being made by the regimental institutes are, to a very great extent, made from auxiliary troops; and that it is therefore only right that they should benefit considerably from these profits.

We are informed that, judging from the donations already received from officers for the Benevolent Branch and the grants received from units for the Relief Branch, there can be little doubt that the new auxiliary funds will be successful.

THE sixty-seventh annual meeting of the American Medical Association was held at Detroit from June 12th to the 16th. The report of the secretary, Dr. Alexander R. Craig, stated that the fellowship on May 1st, 1915, was 42,366; the number on May 1st, 1916, was 43,181—an increase for the year of 815. In his presidential address Dr. Rupert Blue, Surgeon-General of the United States Health Service, said that the great lesson of the European war for the United States was to prepare the medical and sanitary forces in time of peace, both in the army and in the navy. The question of health insurance was coming to the front, and would probably constitute one of the next great steps in social legislation. Closely allied to that was the study of industrial hygiene—the problem as it related not only to the workshop and factory but also to the home. Rural sanitation was of even greater importance, and the next great point of attack against infectious diseases was in the small town and village. That required the sanitary enlightenment of the country resident and adequate State and local health organizations. The coast defence against the importation of disease from abroad was adequate; what must now be done was to control those diseases which were already with them. For this the qualified health officer and an educated public were required. Dr. Charles Horace Mayo, of Rochester, Minnesota, was elected president for 1917. His elder brother, William J. Mayo, was president in 1906. The total registration was 4,586, the third largest on record.

British Medical Journal.

SATURDAY, SEPTEMBER 23RD, 1916.

THE MILITARY HEART HOSPITAL, HAMPSTEAD.

AT the present time great interest and importance attach to the prognosis and treatment of certain forms of cardiac disease in soldiers. For want of exact knowledge as to their ailment many of the sufferers have been classed as cases of D.A.H., or disorderly action of the heart, or as cases of "irritable heart" or "soldier's heart." Such diagnoses are lacking in precision. A paper by seven authors, printed on page 418 of this issue of the BRITISH MEDICAL JOURNAL, shows what is being done at the new Hampstead Military Hospital, with its three fully equipped and independent services of fifty beds, to classify these patients, and to determine their fitness for duty. The seven authors base their paper upon the 251 men who have passed through their hands and have left the hospital. These patients were first sifted by physical examination. This showed that 113 of them had definite valvular or myocardial disease; they were accordingly discharged from the army within a few weeks of their admission. Certain physical signs to which many practitioners are apt to attach importance were disregarded in this preliminary sifting as of little or no value. These signs include extra-systolic or respiratory irregularity, acceleration of the heart's action, diffusion or jerkiness of its impulse, a short apical systolic murmur, and systolic murmurs in the aortic or pulmonary regions. The first sifting thus got rid of 35 or 40 per cent. of the patients. The remaining 60 or 65 per cent. next underwent a second sifting by means of continuous and special observation. Mainly, these are cases of "irritable heart," men with symptoms of functional derangement of the heart, but no clear signs of organic disease in that organ; a few were shown by the second sifting to have organic heart disease.

It is the cases of "irritable heart" that give rise to difficulty in prognosis, and at the Hampstead Hospital they were placed on a routine of carefully graduated exercises designed to eliminate the cardiac unfit. The exercises were selected from the code of army exercises and were directed by a sergeant-major instructor. Constant supervision was maintained and the amount of exercise increased or diminished according to the needs of each, the patient's appearance, colour, breathing, heart-rate, and subjective symptoms being all taken into consideration. As the patients improved more and more work was done, drill being varied with route marches; it was found that this line of treatment was very valuable from the therapeutic point of view, and that in no instance was any harm done. In favourable cases the man could finally be returned fit for duty; in others he was marked as fit for light duty at home; where the patient showed continued distress in the lowest grades of exercise he was discharged from the army as permanently unfit. It was found that about two months were needed to determine to which category a patient belonged. The greater the duration of the symptoms of "irritable heart," the worse the prognosis seems to be; few of those giving a history of rheumatic infection or chorea —some 19 per cent.—became fit to return to full duty.

Elaborate studies have failed to bring to light any rapid yet trustworthy method of eliminating the unfit. The least unsatisfactory test was found to be the rate at which the pulse-rate falls after a brief and brisk exercise, such as going smartly down and up a flight of twenty stairs. If the pulse fails to return to its original rate within two minutes of this, the patient will only rarely reach a high-grade physical exercise. The converse, however, does not hold good. It is of interest to note that a similar conclusion has been reached at the National Hospital for Diseases of the Heart, to which doubtful cases are sent from recruiting centres for an opinion. Here the failure of the pulse-rate and blood pressure to return to their former level three minutes after exercise has been regarded as an unfavourable sign; yet many who were obviously unfit have been found to give an almost normal reaction in this respect. At the Hampstead hospital the best results have been obtained among the men who have broken down in health on active service; nearly half the patients with "irritable heart" gave a history dating back prior to enlistment. It would be interesting to know how far arterio-sclerosis can be invoked to account for the "irritable heart" of young subjects like most of the patients considered in the paper of Dr. Lewis and his collaborators. At the National Hospital the two conditions appeared to be associated in a certain percentage of the recruits sent up for examination. Perhaps it is the case that a man with early arterio-sclerosis is likely to develop cardiac irritability under the strain of active service. To what extent may the use of tobacco be held a factor in its appearance? We look forward with interest to further clinical and scientific communications on the subject of "irritable heart" from Dr. Lewis and his colleagues.

OPERATION FOR EMPHYSEMA.

IN 1858 W. A. Freund, an assistant in the obstetrical clinic at Breslau, described a variety of emphysema of the lungs with dyspnoea which he considered to be secondary to rigidity and ossification or calcification of the costal cartilages. In 1859 he proposed, logically enough, to treat this variety of emphysema by the operative removal of the rigid cartilages of the ribs. The proposal, however, was not well received, and the whole question seems to have fallen out of mind. In 1901 Freund once more brought the matter forward, this time at Berlin, and since that date he seems to have written over a score of papers on the subject. The first "Freund's operation," or costal chondrectomy for the relief of pulmonary emphysema, was performed in 1906 by Hildebrand. The patient was an emphysematous man of 46, with symptoms of heart failure. Hildebrand removed half an inch of the second and third right costal cartilages under local anaesthesia. The patient was so much pleased with the resulting improvement in his condition that he asked to have his left costal cartilages operated upon; this was done six weeks after the first operation, and pieces of the second, third, and fourth cartilages were removed. Since this case the operation has been done by many surgeons in many countries, with very varying degrees of success. In numerous cases the results have been brilliant, and the emphysematous patient has gained great relief from the operation. In other instances the patient has been no less scant of breath after the operation than he

was before it. The physiological, anatomical, and pathological bases of the operation have now been revised by numerous authors, and Freund's views have been amended and corrected in several important particulars. A very full account of the whole matter has recently been published by Dr. Douay,* a pupil of Professor Delbet of Paris, based largely on the ninety-one cases of chondrectomy in which Professor Delbet has had a hand.

In the first place, good reasons are brought forward for believing that the variety of emphysema imagined by Freund to be due to a primary rigidity and dilatation of the thoracic cage does not exist. The changes in the costal cartilages are merely those of age or old age, and are often found in the absence of emphysema. The rigidity of the thorax is not due to the cartilaginous changes alone, but demands ankylosis of the costo-sternal joints as well. The thoracic dilatation is often absent in cases of pulmonary emphysema. Many a patient with dilated and rigid thorax appears to suffer little disability therefrom, and, indeed, not even to be emphysematous. Freund has laid considerable stress upon increase in the volume of the affected costal cartilages and upon the frequency with which the second costal cartilages show the characteristic degenerative changes and rigidity. Dr. Douay's researches go to show that the changes in volume and length are not constant or characteristic, and that the second pair of cartilages commonly escape involvement, while the fifth, sixth, and seventh pairs are those most frequently affected. Further, it is found that rigidity of the ossified costal cartilages is often counterbalanced and neutralized by an increased mobility of the costo-chondral articulations. Dr. Douay has a long and interesting discussion of the general considerations touching the thoracic cage and elasticity of the lungs, the respiratory movements, and the causes and consequences of pulmonary emphysema. The general conclusions he reaches are as follows: The dyspnœa of the emphysematous patient has three main causes, and the chief of these is dilatation of the right heart; dilatation and rigidity of the thorax, and the pulmonary changes of emphysema itself are lesser but still important contributory causes.

The second half of Dr. Douay's essay is given to the operation of chondrectomy, and details of about a hundred cases in which it has been performed, with a number of anatomical observations on the rigid or emphysematous thorax. Chondrectomy is an operation not without its dangers; it should always be done under local anæsthesia, as several fatal cases of bronchopneumonia have been reported when a general anæsthetic was given. Again, sudden death may occur a few hours after the operation, owing to heart failure, apparently the result of a sudden disturbance of the intrathoracic equilibrium; hence the operation should be carried out in successive stages, as Lambret of Lille advised. The indications for the operation are very difficult to formulate in exact terms. Dr. Douay thinks that it should be advised in cases of emphysema with rigidity of the thorax and signs of failure or dilatation of the right heart. It should not be advised early in the disease, before the patient is seriously embarrassed and short of breath, and before medicinal treatment, hydrotherapy, breathing exercises, and the like have been tried and have failed to give relief. It is indicated also when the diaphragm lies low in the thorax and moves little on respiration. As has been said above, dilatation of the right heart, and particularly of the right auricle, cannot be regarded as contraindications.

As regards the operation itself, it is a fairly simple matter. The incision may be vertical, a finger's-breadth outside the costal margin, or a number of incisions may be made over the cartilages that are to be removed. The whole perichondrium must be removed with the cartilage, in spite of the danger of injuring the pleura in dissecting away the posterior layer; various ways in which this may be effected are described. From 4 to 6 cm. of cartilage should be removed, speaking generally; care should be taken to stop all haemorrhage, and the dressings should be held on by plaster, not by bandaging. As has already been mentioned, the costal cartilages should be removed a few at a time; at first the third, fourth, and fifth, perhaps, and later the second and sixth also, on one side of the body at a time. The good results of the operation depend mainly upon the relief afforded to the right auricle, but also upon the opportunity it affords for increased mobility of the chest wall and increased ventilation of the lungs.

* *Archives de la Clinique Chirurgicale du Professeur Pierre Delbet.* No. 4: Le Thorax et l'emphysème: la chondrectomie. Par E. Douay. Paris: F. Alcan. 1916 (publication delayed by the war). (Imp. 8vo, pp. 472; 111 figures. Fr. 20.)

THE RESTORATION OF DISABLED SOLDIERS TO CIVIL LIFE.

WE are glad to see that the newspapers are beginning to turn public attention to the need for the establishment of a sound system of dealing with the physical needs of the disabled soldier. We have on many occasions pointed out the importance of the subject and the difficult administrative questions which have to be solved. On the general principle there is no difference of opinion; every one is agreed that the nation is under an obligation to the men who have fought for it to do everything possible to restore them to health and activity. To this end the army has established general hospitals, special orthopaedic hospitals or departments of general hospitals, convalescent camps and homes, and command dépôts, such as those at Tipperary and Heaton Park, near Manchester, described in our columns on August 12th, where men who have been lamed in arm or leg, or suffered in health, may be made fit again. The authorities of the army have established this organization primarily, of course, to relieve suffering and to cure the man of his wound, but also, looking at the matter from their point of view, with the hope that the man may be so soundly cured that he can again return to active work in the army, if not in the fighting line, at least on the lines of communication abroad or at home.

But there are many men who can never be so restored to health and activity as to be able to serve again, and there are others, many of them now under treatment in military orthopaedic hospitals, in whom the prognosis is doubtful. The army is disposed to say that if it is proved that a man cannot serve again, then he should be discharged from the army. It is a matter partly of administration and partly of finance. It is argued that the retention of the disabled man in the army will clog the military machine, and that the expense of his maintenance and treatment will unduly swell the army estimates, and ought to be borne by some other department of the Government. But the State having assumed responsibilities in the way of pensions and supplementary pensions, it makes no difference to the taxpayer through which department the cost is defrayed. The nation desires that efficiency should be combined with economy, and any scheme devised must have regard to economy, not merely in money, but in time and energy and personnel.

In a large proportion of cases special forms of treatment are required; the most numerous class consists of men who have suffered injuries of the limbs and who need skilled orthopaedic treatment to restore them to activity. Other classes might be quoted, such as cases of heart disorder and nervous breakdown; but, confining our attention to the orthopaedic class, we find that the special forms of treatment necessary are already being carried out by experts in the military orthopaedic hospitals, and that the greater number of surgeons of special experience in this department of practice are already in military employ. Their numbers are limited, and are not more than sufficient, if sufficient, to staff the military orthopaedic hospitals; it is, indeed, desirable that these hospitals should be used as post-graduate schools for the benefit of practitioners who remain in civil practice or may be required to serve on the staffs of military orthopaedic hospitals and departments as these increase in number and size. Here we come upon a serious administrative difficulty, for, even if it were decided to set up civil hospitals to give orthopaedic treatment to disabled soldiers, it would, in existing circumstances, be practically impossible to staff them. The organization necessary already exists in the army orthopaedic hospitals and convalescent camps, and to expel the disabled soldier in existing circumstances from the army medical organization would be unjust to him, and involve waste in many directions. A man discharged from the army becomes a free agent, and his acceptance of any offer of civil treatment, even if it could be organized, will be a purely voluntary act. It can hardly be doubted that of men discharged many if left without guidance and control will drift away to their homes, far from any facilities for special treatment, and will tend more and more to lose heart, and to live on their pensions, becoming a burden to the community and a misery to themselves and their families.

The Central Medical War Committee regards any scheme which would set up civil institutions to achieve the same ends as army institutions already in existence with apprehension, owing to the effect it may be expected to have upon the recruiting of medical officers for the R.A.M.C. The discharge of disabled men before they are rendered as fit as possible for civil life would place an undue burden upon the insurance scheme and upon the medical practitioners who are giving service under it. The fact that disabled men if discharged from the army become, if insured persons, entitled to medical benefit, is recognized by the Insurance Commissioners, and the Commission for England, as noted in the SUPPLEMENT for this week, has prepared a memorandum to Insurance Committees calling attention to the position, and has promulgated a new regulation intended to cover the point. The memorandum recognizes that in the treatment of such cases a panel practitioner will frequently require specialist or consultant services, and prescribes conditions under which they should be sought. Beyond this the memorandum does not go, but we cannot but believe that the Commissioners would favour any well-considered scheme which would retain the disabled soldier in the army so long as he requires special treatment in an orthopaedic hospital; that is to say, until by surgical means, massage and regulated exercises he is restored to the maximum possible efficiency. It is also very desirable that during this period of his treatment, for reasons we have on many previous occasions fully set out, he should be from the earliest possible moment put to useful work. Such a plan is not only economically but therapeutically sound.

THE FOUNDATION OF THE RED CROSS.

THE initiation of the Red Cross organization is generally attributed to the Swiss philanthropist, Henri Dunant. With his mind full of the work of Florence Nightingale he visited the battlefields of Solferino in 1859, where he was painfully impressed by the sufferings of the wounded, left for days on the ground where they fell. The story of the life and work of the "Monsieur en Blanc," as he was called from the summer attire which he wore when going about on his errand of mercy, was told in some detail in the BRITISH MEDICAL JOURNAL of October 3rd and October 10th, 1914 (pp. 591 and 633). That account, based on authoritative documents, embodies the generally received version of the foundation of the Red Cross. In *La Medicina Pratica* of July 31st, however, the glory of this great step in the progress of humanity is claimed by Dr. Pietro Masucci, professor of laryngology in the University of Naples, for Ferdinando Palasciano, sometime professor of clinical surgery at Naples, a member of the Italian Chamber of Deputies, and later on a Senator. When serving as an army surgeon in 1848 he is said to have proposed to General Filangieri that the wounded in war should be neutralized. His experiences in 1859 made him still more eager in the pursuit of his idea, and he continued to work for its realization. On April 28th, 1861, he delivered an address at the Accademia Pontaniana urging governments to co-operate with the medical profession in securing better treatment for the wounded, and urging that for this purpose the principle of neutrality should be recognized by belligerent powers. That address was published and brought to the notice of the Italian and French Governments and of Dr. Appia, a physician of Geneva. In another address, delivered on September 29th, 1862, Palasciano dwelt on the necessity of convening an international congress to formulate a scheme in accordance with his ideas. We have no wish to detract from the credit due to Palasciano for his labours in a good cause, but justice to the memory of one of the greatest apostles of humanity compels us to say that Professor Masucci's attempt to deprive Henri Dunant of the glory that is his, is rather disingenuous. He suggests that Dunant's work began with the publication of his *Souvenirs de Solférino* in 1862, and that his proposal amounted to nothing more than the formation of a corps of volunteer doctors. It is on record, however, that he saw Napoleon III almost immediately after the battle, and that the Emperor accepted the principle of the neutralization of the wounded, of the ambulances and their personnel. Dunant attended the fifth International Congress of Statistics held at Berlin in September, 1862, when a resolution was passed recognizing the value of his work, and expressing the hope that the conference then about to be held in Geneva would help to diminish the loss of health and life caused by war. Dunant was secretary of that conference which led to the meeting of the Congress in August, 1864. The outcome of that Congress was the Geneva Convention. Palasciano may have been the first to propose the neutralization of the sick and wounded, though even on that point the evidence is rather shadowy. But to Henri Dunant is due the acceptance of the principle by the Powers and the realization of the scheme. And to the man who gets the thing done belongs the glory of the achievement.

THE RATE OF MORTALITY IN THE BRITISH ARMY ONE HUNDRED YEARS AGO.

IN an article in the *Journal of the Royal Army Medical Corps* for August Dr. Arnold Chaplin has dealt with the rate of mortality in the British army between the years 1817–21, and has compared it with the death-rate shown in the army returns for the periods 1876–85, and 1907–11. In this investigation deaths caused in battle have been excluded, and the figures, therefore, relate to deaths from sickness alone. In order to arrive at conditions

most unfavourable to health in the army, deaths arising amongst officers have not been included, and thus the returns refer to the rank and file. For the period 1817–21 the "monthly returns," the "casualty returns," and the "muster rolls" in the War Office series of documents in the Public Record Office, have been used, while for the later periods the published returns of the Army Medical Department have been consulted. The results obtained offer striking proof of the wonderful progress made in army medicine and hygiene during the last hundred years. To take some examples: One hundred years ago the annual rate of mortality in the army quartered in Great Britain was about 17 per 1,000, while in 1907–11 it was 2.6 per 1,000. In India it was 87 per 1,000, against 6.7 per 1,000 in 1907–11; and in West Africa the enormous annual death-rate of 362 per 1,000 was registered, against 11.9 in 1907–11. While the terrible war is taking its toll of the best of our race, it is, perhaps, a satisfaction to know that our fathers paid cheerfully an almost equal blood tax in deaths from sickness alone in order to acquire that empire which we are fighting to hold.

PRESERVATIVES IN FOODS.

PRESERVED foods of many different varieties are practically indispensable in modern civilized life. Yet many of the chemical substances used as preservatives are poisonous in large quantities, and at best only relatively harmless when taken in even small amounts. Benzoic acid and sodium benzoate are looked upon by some as the most promising of the many chemical antiseptics used nowadays for the preservation of food; yet we are not justified in saying that even they are strictly harmless, and the Board of Agriculture has recently issued a warning against the use of sodium benzoate in jam. Away, then, with preserved foods! Quite impossible; it is obvious that a diet composed of fresh articles of food alone, uncontaminated by such antiseptic substances as sugar, salt, smoke, or vinegar, would be unendurably tedious to most of us. It may be our own fault; but who could contemplate with equanimity a festive board—or rather a bare table—stripped of all jams, marmalade, salt fish and flesh, kippers, pickles, and most of the hundred and one *hors-d'œuvres* and side dishes, preserves and stimulating sauces, that do so much in this world to help indifferent meals upon the way they must go? It remains, then, to submit all chemicals used in preserving foods to a strict scrutiny, and to prevent their abuse. The whole subject has recently been discussed[1] in a fairly practical and temperate manner by Professor Folin, of Harvard University. His book, *Preservatives and other Chemicals in Foods*, is one that may be read with advantage by medical men and laymen alike. As he points out, vast sums of money can be made out of preserved foods; and the manufacturer's interest in the products of his factories is apt to be pecuniary rather than of the scientific or hygienic kind. Naturally the business man uses the preservative that is simplest or cheapest for his particular purpose, perhaps without any excess of anxiety as to the effect of the preservative on the consumer's tissues and alimentary tract. Professor Folin would put an end to this by forbidding the use of any antiseptic in foods until its harmlessness had been proved; at the present time the law indicates the reverse process, no preservative being prohibited until it has been shown to be injurious. Professor Folin would thus leave the food preserver two chemical antiseptics to be used *ad libitum*—namely, sugar and salt. As for the other common preservatives, he would prohibit entirely the use of formaldehyde, salicylic acid, boric acid, borax, sulphites, sulphurous acid, and smoking. There is, he says, no sound reason why the above-mentioned antiseptics should be permitted in any article that is used as a food; all are suspicious characters. Flour that has been bleached, or "artificially aged" as its producers call it, by exposure to the fumes of nitrogen peroxide should not be allowed on the market; the use of preserved foods highly coloured by chemicals or dyes should be discouraged. The only other preservatives Professor Folin contemplates retaining are benzoic acid and sodium benzoate; they are, indeed, poisonous substances, but he believes that the tissues of the human body command an efficient metabolic process for converting them, by combination with glycocoll, into the harmless hippuric acid, in which form they are excreted. There is room, as he points out, for much pioneer work in the discovery of new chemical substances that will preserve foods from decay yet be harmless to human beings. The law at present endeavours to protect the public by a series of prohibitions as regards the use of chemicals in food products; Professor Folin sees no hope in this method, for the expert "food chemist" may always be trusted to go one better than the law and to circumvent it. Such legislation should rather take the form of a series of permissions granted as exceptions to the general rule that no chemicals or drugs of any kind may be added to any article of food.

[1] *Preservatives and other Chemicals in Foods: Their Use and Abuse.* By Otto Folin, Ph.D., Hamilton Kuhn Professor of Biological Chemistry in Harvard University. Harvard Public Talks. Cambridge: Harvard University Press. 1916. (Demy 8vo, pp. 66. 2s. 6d. net.)

SCARLATINA AND ITS SEQUELAE.

A SEARCHING investigation of the sequelae of scarlet fever has been made by the statistician to the Life Insurance Company, New York, Dr. Dublin,[1] who some time ago published statistics relating to typhoid fever, reporting after-histories for four or five years, especially the occurrence of any undue number of deaths during that space of time from causes which might reasonably be considered sequelae of the primary disease. In a series of 1,428 cases in which the patients had survived typhoid fever the mortality during the three following years was twice as great as was to be expected from the age, sex, and colour of the group. This high rate of mortality resulted from an increase in the number of deaths from tuberculosis and organic heart disease. In view of the well-known effect exerted by scarlet fever on the heart and kidney, it seemed likely that an analogous condition of high subsequent mortality might be found to prevail. The records of the Visiting Nurse Service of the Metropolitan Life Insurance Company afforded Dr. Dublin, as in the typhoid fever series, the original material for the second investigation. There were 1,153 cases of scarlet fever among white persons in the two years 1911 and 1912. The patients were all treated by competent physicians, and were all policy holders of the company, so that the after-history was easily traced. There were in all 90 deaths in the total, representing a rate of 7.8 per cent. The mortality was very high among little children. There were distinct complications in 62 of the 90 cases. In 11 kidney disease developed, in 7 morbid heart conditions (fatal cases), in 13 pneumonia, in 4 meningitis, and in 1 otitis media. In nine of the fatal cases the scarlet fever was complicated by another acute infection, such as diphtheria or measles; other complications were not so clearly defined. Among the 1,063 survivors, Dr. Dublin registers 31 cases of nephritis, 31 of otitis media, 22 of adenitis, and 11 of pneumonia. He believes, however, that some of the complications among the patients who recovered were not reported so well as could be wished. Turning to the after-histories of the survivors, there were represented during the entire subsequent period 3,583 years of life. According to the standard used by the company for its policy holders, 18.6 deaths would have been expected, yet, as a matter of fact, there were only 18 deaths. Thus, while in the typhoid fever series the mortality was very high, Dr. Dublin found the death-rate in the scarlet fever series almost identical with the expectation based on the company's general

[1] A Study of 1,153 Cases of Scarlet Fever, with Special Reference to their Sequelae, *Journ. Amer. Med. Assoc.*, 1916, p. 1667.

mortality experience; this might possibly be due to the survivors taking unusual care of themselves. Of the 18 deaths which occurred in the four years, three showed a record of endocarditis on the death certificates, most probably representing impairment due to the original scarlet fever. There were 5 deaths from respiratory diseases and 4 from tuberculosis. The remainder, Dr. Dublin states, were scattered among a number of cases of no special interest. Strange to say, there were no deaths from kidney diseases. Thus among the survivors of the primary disease the kidneys were not so largely impaired as to cause early death. Dr. Dublin analyses his series very critically, so that his monograph deserves close scrutiny both by physicians and statisticians.

HELMINTHIASIS AND APPENDICITIS.

THE discovery from time to time of intestinal worms in the cavity of inflamed and perforated appendices suggested the possibility of these parasites being a pathogenic factor in appendicitis, and the subject has been carefully worked at by various observers at home and abroad. The *Trichocephalus*, the *Ascaris*, and the *Oxyuris* have all been incriminated, especially the first named, which, on account of its pointed head and formidable jaws, has even been accused of directly perforating the wall of the appendix. The parasite, of course, cannot be the only factor, seeing that but a small proportion of persons suffering from helminthiasis develop appendicitis, but there is evidence that under conditions favourable to them these worms can and do find their way into the appendix and damage the mucosa, and so permit the inoculation of faecal micro-organisms. Metchnikoff took a very serious view of these morbid possibilities, and strongly advised routine microscopical examination of the faeces for ova in all cases in which the symptoms pointed to pericaecal inflammation. He adduced evidence that intestinal worms are, in not infrequent instances, the cause of appendicular symptoms which prove amenable to vermifuge drugs; indeed, he went so far as to suggest that the abandonment of the ancient practice of administrating vermifuges to the young at stated intervals is in some measure responsible for the increased prevalence of appendicular trouble. Guiart examined the faeces of a large number of adult hospital patients in Paris, and found the ova of *Ascaris* in 20 per cent., and of the *Trichocephalus* in 56 per cent. Raillet, in a thesis, states that of 119 patients between 2½ and 15 years of age operated upon by Broca between May, 1909, and August, 1910, *Oxyuris* was present in the appendix of 58. In 19 of these ova of *Trichocephalus* were present also and in 4 ova of *Ascaris* (in two of the latter both *Ascaris* and *Trichocephalus* eggs were found). In 16 cases only were ova seen in the appendix, while 45 (38 per cent.) had neither ova nor parasite. Microscopical examination of the faeces in 112 of these patients revealed the presence of ova in 76—that is, 60 per cent. In 66 cases *Trichocephalus* eggs were found in the stools, but of these only 26 had them in the appendix at the operation. In 36 cases no eggs were discovered in the motions in spite of the fact that 18 had *Oxyuris* in the appendix. It is not an easy task, we are told, to discover the ova of *Oxyuris*, and even when the ova of *Trichocephalus* are present it may be difficult to alight on them, because they are deposited in the caecum and come away at irregular intervals. Raillet notes that the *Oxyuris* or its eggs are found in the walls of the appendix most frequently between the age of 8 and 13, at which age appendicitis also is frequent. Irritation of the appendix by these parasites short of actual inflammation can be distinguished, it is said, by the fact that it is not accompanied by marked leucocytosis, whereas true appendicitis, as is well known, is invariably accompanied by a great increase in the number of polynuclear cells. It was remarked incidentally that once the worm finds its way into the appendix it ceases to be amenable to the action of vermifuge remedies, so that these can only be of service by clearing the worms out of the intestine where they might prove dangerous. It is quite possible that we are not sufficiently alive to the relationship between the appendicular syndrome and the presence of intestinal parasites, and much remains to be worked out in this connexion.

EPIDEMIC ANTERIOR POLIOMYELITIS.

DR. MATTHEW HAY, M.O.H. for Aberdeen, recently reported that during the past month twelve additional cases of anterior poliomyelitis had occurred, raising the total to sixty-seven since the commencement of the outbreak. During September eight cases were reported, but in all save two the illness had begun earlier, in two instances as far back as the first week in June. The majority of the cases were under 3 years of age, only two were over 4 years, one being slightly under 5 years, and the other a few months above 5 years. Two of the cases were in one family and became ill on the same day, so that they had apparently been infected simultaneously; none of the cases notified in August and September had any discoverable association with previous known cases. During these months all cases were removed to the city hospital; one death had occurred in a baby aged 4 months, suffering from pneumonia when admitted. A Dublin daily paper recently stated that at least four definite cases of acute poliomyelitis had occurred in the city and county. Sir Charles Cameron, M.O.H. Dublin, has since addressed a letter to the press stating that three cases of poliomyelitis had been notified within the last three weeks. He expresses his conviction that the illness in one of the cases was the result of an accident, and that the others were not of the epidemic form prevalent in New York. The three children are recovering.

THE FRUITS OF UNITY AND ORGANIZATION.

AN interesting little story, illustrating what can be done when the medical profession is united and possesses an organization which enables it to negotiate on an equal footing with workmen's organizations, comes to us from a midland district. Difficulties arose with the colliery clubs when new arrangements were formulated after the coming into force of the Insurance Act; the doctors' terms, fixed at 13s. a family, were accepted by all the collieries save one, which succeeded in importing practitioners into the district. About a year ago this colliery club expressed its readiness to pay the family fee originally laid down, but asked the other practitioners in the district to work with the doctors it had appointed. This proposal was declined, but we are informed that it has recently been decided at a general meeting of this colliery club to pay the family fee originally asked for, and after a date which is not distant not to engage the services of any medical man who is not a member of the British Medical Association. The local Division of the Association, which, we understand, acted for the profession in the area in this matter, is to be congratulated on the result, and the incident is not without its moral for medical men practising in other industrial districts.

ACCORDING to the *New York Medical Journal*, during the six months ending July 31st, 1916, the membership of the American Red Cross Society increased from about 27,000 to about 210,000, an increase of nearly 800 per cent. During the same period the number of Red Cross Chapters organized throughout the United States increased from 110 to 199. The personnel required for twenty-five base hospitals of 500 beds each for the army has been enrolled from among the staffs of twenty-five of the largest hospitals of the country, and funds for the purchase of equipment of sixteen of these hospitals, costing £5,000 each, have been subscribed. Several naval base hospitals, which are about half the size of the army base hospitals, are now being organized.

THE WAR.

SOME IMPRESSIONS OF A CIVILIAN AT THE WESTERN FRONT.

"One has only to go across to the other side to realize that everybody out there is doing his best."—*In the R.N. Air Service.*

An Advanced Dressing Station.

One day—the day the Irish with the English battalions on their right went through Guillemont—it was my fortune to be at an advanced dressing station as the wounded were coming in. We had come up a rough road over the chalk down, just good enough at its best to serve to carry the scanty traffic from one small village to another, but now cut up by the heavy ammunition wagons—"load not to exceed three tons"—and showing traces of shell holes hastily filled up. The ground all about was seamed with old German trenches, warrened by German dug-outs, and littered with fragments of shells. We looked over to High Wood and Delville Wood, and could see other places with names made familiar by the communiqués. The post was within reach of hostile shell fire; there had, in fact, been some casualties the night before. The medical officer had put up a few tents in a slight depression on one side of the road, and a dressing place had been dug out on the other—a tunnel perhaps some thirty feet long and eight or ten wide at its widest. A path sloped down into it from the road, and along it came the men in single file. The entrance to the tunnel was narrowed by a table where each man was stopped to give his name and number, the first field dressing was looked at, his shirt opened at the neck, a dab of iodine mopped on to his chest, a dose of antitetanic serum injected through it, and a big T marked on his wrist with an aniline pencil. The officer who was with me said to one man who had bared his chest—the operation of injecting was completed while they spoke—"Well, how have you been doing?" "We have taken two hundred prisoners," the man answered, knowing that the statement would convey a more true picture of what had happened than eloquent phrases. To the next man who entered my companion said, "So you have got some of them." "Yes," was the answer, "there's one of them come along with us on a stretcher." We went to the mouth of the dressing tunnel, room was made by the men walking down the path, and the stretcher was brought forward. On it was a pale-faced, neurotic looking middle-aged man, who said he was from Hamburg. He seemed nervous and rather scared, as well he might, a helpless wounded man in the hands of an enemy he had been taught to hate and dread. But he was treated like our own people, he had got into the first slot in the machinery of the British Army Medical Service, and would pass along through it, carefully and skilfully tended at every stage, until he is now probably reflecting on the different habits of different nations in some base hospital at the seaside.

We turned back through the tunnel with our wounded friends, and crossed the road to a lean-to where others who had arrived a few minutes before were already drinking big mugs of hot tea and munching bread with that excellent appetite which the British soldier in the field seems never to lose so long as his temperature is normal. Before we left, a big motor char-à-banc arrived for sitting cases, and within the hour we met at the casualty clearing station a few miles down the line the men we had spoken to in the dug-out. On our road to it we overtook other char-à-bancs going down, and met more going up, as well as ambulance cars for stretcher-cases sent up by the Field Ambulance Main Dressing Station, which was established in a small shallow valley just off the road. As we were speaking to one of its medical officers a howitzer gave its short deep bellow; in the first disconcerting moment it seemed to be just over my shoulder; it was in fact some little distance to our rear, so that this field ambulance, like most of them, was within range of heavy guns.

Casualty Clearing Stations.

We stopped at the casualty clearing station. It had many empty beds and vacant places for stretchers, for it had just loaded an ambulance train which was on a siding outside the camp waiting the signal to start for the coast. We found the train medical officer who had just taken over his four or five hundred men, and walked with him through a number of the coaches in which the wounded lay on stretchers in two tiers in two rows with a gangway down the centre. We passed a small sitting-room in one coach where the sisters were waiting, looked into the dressing-room furnished with an operating table and all necessary appliances, saw the dispensary, and glanced at the quarters for the staff before the long train steamed off. It was one of the early trains made up of coaches not specially built for the purpose, but it seemed to provide all essentials for comfort, and was as spick and span and well ordered as a sailor has his ship on the second day out.

A casualty clearing station to the civilian practitioner, whose concern is with clinical rather than preventive medicine, is perhaps the most interesting of military medical units. To watch it at work is an experience never to be forgotten, and it is easy to understand the ambition of keen young officers at the base to earn the privilege of appointment to one of them. As with every other unit of an army in the field its work varies in character and amount with the area and intensity of our own operations or those of the enemy.

A casualty clearing station is primarily a place where wounded and sick can receive immediate treatment before being dispatched to the base by train or barge, but it must be prepared to retain, treat, and nurse cases so serious that they ought not to travel further; in particular, it must be ready to operate on abdominal wounds and to treat fractures of the thigh. It may also be thought right to retain men with penetrating wounds of the chest and head injuries, though such cases travel better, and some authorities are of opinion that all or most of them might safely be evacuated to the base.

In this casualty clearing station special wards for gunshot wounds of the abdomen and chest and other severe cases had been formed by combining several marquees. There was also a special ward with its own sister for men suffering from shock too profound to justify operation however urgent the demand for it might otherwise be. They were put to bed, kept warm, given saline, or coffee and brandy injections, and a chance of life. So many men, apparently dying when admitted, had pulled through that somebody had dubbed the place "the resurrection ward."

The operating-room occupied a wooden building. The walls were enamelled white internally and the lighting was excellent. There was room for five tables, and as all had been in use at once during a rush, the need for a large staff was obvious. It included when I was there, in a relatively quiet time, three surgical specialists, as well as assistants, anaesthetists, theatre sister and nurses, and they were being kept pretty busy.

Some of these clearing stations work in pairs, and in one instance I was with the commanding officer when an orderly reported to him that 400 new cases had been received. This, as he explained, was the limit fixed at that time and in that place. The ambulances were

accordingly diverted to the second clearing station close by, while the first had a respite to deal with its new 400. They included men suffering from wounds of every degree of severity, and some medical cases. The first sorting was into those who could be sent down by the next ambulance train and those judged to be either too ill to travel or to need immediate treatment—as, for instance, for fracture of the thigh—to fit them to travel.

Of the lighter cases sorted out as fit to be evacuated at once every one had, of course, to be examined, in many the dressings were renewed and all were fed. As they were made ready for the train, they were sent into a sort of big hall constructed of telegraph poles and tarpaulins. The place was a study in browns—brown blankets, brown stretchers, and soiled khaki and kit—a little gloomy, perhaps, but the men did not seem to feel it so, for they knew that only a short and easy railway journey separated them from the comforts of a base hospital, or that they might, indeed, be home in a day or two.

The wards where men were bedded were far from gloomy. The medical officer declared that nothing cheered a wounded and tired man so much, and gave him a greater feeling of physical comfort and well being, than to be put into a bright ward with white counterpanes on the beds; when it was suggested that red was to some an even more cheerful colour, he was proud to show a neighbouring ward with scarlet blankets.

Not all clearing stations are in tents or huts. Some are in big institutional buildings, others are partly in buildings and partly in tents or huts. One casualty clearing station I visited was established in a monastic building. A few weeks earlier a big shell had fallen in the courtyard, wrecking the front of the chapel. It had dug a huge hole in the ground and the concussion had blown in many windows, including those of the room used as an operating theatre. An abdominal operation was just being completed, but every one "carried on," including the sisters. As shells had been coming into the town previously all the patients had been removed to the basement, which was fortunately roomy, and none of them were injured. The station is still used for severe cases, and the basement has been made as clean and airy as possible, and when I was there contained a considerable number of patients.

At yet another part of the line we found three casualty clearing stations at railhead, with a special railway siding of their own. At one of them a pathologist had his mobile laboratory drawn up in the yard, and was doing very excellent pathological work, some of it of the nature of original research, in a shed he had fitted up with all the essential apparatus of his craft.

The selection of the place in which a casualty clearing station is to be established is dictated by tactical considerations, but, whatever the building or site given to him, the commanding officer must make the best of it. It may be a big school or monastery, it may be a chateau with gardens and park in which to plant his tents or huts, or it may be an open field. In any case his ingenuity is likely to be taxed; he has to choose the best places for his temporary wards, for his operating-room, to provide safe drinking water, to set up lavatories and baths, and to dispose of the refuse and excreta of his camp. Often, also, he must be something of a road maker, for a good broad road by which ambulances can enter and leave, and dry paths between the several huts or tents are very essential to efficiency. From the sanitary point of view, to be given an old building is not an unmixed blessing, but to have a good dwelling house on a roomy site is undoubtedly an advantage. After a time he may have leisure to think out various small improvements in detail, to put into practice tips picked up from neighbouring casualty clearing stations, or suggested by his staff or patients, to set tinsmiths or carpenters among them to work at odd jobs, and perhaps to encourage gardening. By the time he has reached that stage we may hope that he will be moved on to begin all over again on another site further forward, for it will mean that the army has advanced.

The Motor Vehicle.

One of the strong impressions a visitor carries away is of the immense part played by the petrol-driven vehicle. He finds that the work of a superior officer is greatly simplified by the touring car, which renders it possible for him to see as much of the units for which he is responsible in a day as he could with horses in a week. Journeying with such an officer he will go over long stretches of road where the motor lorries carrying ammunition and supplies of food and all the other necessaries of an army are as thick as omnibuses in the Strand. The stream going up full has its counterpart in another coming down empty; here and there he may pass long rows of full ammunition wagons waiting to be called forward. Ranged in a village street, handy to the telephone, he will pass a motor ambulance convoy with its cars ready to start on the instant, or he will meet them coming down to some casualty clearing station, working their way quickly and deftly through the heavy traffic. He will be amazed at the boldness and skill with which the dispatch riders slip their motor bicycles through chinks in the traffic that seem too narrow for a cat.

The lines of supply and evacuation of an army in this war have been compared to two fans spread out with their handles together. The tracks converge from the base to some point or narrow strip and then diverge again to the several units in the fighting zone. The way in which the traffic is controlled in the congested parts where the two fans meet is a source of constant admiration. A block lasting more than a few minutes is probably due to a battalion or battery passing across the route.

The motor vehicle has had a large share in maintaining the health of the army by, in the first place, ensuring supplies of food, since it can travel direct to points not reached by the ordinary railways or even by the light railways that have been laid. It has also in several ways contributed not a little to the success of the medical administration. There is, first and foremost, the speed with which motor ambulances bring down the wounded through the field ambulances to the clearing stations. There is also the ease with which they can be conveyed from these units to the ambulance train should the ambulance siding not be actually at the clearing station, and from the ambulance train when it reaches the base to the base hospitals, some of which may be a few miles away from the railway. There is the rapidity with which medical supplies—drugs, splints, and all other requisites—can be carried direct to any unit without transhipment. There is the facility with which specimens of water or excreta or blood can be sent into the field laboratories for examination. There is also the great advantage from the general sanitary point of view that the number of horses employed by all branches of the army is greatly diminished. The disposal of manure from extensive horse lines may be a very difficult problem; the amount produced is in excess of the demands of the local farmers, and if allowed to accumulate quickly becomes a breeding place for flies. The surplus must be incinerated, which is a troublesome business. The general use of the motor vehicle for nearly every sort of transport has reduced the difficulty in most places to a manageable minimum and it is only serious here and there.

THE ADVANCE ON THE SOMME.

It is too early yet to attempt to give any particulars of the work of the medical service during the recent advance on the Somme front, but we are in a position to say that the arrangements have again stood the test of heavy fighting in an admirable manner. There has been no hitch, and everything has gone like clockwork. The advance has no doubt involved many readjustments of medical units, for it will probably have been found feasible to move forward field ambulances and casualty clearing stations to new sites, selected beforehand in view of those possibilities of success which have now been realized.

MAN-POWER.

It seems to be very difficult to get a true opinion as to the present position with regard to the recruiting of men for the British army. On the one hand we have those who allege that all sorts of unfit men are being passed, and, on the other hand, those who assert that an immense number of eligible men are being improperly excused. Of the first point of view the following rather violently expressed letter affords an example:

Sir,

As one who, though not a doctor, belongs to a family which for at least three successive generations has been not unknown as members of the medical faculty, I venture to point out that grave charges are being largely levelled by the general public against those members of the medical profession whose duty it has been since the beginning of the war to pass or reject men for service with the colours. I speak of that which I know, for I have for some time been assistant (honorary) military adviser to a district comprising thirteen parishes scattered over a large tract of country. People are everywhere accusing these medical men of "kowtowing" to the War Office in a manner greatly derogatory to their profession by passing as "medically fit" men who have in the past been frequently rejected. It has been openly suggested more than once that "the doctors are afraid to rebel through fear of losing the money paid to them by Government." This, Sir, is surely a grave charge against an honourable and respected body of professional men.

I also dare to write on this subject because for eight years I lived on the Continent as foreign correspondent to well-known London papers, and while acting in that capacity heard many accusations made by foreigners against us as a nation. Sir, during the five years that I spent in Berlin as representative of very much respected and widely read English dailies, what do you think was the charge levelled more frequently than any other against us English? It was that of hypocrisy.

Now, if we are not open to this charge now that we are passing as "medically fit" the halt, the lame, the well-nigh blind, the men with feet as flat as pancakes, the consumptive, the diseased of heart, what is the meaning of the word hypocrisy?

If we need the unfit, let us have them by all means, and put them to what use we can. We intend to win this war, even if we have to employ for the purpose babes in arms and those in process of senile decay. But for Heaven's sake let us, as a nation, be honest. Let not these weaklings be enrolled as "medically fit," when in very many cases they have already been rejected as "medically unfit" times without number by their own medical advisers.

The matter is fast becoming a public scandal.

It is being discussed in all classes with deprecatory shrugging of shoulders, sly winks, and innuendoes against the medical men of the land. Is it not time for members of the medical confraternity to use the gigantic lever of their strong associations to put a prompt end to all this arrant humbug?

Yours faithfully,

WILLIAM A. FULLER, M.A.,
Principal of the College, Storrington, Sussex.

September 13th.

Mr. Fuller, we think, overdoes his part. Why, for instance, should medical men kowtow to the War Office? Such a suggestion might not occur to a person who had not lived so long in Germany. The further suggestion that doctors pass men as medically fit for fear of losing the money paid to them by the Government may be a grave charge, but is manifestly absurd, for the fee paid is for the examination, and does not depend upon whether a man is rejected or not. That a certain number of men should be passed as fit who have previously been rejected is not surprising; the medical profession does not profess to be infallible. Many of the men who come forward for medical examination present clinical problems of considerable complexity, and there has often been in the past very little time for solving them.

On the other side, we have the military correspondent of the *Times*, whose opinion before now has been justified by the event, declaring that for one reason or another there are "1,600,000 men of military age who have received badges entitling them to exemption . . . while there is an even larger number sheltered in Government departments and in industry, or excused from serving at the front by a whole host of obstructive regulations."

Recruiting (he goes on to say) is in the old sense is dead. It is the tribunals that find the men, and while the Local Government Board gives the tribunals their instructions, and invents such absurd institutions as the Barrister Commissions—which are snowed under with work and are a cause of exasperating delays, as the writer said they would be when they were created—the Board of Trade issues instructions on its own account, and prevents the tribunals from touching great blocks of men in civil life. These forces, it must be plainly stated, are removing peace far off, and though a section of the press lays the whole blame upon the tribunals, even the most efficient of these bodies is tied by its instructions, and cannot go behind them. . . . The complaint against the tribunals is that if all the men they have exempted were under training the army would not want for men, and it is added that in some remote country districts the local interest has been placed before that of the nation. No doubt there is some truth in these complaints. It is necessary that the work of weak tribunals should be reviewed and more serious notice taken of it. After this is done, it will be legitimate and efficacious to abolish the lists of reserved occupations and to compel every man of military age to appear before a tribunal and prove his right to exemption or a badge. There can be no doubt that the 1,600,000 men of military age who have received badges include an immense number who, either by reason of their youth or by not being indispensable, should be in the army.

Other newspapers have taken up the matter from the same point of view, and it is announced that a special committee has been appointed, with Mr. Austen Chamberlain as chairman, and Lord Midleton as vice-chairman, to "determine all questions arising between Government departments relating to the allocation or economic utilization of man-power for the purpose of the successful prosecution of the war, and, in order to give effect to its determination, to direct the Government departments concerned to create the machinery necessary to co-ordinate their activities in regard to the distribution or utilization of men and women." It may be necessary to review the rejected, and gather in new recruits who can perform duties now being discharged by men fit for active service. The *Times* correspondent also touches upon this point when he says that if the country is forced to call upon older men, which, for the reason stated, he does not consider at present necessary, they should be retained for home defence and so release younger men who now form so large a proportion of the force that stays at home.

This last opinion has a direct bearing on medical affairs, and the professional committees in Scotland and in England and Wales have already, with the approval of the Medical Department of the War Office, sought to put it into practice. If, as Colonel Repington suggests, we are to raise new divisions, their medical staffs will be an additional call upon the resources of the profession. The opinion of all administrative medical officers in France is that at regimental and other advanced posts, such as field ambulances and casualty clearing stations, young men are essential. If this is true in France, it must be even more true in Mesopotamia and the Mediterranean. The demand for medical officers can only be met by carefully conserving our resources, and it appears that it may be necessary to make a further appeal to medical men over 45 to give whole-time service in this country.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

STAFF SURGEON J. KEOGH MURPHY, R.N.V.R.

Staff Surgeon James Keogh Murphy, Royal Naval Volunteer Reserve, died at Plymouth on September 13th, aged 47. He was the eldest son of the late Right Hon. Mr. Justice James Murphy, and was educated at Charterhouse, where he was a senior scholar, and at Caius College, Cambridge, where he graduated B.A. with first class honours in the Natural Science Tripos in 1891. He entered as a student at St. Bartholomew's, taking the Lawrence Scholarship and gold medal in 1895. He became M.R.C.S. and L.R.C.P.Lond. in 1894, and F.R.C.S. in 1901. He graduated M.B. and B.C.Camb. in 1896, proceeding M.A. and M.C. in 1904. After acting as demonstrator of anatomy both at Cambridge and at St. Bartholomew's, and as house-physician at St. Bartholomew's Hospital, he became surgeon to the Miller General Hospital at Greenwich and to the Paddington Green Children's Hospital. He was general medical editor to the Oxford University Press and he edited with Mr. D'Arcy Power *A System of Syphilis*, in six volumes. He translated and edited Kirmisson's *Handbook of Surgery of Children*. He also edited the *Practitioner's Encyclopaedia of Medicine and Surgery* in 1912, second edition 1913, and was the author of *Wounds of the Thorax in War* (1915). He obtained a commission in the Royal Naval Volunteer Reserve on September 25th, 1906. The funeral took place at Plymouth on September 16th, the first part of the

service being conducted at the Royal Naval Hospital Church and the interment at the Plymouth cemetery. The pall-bearers were six R.N.R. officers.

ARMY.

Killed in Action.

Captain W. CAMPBELL, R.A.M.C. (temporary).

CAPTAIN D. B. MACLEAN, R.A.M.C.(TEMP.).

Captain Dugald Black Maclean, R.A.M.C., whose death in action we announced last week, was born in March, 1889. He graduated in medicine at the University of Toronto in 1912, and after serving for two years on the resident staff of the Winnipeg Hospital, settled in practice in that city. He joined the Canadian Army Medical Corps soon after the outbreak of war, and was transferred to the R.A.M.C. in June, 1915. His brother, Major N. J. Maclean, professor of mathematics in the University of Manitoba, is now serving in one of the Canadian Scottish battalions.

Died of Wounds.

CAPTAIN A. W. HARVEY, R.A.M.C.

Captain Alfred Wallace Harvey, R.A.M.C., died of wounds on September 7th, aged 46. He was the son of the late Rev. B. W. Harvey, D.D., head master of Whanganui Collegiate School, New Zealand, and was educated at Cambridge, where he graduated B.A. in 1900, and at St. Thomas's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1905. After filling the posts of resident medical officer of the West Norfolk and Lynn Hospital, and house-surgeon and house-physician of the Queen's Hospital for Children, Hackney Road, London, he went into practice at Westcliff-on-Sea, Essex. He took a temporary commission as lieutenant in the R.A.M.C. on March 10th, 1915, and was promoted to captain on completion of a year's service.

Died on Service.

CAPTAIN H. F. G. NOYES, R.A.M.C.

Captain Harry Francis Golding Noyes, R.A.M.C., died at Bombay on September 5th, aged 36. He was the eldest son of the Rev. Dr. Noyes, of St. Mary's Vicarage, Kilburn, formerly chaplain to His Majesty's Embassy at Paris. He was educated at St. Laurence College, Ramsgate, where he was captain of the school, and gained scholarships at Caius College, Cambridge, and at the London Hospital. He took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1906, and graduated M.B. and B.C. at Cambridge in 1907. He had held the appointments of house-surgeon, resident anaesthetist, and emergency officer at the London Hospital, and clinical assistant at the Hospital for Sick Children, Great Ormond Street. He practised at one time at Tarporley, Cheshire, and was in practice at Worthing when he took a temporary commission in the R.A.M.C. on December 1st, 1914; he was promoted to captain on completion of a year's service. He had served in Egypt before going to India. He leaves a widow and three children. His brother, Lieutenant C. R. B. Noyes, Lancashire Fusiliers, was reported wounded and missing on July 1st.

CAPTAIN H. E. O'BRIEN, R.A.M.C.(TEMP.).

Captain Henry Edward O'Brien, who was reported wounded at the end of July, has succumbed to his wounds. He took the diplomas of L.R.C.P.and S.Irel. in 1912. He received a temporary commission as lieutenant R.A.M.C. in 1915, and was promoted to captain on April 14th, 1916.

CAPTAIN H. H. TANNER, R.A.M.C.

Captain Harold Herbert Tanner, R.A.M.C., whose death on service we announced last week, was accidentally drowned at Boulogne-sur-Mer on August 16th. He was educated at St. Mary's Hospital, and after holding resident appointments there, at the Hampstead Hospital, and the Royal Albert Hospital, Devonport, joined Sir Almroth Wright's staff for bacteriological research. He received a commission as lieutenant in the R.A.M.C. in June, 1915, and was promoted to captain a year later. He was 29 years of age, and was the only son of Mr. Herbert Tanner, F.R.C.S., chairman of the Kensington Division of the British Medical Association. He married last year the daughter of the Rev. George Bowden of Kingston Hill. Sir Almroth Wright has written: "I was proud having him work with me; he did some excellent good work, and would have gone on doing really good things, and that and his kindliness and helpfulness endeared him to me." Captain Inman (a colleague in France) has written: "He had great gifts as a draughtsman, and I have encouraged him to develop them as regards macro- and micro-scopic medical objects; he illustrated my chapter in the *Medical Annual* of 1916, and very well he did it. The rose irrigator he designed for septic wounds has been a great success. His ability has been very generally recognized by all who came in contact with him, and I feel sure that a career of great promise and ability has been cut short." Among those present at the funeral were Surgeon-General Sawyer, Colonel Sir Almroth Wright, Colonel Sir W. Leishman, Professor Dreyer, and some forty medical officers and many nurses.

Wounded.

Lieutenant-Colonel H. C. Hime, R.A.M.C.
Major L. M. Purser, R.A.M.C.
Captain J. B. Cavanagh, R.A.M.C. (temporary).
Captain J. A. Conway, R.A.M.C. (temporary).
Captain J. M. A. Costello, R.A.M.C. (T.F.).
Captain H. B. Jeffs, Canadian A.M.C.
Captain B. E. Kelly, Canadian A.M.C.
Captain E. F. W. Mackenzie, R.A.M.C. (temporary).
Captain B. J. Mullin, R.A.M.C. (temporary).
Captain B. Murphy, R.A.M.C.(S.R.).
Captain G. F. Randall, R.A.M.C.(S.R.).
Captain P. W. Ransom, R.A.M.C. (S.R.).
Captain W. L. Whittemore, Canadian A.M.C.
Lieutenant A. G. Bisset, R.A.M.C. (temporary).
Lieutenant W. H. Broughton, R.A.M.C. (temporary).
Lieutenant S. J. Darke, R.A.M.C. (temporary).
Lieutenant J. B. Dunning, R.A.M.C. (temporary).
Lieutenant J. McPolin, R.A.M.C. (temporary).
Lieutenant L. R. Pickett, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bennett, John Edgar, Captain Royal Irish Regiment, youngest son of the late Lieutenant-Colonel John Bennett, I.M.S., killed September 3rd, aged 26. He was educated at Victoria College, Jersey, got his first commission from Sandhurst in 1910, and became captain on January 20th, 1915.

Blake, Christopher, Second Lieutenant Bedfordshire Regiment, fourth son of Dr. W. H. Blake, of Harpenden, Herts, killed September 4th, aged 24. He was educated at Aldenham School and at Emmanuel College, Cambridge, where he graduated in 1913, and soon after joined the staff of St. John's Missionary School, Agra. He came home to join the army early in 1915, went to the front on August 28th, and was killed a week later.

Cade, Francis Thomas Darrell, Lieutenant Hampshire Regiment, only son of Dr. Sidney Cade, of Titchfield, Fareham, Hants, killed September 6th, aged 21. His commission was dated September 17th, 1914.

Chubb, Alan Travers, Lieutenant Hampshire Regiment, only son of Dr. W. L. Chubb, of Farnborough, Hants, killed September 9th. He was educated at Pelham House, Folkestone, and at Bradfield. He enlisted in the Public Schools Battalion in September, 1914, got his commission on December 22nd, and had been at the front since last February.

Gurdon, Edwin, Private, Australian Infantry, elder son of Dr. E. Gurdon, and grandson of the late John Randall, M.D., London, died of wounds in August.

Lawder, Noel Wilfrid, Major Bedfordshire Regiment, only son of Dr. E. J. Lawder, of the Hey, Wokingham, Berkshire, killed by a shell on September 4th while directing operations in an attack. He was born at Haidarabad in 1886 and educated at Downside, Bath, and at Sandhurst. When the war began he was serving in the South Nigeria Regiment and took part in the campaign in the Cameroons. From Africa he was invalided with dysentery, and rejoined his regiment last February.

Mair, Edward Millett, Second Lieutenant Cameron Highlanders, only son of Lieutenant-Colonel E. Mair, I.M.S.(ret.), killed September 3rd, aged 28. He was born in India, educated at Cambridge, where he took the B.A., and entered the home civil service, joining H.M. Board of Works, where he served as private secretary to Sir Lionel Earle, head of the department.

Mill, Robert Cowper King, Lieutenant Royal Highlanders, the 42nd, or Black Watch, elder son of Dr. A. King Mill, of Newton Villa, Kirriemuir, killed September 3rd, aged 20. He was studying for the profession of actuary at Edinburgh University when the war began, enlisted in the Royal Scots, and got his commission on March 7th, 1915.

Packman, Thomas A., Lieutenant Royal Horse Artillery, elder son of Dr. A. C. A. Packman, of Grove House, Rochester, killed September 10th, aged 21. He got a commission in the Special Reserve of the R.F.A. on August 15th, 1914, and had been at the front since November, 1914.

Palmer, Arthur F., Sergeant A.S.C., fourth son of the late Dr. Palmer, of Loughborough, died on active service abroad on

Perry, Alexander Ernest, Lance Corporal Cameron Highlanders, previously reported wounded and missing but now officially presumed killed in action on September 26th, 1915, was the youngest son of Dr. and Mrs. Perry, of Queen's Terrace, Glasgow; he was 25 years of age.

Roper, Eric Walter, Lieutenant Royal Fusiliers, second son of Mr. A. C. Roper, surgeon, of Exeter, died of wounds on September 12th. He was educated at Collingwood House School, Exeter, and at Blundell's School, Tiverton. After going through the Royal College of Music he adopted the stage as a profession, and in October, 1914, left the Hippodrome, where he was acting, to enlist in the Royal Fusiliers. He got his first commission on December 8th, 1914, and in May last became adjutant of his battalion. He received the Military Cross about a month ago. He leaves a widow and one daughter.

Thew, Frank Atkinson, Second Lieutenant London Regiment, killed on September 12th, was the only son of the late Dr. E. P. Thew, of Dulwich. He was educated at Dulwich College and Sutton Valence School, Maidstone. He joined the Honourable Artillery Company, and went to France in August, 1914; he returned in September, 1915, to take a commission in the London Regiment. He lost his life in attempting to bring in a brother officer who had been severely wounded in the enemy's trenches, and who has since died.

MEDICAL STUDENTS.

Pearce, Dudley George, Captain the Buffs, East Kent regiment, son of the late George Pearce, of Bournemouth, killed September 3rd, aged 25. He was educated at Dulwich and at Guy's Hospital, where he was due to take his final examination in November, 1914, but enlisted in the Honourable Artillery Company on the first day of the war. He went to the front in September, 1914, was invalided for frostbite during the winter, got a commission in the Buffs, and became captain in November, 1915.

Roberton, James L. R., Second Lieutenant Yorkshire Regiment and R.F.C., aged 21, killed on September 8th, was the son of Mr. R. H. Roberton, J.P., of Stoke Golding Lodge, Leicestershire. He was educated at Magdalen College School, Oxford, and went to South Africa to study farming at the Rhodesian Government experimental farm; he returned to England in 1914, matriculated in the University of London, and entered the London Hospital as a medical student. In 1915 he joined the O.T.C., and received his commission in the Yorkshire Regiment. After being machine gun instructor for some time he was transferred to the Royal Flying Corps this year, and gained his pilot's certificate last month. While patrolling the lines he crossed to attack a hostile craft, and his machine was shot down by a Fokker.

NOTES.

HONOURS.

ADMIRAL SIR JOHN JELLICOE'S dispatches of August 23rd and September 15th were published in the *London Gazette* of September 15th. They give lists of officers mentioned for specially distinguished services and recommended for promotion on account of services in the battle of Jutland on May 31st; and also a list of honours bestowed on some of these officers. Among them are the names of the following medical officers, together with the texts of the notes on their services in the action.

Mentioned in Dispatches.

Deputy Inspector-General Robert Forbes Bowie.
Displayed a high degree of ability during the action in the working of the medical department.

Fleet Surgeon Henry William Finlayson, M.B.
A zealous and hard-working officer, who organized his department in an efficient manner for the action.

Fleet Surgeon Joseph Agnew Moon.
Was responsible for the excellent medical arrangements for dealing with the wounded in H.M.S. *Benbow*, which were very efficient.

Fleet Surgeon Alexander Maclean, M.B.
Performed his exhausting duties with the greatest zeal and courage. The medical staff was seriously depleted by casualties. The wounded and dying had to be dressed under very difficult conditions on the mess deck, which was flooded with a foot of water from damaged fire mains. Fleet Surgeon Maclean has suffered considerably since the action from his devotion to duty.

Fleet Surgeon Harold Payet Jones.
Fleet Surgeon John Hunter Pead, M.B.
Fleet Surgeon Arthur Richard Harrie Skey, M.B.
Fleet Surgeon John Reid Muir.
Staff Surgeon Bertram Raleigh Bickford.
For great gallantry and devotion to duty in action. This officer, though severely wounded by a shell splinter, persisted in attending to the wounded, only yielding to a direct order from myself (Commodore Charles E. Le Mesurier) to place himself on the sick list.

Staff Surgeon James McAlister Holmes, M.B.
For the very efficient manner in which the wounded were attended to whilst under fire and subsequently.

Surgeon Horace Elliott Rose Stephens.
Surgeon Horace Palmer Margetts (temporary).
Surgeon Probationer Douglas George Patrick Bell, R.N.V.R.
Devoted great attention to the wounded, and amputated a limb single handed in the dark.

Surgeon Probationer Neil Macleod, R.N.V.R.
Surgeon Probationer Gilbert Blurton, R.N.V.R.
Surgeon Probationer Carl Knight Cullen, R.N.V.R.

Recommended to be Noted for Early Promotion.

Fleet Surgeon Robert Hill, C.V.O.
The principal medical officer of the fleet flagship and on my staff. His excellent organization and services before and after the action were of great assistance, and contributed much to the wellbeing of the wounded.

Fleet Surgeon Arthur Reginald Bankart, C.V.O., M.B., K.H.P.
Has organized his department for action in a most efficient manner.

Fleet Surgeon Alexander Maclean, M.B.

Fleet Surgeon Ernest Alfred Penfold, M.B.
Was in the fore medical distributing station when a heavy shell burst just outside, killing and wounding many. Fleet Surgeon Penfo'd was himself knocked down and bruised and shaken, but personally assisted in the removal of wounded, and afterwards tended the wounded with unremitting skill and devotion for forty hours without rest. His example was invaluable in keeping up the *moral* of the wounded and of the medical party under very trying conditions.

Fleet Surgeon Christopher Louis White Bunton, M.B.
Did good work, being hard pressed with many sudden casualties of a serious nature.

Staff Surgeon Arthur Reginald Schofield, M.B.
For skilful and untiring attention to the wounded.

Temporary Surgeon Richard Stocker Carey.
For skilful and unti ing attention to the wounded.

Surgeon William James Aitken Quine, M.B., R.N.V.R.
For his assiduous care of and attention to the wounded, of whom he was in sole charge for over forty hours, the staff surgeon having been severely wounded.

Promoted.

Fleet Surgeon Robert Hill, C.V.O., to be Deputy Surgeon-General.

Noted for Early Promotion.

Fleet Surgeons A. Maclean, E. A. Penfold, A. R. Bankart, C. L. W. Bunton.
Staff Surgeon A. R. Schofield.
Surgeon W. J. A. Quine, R.N.V.R.
Temporary Surgeon R. S. Carey should he be transferred to the permanent list.

The following honours are conferred upon medical officers:

C.B.

Deputy Inspector-General R. F. Bowie.

D.S.O.

Fleet Surgeons Joseph Agnew Moon, Alexander Maclean, and Henry William Finlayson.
Staff Surgeons Bertram Raleigh Bickford, and James McAlister Holmes.

Distinguished Service Cross.

Surgeon Probationer Douglas Gordon Patrick Bell.

Croix de Chevalier, Legion of Honour.

Fleet Surgeons Thomas Austen and John Hunter Pead.

HAMMERSMITH MILITARY ORTHOPAEDIC HOSPITAL.

Field Marshal Viscount French, accompanied by some members of his staff, visited the Hammersmith Orthopaedic Hospital on September 14th. He saw the institution in full working order and showed great interest in the several departments.

England and Wales.

STATEMENTS made in the public press to the effect that there has recently been an unusual prevalence of diphtheria in London do not seem to be borne out by the statistics. The number of cases notified during the five weeks ending September 9th was 707; in 1915 the number of cases notified in the five weeks ending September 11th was 814. The figures for this year give an average weekly mean number of cases a little below that for the nine years 1906–14.

THE UNIVERSITY OF WALES AND THE BOARD OF EDUCATION.

The resentment aroused in Wales by the somewhat domineering attitude assumed by the officials of the Board of Education found expression at a special meeting of the Court of the University of Wales on September 16th. Sir Harry Reichel, the Principal of Bangor University College, said that things seemed to be tending towards the exercise by the Board of Education of control over provincial universities similar to that which it exercised over the secondary, and still more over the elementary schools. If this tendency was not checked, a stage would be reached in which the whole policy of the modern university would be controlled by a bureaucracy at Whitehall having the power of the purse. This view was supported by other speakers, including Sir David Brynmor Jones, who said that, as the university accepted financial aid through the Board of Education, the Board had the right to inspect the university accounts, but since the application of the money involved the development of the University,

absolute freedom should be demanded. A resolution was adopted to the effect that the Court assumed that there would be no interference by the Board of Education with the external administration, or with the teaching of the university, and appointed a special committee to confer with the Welsh members of Parliament with the view of securing these ends. While Wales is glad to receive expert advice and considers itself entitled to pecuniary assistance from the State, it is quite able, if need be, to do without both if their acceptance involves intellectual slavery.

Welsh Hospital for Maimed Soldiers.

It has been decided to establish at Cardiff a hospital for maimed soldiers on the same lines as the Queen Mary Convalescent Hospital at Roehampton, and working in association with it. The need for such an institution has been recognized for some time, and its realization has been made possible by the gift through Lieutenant-Colonel Lynn Thomas of two sums of £5,000 each, from a shipowner and a coal exporter in Cardiff respectively, who prefer at present to remain anonymous, for the purchase of a house. One considered suitable for the purpose by Lieutenant-Colonel Robert Jones, inspector of military orthopaedics, and Lieutenant-Colonel Lynn Thomas, consulting surgeon to the Western Command, in which Wales is included, has been found, and the Lord Mayor of Cardiff, Dr. R. J. Smith, has taken the matter up strongly; the promoters have the advantage of the advice of Mrs. Gwynne-Holford of Buckland, Brecon, who has had so large a share in the establishment and administration of the hospital at Roehampton. An artificial limb has not only to be made and fitted, but very often it is necessary to make adjustments and repairs from time to time, and it will be a great advantage for the men resident in Wales to have a hospital to which they can resort in their own neighbourhood. The institution will also relieve the strain on Roehampton and lessen the period of waiting. It is stated that 6,557 cases of amputation had been notified to the Central Registry down to August 1st. Of these, 3,565 had been admitted to the Roehampton Hospital and 2,838 discharged. The number of men waiting to obtain admission to Roehampton was, however, 2,140. At the Welsh Metropolitan War Hospital at Whitchurch, in the suburbs of Cardiff, 300 beds have been allocated for the treatment of orthopaedic cases, and arrangements are being made to reserve twelve beds for such cases at the King Edward VII Hospital at Cardiff. It is intended to establish workshops in connexion with the new hospital for the manufacture of artificial limbs, and to enlist the assistance of the Cardiff Technical College, not only in the making of the artificial limbs, but also in giving instruction in various trades to men during their convalescence.

The Disabled London Soldier.

A Privy Councillor has written to the *Times* to ask who is accountable for what he describes as a pensions muddle. He points out that it is the duty of local pensions subcommittees to determine to what extent applicants for pensions are surgically or medically disabled, and he, good simple man, had supposed it obvious that one of the first things the county committees should have done was to appoint expert medical referees, to whom the subcommittees could refer difficult medical questions for an unbiassed opinion. No such assistance has yet been provided. "Surely," "Privy Councillor" concludes, "since millions of public money are at stake, it is essential that scientific precautions should be taken, in order that these funds may be judiciously distributed to those who have a just right to demand a pension as a fair compensation for their disabilities, and not as a charity." He challenged the Chairman of the London War Pensions Committee to explain, and Mr. Percy Harris has replied that that Committee, fully realizing the need for medical referees, prepared a list of doctors it proposed to appoint for a period of three months, pending the perfecting of the arrangements which it was understood the Statutory Committee was making with the Insurance Commissioners. These appointments, however, though only temporary, required the approval of the Statutory Committee, and this was refused on the ground that arrangements it was making made the plan unnecessary and superfluous. Mr. Harris justly points out that it is not only the judicious distribution of public money which is at stake; the duty rests upon local committees of assisting disabled men to obtain the medical or surgical treatment they require, and it is impossible for the committees to discharge that duty without competent professional advice. The answer, then, to "Privy Councillor's" question appears to be that the Statutory Pensions Committee is responsible for the muddle, and we are glad that attention has been called to the matter by a layman, for the error committed by the Statutory Committee in this respect is, we believe, due to faults in its constitution. It is unfortunate, but all of a piece with the methods of our governing classes, that a commission for the assessment and control of pensions to disabled men should be constituted without a single representative of the medical profession. Even on the special Disablement Committee of the Statutory Committee there is only one member of the medical profession, and we have no doubt that in his isolated position he finds it difficult to induce the Disablement Committee to look at the matter from the medical as well as from administrative and financial points of view. Although no alteration in the constitution of the Statutory Committee is possible without an amending Act of Parliament it would not be impossible for the Government departments represented to reconsider their nominations, with a view to giving medical expert opinion some representation on it, and, moreover, it is quite open to the Statutory Committee to strengthen the Disablement Committee by appointing more medical representatives. The suggestion will perhaps be met with the old foolish answer that medical men are not men of business. People who still repeat this parrot cry should set themselves to find out how medical matters are being administered in France. They will find that they are in the hands of medical officers, and they already know that the business is being carried through in a manner which has won the highest praise of the army itself, and is reflecting honour upon this country, for some of our allies have sent commissioners to study British medical organization and administration in France.

Canada.

The Canadian Pensions Board.

The personnel of the Permanent Pensions Board has now been officially announced. The chairman of the Board is Mr. J. K. L. Ross, of Montreal, a lieutenant in the Canadian Naval Service; for the past two years he has been patrolling in the North Atlantic, and has now presented his patrol boat to the Canadian Government. Shortly after the outbreak of the war Mr. Ross made a generous contribution to the public treasury in aid of the war. The other members of the Board are Colonel R. H. Labatt and Major John L. Todd, M.D. Colonel Labatt, who volunteered at the beginning of the war, went overseas with the first contingent, but was taken ill in England and underwent a serious operation. Upon recovery he accompanied his regiment to France and took part in the battle of Festubert, when he suffered severely from shell shock. Major Todd, who is Associate Professor of Parasitology in McGill University, went to England with the McGill General Hospital, and was appointed to the staff of the Director-General of Medical Services. He was a member of the Pensions and Claims Board under the chairmanship of Sir Montague Allan.

The Returned Disabled Soldier.

The annual meeting of the Saskatchewan Medical Association, held at Regina on July 18th and 19th, was one of the most successful in its history. The chair was taken by the president, Dr. George P. Bawden, of Moose Jaw. Last year the annual meeting was postponed on account of the war. Dr. Myers, of Saskatoon, read a paper on the returned disabled soldier, in the course of which he said that the task of making due provision should be the concern of every one, and its solution should not be left to the Military Hospitals Commission alone. Down to July 13th last, 236 disabled soldiers had returned to the province of Saskatchewan—75 men for immediate discharge without pension; 132 men requiring further medical treatment or rest; 18 permanently disabled men; and 11 reservists, undesirables, etc. Dr. Myers made the

following suggestions: Crippled soldiers should not be segregated nor gathered in large colonies, but whenever possible they should return to their former employer in some fresh capacity. Industries requiring comparatively little capital should be established in the province to give employment to such men—for instance, factories for making brooms, baskets, chairs, harness, and toys, and garment and knitting mills, candy factories; the manufactured article should be labelled "returned soldier." For those cases that required employment in the open, poultry raising, bee-keeping, market gardening, and the establishment of small sheep ranches in lands unfit for grain growing were suggested. A census of all available positions in the Government services might be taken, as well as of all the employers of labour in the province. A stipulation might be included in contracts given by the State to the effect that a proportion of the work be given to war cripples. This paper led to a discussion, and at the business session the following resolutions were passed:

1. That it is the sense of the Association in session that the Government conduct a census of all available positions of employment within its service and among the employers of labour in the province, with a view to employment of disabled and unfit returned soldiers.
2. That the Saskatchewan Medical Association feel constrained to offer their services to the Government for use in the solution of these problems in whatever way the Government may see fit.

Correspondence.

THE TERMS OF THE INSURANCE ACT.

SIR,—From time to time I still receive letters, or am appealed to in the medical press, concerning the proceedings and the effects of the National Insurance Act, as if I were in some way responsible for them. May I be permitted to state again, once for all, that I have not and never have had (save as a member of the large Advisory Committee) anything to do with the initiations, general provisions, or workings of the Act? When the bill was practically complete I was appealed to by many brother practitioners to try for better terms than those (four shillings a head I think it was?) originally offered.

Now, of the old club system I had very painful recollections. I saw my brethren sweated, exploited, and domineered over by vulgar officials, often sitting in public-houses; and many doctors from a sense of duty took certain clubs as virtually unpaid work, as some of us work gratuitously in hospitals. Other medical men who engaged more largely in club work made a living out of it only by reducing their medical services to the lowest possible standard. Thus, in the large majority of cases of club patients desiring a consultation, the doctors in attendance used to decline to spare more of their time in meeting a consultant or in writing any notes of such cases. And small blame to them, for the old club patient was often a very well-to-do person. With these recollections in my mind I did my utmost, with others, to get better pecuniary terms, and we succeeded in obtaining a large increase; indeed, the increase which a leading medical critic of the bill had privately intimated to me would be acceptable to the profession. With this effort my part in the bill, or Act, ended, and I took no further responsibility. It is true that, as we had been instructed on the pecuniary terms to be demanded, and had informed the Minister of these instructions, we did consider, when these terms were granted, that, so far as pay was concerned, the profession was bound, as a matter of good faith, to be satisfied. It is said that in one way or another the stipulated payments have not been received in full. Of this I know nothing, and express no opinion.—I am, etc.,

Cambridge, Sept. 14th. CLIFFORD ALLBUTT.

HEALTH VISITORS AND BIRTH INQUIRY CARDS.

SIR,—The antenatal and postnatal campaign now in vogue is excellent in intention and should accomplish much if it is carried on with judgement and discretion. But without these two qualifications it is likely to raise opposition, which is bound to prejudice, if not to defeat, the objects in view.

As I write I have before me a form of notification as follows:

CITY OF [Coat of Arms] ————.

NOTIFICATION BY A MIDWIFE OF HER ENGAGEMENT TO ATTEND A CONFINEMENT.

To the Medical Officer of Health, Guildhall, ————.

I hereby give you notice that I have to-day been engaged to attend .....

Name of mother, etc., etc.

Then follows a long list of questions.

I call attention to the official heading, the coat of arms, and the words underlined. The recipient naturally concludes that the document is authoritative, and that she is compelled to answer the questions on the day on which the form is received.

Midwives are much perturbed by these forms, as they seem to be ordered to betray professional confidence; and they feel themselves between the devil of unknown penalties from the authorities and the deep sea of loss of their patient's respect and regard, and possibly of their patient altogether.

Pregnancy is not yet compulsorily notifiable, and to distribute forms like these lays those who do so open to the accusation that they are trying to exploit the ignorance and timidity of the poor (midwives and patients) for the purpose of carrying out their objects.

Now, if pregnancy is to be made compulsorily notifiable, it must be made so for every one—for the duchess as well as for the charwoman. Again, the question of the person compelled to notify is important. If the duty is to be laid upon the attendant (doctor or midwife), the result will almost certainly be that patients will put off engaging their attendant to the last possible moment, and the care of the pregnant woman will be far less good than it is at present.

It is a mistake to suppose that antenatal care has only been discovered in the twentieth century. All careful doctors have practised it for a very long time, and all careful midwives have done the same; indeed, the Rules of the Central Midwives Board have recognized it from the beginning, and good midwives practised it before then. People are apt to think that a new technical word implies a discovery. On the other hand, a new technical word sometimes does good by attracting attention.

If the duty is to be laid upon the *patient* (which is the more logical alternative), is the duchess to find the health visitor marching unannounced into her bedroom?

All these details have to be thought out.

I am glad to say that notification such as has been complained of is *not* sanctioned by the Local Government Board. In the forty-fourth annual report, for 1914–15 (Supplement in continuation of the report of the medical officer of the Board, p. 65), these words occur:

> Such notifications should not be entertained without the formal and intelligent consent of the expectant mother.

Unless local authorities quote these words in any circulars which they issue such circulars cannot fail to arouse suspicion in the patient as well as in the doctor or midwife.

Unless notification (even voluntary) is enforced upon the rich as well as on the poor, the poor will feel themselves unjustly treated (when they know the facts). The exact process by which the care of pregnancy may be improved, by notification or otherwise, requires more careful consideration than it has hitherto received, from the point of view of the patient, the doctor, and the midwife. It ought not to be incapable of satisfactory solution.—I am, etc.,

Nutley, Uckfield, Sept. 19th. FRANCIS CHAMPNEYS.

THE TERMINOLOGY OF THE NEURONE.

SIR,—Professor Argyll Campbell, of Singapore, in a letter to me, suggests the name "centron" for the central part of the neurone which contains the nucleus, and is sometimes called the "cell body." The name is not inappropriate, being similar in form to those of the other constituent parts, and it suggests the source of the trophic influence without which separated parts degenerate.

The neurone would thus consist of a *centron*, an *axon*, and one or more *dendrons*. The latter may ramify into finer dendrites, while the axon itself may divide peripherally.

If the various societies concerned with neurological questions could see their way to agree to an official system of names, a desirable uniformity would be attained.—I am, etc.,

University College, London, Sept. 19th. W. M. BAYLISS.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—It is refreshing to be told by Dr. Rees that "never during the twenty-seven years of my medical life has the medical profession been in such bad odour with public authorities as it is at the present time." We ought to be glad of it, for it shows that there is some life left in us yet; people who are struggling to get their just rights, however feebly, generally are unpopular with those who are bent on depriving them of such rights. If, as he says, "the medical profession only exists for the good of the community," of course that is the end of the matter, but how many wild cat schemes do we see launched, often at our expense, under that shibboleth? And how much better is the community for them? If it had not been for our generosity in the past, and for the snobbish attitude of many of us, and especially of the leaders of the profession, in pretending that fees were the last thing we thought of, we should not be in the position we occupy to-day, for politicians hungry for votes have no mercy on generosity, and take our professions of complete disinterestedness literally because it suits their book to do so. How much do the lawyers do "for the good of the community," and how does the community reward them? By selecting them to govern the country and to occupy most of the fat offices in the empire, while the medical profession, "existing only for the good of the community," is marked out for attack and exploitation all round.

And can any of us doubt that there is more of it coming? I think Dr. Fothergill was abundantly right in the warning part of his letter in the BRITISH MEDICAL JOURNAL of August 19th: "The medical profession . . . finds itself unprepared, inarticulate, often caught unawares by advocates in its midst, and unable to protect itself or the interests of medicine." He proposes to meet this difficulty by getting on with the scheme for combining the various medical bodies by giving them all representatives on a new committee to be formed for the purpose. But will this solve the problem? What we want is an intelligence department in the British Medical Association presided over by a man who is a specialist in the kind of work required of him. After all, what will the new committee be composed of? Of men who have many other interests and many other things to do, and who only take up this work as more or less able amateurs. What we want is a man well accustomed to and skilled in lobby work, with a finger on the political pulse; a man who knows how to read portents and the signs of the times, and to read them correctly. For though we are most of us agreed that there are dangers ahead, how many of us know for certain what those dangers are and the direction from which they will come? And in this state of ignorance how can we tell where to plant our defences and which way our army should front?

It must be remembered that there is very little use in agitating against a Government bill once introduced to the House. When that has taken place, the reputation of the Minister interested depends upon his getting his bill passed without very material alteration, and he therefore brings all the weight of his party to bear with that object; the matter has become a purely political one. The time to influence him is when he is considering the provisions of his bill and has a comparatively open mind. What we want is therefore ample warning of what is going on, for it takes a good many weeks to formulate the policy of the British Medical Association by Council deliberations, discussion by the Divisions after the statutory notice, and final settlement by a Representative Meeting. Let us, therefore, set up the machinery to secure this warning, remembering that "forewarned is forearmed." Such an intelligence department would cost a great deal of money no doubt, but if we are going to fight at all we must spend money; if we win, the money will be well spent; if we lose, it will be thrown away. And we shall lose if we remain "unprepared, inarticulate, caught unawares, and unable to protect ourselves or the interests of medicine."

I make no reflections on our present officials; they have quite enough to do in other directions, and are fully occupied. What I contend for is a department to do this thing and nothing else, presided over by a specialist.—I am, etc.,

Oldham, Sept. 15th. F. L. POCHIN.

SIR,—I have read the various communications on the above topic in your columns which have appeared lately, but in the end find myself in a terrible muddle, for none of your correspondents define what they fear or desire. Now, let us have high ideals, but let us be practical and consider in the first instance what the public are likely to do to us, and then what we should like to do for the public. It does not require much prescience to predict what the public will do to us, when the opportunity arrives. They will try to run the Insurance Act more cheaply by cutting down the medical emoluments, and will choose the time of the discharge of an immense number of medical officers from the army, to act. Here is a contingency which is certain to arrive, and is ripe for discussion.

September 19th. "PANEL PRACTITIONER."

JUNG'S PAPERS ON ANALYTICAL PSYCHOLOGY.

SIR,—It appears to me if Dr. Mercier were robbed of symbolic language he would have to sacrifice a good deal of his rich humour. References to Tweedledum and Tweedledee, and expressions such as "putting the boot on the wrong leg" come from the unconscious itself. Psychoanalysts agree with him in thinking it "a mistake to use symbolic language in daily life," but with a different application. The insane person and neurotic do use this symbolic language in daily life. For with them the unconscious rushes through into reality, against their will, and with more or less violence, so that the lunatic lives in his dream, and the hysteric is at the mercy of his phantasies. A man who is functionally dumb is symbolizing his psychic pain or mental conflict in his aphonia.

I am flattered at being asked to define the unconscious, but a little hampered in my reply; for if I say it contains all that is below the threshold of consciousness, I shall be told I am defining it "in terms of itself." If I attempt a more philosophical definition it may prove to be "Greek" to Dr. Mercier. I would, however, venture to define it as the psychological contents which form the background of consciousness, and add further (following Jung) that these contents are in part of a personal nature—that is to say, valid only for the person concerned; and in part impersonal—that is, universally valid. This is so because man is not only an individual but also a member of the collectivity or herd, hence he has the historical background proper to these two aspects. It is from this abundant material that he draws the symbolism of his dreams and his neurosis.

There is very much in the unconscious besides what is "uncleanly." It is not only the source of instinct but of intuition and imagination. It therefore contains not only man's primitive tendencies but indicates the means of his liberation from them.

The "too firm attachment to the parents" is not to be taken concretely as "incestuous passion"; that is self-evidently false, but it must be understood as psychological incest, symbolic of a typical dependence upon authority, which rightly belongs to the childish personality but which by its undue persistence prevents adaptation to new circumstances in life, as also to new ideas. Neurosis has been aptly called "a failure in adaptation." The use of the word incest in this connexion arises from the fact that in dream and phantasy and in early mythology this psychical dependence upon the parents is symbolized as incest. It is an empirical fact that this *motif* turns up again and again in dreams. Why this is so and the meaning it has, is shown in Jung's *Psychology of the Unconscious*. One might also refer Dr. Mercier to Rank's *Das Incest Motiv in Sage und Dichtung*. There is much literature upon the subject.

We are forced to direct our researches to the unconscious whether we like the facts that transpire or not. The psychological views of insanity now widely accepted cannot admit that nearly the whole ground is covered by the statement that "diseases of the mind are diseases of the brain"; and this being so, we must confess our psychological knowledge is as yet very inadequate, hence we must seek to increase it by all means in our power. Research is necessary here as elsewhere, and merits the same tolerance, perseverance, and patience that is accorded it in other fields of our art.—I am, etc.,

London, W., Aug. 28th. CONSTANCE E. LONG.

Obituary.

SIR THOMAS LAUDER BRUNTON, BT., M.D., F.R.S.,

CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL, LONDON.

(With Portrait on Special Plate.)

WE regret to announce the death of Sir Thomas Lauder Brunton, which occurred at his residence in London, on September 16th, in his 73rd year.

Thomas Lauder Brunton, the son of James Brunton, of Hiltonshill, Roxburghshire, who married Agnes, daughter of John Stenhouse, was born at Bowdon, Roxburghshire, on March 14th, 1844. He was educated privately and then at Edinburgh University, where he had a brilliant career as a medical student, gaining prizes, honours, and gold medals in his various examinations. He qualified in 1866 by taking the M.B., C.M.Edin. degree with honours. In 1868 he was awarded the M.D. degree, with a gold medal, for his thesis on "Digitalis, with some observations on the urine." In 1867 he took the B.Sc. degree, in the following year he gained the Baxter Natural Science Scholarship, and in 1870 took the D.Sc. degree also at Edinburgh. For twelve months (1866–67) he served as house-physician in the Royal Infirmary, Edinburgh, under Professors Maclagan and Hughes Bennet.

His thesis on "Digitalis, with some observations on the urine," was a good piece of work, and foreshadowed a promising career as a scientific investigator which after-years fully bore out. The work was carried on in Dr. Maclagan's laboratory at Edinburgh, and consisted in great part of observations on the effect of the drug on his own output of urine and urinary constituents under carefully noted conditions of food, sleep, body weight, exercise, action of the bowels, etc. Six hundred qualitative observations were made, over the period of 121 days during which a standard diet in constituents and weight and quantity of fluid was rigorously adhered to. This series of observations was preceded by some preliminary experiments. As the result of these experiments he found that while small doses had little or no action, marked diuresis occurred when the drug was pushed so as to produce symptoms of poisoning. He found, also, that while the diuresis continued the absolute quantity of solids excreted daily in the urine was increased although their proportion to the urinary water was diminished. In this thesis and in later publications (*Proceedings of the Royal Society*, 1874, No. 153) he supported the view that the rise in blood pressure brought about by digitalis is due not only to the increased action of the heart, but also in great measure to contraction of the arterioles.

After a year as resident in hospital Brunton went to Vienna (1867) and worked for some months in Professor Brücke's and Professor Rosenthal's laboratories on the action of digitalis upon muscle and nerve, but he never published these experiments. He then went to Berlin for a short time, and worked there with what he believed was the identical kymograph employed by Traube in his researches in the action of digitalis. There, although he was hampered by the want of a registering haemodynamometer, he obtained proofs that digitalis both increases the force of the heart and causes contraction of the capillaries. Later, in working with A. B. Meyer, by means of the kymographion he succeeded in obtaining the evidence he wanted, and in establishing the view of the action of digitalis which is now almost universally accepted. (Action of Digitalis on the Blood Vessels. Brunton and Meyer: *Journal of Anatomy and Physiology*, 1873, vol. vii, p. 135.) From Berlin he went for a tour to Egypt, Syria, and the South of Europe, and in the winter of 1868-69 he lived in Amsterdam, studying physiological chemistry with Professor Kühne. Here he worked on the Chemical composition of the nuclei of blood corpuscles (*Journal of Anatomy and Physiology*, November, 1870). The knowledge which he thus gained enabled him to write the section on digestion and secretion for Burdon-Sanderson's *Handbook for the Physiological Laboratory*. After Amsterdam, he studied at Leipzig, where he was admitted as one of the first students in Carl Ludwig's new institute. There Brunton worked on the independent contraction of the arterioles and capillaries, making some experiments on the effect of amyl nitrite and sodium nitrite (Ludwig's Arbeiten Vierte Jahrgang für 1869, S. 101; translation in *Journal of Anatomy and Physiology*, 1871, v, p. 92). Kronecker was one of his fellow students there, and the two formed a lifelong friendship.

In 1870 he was appointed lecturer on materia medica and pharmacology at the Middlesex Hospital medical school, but in the following year he became attached to St. Bartholomew's Hospital as casualty physician and lecturer in materia medica, etc. He remained on the staff of St. Bartholomew's for thirty-three years, four years as casualty physician, twenty as assistant physician, and nine as physician. He then retired, although he had not reached the age limit, to give the younger men a chance of promotion. He was appointed consulting physician and governor of the hospital.

In 1871 he began to write his *Experimental Investigation of Medicines*, with the intention of expanding it into a complete textbook on experimental pharmacology, and before completing the part dealing with the circulation he wrote the section on digestion and secretion for Burdon-Sanderson's *Handbook for the Physiological Laboratory*. As he performed every experiment mentioned in his section, and repeated several of them many times, the writing of this short section involved incessant work in the laboratory for more than two years. As an example of this labour, he tells us that the statement that "pepsine, if absolutely pure, gives no xanthoprotein reaction" cost him many weeks' work. In 1873–74 he was engaged with Dr. (afterwards Sir) Joseph Fayrer in examining the action of snake venom and with Dr. Pye Smith on a report to the British Medical Association on intestinal secretion.

The rebuilding of the school at St. Bartholomew's Hospital caused an interruption in his laboratory work of nearly four years (1876–80), when he again resumed it with the aid of assistants.

Two or three years after he was appointed to lecture in materia medica at St. Bartholomew's Hospital, and before the new buildings were ready he tried to institute a pharmacological laboratory there. The place he obtained for the purpose was about 12 ft. by 6 ft., formerly used for washing museum jars, but he found some students to work with him. Later, when his practice demanded more time, he planned the research, paid all expenses, and gave his assistants a salary. In this way he was able to carry out a large amount of research work, which was published in his name and that of his assistant. Several present-day professors in materia medica and pharmacology began their scientific life under his guidance. The most important results which he obtained were those which enabled him to introduce the blood tension lowering drugs into practical medicine. The period over which the researches described in his first series of *Collected Papers on Circulation and Respiration* (1907) extended (1865–1883) was an important one in the history of the pharmacology of the circulation, for its beginning coincided with the first employment in England of registering apparatus for the investigation of the action of drugs on the circulation. Brunton made experiments in his earliest Edinburgh laboratory work on the blood pressure in animals under the influence of digitalis with a simple mercurial column, and on himself with a sphygmograph. He found that the facility in the use of the instrument which he thus acquired enabled him, while house-physician at the Royal Infirmary in Edinburgh (1867), to use it in ascertaining the rise in blood pressure which occurred in angina pectoris in a hospital patient, and by correlating the pathological data thus acquired with the knowledge of the pharmacological action of amyl nitrite which he obtained from Arthur Gamgee he succeeded in discovering a remedy for angina pectoris. He looked upon this discovery as the first complete example of rational therapeutics based on experimental, pathological, and pharmacological data.

In the department of physiological chemistry, scientific and practical, his work was chiefly directed to the purpose of investigating and expounding the manifold action of ferments and enzymes, not only in the process of digestion, but of assimilation, tissue-metabolism, organotherapy, the formation of toxins or antitoxins, and of immunity. In an address read before the International Congress of Medicine at Moscow (1897) he gave a general account of the subject and also described what he believed to be the first attempt at rational organotherapy or opotherapy —namely, his own unsuccessful efforts in 1874 to

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Photo [*Elliott and Fry, Ltd.*

SIR T. LAUDER BRUNTON, BT.

obtain a glycolytic enzyme from muscle, in order to enable diabetic patients to utilize the sugar in their blood. He actually administered raw muscle extracts to diabetic patients at St. Bartholomew's Hospital. He believed that these cases were the first in which portions of a solid organ were administered for the purpose of supplying a ferment which would alter tissue changes. Before that time only ferments obtained from the digestive canal had been used in medicine. (BRITISH MEDICAL JOURNAL, February 21st, 1874.) This mode of treatment became of great importance after 1889, when Brown-Séquard advocated it in regard to the testicle and myxoedema.

Brunton contributed a very large number of papers to medical literature, many of them being of a pharmacological nature. He collected and reprinted them from time to time in book form. In 1886 he published a volume *On Disorders of Digestion, their Consequences and Treatment*. It contained the Lettsomian lectures on this subject delivered before the Medical Society of London in 1885. As he referred in these lectures to many previous papers, he, for convenience in reading, reprinted twenty-one published between 1873 and 1885. These papers are miscellaneous essays on disorders of the digestive organs, and on albuminuria, dropsy and diuretics. They are all readable papers of a useful practical type, several of which appeared originally in the *Practitioner*. *Disorders of Assimilation, Dygestion, etc.*, appeared in 1901. It contains a list of thirty-three papers on the subjects covered by the title dating from 1874 to 1901, which form the basis of the book. The chapters are mostly of considerable practical value—the pathology and treatment of diabetes mellitus, the influence of stimulants and narcotics on health, the relative digestibility of white and brown bread, indigestion, constipation, diarrhoea, abdominal pains, bile, biliousness, gall stones, etc. They contain a great deal of information based on a scientific consideration of the causes of the ailments, and also valuable advice gained by his own experience in treatment. In 1907 he published *Collected Papers on Circulation and Respiration*, First Series, chiefly containing laboratory researches. The preface contains matter of biographical interest. In this book there are thirty-eight papers, including the Harveian Oration delivered before the Royal College of Physicians in 1894. Among the papers are a thesis, "On digitalis, with some observations on the urine" (1868); the use of amyl nitrite in angina pectoris (1867); and other papers on digitalis and amyl nitrite. The book also contained his paper on "The science of easy chairs," originally published in *Nature* (October 17th, 1878), giving a somewhat popular account of the causes of muscular fatigue and the best means of relieving it.

His most important work was the well-known *Textbook of Pharmacology, Therapeutics, and Materia Medica*, which appeared in 1885. More than fifteen years before this date he had a work on materia medica ready for the press, but he asked the printer to wait a little in order that some improvements might be made and some redundances removed, for the work as it then stood was considerably larger than the 1885 book, which contained over 1,000 pages. As he went over the MS. again he found many unsatisfactory statements and uncertainties regarding the mode of action of drugs which he thought he could decide by a few experiments. But as he went on the labour grew, other engagements became pressing, further experience as a teacher and examiner made him discontented with his original work, and so he threw this aside and rewrote the book entirely! The immense labour this involved will be appreciated by every one who knows the book. The work was well received, and a third edition was called for and published in 1887. Another book which he published was entitled *Lectures on the Action of Medicines*. It contained the course of lectures on pharmacology and therapeutics delivered at St. Bartholomew's Hospital during the summer of 1896. The volume was published in 1897. It gives a general sketch of the mode in which drugs act upon the body. In the preface he stated that the lectures (pp. 673) were not intended for cramming. Their use was not to supply the student with all the information he needs, but to awake his attention, excite his interest, to impress on him certain points which will form a nucleus for his knowledge and around which he may afterwards group more information.

Sir Lauder Brunton was an old member of the British Medical Association, and took a consistent interest in its scientific activities. He held the offices of secretary and vice-president of the Section of Physiology at the annual meetings of the Association in 1875 and 1877 at Edinburgh and Manchester respectively, as well as those of president and vice-president of the Section of Pharmacology at the annual meetings at Brighton in 1886 and London in 1895. He gave the address in medicine at the annual meeting in 1891, when the Association met in Bournemouth, the subject selected being twenty-five years of medical progress.

Brunton was one of the founders of, and acted as temporary secretary to, the National League for Physical Education and Improvement. The league was inaugurated in 1905 as the result of the military experts' report (1903) to the effect that a large proportion of young men of this country were unfit for military service. After considerable discussion and planning the league was formed, with the object of co-ordinating the various agencies which were then working independently of each other for the advancement of physical training, and of supplying information and assistance for the benefit of the physical health and well-being of the people in remote and poor districts. Brunton gave addresses in various parts of the country in the subject, and was president of one of the local branches of the league. The league now issues leaflets in English and Welsh on many subjects—on the importance of cleanliness in home and person, the feeding and management of babies, clean milk, etc.

His connexion with the Royal College of Physicians was lengthy and practical and honourable. In 1870 he became a member and in 1876 a fellow of the college. He acted as one of its examiners for fourteen years between 1880 and 1900, and was a censor in 1894 and 1895. In 1877 he delivered the Goulstonian lecture on "Pharmacology and therapeutics." In 1889 the Croonian lectures on "The Connexion between chemical constitution and physiological action"; and in 1894 the Harveian Oration, which was on some points in the physiology and pharmacology of the circulation. In 1874 he was elected a fellow of the Royal Society, chiefly on account of his work on digitalis. He served on the Council of this society from 1882–84 and 1905–6, and he was also vice-president in the two latter years. He was sometime examiner in materia medica and pharmacology in the universities of Edinburgh, Oxford, London, and the Victoria University of Manchester. He was a member of the committee appointed (1886) by the Local Government Board to examine Pasteur's treatment of hydrophobia, and, as the nominee of the *Lancet*, of the Nizam of Hyderabad's second commission on chloroform (1889). He was also president of the second International Congress of School Hygiene held in London (1907). He was a fellow of the Royal Medical and Chirurgical, Pathological, Physiological, Botanical, and Medical Societies of London; honorary member of the Pharmaceutical Society; honorary member and at one time senior president of the Royal Medical Society of Edinburgh (1866); foreign honorary member of the American Academy of Arts and Science; correspondent of the Academy of Natural Science, Philadelphia; associate fellow of the College of Physicians of Philadelphia; corresponding member of the Therapeutical Society of Paris; honorary member of the Imperial Military Academy of Medicine of St. Petersburg; honorary member of the American Therapeutic Society. He received the honour of knighthood in 1900, and was created a Baronet in 1908. He was honorary LL.D. of Aberdeen and of Edinburgh, and honorary D.Sc.Dub. He married in 1879 Louisa Jane, daughter of the late Venerable Edward A. Stopford, Archdeacon of Meath, who predeceased him (1909).

He is succeeded by his son Major James Stopford Lauder Brunton, who, after serving in the Royal Engineers, was compelled to retire owing to ill health. He entered McGill University, Montreal, as an undergraduate in the science faculty, and after taking his degree became attached to the Geological Survey of Canada. At the beginning of the war he offered his services to the Canadian Government as instructor of the Canadian Engineers, and is still doing valuable work in that appointment. Sir Lauder Brunton's second son, Edward Henry Pollock Brunton, B.A.Cantab., M.R.C.S., L.R.C.P.

temporary Lieutenant, R.A.M.C., was killed in action in France on October 8th, 1915.

A memorial service, held at St. Peter's, Vere Street, on September 20th, was attended by representatives of the Royal College of Physicians, the Royal Society, the British Science Guild, the Royal Society of Medicine, and St. Bartholomew's Hospital, institutions with which the deceased was directly connected, as well as by a large number of friends. The interment took place on the same day at Highgate.

In Brunton was a mingling of shrewdness and simplicity not uncommon in the best type of his countrymen. He was an untiring worker, and in all scientific subjects an omnivorous reader and questioner. He thoroughly enjoyed the rewards of his success as a physician—not only, or chiefly, the pecuniary rewards, but the opportunities it gave him to know many men eminent in other professions. He had a keen sense of what the public wanted to know, and was in his own way a great popularizer. In medicine he had his foibles no doubt—a somewhat excessive belief in the efficacy of drugs in desperate conditions was one—but he was deeply imbued with the scientific spirit, and inspired by a sincere desire to better the state of the poor and suffering. He had been in declining health for a year or two. The war in many ways hit him very hard. He had, as he supposed, many friends among German men of science; the revelation of their mental attitude towards us was a heavy blow to him, and the death of his second son a great grief. But he bore himself bravely to the last, was interested in all efforts to lessen the suffering the war produced, and, when he could not give time and energy, gave money freely, even lavishly. He was a kindly Scot.

DR. JOHN MUNRO CAMPBELL, assistant-surgeon to the Glasgow Royal Samaritan Hospital for Women, died on September 6th in a nursing home in Glasgow. He was a native of Edinburgh, and studied at Glasgow, taking the degrees of M.B. and C.M. in 1890. Dr. Munro Campbell had an extensive practice in Newlands, where he resided. He was elected a member of Eastwood School Board, and acted as convener of the Medical Treatment Committee. He had been overworked since the war began, and a month ago his health completely broke down. He was a member of the Association, and contributed some papers to the JOURNAL, of which the most important was perhaps the report of a case where a man, aged 60, took by mistake a tablespoonful of a mixture of equal parts of linimentum belladonnae and tinctura opii. Apomorphine, and afterwards several doses of pilocarpine, were administered hypodermically, and twenty four hours after taking the poison the patient seemed quite well, yet he died suddenly about two hours later when raised in bed.

DR. HARRY GOODSIR MACKID, who died at Calgary, Alberta, on August 17th, was born in Goderich, Ontario, on August 19th, 1858, of Scottish parentage, his father being a native of Edinburgh, and a minister of the Presbyterian Church. After receiving his preliminary education at Goderich, he entered the University of Toronto, where he took the degree of B.A., and in 1879 his degree in medicine. His medical studies were later completed in the hospitals of Vienna, Berlin, London, Edinburgh, and Glasgow. Dr. MacKid went into practice first at Lucknow, Ontario, and four years later removed to Seaforth, and in 1889 to Calgary, where he continued to practise up to the time of his death. As surgeon of the Canadian Pacific Railway, Dr. MacKid was closely associated with the railroad men of Alberta, and was known and esteemed in every construction camp and hospital from Medicine Hat to the British Columbia boundary. He was one of the most devoted and energetic members of the Canadian Medical Association, and, in 1911, was elected President. He had an extremely attractive personality, and—to quote from a Calgary newspaper—had perhaps the widest circle of personal friends of any man in Alberta. His son, Captain L. S. MacKid, is on active service.

LIEUTENANT-COLONEL WILLIAM SELBY, D.S.O., Bengal Medical Service, died at Lucknow on September 8th. He was born on June 16th, 1869, the son of the late Prideaux Selby, of Kowit, Croydon. He received his medical education at St. Bartholomew's Hospital and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1892, becoming F.R.C.S.Eng. in 1905. He entered the I.M.S. as surgeon-lieutenant on July 28th, 1894, became surgeon-captain on July 28th, 1897, major on July 28th, 1906, and lieutenant-colonel on July 28th, 1914. He served in the Chitral campaign of 1895, taking part in the relief of Chitral, and gaining the frontier medal with a clasp; on the north-west frontier of India in 1897–98, in the operations on the Samana range in August and September, 1897, and in the relief of Fort Gulistan, getting two more clasps; and in the Tirah campaign of 1897–98, when he was present in the actions of Chagru Kotal, Dargai, of the Sampagha and Arhanga passes, in the operations in the Waran Valley and action of November 16th, 1897, in the operations at and around Dwatoi and action of November 24th, 1897, in the operations against the Khanni Khel Chamkannis, and in the operations in the Bara Valley, December 7th to 14th, 1897. For these services he was mentioned in dispatches and received another clasp, as well as the D.S.O. He was appointed honorary surgeon to the Viceroy on April 15th, 1910, and was the senior, in date of appointment, of the holders of that post. When the new King George's Medical College was opened at Lucknow a few years ago he was appointed principal of the college and professor of surgery.

LIEUTENANT-COLONEL GEORGE MICHAEL JAMES GILES, Bengal Medical Service (retired), died at Plymouth on August 24th, aged 62. He was born on December 20th, 1853, the son of the late Captain George Giles, R.N., and educated at St. Mary's Hospital; he took the diplomas of M.R.C.S. and L.S.A. in 1876, the degree of M.B.Lond. in 1877, and the certificate in sanitary science and the F.R.C.S.Eng. in 1880. He acted as house-surgeon at St. Mary's and served as a civil surgeon in South Africa, in the operations against the Galekas in 1878, and in the Zulu war of 1879, receiving the medal with a clasp. He entered the I.M.S. as surgeon on October 2nd, 1880, became surgeon-major on October 2nd, 1892, and lieutenant-colonel on October 2nd, 1900, retiring on January 15th, 1901. In his early service he spent some years as surgeon naturalist in the Indian survey ship, the Royal Indian Marine steamer *Investigator*, and in 1886–87 accompanied the late General Sir William Lockhart on an exploring expedition in the Pamirs. Subsequently he went into civil employment in the Central Provinces, and later was transferred to the Sanitary Department in the North-West (now the United) Provinces. After his retirement he lived for some time at Plymouth, and later on settled at Portsmouth, County Frontenac, Ontario, Canada. At the beginning of the war he joined the Canadian Army Medical Corps, with which he came to England, and was for some time in charge of Boncote House Hospital, Oxford. He was the author of several scientific works: *Kala-Azar and Beri-Beri*, *Handbook of the Gnats or Mosquitoes*, *Climate and Health in Hot Countries*, and *Outlines of Tropical Climatology*.

DR. THOMAS A. ASHBY, of Baltimore, professor of gynaecology in the University of Maryland and one of the original members of the American College of Surgeons, died on June 26th at the age of 67. He was the founder of the *Maryland Medical Journal* and its editor from 1877 to 1892. He was the author of a textbook on the diseases of women, which was published in 1903. In 1912 he was elected a member of the House of Delegates of the Maryland Legislature.

DR. LUCIANO MEONI, assistant in the medical clinic of the University of Perugia, was killed recently in the trenches at Podgora. He was a man of great promise, and, although only 31 years of age, was the author of a number of papers embodying the results of observation and laboratory research. He has left unpublished an important work on chorea and many clinical and bacteriological notes on cerebro-spinal meningitis.

DR. CARLO TIRABOSCHI, who recently died at the age of 40, was assistant in the medico-micrographic laboratory of the Italian Public Health Bureau, Rome. He was the

author of researches on the part played by insects in the diffusion of plague, on human and bovine tuberculosis, on the vibrios in water, and other subjects.

DR. UGO CALCATERRA, who as an official of the Bureau of Hygiene of Bologna had charge of the medical students' quarters, was recently killed on the Trentino front. He had just completed his 30th year. A commemorative meeting of the Communal Council was held at which the Syndic was present. The Health Assessor proposed that prizes in hygiene bearing the name of Calcaterra should be founded.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Karl Fraenken, formerly professor of hygiene in the University of Halle, aged 54; Dr. Hermann Klaatsch, professor of anatomy, anthropology, and ethnology in the University of Breslau, aged 53; Dr. Paul Friedrich, professor of surgery in the University of Königsberg, aged 51; Dr. Frederic Schmid, of Geneva, director of the Swiss Federal Health Bureau, aged 66; Dr. Thomas Hubbarb Russell, successively lecturer on surgery, professor of materia medica and therapeutics and clinical surgery in the Medical School of Yale, and surgeon to the New Haven General Hospital, aged 63; Dr. Pietro Grocco, professor of clinical medicine in the Istituto di Studi Superiori, Florence, and Senator of Italy, well known by the "paravertebral triangle" which bears his name and by many valuable researches on Graves's disease, polyneuritis, the pathology of the heart, and other subjects, aged 60; Dr. Max Billard, of Paris, author of works dealing with the period of the French Revolution and the First Empire, of which the best known are *Les Tombeaux des rois sous la Terreur; Les Maris de Marie-Louise* and *La Conspiration de Malet;* Dr. Xavier Delore, formerly surgeon to the Charité Hospital and assistant professor in the Medical Faculty of Lyons, aged 89; Dr. Robert Allen Blood, surgeon-general of Massachusetts from 1896 to 1904, and president of the Association of Military Surgeons of the United States in 1902, aged 77; Dr. Manuel Gomez de la Maza y Jimenez, professor of botany in the University of Havana, and author of important works on the flora of Cuba, aged 47; Dr. R. Benavides, for many years professor of midwifery in the University of Lima, and president of the National Academy of Medicine of Peru, aged 84; Dr. Giuseppe Cattaneo, surgeon to the San Matteo Hospital, Pavia, and founder of the tuberculosis dispensary there, aged 83; Dr. D. A. Gorton of New York, for many years editor of the *National Quarterly Review* and the *Medical Times*, and founder of the Eugenic Society of America, aged 84; and Dr. Wisner R. Townsend of New York, one of the best known orthopaedic surgeons in the United States, aged 58.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. (France) desires to exchange with M.O. in any capacity at home, or with M.O. in ambulance train, hospital ship, or base hospital. Address No. 3700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. (Territorial), attached artillery unit eighteen months in the line, is desirous of effecting an exchange with R.A.M.C. officer on home service. Hospital work in London preferred. Address No. 3800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

R.A.M.C. Exchange, Cairo.—London stationed officer, desiring immediate exchange to Cairo Hospital, should apply, stating rank and appointment, to Dr. Nicholson, the London Fever Hospital, N.

AT a recent meeting of the Yale Corporation it was decided to accept a recommendation of the executive board of the school of medicine that a limited number of women should be admitted to the medical school of the university.

THE New York Health Commissioner has invited a number of pathologists and bacteriologists to consider the problems of poliomyelitis and plan out a co-ordinated series of investigations on the subject. Among them are Professors G. J. Adami, of McGill University; Hektoen, of Chicago; M. J. Rosenau, of Harvard; Theobald Smith, of the Rockefeller Foundation; Victor Vaughan, of Michigan, and W. H. Welch, of Johns Hopkins. Associated with these will be Dr. Simon Flexner, Dr. Hideyo Noguchi, and others.

Medical News.

A PSYCHOPATHIC clinic has been established at Sing Sing prison, New York, under the direction of Dr. Bernard Glueck, who was formerly on the staff of the Government Hospital for the Insane at Washington. The object of the clinic is to determine the mental condition of the prisoners and to study the underlying causes of crime.

THE excellence of the work done by the medical men sent out by the London Missionary Society in India, Africa, and China is well known to those who are interested in medical missions. The society has published a general account of what is being done in a pamphlet by Mr. E. A. Preston, entitled *The Healing Hand*. A few details of the work of each of the twenty-four mission stations are given, and photographs illustrating the work are reproduced.

WE have received the first number of a new monthly periodical entitled *Cronache di Medicina Politica*, published at Naples under the editorship of Dr. G. Santoro. Its character and aims may be gathered from an utterance of the great Italian physician and statesman, Guido Baccelli, which is printed on the front page as a motto: "The action of the modern State shows clearly that almost all sociological doctrine rests on political medicine as its natural basis." Among the contents are descriptions by Dr. Giuseppe Tropeano, professor of social medicine in the University of Naples, of a proposed hospital for children at Posilippo, and of the Committee of Social Assistance for mothers and Infants in the province of Cosenza initiated by Dr. Santoro.

AN association of French doctors serving at the front has been formed. Its head quarters are at the Bordeaux Athénée. Its objects are to tighten the bonds of friendship among medical men on active service, to keep a list of dead comrades, to help their families as far as may be possible, and to defend the interests of members. During the war the association will deal with the taxes, rent, and insurances of doctors, and with questions concerning locumtenents, etc. After the war it will endeavour to facilitate the reconstitution of practices by negotiating with the men who have taken the place of those away on military service; it will help young practitioners to find work, and will make efforts to induce public authorities to give preferential treatment in the matter of appointments to men who have served.

THERE are two schools in Paris for the teaching of massage to blinded soldiers, one at the Grand Palais, the other at the annexe of the Quinze-Vingts, a hospital for the blind. The method of instruction employed is that of Dr. Guilbert, which is based on the principle that the blind are the best teachers of the blind. The first step, therefore, was to train a number of teachers. The pupil places his hands lightly on those of the instructor and follows their movements, and the teacher, by touching the elbow or shoulder of the pupil, notes any errors in execution. To supply the anatomical knowledge required for efficient massage, a series of thirteen plates in relief has been prepared with the help of orderlies who before the war were skilled sculptors.

IN a Berlin letter to the *Muenchener medizinische Wochenschrift* (May 2nd, 1916) a pathetic story is told of Berliners appealing to their doctors for extra food cards to supplement the meagre diet afforded by the food ration. It appears that as soon as a new article of food was added to the card system, the consulting rooms of the medical profession in Berlin were stormed by crowds anxious to circumvent this latest attack on their inner man. At first serious difficulties often arose, but energetic protests on the part of the doctors led to diminution in the number of applicants. The German Government must have foreseen that the medical profession would be placed in an invidious position were its decision to be the last word in the matter of feeding the individual; and this consideration probably explains why supplementary cards for white bread and flour cannot be provided by the medical profession. The prescription of cream by doctors is also not permitted; the sale of cream is regulated only by the police. Supplementary butter cards may, however, be secured when application is made by certain physicians. Most of these applications have been found to be fully justified, and only in a few cases has the claim for an additional supply of butter been found on inquiry to be trivial. When it was realized that these claims would be scrutinized before being allowed, the run on the doctors' consulting rooms ceased.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediseera Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

HARD CASE asks for advice as to the best charitable institution into which a nurse aged 60, now completely deaf, can be received. She was attached to a county hospital for fifteen years, and worked as a fever nurse for fourteen years afterwards. She invested her savings in the establishment of a nursing home which proved a failure.

LETTERS, NOTES, ETC.

FRIED WOUND DRESSINGS.

DR. DOUGLAS H. STEWART (*Amer. Journ. Obstet.*, August, 1916, p. 282) advocates the frying of dressings; when impregnated with lard and subjected to a temperature of 340° F., they are sterilized and so altered in consistence that they will not adhere to the wound. The nurse uses an ordinary gas flame from a two-burner gas stove; upon the top of such a stove she places a toaster to prevent the lard burning. Then in a deep but narrow stewpan or an agate pail, she places a saucer inverted so as to prevent the bandages coming in contact with the metal bottom. Upon the saucer she places 4 lb. of lard, lights the gas, and melts the lard. Using a long bullet forceps she picks up a drop or two of water occasionally, and drops it into the molten lard, because when the latter "spits" the temperature is correct (300° or over). Swabs done up in packages of four and tied with thread are put into the boiling lard, which is still and does not bubble. On contact, the air is driven out of the bandages and the lard boils furiously, especially at the edges of the swabs. As soon as the boiling becomes less vigorous another package is added, and then another until the pail or receptacle is filled to within two inches of the top. The swabs float and must be kept submerged with the long forceps. Directly the pail is sufficiently full a saucer should be placed on the top of the swabs and a piece of gauze put in as an indicator. When the latter has become light brown in colour, not charred but merely slightly scorched, the flame is turned off and the whole allowed to stand and cool to 180°. A sterile towel is spread over an enamelled dish or wash-basin, and the swabs are picked up with the bullet forceps and placed on the towel which is folded over them, or else they are covered with a second towel.

PATIENTS OF PARTNERSHIPS AFTER THE WAR.

H. asks: Can you help me to clear up my position after I return to practice? I shall make it as generic as I can. Postulate a partnership of which I am the junior member. I have gone on active service, and there are many such. Patients of the partnership may be divided into several classes:

1. Those indifferent which of us they consulted.
2. Those who were definitely my partner's patients.
3. Those who were definitely mine—that is, rarely or never saw my partner professionally.
4. Those who, though my partner's before I joined him, became attached to me—really now "my" patients.

Some of each of these four classes may, during my absence, consult our neighbours, and for divers reasons—mostly too obvious to mention. Let me suggest a few:

(a) They may think they are not getting sufficient attention [illegible] during the winter months.

(b) Some of class "3" may prefer a neighbour as "second choice."

(c) A number of class "4" will be shy of returning to my partner; they imagine he may be "offended" because [illegible] (as is an undoubted fact).

Now, Sir, where are we with these patients after the war is over?

(1) Some doctors claim that all partnership patients are fair game simply because one partner is left—they even include class "3" and class "1"!

(2) Those who agree class "3" and "1" are not their patients stick to class "4" because they know of old that my partner did attend them and take care not to [illegible] if I was in attendance when I left (I know of a [illegible] case of this in my practice).

(3) Do even class "2" fair game? May it not well be that my contents there would never have been so had I been at home and things going normally?

My opinion is that every doctor who is a gentleman will simply ask himself: "Would this be my patient had Dr. —— not gone away?"

Am I right? If not, what is the position? Have we any ethical right to reclaim the patients in any of the above classes, and if so, how can it be done without creating such an invidious and strained relationship between us and these patients, that we would rather do nothing? I fear we shall have to bear the loss of many patients as part of our patriotic sacrifice; if it must be so, let us do it cheerfully and be glad if we are left fit and strong.

THE DISSEMINATION OF VENEREAL DISEASE.

AN IRISH G.P. writes: Lately a great deal has been written about the treatment of venereal disease, and a scheme has been drawn up by the Local Government Board which will, it is hoped, improve things; but it is extremely doubtful if the steps advocated really get to the root of the matter.

Within the past few days I have been consulted by a man suffering from gonorrhoea. He stated that he had had three previous attacks; that the present one had been the most severe, and that he had had it for six weeks, during which period he had been treated by a chemist in a small town, but without avail. The only reason he consulted me was that he wanted to be "cured at once," as he intended to be married in three weeks. As the result of a straight talk he departed very much annoyed, and I will probably not see him again, and in the ordinary course of events he will communicate the disease to his wife. Can nothing be done in such a case? What is required is to follow the example of Australia—make it unlawful for any person other than a legally qualified practitioner to treat any such case, and establish a legal penalty for communicating the disease to others, and for marrying before he can be certified as cured.

"A CASE OF INTRAUTERINE SCARLET FEVER."

DR. R. CRAIK (Ealing) writes: Some years ago I saw an infant with desquamation soon after birth. As there had been scarlet fever in the house, I notified the case as such. After a month or two, however, the desquamation was worse. It continued for years, and was accepted as ichthyosis. I remember, also, a case of slight desquamation (with no suspicion of infection) soon after birth, which disappeared in a few days. My impression is that most experienced monthly nurses have seen such cases. Thus desquamation soon after birth requires evidence other than possibility of infection to warrant suspicion of scarlet fever. In the case which they report (BRITISH MEDICAL JOURNAL, September 16th, p. 389) Drs. Liddell and Tangye put forward the presence of albuminuria as sufficient corroborative evidence to warrant the inference that the fetus was infected with scarlet fever *in utero*. "The desquamation continued for several days, and the urine showed distinct traces of albumin. Apart from these two features the child appeared perfectly healthy." Now, during the first few days of life albuminuria is so common (Simon, *Clinical Diagnosis*, 1907, p. 441) that not much importance can be attached to this. Is it not possible that the "thorough washing which removed all traces of lanugo" is responsible for this combination of a common (albuminuria) with an uncommon symptom (desquamation) soon after birth, and for the fact that the child notwithstanding "appeared perfectly healthy"?

CLEANLINESS IN SCHOOLS.

DR. HENRY HICK (New Romney) writes: In connexion with the question of cleanliness in schools, may I be allowed to quote a short passage from my annual reports?

"Cases are frequently reported of typhoid carriers. Some years ago many cases of typhoid in one town were traced to one carrier, a worker in a dairy, who infected the milk. Now, when it is realized that the typhoid germ lives in the bowel of the carrier and how it is transferred to the milk, the necessity of absolute cleanliness is apparent. In the schools such habits of cleanliness should be insisted on, and every child made to wash after a visit to the closet, but, instead of anything of this sort being done, not even a proper supply of paper is provided in many cases. When one considers that many of these children will be handling food in their life's work, it makes one shudder to think that not only are they not trained to cleanliness, but practically encouraged in filthy habits."

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An average line contains six words.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE RADICAL ABDOMINAL OPERATION FOR CARCINOMA OF THE CERVIX UTERI:

RESULT OF ONE HUNDRED CASES RECKONED ON AN ABSOLUTE CURE BASIS.

BY

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SURGEONS-IN-CHARGE OF THE MIDDLESEX MILITARY HOSPITAL AT CLACTON-ON-SEA, AND SURGEONS TO THE CHELSEA HOSPITAL FOR WOMEN, ETC.

BETWEEN April, 1907, and September, 1911, we operated upon 100 cases of carcinoma of the cervix uteri by the radical abdominal method.

The time has therefore come when we can review our results from the point of view of absolute cure, or five years' freedom from recurrence, for it is agreed that patients who have survived this period without return of the growth may be regarded as cured.

The Character of the Operation.

The operation we perform is a very thorough one, and consists in the removal of the uterus with its cervix contained in a bag formed of the upper half or two thirds of the vagina, closed by a clamp we designed for the purpose. Together with the uterus and upper portion of the vagina are removed the ovaries, Fallopian tubes, and broad ligaments, the parametric and paravaginal tissue down to the upper surface of the levator ani, and the glands and cellular tissue occupying the obturator fossae and investing the external and internal iliac arteries and veins.

To effect this wide clearance the ureters are entirely isolated throughout the anterior two-thirds of their pelvic course. In certain cases part of one ureter has been deliberately resected, and the upper end implanted in the bladder. Similarly we have on occasion excised a portion of the bladder, where separation of that viscus from the cervix was impossible by reason of advanced growth.

In cases in which the glands about the external iliac artery and vein are obviously carcinomatous we extend our dissection up to the bifurcation of the aorta.

This drastic procedure we have carried out in all the cases, whether the growth was early or advanced, believing that the lesser immediate risk of a partial operation is ill compensated for by the diminished chance of permanent cure.

The Cases Operated Upon.

We operated upon every case in which there appeared to be any possibility of removing the growth, and among our patients have been many who have been dismissed from other hospitals as inoperable; some, indeed, had been sent away from two or three different institutions as hopelessly incurable.

Keeping in Touch with the Recovered Cases.

The task of keeping in touch with the recovered cases has not always been easy, for though each patient is begged to visit us periodically, and to keep us informed of her whereabouts so that we may write to her once a year, yet it not infrequently happens that after a while she becomes forgetful, and fails to present herself or let us know of her change of address. In such cases we have got in touch with the patient either by personally calling at her address or through the medical man who originally sent her, or through the postal authorities, or even through the police.

On the whole we have been successful, only seven of the cases having been lost sight of.

The Result of 100 Cases.

The results obtained are shown in the following table:

Died of the operation	20
Died of recurrent growth	32
Died of other disease	2
Lost sight of	7
Cured	39
	100

The Operative Mortality.

Under this head is included every case of death due to the operation, whether occurring within the first few days or after an interval of several weeks. The mortality of the operation for carcinoma of the cervix is very much what the surgeon chooses to make it. That is to say, that if he contents himself with a relatively partial extirpation of the tissues environing the carcinoma, and refuses to operate on extensive growths and still more on those advanced to the borderline of operability, his operative mortality will be low. If, on the other hand, he performs a truly radical extirpation and undertakes all cases up to the borderline of operability, his mortality will always be considerable, though increasing experience and dexterity lowers it to a degree. We have pursued the latter practice, believing it to be the right one.

Cases with Glandular Involvement.

In every case the regional glands removed at the operation were microscopically examined, and in 35 were found to be malignant.

As might be expected, these 35 cases show a much higher operative mortality and a much greater percentage of recurrences than do the 65 cases in which the regional glands were not malignant, but nevertheless a certain proportion of them are cured, as the following table shows:

Table of Cases in which the Regional Glands were and were not Carcinomatous.

	Glands Carcinomatous.	Glands not Carcinomatous.
Died of the operation	9	11
Died of recurrent growth ...	16	16
Died of other disease	1	1
Lost sight of	2	5
Cured	7	32
	35	65

That we are able to include amongst our cured patients no fewer than seven in whom the regional glands at the time of the operation were already carcinomatous justifies the value of the operation even when applied to very advanced cases.

Recurrence.

Death from recurrence occurred in 32 cases, as follows:

Table showing Rates of Recurrence.

	Cases.
Under a year	4
Between 1 and 1½ years	11
,, 1½ and 2 years	5
,, 2 and 2½ years	5
,, 2½ and 3 years	0
,, 3 and 3½ years	1
,, 3½ and 4 years	5
,, 4 and 4½ years	1
	32

In those patients in whom the growth returned early the seat of recurrence was usually the vagina. Late recurrences were situated in the pelvis above the vagina or along the iliac vessels or aorta.

Early recurrence in the vagina suggests that at the operation sufficient of that canal was not removed.

Deaths from other Disease.

Two patients died of disease other than carcinoma. The first had pulmonary tuberculosis at the time she was operated upon, which proved fatal a year afterwards. The second died of acute urinary sepsis following an operation to close a vesical fistula a year after the radical extirpation of which it was the sequel. Neither of these patients had any sign of recurrent growth.

Cases Lost Sight of.

Seven patients were lost sight of. Letters sent to them were returned marked "Gone away," and all inquiries through other channels failed. The frequency with which patients belonging to the labouring classes change their lodgings or the town in which they live constitutes the chief difficulty of keeping in touch with them. Some of our lost-sight-of cases may, of course, have died of recurrent growth, but we obtained no information suggesting it.

Table showing the Extent of Knowledge about the Seven Patients lost sight of.

Known to be well 1 year after operation	...	1
,, ,, 2 years after operation	...	3
,, ,, 3 years after operation	...	2
,, ,, 3½ years after operation	...	1
		7

Cured Cases.

Thirty-nine patients were cured. All of them are known to be well at the present time.

Table showing the Dates of the Operations of the Cured Cases and the State of the Regional Glands.

Initial.	Date of Operation.	Condition of the Regional Glands.	Initial.	Date of Operation.	Condition of the Regional Glands.
M. ...	Nov., 1907	Not carcinomatous.	H. ...	Jan., 1910	Carcinomatous.
S. ...	Mar., 1908	,, ,,	N. ...	Apr., ,,	Not carcinomatous.
S. ...	April, ,,	,, ,,	B. ...	Apr., ,,	,, ,,
P. ...	May, ,,	,, ,,	C. ...	May, ,,	,, ,,
A. ...	June, ,,	Carcinomatous.	H. ...	May, ,,	,, ,,
S. ...	July, ,,	Not carcinomatous.	K. ...	June, ,,	,, ,,
P. ...	Sept., ,,	,, ,,	B. ...	Jan., 1911	,, ,,
B. ...	Sept., ,,	,, ,,	R. ...	Feb., ,,	Carcinomatous.
M. ...	Sept., ,,	,, ,,	B. ...	Mar., ,,	Not carcinomatous.
C. ...	Nov., ,,	,, ,,	G. ...	Apr., ,,	,, ,,
K. ...	Nov., ,,	,, ,,	M. ...	May, ,,	,, ,,
L. ...	Jan., 1909	,, ,,	B. ...	May, ,,	Carcinomatous.
R. ...	Feb., ,,	,, ,,	L. ...	June, ,,	,, ,,
R. ...	Apr., ,,	,, ,,	R. ...	June, ,,	Not carcinomatous.
M. ...	Apr., ,,	,, ,,	S. ...	June, ,,	,, ,,
S. ...	June, ,,	,, ,,	O. ...	June, ,,	,, ,,
M. ...	Sept., ,,	,, ,,	P. ...	July, ,,	,, ,,
S. ...	Oct., ,,	,, ,,	B. ...	Sept., ,,	Carcinomatous.
W. ...	Nov., ,,	Carcinomatous.	D. ...	Sept., ,,	Not carcinomatous.
M. ...	Jan., 1910	Not carcinomatous.			

Operability-Rate and Actual Achievement.

To correctly appraise the results actually achieved by a series of radical operations for carcinoma of the cervix uteri it is absolutely necessary to know the surgeon's *operability-rate*—that is, the number of patients he has operated upon out of every 100 that presented themselves to him for advice, either privately or in his wards, or to his colleague in charge of the out-patient department that serves his wards; for it is obvious that no comparison of results founded on the mere enumeration of operative deaths, recurrences, and cures can be made between the performance of one surgeon who practises a restricted operation on carefully selected early growths and another who carries out a drastic procedure on every case in which there is a possibility of removal.

Up to September, 1910, at which time we had performed 70 cases, we were able to determine accurately our operability-rate by simply enumerating all the cases of carcinoma of the cervix presenting themselves to us in our out-patient and in patient departments and in the course of our private practice, and comparing this number with the number of operations we performed. Thus, our first 70 cases were drawn from 112 cases presenting themselves, and our operability-rate was 62.5 per cent.

When, however, in the year 1911, the Middlesex Hospital became identified with the radium treatment of cancer, we began to get a steadily increasing number of extremely advanced cases sent up from various institutions and other sources for the purpose of radium treatment. The average state of advancement, therefore, of the cervical growths seen at our Middlesex Hospital clinics has become greatly increased, and the patients as a whole are no longer representative of the unselected cases of carcinoma of the cervix uteri attending a hospital not specially associated with radium treatment.

Our operability-rate, calculated on the number of cases seen in the last year covered by the present series, would therefore be misleading, and as we have found it impossible to separate the cases intentionally sent up for radium treatment from those sent up in the ordinary course, we assume that our operability-rate for our first 100 cases is the same as that which we accurately know for our first 70 cases—namely, 62.5 per cent.

We feel justified in adopting this course because our operative practice has never varied. We have always attempted every case in which there seemed any possibility of removing the growth.

Table showing the Number of Operations we Performed in each of the Years covered by the Present Series.

From April, 1907, to September, 1907...	... 2 cases.
,, September, 1907, to September, 1908	... 17 ,,
,, September, 1908, to September, 1909	... 25 ,,
,, September, 1909, to September, 1910	... 27 ,,
,, September, 1910, to September, 1911	... 29 ,,

From this table it will be seen that in the last twelve months we actually performed a larger number of operations than in any of the preceding years. Thus the 100 cases forming this series may be regarded as selected from 160 patients presenting themselves.

On the Continent various formulae have been adopted to obtain an accurate mathematical estimate of the late results and actual accomplishment of this operation. These formulae are explained in a previous paper of ours,[1] and can be applied if desired. For our present purpose, however, we think it will be simpler if we set the results down in a more explanatory manner.

Out of 100 patients operated on we have cured 39, or 39 per cent.

If from the 100 cases operated upon we subtract the 7 cases lost sight of, it is seen that we have cured 41.9 per cent. of the 93 cases operated on whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 100 cases operated on the 2 cases that died of disease other than carcinoma, it is seen that we have cured 42.8 per cent. of the 91 cases operated on in whom the final outcome of the carcinoma is known to us.

Again, the number of patients that recovered from the operation was 80, and of these we have cured 39, or 48.7 per cent.

If we subtract from the 80 cases that recovered from the operation the 7 cases lost sight of, it is seen that we have cured 53.4 per cent. of the 73 cases that recovered from the operation and whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 80 cases that recovered from the operation the 2 cases that died of disease other than carcinoma, it is seen that we have cured 54.9 per cent. of the 71 cases that recovered from the operation, in whom the final outcome of the carcinoma is known to us.

And, further, it will be seen that out of the 160 cases originally presenting themselves we have cured 39, or 24.3 per cent.

If from these 160 cases originally presenting themselves we subtract the 7 cases lost sight of, then it will be seen we have cured 25.4 per cent. of the 153 cases originally presenting themselves and whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 160 cases originally presenting themselves the 2 cases that died of disease other than carcinoma, it will be seen that we have cured 25.8 per cent. of the 151 cases originally presenting themselves, and in whom the final outcome of the carcinoma is known to us.

Prolongation of Life in Patients Recovering from the Operation.

The surgeon is often asked, when advising a radical operation for carcinoma of the cervix, what are the prospects of prolongation of life, apart from the chances of actual cure if the patient recovers from the operation. It has been shown by A. Leitch, from a study of over 1,000 cases, and independently confirmed by McCormac, that, in patients not operated upon, the average duration of life, from the first symptoms to death, is one year and nine months. We have found from the large number of cases we have now dealt with that patients suitable for operation presenting themselves to the surgeon for the first time have, on an average, had symptoms for six months. The life expectation of these women is therefore on an average one year and three months.

It may therefore with confidence be stated that where a

patient survives the operation for three years or over, her life has been prolonged by the operation.

On this basis it will be seen that out of the 80 cases that recovered from the operation 49, or 61.2 per cent., had their life prolonged, namely:

Cured cases	39
Recurrent cases	7
Cases lost sight of	3
	49

Concluding Remarks.

This series of 100 cases of radical extirpation of carcinoma of the cervix uteri reviewed on an absolute cure basis is the first to be produced from a British source, all previous evidence as to the final value of the operation having come from the Continent. The attitude of characteristic cautiousness which distinguishes this country in taking up innovations from abroad extends to surgery, and there are not wanting those who still view the procedure askance or even with hostility.

The operation is one no surgeon can undertake lightly, for beyond the considerable mental and physical strain which accompanies its performance he may have to face the anxiety of a critical convalescence or the disheartenment of failure, and the more so the more advanced cases he ventures upon. His reward comes five years later, and, as this paper shows, is one well worth the striving for.

REFERENCE.

[1] *British Journal of Obstetrics and Gynaecology*, vol. xxiv, No. 3, 1913.

THE USE OF INSECTICIDES AGAINST LICE.

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THE scheme followed in the undernoted trials was to arrange the conditions on as nearly natural a basis for the insects as was consistent with their control and strictly comparative results, particular care being taken that the insects should have the opportunity of feeding during the experiments. Most of the remedies were those already in common use. The tests with cytisine were made at the suggestion of Dr. H. H. Dale, who very kindly supplied me with the preparation.

Cytisine is an alkaloid showing similar physiological properties to those of nicotine, but much less volatile. It was for this reason and the fact that, as it is extracted from the seeds of gorse and laburnum, an abundant supply of the raw material necessary for its manufacture is easily obtainable, that Dr. Dale suggested its trial as a remedy. (Dale and Laidlaw on the physiological action of cytisine, *Journ. Pharm. Exper. Ther.*, 1912, 3, 205.)

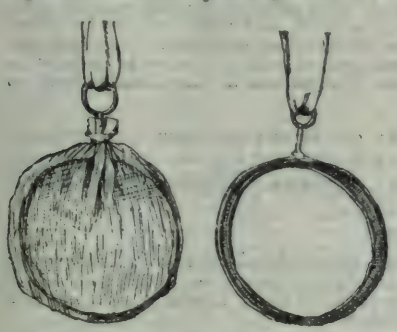


FIG. 1.—Small bags of silk gauze (motor veil chiffon kept from collapsing by a wire gauze circle.

Preliminary trials carried out with naphthalene showed that the diffusion of vapours over the body surface beneath clothing is restricted to a very small area round the centre of distribution, in so far as it had any effect on lice. Presumably this depends partly on the curved surface of the body and partly on the difference in temperature between it and the surrounding air.

Twenty-five grams of flake naphthalene were placed in a long tube of fine muslin (nainsook) which was worn as a belt next the skin. Lice in small bags of silk gauze (motor veil chiffon), kept from collapsing by a wire gauze circle (Fig. 1), were suspended between the skin and clothing at various parts of the body above and below this belt—back, chest, abdomen, and hips—the greatest distance being 5 or 6 in. from the belt. One bag slipped from its fastenings and fell to within an inch of the belt. After a three hours' trial, it was found that the insects in the fallen bag alone were affected, some of the lice in it being paralysed, though none were actually dead.

In a second trial 5 grams of naphthalene were wrapped up in a small packet of motor veil, and this was put into one of the bags containing a number of lice and placed next the skin. A second bag, also stocked with lice, was placed in close proximity to the first, the edges of the two bags being separated by a space of only half an inch. In the first bag, in which the lice might actually come in contact with the naphthalene, the insects were killed within 3 hours, but in the second bag, although they were not noticed to feed after the first 2 hours, they were found on examination to be still active after 6 hours; many had relaxed their hold after 11 hours, but some were still active. This bag was removed after 11 hours from its proximity to the one containing the naphthalene. When examined next morning most of the lice had recovered; only two larvae and one adult were dead out of thirty in all stages of development.

This experiment was repeated—using three bags, one on either side of that containing the naphthalene. The quantity used was again 5 grams, and the surface area of the packet was 4 square inches. After 3 hours the great majority of the lice in the central bag were dead, but three or four larvae and nymphs about to undergo a moult were active. No effect at all had been produced in the adjoining bags. After 9 hours all were dead in the central bag, but in the bags on either side a few adults only had been affected and none were actually dead, though some were partially paralysed.

In order to test the relative effects of contact and diffusion of a number of remedies with greater accuracy a small apparatus was designed (Fig. 2), consisting of five wire gauze frames, each capable of being covered by a small gauze bag; they constituted a series of five small cages, each 1 in. square by ⅝ in. deep; they were fixed to a flexible bar with their edges in contact and so arranged that the whole could be tied firmly against the body, the gauze on one side coming in contact with the skin so that the captive lice could feed.



FIG. 2.—Set of five wire gauze square frames, three of them covered by small gauze bags, one with cover removed, and one in the middle containing a square inch of thick lint.

In the central chamber, referred to as "contact" in the experiments, was placed a 1 in. square of thick lint impregnated with the fluid or substance it was desired to test. This lint was carefully weighed before and after impregnation, so that the weight of substance in relation to area of surface was accurately determined. Lice were placed in all five chambers—their relative position being referred to as 2 left, 1 left, contact, 1 right, and 2 right, respectively.

In one case three substances were tested at once, the substances being placed as follows:

REMEDY	CONTROL	REMEDY	CONTROL	REMEDY

The lice in the control chambers served to indicate either the action by diffusion, if any, or the fact that the substances tested were in no way interfering with each other's action on the lice.

The tests conducted with this apparatus were usually of 8 to 12 hours' duration, it being impracticable to sleep with it bound to the body. When the apparatus was removed at night the chambers were placed in separate boxes for a complete examination next day.

Naphthalene.

The 1 in. square of lint was dipped in a 30 per cent. solution of naphthalene in "benzole"; after the "benzole" had completely evaporated the lint held 0.133 of a gram of naphthalene; 45 lice put into the "contact" compartment were all killed within three hours. A few were immobile in chambers 1 right and 1 left, but most of them were active, as well as all those in 2 right and 2 left.

After 10 hours:

1 right	24 immobile, 3 active.
1 left	35 ,, 4 ,,
2 right and 2 left ...	Many immobile, a few active.

An examination next day showed that many had recovered.

Result:

"Contact"	All killed (in 3 hours).
1 right	8 killed, 19 living.
1 left	4 ,, 35 ,,
2 right	1 ,, 24 ,,
2 left	All living.

The lint was weighed next day; the loss of naphthalene was approximately half, 0.070 gram. It was left on a shelf exposed to the air at about 65° F. On the second day crystals were still visible in the fabric with the aid of a lens. On the third none were visible, but it smelt strongly. On the fourth day it smelt faintly. On the sixth no smell was perceptible.

Sulphur.

Flowers of sulphur were dissolved in carbon bisulphide; the solution contained 15 per cent. of sulphur. The lint, after a thorough evaporation, retained 0.138 gram of sulphur.

No effect was observed on any of the lice in any of the chambers after 12 hours. Examination next morning showed the following result:

"Contact"	15 dead, 20 living.
1 right	2 ,, 14 ,,
1 left	9 ,, 12 ,,
2 right	All 28 ,,
2 left	All 20 ,,

A loss of weight (presumably by the dusting out in fine powder) to the extent of 0.034 gram took place.

The survivors were kept in a box and fed; 2 more died within the next 24 hours.

"Cresylic Acid."

A few small drops were distributed over the surface of a piece of lint; by weight the quantity was 0.240 gram. After 3 hours all were immobile in the "contact" chamber, but activity was still seen in the adjoining ones. After 9 hours no movements were observed in 1 right or 1 left, but activity was still observable in 2 right and 2 left.

The cresylic acid spread on to the gauze caused a burn on the skin, and no doubt had spread also on to the gauze of the adjoining chambers, 1 right and 1 left.

Result:

"Contact"	All dead (24).
1 right	,, (27).
1 left	,, (27).
2 right	5 dead, 1 paralysed, 16 living.
2 left	3 ,, 2 ,, 21 ,,

Two of the survivors died, and one became paralysed within the next 24 hours. The lint retained its smell for 6 days. No smell was noticeable after 8 days.

Iodoform.

One gram was dissolved in 10 c.cm. of ether, and the lint was immersed in the solution. After the evaporation of the ether the lint retained 0.112 of a gram of iodoform. After 4 hours the lice in "contact" chamber were immobile, but had not loosed their hold; they were active in the other chambers. After 9 hours some of the lice in 1 right and 1 left were immobile.

Result:

"Contact" ...	16 dead; 3 nymphs show feeble movement.
1 right ...	2 ,, 15 living.
1 left ...	2 ,, 20 ,,
2 right ...	3 ,, 19 ,,
2 left ...	1 ,, 14 ,,

All the living were very active.

The lint retained its smell of iodoform for several weeks.

Vermijelli.

0.350 gram was smeared on to the lint. After three hours the lice were active in all chambers. After nine hours none were observed to be affected.

Result:

"Contact"	3 dead, 1 feeble, 18 active.
1 right	... 20 ,,
1 left	2 dead ... 19 ,,
2 right	... 25 ,,
2 left	1 dead ... 21 ,,

Five of the lice in the contact chamber died two days after the experiment.†

Vaseline: Naphthalene: Kerosene Oil: Benzole.

Vaseline, 1 gram 10 per cent. solution of naphthalene in kerosene 1 c.cm.; 30 per cent. solution of naphthalene in benzole 1 c.cm. The benzole would certainly have evaporated prior to use; 0.400 gram of this mixture was rubbed into the lint. After 3 hours: "Contact" all immobile. Some active in all the adjoining chambers. After 9 hours: Those in "contact" certainly dead; some still active in side chambers.

Result:

"Contact"	All dead.
1 right	2 dead, 20 living.
1 left...	2 ,, 18 ,,
2 right	... 20 ,,
2 left...	1 dead, 19 ,,

Vermijelli with Cresylic Acid.

The cresylic acid was added to a concentration of 10 per cent.; 0.212 gram rubbed into the lint. After 3 hours: All in the "contact" were immobile; some active in side chambers. After 9 hours: No change observed.

Result:

"Contact"	All dead.
1 right	1 dead, 17 living.
1 left...	1 ,, 19 ,,
2 right	... 23 ,,
2 left...	1 dead, 23 ,,

Cytisine.

0.100 gram dissolved in chloroform. The chloroform was entirely evaporated before the test. After 3 hours: "Contact" all immobile; movement occurring in all the other chambers. After 8 hours: All have relaxed their hold in contact; some are immobile in 1 right and 1 left.

Result:

"Contact"	All dead.
1 right	3 dead, 20 living.
1 left	2 ,, 18 ,,
2 right	... 20 ,,
2 left	1 dead, 20 ,,

Vermijelli with Phenol.

The phenol was added to a concentration of 10 per cent. and 0.219 gram rubbed into the lint. After 3 hours: Contact, all immobile; movement observed in all the other chambers. After 9 hours: In contact all have relaxed their hold; movement still to be seen in the other chambers.

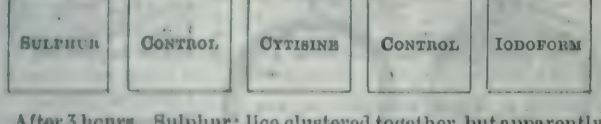
Result:

"Contact"	All dead.
1 right	1 dead, 21 living.
1 left	... 21 ,,
2 right	2 dead, 17 ,,
2 left	1 ,, 22 ,,

Iodoform, Cytisine, and Sulphur.

A further trial was carried out between iodoform, cytisine, and sulphur, all of which, being very slow in dispersion, would presumably be effective for a long period.

The pieces of lint used were those employed in the previous tests; having been freely exposed to the air in a room since the previous trials, that with sulphur for one month, with iodoform for twenty-three days, and with cytisine for seven days. The trials were all made at one time. The chambers 1 right and 1 left were stocked with lice to act as controls in case of diffusing effects. The position in the chambers was as follows:



After 3 hours Sulphur: lice clustered together, but apparently all living. Cytisine: nearly all immobile. Iodoform: a few immobile—one or two possibly dead, others active. After 9 hours—No change to record.

Result:

None of the controls in intermediate chambers were affected.	
Sulphur	1 dead, 19 active.
Cytisine	2 dead, 17 paralysed, 1 active.
Iodoform	10 dead, 3 paralysed, 5 partially paralysed, 3 active.

* An insecticide prepared by Messrs. Bowley and Son, Battersea, on the lines of Professor Maxwell Lefroy's formula, as stated in the appendix to his pamphlet, *Measures for Avoidance and Extermination of Lice, Mosquitoes, Lice, and other Vermin:*

"Boiler" oil or grease (cracking point above 600° C. to 700° C.)	20 grams
(Tar oil sp. gr. 0.85, boiling point 200° C. to 220° C.)	50 grams (58 c.cm.)
Pure soft soap	50 ,,
Water (about)	6 c.cm.

† It is doubtful to what extent the deaths were due to the vermijelli. No doubt some were, but in this and all the experiments an allowance must be made for natural deaths; when using lice from a stock box some will be old and may die naturally during the course of the experiment.

All the living insects were kept two days and given opportunity of feeding.

The final result then was:

Sulphur	...	...	19 living; mortality 5 per cent.			
Cytisine	...	...	2	,,	,,	90 ,,
Iodoform	...	...	2	,,	,,	90 ,,

The action of both iodoform and cytisine after so considerable a lapse of time was hopeful and rendered further tests desirable.

To impregnate the pieces of lint the cytisine was dissolved in chloroform and the iodoform in ether. The quantities used were 6 mg. of cytisine and 5 mg. of iodoform on pieces of lint 1 in. square.

After 5 hours—Cytisine: all but one seem paralysed. Iodoform: 6 appear paralysed and 4 of these may be dead; 22 can walk, and one pair are copulating. The trial was then stopped and the insects boxed for examination next day.

Result:

Cytisine	...	6 are dead, the rest partially or wholly recovered.
Iodoform	...	1 is dead, the rest apparently recovered.

Two days after the trial:

Cytisine	...	...	2 more have died—8 out of 28.			
Iodoform	...	...	7	,,	,,	8 ,, 28.

The net results of the trials is to suggest that the diffusive effects of all the substances, except possibly naphthalene, is so slight as to reduce them all to a common level of contact remedies. Viewed in this light it is necessary to impregnate or thoroughly dust underclothing with them to obtain any effect. For this purpose the cost of iodoform and cytisine is likely to prove prohibitive, although their use might be practical for impregnating the seams of trousers in the neighbourhood of the fork. For this purpose the long period of their effectiveness would be a set-off against the high first cost of treatment. Cytisine has the advantage of being odourless and quicker in action than iodoform.

Naphthalene used as a powder is likely to be wasted, and when made up into sachets with sawdust, as suggested by Noel,[1] or moulded into tablets, will probably lose its effectiveness just in proportion to the slowing of its evaporation. If used in a form in which garments can be impregnated with it, it is an almost perfect remedy, as it kills quickly, and where there is any risk of infection is probably the best means available. The chief objection is its rapid evaporation; by the second day after impregnation of flannel shirting its power has either greatly waned or has already departed, according to the original quantity used. As Kinloch[2] has already pointed out, nothing is gained by the addition of iodoform to naphthalene as in the N.C.I. powder.

Insecticidal Effect when Substances are Used in Diluted Condition to Impregnate Cloth.

Attention was next directed to remedies of low cost and slow action with a view to testing their effectiveness in preventing breeding when used to impregnate garments. For this purpose the system and apparatus used in the previous experiments were not suitable, because it was necessary to keep adult lice confined for several days in order that there might be ample time for egg laying and for the eggs to develop. The following method was found to work satisfactorily in preliminary trials.

Shallow card boxes, 1 in. in diameter by ⅜ in. deep, were lined at bottom and sides with flannel shirting material that had been washed and dried by ordinary laundry process and then dipped in the solution it was desired to test, and dried off rapidly. The open top of the boxes was covered with fine chiffon, through which the insects fed. These boxes were kept by day in a linen bag suspended beneath the clothing; at night they were placed beneath a belt with the chiffon against the skin, the period available for feeding being about seven hours.

Three, or more usually four, females and two males were placed in each box; they were removed from the boxes after a week; the eggs laid were then counted and their position noted. All those laid *elsewhere than on the treated material* were removed and the test continued until the eggs hatched and the young lice had passed the first moult and recommenced to feed.

Control (untreated flannel used): 1 died; 121 eggs were laid on the flannel, none elsewhere. *Result:* The eggs hatched in due course, the larvae fed, moulted, and recommenced to feed.

Sulphur.—Flannel dipped in colloidal solution of sulphur: 1 female died; 117 eggs laid on flannel, none elsewhere. *Result:* Same as control.

Vermijelli.—Flannel treated with a 4 per cent. solution of vermijelli in water: 2 females died, 72 eggs on flannel, 1 on box, 6 on gauze cover. *Result:* Same as control.

Vermijelli.—Flannel treated with a 4 per cent. watery solution of vermijelli, to which cresylic acid had been previously added to a concentration of 5 per cent.: 1 male died, 74 eggs laid on the flannel, and 14 on the gauze cover. *Result:* Same as control.

Vermijelli and Cresylic Acid.—Flannel treated with a 10 per cent. watery solution of vermijelli, to which cresylic acid had been previously added to a concentration of 5 per cent.: 2 females and 1 male died, 70 eggs laid on flannel, and 21 on the gauze cover. *Result:* Two or three larvae died, otherwise same as control.

Vermijelli and Naphthalene.—Flannel treated with a 5 per cent. watery solution of vermijelli, to which 20 per cent. of naphthalene had been added before making the solution. *Result:* All the lice killed within 1 hour, no eggs laid.

In these experiments the tests were commenced as soon as the prepared flannel was thoroughly dry.

The last remedy is open to the objection already recorded against naphthalene, namely, the short period—about two days at most—for which it remains effective. The use of naphthalene in this series, employing the box method, however, affords a standard of comparison with the gauze bag trials of the earlier series, and indicates that the condition of these later trials favours the remedies as against the insects. In making this comparison it must be borne in mind that the quantities of vermijelli used in the later series was very much smaller than in the former when the undiluted preparation was smeared over the lint.

In the further trials with the box method, the flannel after treatment and drying was generally exposed to the air in a room with a temperature of about 65° F. for a longer or shorter period before the trial.

The following additional preparations were experimented with: An emulsion consisting of equal parts of soft soap and "crude liquid carbolic acid"*; also several preparations of a rosin soap—crude carbolic acid emulsion allied to the Isthmian mosquito larvicide used by the Panama Canal authorities. This preparation did not give a perfect emulsion and consequently proved unreliable for impregnating flannel. The same remarks apply to emulsions of soft soap and crude carbolic, in which less than 40 per cent. of soft soap was used.

Flannel Treated Two Days before Use; Period of Test 18 Hours.

Five per cent. solution of an emulsion consisting of equal parts of soft soap and "crude carbolic." Result: 4 females and 1 male killed; 1 male paralysed, no eggs laid.

Five per cent. solution of vermijelli to which 20 per cent. of naphthalene had been added. Result: None of the adults were killed and a number of eggs were laid.

The contrast between the results of the first and second trials of the vermijelli-naphthalene preparation affords clear evidence of the rapid evaporation and consequent deterioration of effectiveness of this remedy if a couple of days be allowed to elapse between the impregnation of the flannel and its use. The smell of naphthalene was only faintly discernible when the test was made.

A method was next instituted to test not only the effectiveness of the remedy as against lice, but its action on the skin.

Pieces of flannel, about 2 in. by 3 in. were treated and dried. A pocket of fine chiffon was then stitched on to the flannel, a number of lice inserted, and the open end stitched down, thus imprisoning the insects between the gauze and flannel. These pieces of flannel were then pinned on to the inside of the shirt in a suitable situation for the insects to feed through the chiffon, which was set against the skin.

Series I.—The following trials were made with flannel treated two days previously to test with:

1. A 3 per cent. solution of an emulsion consisting of 100 parts crude carbolic, 20 parts naphthalene, 70 parts of soft soap.
2. A 3 per cent. solution of an emulsion consisting of 100 parts crude carbolic and 70 parts of soft soap.
3. Treated with a solution of naphthalene in benzole at the time of trial; the flannel held 0.05 gram by weight.

After 20 hours the results were as under:

1. Two dead, 16 living; a few eggs laid.
2. Nine dead (this number includes all the females), 11 living (all males or nymphs); no eggs laid.
3. All living (20); a number of eggs laid.

No irritation caused to skin.

Series II.—In another series the flannel was treated one day prior to use, the remedies being:

4. A 10 per cent. solution of a kerosene soft soap emulsion containing naphthalene.

*The suppliers state that the fluid supplied consists chiefly of cresols mixed with a little phenol, and a certain proportion of higher homologues.

5. A 5 per cent. solution of an emulsion consisting of 100 parts soft soap, 100 parts crude carbolic, and 20 parts naphthalene.
6. A 5 per cent. solution of an emulsion consisting of 100 parts soft soap with 100 parts crude carbolic acid.

After 24 hours' trial the results were as under:

4. Seventeen living, 4 dead; a few eggs laid.
5. Fifteen living, 5 dead, 1 paralysed; 1 egg laid.
6. One living, 19 dead; no eggs laid.

No irritation was caused to the skin.

A Jaeger flannel shirt was then impregnated with a 10 per cent. solution of an emulsion consisting of equal parts of soft soap and crude carbolic. The shirt took up 1,000 c.cm., and after wringing out held 600 c.cm. After drying, lice were imprisoned in pockets of chiffon stitched on to the inner side of the shirt in the following positions: (1) On the chest; (2) in the lumbar region of the back; (3) on the outer side of the upper arm.

None were killed within 3 hours. After 5 hours a number in situations 1 and 2 were either dead or paralysed. After 10 hours all or nearly all were dead at 1 and 2, but many were still active on the arm. After 18 hours all were dead in situations 1 and 2, while of those at 3, 7 were dead and 4 paralysed. No eggs were laid. The effect on the skin was a slightly disagreeable irritation at the armpits and lumbar region. The lice fed at the commencement of the trial.

The test was repeated, using a 5 per cent. solution of the same emulsion; the wringing out process was rather more drastic—the garment retaining only 500 c.cm. It was dried during the night, lice being confined under covers of chiffon on the following day in the same situations as previously. After 10 hours some were still living in positions 1 and 2, and all were active at 3.

First Day.—After 24 hours all were dead in 1 and 2, but a few still lived in 3. No eggs were laid. Pockets 1 and 2 restocked.

Second Day.—Twenty-four hours later all were dead in the restocked pockets, also the survivors in 3. No eggs were laid.

Third Day.—The shirt was worn the next 48 hours without restocking.

Fourth Day.—The old pockets were then restocked.

Fifth Day.—Twenty-four hours later a number had died in pockets 1 and 2, but others were still living; in 3 a few were dead, others active. The frayed condition of the old pockets 1 and 2 necessitated their renewal; they were renewed and restocked. No. 3 was left.

Sixth Day.—After another 24 hours it was found that many of the lice were still living in 1 and 2; those in 3 were now all dead—a few eggs having been laid. No. 3 was not restocked. Pockets 1 and 2 were left, and a new one (No. 4) was placed on the upper part of chest and stocked.

Seventh Day.—After a further 24 hours nearly all the survivors in No. 1 were dead. No eggs laid; in No. 2 some were still active. In No. 4 all were active.

Eighth Day.—In No. 1: 9 were dead, 4 living; 36 eggs had been laid. In No. 4: 4 were dead, 16 living; 40 eggs had been laid.

The garment still smelt of carbolic, perhaps sufficiently to have some deterrent effect, but the lethal effect had evidently passed away.

No unpleasant skin irritation was noticed; a slight tingling that could just be discerned was experienced on two occasions after the start.

It may be concluded that the practical effect of the impregnation lasts about six or seven days, while the smell would possibly act as a deterrent for a few days longer.

Another shirt was impregnated with a 3 per cent. solution; after wringing, it was found to hold 500 c.cm. It was dried during the night and lice were placed in a pocket on the chest next day. After forty-eight hours, although one or two were dead, the great majority were still active.

Cytisine.

Further experiments with cytisine were made with the kind assistance of my friend Dr. A. J. Ewins, to ascertain the minimum quantity that would be of practical service for impregnating garments, and the period during which this preparation retains its efficacy.

The method employed was to impregnate pieces of flannel shirting, similar to that used for army shirts, with weak solutions. After thoroughly drying, a piece of fine silk gauze was stitched on, forming a pocket, under which the lice were placed. The piece of flannel was then pinned on the inside of the shirt, so that the insects were able to feed through the silk gauze.

Using 1 mg. per square inch of surface, 7 out of 16 lice were killed in two days, but none of the survivors died within the next three days.

Using 5 mg. per square inch, 11 out of 12 were killed within the first 24 hours, one young larva remaining active. The pocket was then restocked, and 10 out of 15 were killed within two days. A further restock resulted in 6 out of 14 dying in the next two days. A number of eggs were laid by the survivors. The piece of flannel was then completely extracted with chloroform, with the result that only traces of cytisine were recovered.

Using 10 mg. per square inch:

1st stock: 19 lice were all killed within 24 hours.
2nd stock: 15 lice—9 were killed and 3 paralysed within 24 hours; 3 remained active.
3rd stock: Of 15 lice, 10 were killed and 1 paralysed within 24 hours; 3 remained active.
4th stock: Of 14 lice, 10 were killed, and 4 remained active after 24 hours.
5th stock: Of 12 lice, 3 were killed and 9 remained active after 24 hours.
6th stock: Of 12 lice, 9 were killed and 3 were paralysed within 24 hours.
7th stock: Of 10 lice, 8 were killed and 3 remained active after 28 hours.
8th stock: Of 10 lice, all were active after 24 hours, but within the next 26 hours all were killed.
9th stock: Of 9 lice, all were active after 24 hours; 6 were active after 48 hours; 5 after 72 hours; 4 after 96 hours; 5 dying during the course of the test.

The apparent falling off in lethal power at the period of the 6th stock was probably due to the fact that a cool day checked sweating.

Although quite satisfactory from an experimental point of view, there are two apparently insurmountable difficulties which prevent the use of cytisine as a practical remedy. First, its possible toxic effect if used to impregnate garments. At a concentration which, after drying, would leave 10 mg. per square inch, the quantity required to treat a shirt would amount to some 12 to 15 grams; while, if the absorption over a large area of skin proved to be cumulative, the presence of such a quantity might lead to serious or even fatal poisoning. Secondly, the high cost of production would tend to make it an extravagantly expensive remedy.

These latter trials suggest that a practical remedy may be found for preventing the spread of lice among troops by the use of a "crude liquid carbolic acid" and soft soap emulsion for the impregnation of shirts and underclothing. The emulsion should consist of 45 per cent. to 50 per cent. of soft soap, combined by heating with 50 per cent. to 55 per cent. of the crude carbolic. The strength of the solution used to impregnate the garments should be 5 per cent. of the emulsion in warm water, 3 per cent. being too weak for practical use; while solutions above 5 per cent. might cause irritation to the skin. After dipping, the garments should be wrung and thoroughly dried before wearing. A normal sized flannel shirt after wringing will retain about 500 to 600 c.cm. of the solution, and the cost would probably, apart from labour, be about one halfpenny per shirt.

What is now required is a test on a practical scale to ascertain (*a*) what percentage of men are likely to have irritable skins which might be susceptible to the small percentage of cresols in the shirt, and (*b*) to ascertain the efficacy of the remedy to keep men free from lice in the field.

I desire to record my thanks to my colleague, Dr. Harriette Chick, for valuable suggestions and advice.

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DR. C. A. LAUBACH has published the result of an investigation to determine the possible share played by books in the dissemination of disease (*Bulletin Johns Hopkins Hospital*, 1916, xxvii, p. 183). The books examined were seventy-five dirty school library books used by children living in unfavourable sanitary conditions, 150 books handled by diphtheria patients, and a series of books artificially contaminated with *B. coli*, *typhosus*, and *diphtheriae*. The library books contained no dangerous germ, though in two instances the colon bacillus was discovered. The diphtherial bacillus could not be detected in any one of the 150 books. The *B. coli*, *typhosus*, and *diphtheriae* remained virulent for months when lodged artificially inside books, and continued as active when placed on the outer side of the covers if the volumes were kept in the dark. On the other hand, when the books were exposed to diffuse daylight, the typhoid and diphtheria bacilli never lived for over twelve days, and were destroyed by direct sunlight within a few hours.

A FATAL CASE OF GASTRO-ENTERITIS DUE TO BACILLUS AERTRYCKE *VEL* SUIPESTIFER.*

BY

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IT is always interesting to come across a new strain of the food-poisoning group and be able to refer it to its proper category. In the present instance we were able to do this (contrary to the usual experience) by agglutination tests alone. Absorption gave us valuable confirmation of our results, but was not absolutely necessary.

P. H., a wheelwright, aged 24, was admitted to the Mater Misericordiae Hospital, Dublin, at 3.30 p.m. on September 15th, 1915. I am indebted to Dr. Coyne, house-surgeon, for the following notes: The man was in a state of utter collapse, almost unable to speak, though quite conscious. Face pale and drawn, eyes sunken and dull, expression listless, mouth dry, tongue swollen and coated with thick brown fur, decubitus dorsal. The extremities were cold and blue, skin dry, no rash, pulse flickering and almost uncountable, respirations 40, temperature 101.4° F. Shortly after admission he became very restless and delirious, and so remained until he gradually sank into coma about an hour before death, which ensued at 10 a.m. on the 16th—eighteen and a half hours after admission. Whilst in hospital he had no vomiting, the bowels did not move, and there appeared to be suppression of urine. The history obtainable from the relations was scanty and unsatisfactory.

Dr. Walter Healy, who attended the patient at his own home, told me that the illness began five or six days previous to admission with violent and almost continuous vomiting and purging, accompanied by severe abdominal pains. His friends thought it might have been due to a meal of mackerel partaken of some days previously at a fried-fish shop in the neighbourhood. This, however, is mere surmise, for inquiry failed to establish the existence of any similar case in the family or neighbourhood, and the source of infection is therefore quite uncertain.

Autopsy.

This was performed by Dr. Coyne, and some of the organs reserved for more minute examination by me. It is unfortunate that no cultures were taken at the time. When I examined the specimens next day I found the stomach rather small, mucosa extremely rugose and thickened, most intensely hyperaemic, the tinge varying from dark brown to dark purple. It contained a little blood with some mucus. The intestines were almost empty, dark in colour, showed intense active hyperaemia both without and within, mucosa thickened, injected, velvety. There were no ulcers and the lymphatic apparatus (Peyer's patches, solitary and mesenteric glands) was quite unaltered. Spleen slightly enlarged, hyperaemic. Kidneys presented no well-marked naked-eye change.

Bacteriology.

Material was taken from the duodenum, jejunum, ileum, caecum, and rectum, and removed to the laboratory for bacteriological examination. The medium used was that of Drigalski in Petri dishes, and next day there was no difficulty in detecting blue, transparent-looking, non-lactose fermenting colonies in moderate numbers on all the plates. In addition to ordinary *coli*, streptococcus colonies came up in marked abundance. The blue colonies proved to consist of actively motile bacilli of typhoid-like aspect. Suspended in the hanging drop and treated with highly diluted antiparatyphoid B serum from two different sources they showed marked agglutination. They were not clumped by typhoid, Gaertner, or paratyphoid A serum. Consequently, at first I regarded this organism as paratyphoid B, and in my preliminary communication[1] I so called it. I was the more inclined to this identification on account of the fact, of which I was aware, that Bainbridge and Dudfield had recorded[2] an outbreak of gastro-enteritis (15 cases, none fatal) due to infection with *paratyphosus* B. Moreover, in four of their cases there was a history of dried haddock having been consumed on the evening prior to the outbreak of symptoms and another of the patients had eaten some cold dried fish—circumstances that seemed to bring their observations into line with mine.

I shall call the strain isolated from this case "H." Its morphological and cultural characters were those of the Salmonella group. It was a short, plump, actively motile rod, Gram-negative, and provided with a rather small number of flagella (about 3 to 6). On the Drigalski medium its colonies were permanently blue and transparent, with a tendency to milky opalescence. On Endo they were colourlesss with pink centres. Gelatine was never liquefied. On the carbohydrate media they behaved as follows (in shake cultures in ½ per cent. agar tinted with litmus and containing 1 per cent. of the sugar):

TABLE I.—*Fermentation Reactions of Strain "H."*

Class of Carbohydrate.	Variety.	Result of Growth.
Monosaccharides	Dextrose	Acid + gas.
	Fructose	Acid + gas.
	Galactose	Acid + gas.
Disaccharides	Maltose	Acid + gas.
	Lactose	No change.
	Saccharose	No change.
Trisaccharide...	Raffinose	No change.
Polysaccharide	Inulin	No change.
3-Atomic alcohol	Glycerine	No change.
5-Atomic alcohols	Xylose	Acid + gas.
	Arabinose	Acid + gas.
	Rhamnose	Acid + gas.
6-Atomic alcohols	Dulcitol	Acid + gas.
	Mannitol	Acid + gas.
	Sorbitol	Acid + gas.

Indol was not formed, neutral red was moderately reduced, and a pellicle was often formed on broth. Litmus milk was at first slightly reddened, but afterwards became blue and remained so. The cultures were inodorous.

Virulence.—The only tests made hitherto have been with white mice.

Mouse A was inoculated under skin of back with 0.1 of broth culture 3 weeks old.
Mouse B received the same amount intraperitoneally.
Mice C and D were fed with breadcrumb soaked with the same culture.

Mouse A died in thirty hours. A bloody oedema at seat of inoculation was the only *post-mortem* appearance noted. The microbe was recovered from the spleen, heart's blood, gall bladder, and seat of inoculation. From the intestines only *coli* was obtained.

Mouse B was found dead on the second morning after inoculation. There was very little evidence of peritonitis, but the intestines were filled with bright yellow, semifluid, slimy material. The heart's blood, spleen, and peritoneal fluid yielded "H" in pure culture; the intestinal contents were found to be swarming with it + *coli* in lesser amount.

Mouse C was found dead on the second morning—stomach distended with whitish matter resembling breadcrumb "H" isolated from contents of stomach and intestines, including rectum. Heart blood sterile. One colony of "H" from the spleen.

Mouse D was also found dead on the second morning. "H" recovered from contents of rectum (only).

The culture used was already three weeks old (it had stood most of the time at room temperature). The bacilli were quite virulent, but the question as to the extent to which the infection was assisted by toxicity still remains open. I have not yet had time to undertake its solution. The effect on mice is exactly what one would have expected from a member of the Salmonella group (to which the several rat viruses and mouse typhoid belong).

The organism therefore belongs to the group of paratyphoid B, and the two food-poisoners *suipestifer* and "Gaertner." For this group the name "Salmonella" has been proposed by Lignières, after Salmon, the American bacteriologist who discovered the bacillus of swine fever or "hog cholera," which is identical with the *Aertrycke* bacillus. The name "Salmonella" is convenient for the group as it avoids tiresome circumlocution and connotes a group of organisms which are culturally identical, though capable of being distinguished by serological tests.

For the sake of clearness, and in view of the fact that, owing to the prevalence of typho-coli infections during war time, much importance now attaches to the exact identification of pathogenic strains, I will enumerate the members of the Salmonella group, and explain their synonymy. The group comprises:

(*a*) *Bacillus paratyphosus* B, first isolated by Schottmüller in 1900–1, from cases clinically indistinguishable from enteric, and termed paratyphoid B by Brion and Kayser shortly afterwards. (Another typhoid-like organism, "paratyphoid A," isolated and named at the same time as "B," is clearly distinguishable from "B" by *cultural* as well as by serological tests, and is therefore excluded from the Salmonella group.)

(*b*) *Bacillus enteritidis* (*Aertrycke*), isolated in 1898 by Durham from the victims of the Hatton outbreak of food

* Based on a paper which was read in the Section of Pathology, Royal Academy of Medicine in Ireland, January 21st, 1916, but publication of which had to be withheld owing to pressure of other work.

poisoning (185 cases, 1 death), and by de Nobele, a pupil of van Ermenghem's, from a similar outbreak at a village of that name in Belgium (one fatal case). This organism has been shown to be identical with the so-called bacillus of hog cholera or swine fever, isolated in America by Salmon and Theobald Smith (in 1885) from pigs suffering from that disease, of which it was at first regarded as the cause. It appears to be identical with *B. breslaviensis* of Kaensche and Flügge. The name *suipestifer* undoubtedly holds priority. But, inasmuch as the causal relation of the organism to the disease in the pig has been called in question, and for a time at least to a large extent abandoned, it seems to me better to call it by a name that expresses its undoubted effect in human pathology (producer of enteritis).

(*c*) *Bacillus enteritidis* (Gaertner). This organism was first isolated by Gaertner in 1888 from an outbreak of food poisoning at Frankenhausen (57 cases, 1 death).

These three organisms together make up the Salmonella group. *B. paratyphosus* B usually gives rise to a symptom-complex resembling mild typhoid. The two *enteritidis* bacilli, "*Aertrycke*" and "Gaertner" are responsible for the much more acute and dangerous symptom-complex known as food-poisoning or meat-poisoning (often erroneously termed "ptomaine poisoning"). *Aertrycke* appears to occur oftener than "Gaertner," but the latter would seem to be the more virulent. The outbreak of meat poisoning investigated by me at Limerick in the year 1909, with its 74 cases and 9 deaths (all occurring within twenty-four hours of the outbreak of symptoms), is, so far as I know, the most violent hitherto recorded, and it was due to the Gaertner bacillus.

It is true that *B. paratyphosus* B has been known to produce gastro-enteritis of food poisoning type. At least one such observation has been recorded (by Bainbridge and Dudfield).[2] But the general rule is, as above stated, that *B. paratyphosus* B produces paratyphoid fever, whereas *Aertrycke* and Gaertner produce food poisoning. The three organisms are, as above mentioned, culturally identical. Gaertner is readily distinguishable from *B. paratyphosus* B by agglutination methods. But it is not so easy to distinguish between *B. paratyphosus* B and *Aertrycke* by such methods, and the distinction, though clearly established by Boycott[3] as far back as 1906, and confirmed by Bainbridge and O'Brien,[4] appears to be denied or ignored by German writers (see article by Uhlenhuth and Hübener[5]), who apply the term "paratyphoid B" to all non-Gaertner strains of this group occurring in the human subject, whilst they reserve the term *suipestifer* for all such strains isolated from the pig.

The question now arises whether the strain under discussion is a true *paratyphosus* B or an *Aertrycke*. In order to answer it, recourse was had to agglutination tests, supplemented, in the case of certain serums, by the absorption method of Castellani. The tests were applied to three cultures at the same time, namely:

1. *Bacillus paratyphosus* B—a typical strain called "R," isolated by me some years ago for a fatal case of paratyphoid fever.*

2. *Suipestifer vel Aertrycke*—a strain kindly sent me some years ago from the Lister Institute by Dr. C. J. Martin, F.R.S., director.

3. "H," the strain now under discussion.

All agglutinations were done by the macroscopic method, the serum dilutions being made first with normal saline, and then brought to the volume of 1 c.cm. in small test-tubes, with a suitably diluted suspension of the living micro-organism. The suspensions were always made from twenty-four-hours-old agar cultures, emulsified in sterile saline, filtered and thinned down with saline till they reached the proper grade of opalescence—which has to be learnt by experience. The tubes containing the dilutions were incubated for two hours at 37° C., then taken out of the incubator and examined within an hour or two. Readings taken next morning were found not to differ materially from those taken shortly after removal from the incubator. At first I tried twenty-four-hours-old broth cultures and agar suspensions killed with formaline, but found that the fresh living agar suspensions gave the clearest readings.

* The strain furnished by me to the Lister Institute, and used by Bainbridge and O'Brien in their work, *loc. cit.*

Absorption was carried out by mixing one volume of the antiserum with nine volumes of thick, opaque, filtered suspension of the heterologous strain. The mixture was left in the incubator for two hours at 37°, and the precipitated bacilli completely got rid of by prolonged high-speed centrifugation. Dilutions similar to those of the same serum unabsorbed were then put up and the agglutination test carried out as before. Most of the antiserums used were obtained from the Lister Institute through Dr. Harriette Chick, to whom my warmest thanks are due for so kindly complying with my numerous requests. Two antiserums—namely, one for the new strain "H" and the other for paratyphoid B strain "R"—were made by me specially for this purpose. I will now give the results in a series of tables and briefly comment on them.

I. Anti-*Aertrycke* serum C 38. From the Lister Institute, stated titre 1 in 2,000. This serum was tested several times, some of it having been sent out undiluted from the Lister Institute whilst other lots were sent out diluted 1 in 20. The results obtained with all were practically accordant. The following is typical.

TABLE II.—*Anti-Aertrycke Serum C 38 (from Lister Institute).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	+++	+++	+++
1 in 500	+++	+++	+++
1 in 1,000	+++	+++	+++
1 in 5,000	+++	+++	0
1 in 10,000	+++	++	0
1 in 50,000	+	0	0

+++ means complete agglutination, the bacilli often forming one large flocculus; supernatant liquid clear.
++ means large flocculi, but supernatant liquid not quite clear.
+ means minute flocculi, just visible to naked eye; liquid turbid.
0 means no change as compared with normal serum control.

Here we find that agglutination alone distinctly places "H" with *Aertrycke* rather than with paratyphoid B.

II. The same serum was now absorbed with paratyphoid B and retested. Result:

TABLE III.—*Anti-Aertrycke Serum C 38 after Absorption with Paratyphoid B.*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	+++	+++	+
1 in 500	+++	+++	0
1 in 1,000	+++	+++	0
1 in 5,000	++	++	0
1 in 10,000	+	+	0
1 in 50,000	0	0	0

From this we see that saturation with paratyphoid B has removed practically all its own group-agglutinins, whilst leaving those specific for *Aertrycke* in well-nigh undiminished amount. "H" is agglutinated to precisely the same degree as *Aertrycke* and is therefore identical with it.

III. If all artificial antiserums gave such clear results as the above, the distinction between *Aertrycke* and paratyphoid B would not have given rise to so much discussion. But this is far from being the case. *Aertrycke* serum C 42 from the Lister Institute (stated titre 1 in 32,000) failed to yield accordant results, though the test was repeated several times. The one outstanding feature of this serum was the fact that it invariably clumped paratyphoid B at a higher dilution than its own homologous organism. This is an experience that often falls to the lot of workers with the typho-coli and meningococcus groups.

IV. Another serum which gave unsatisfactory results was one made in this laboratory against strain "H." At first fairly powerful (titre 1 in 10,000), it was found after keeping six months in sealed tubes (without antiseptic) to have lost strength (titre 1 in 1,000) for the homologous organism, while still fairly strong (1 in 5,000) against paratyphoid B. Absorption with paratyphoid B robbed it of

its power of agglutinating all three micro-organisms at a dilution exceeding 1 in 100.

TABLE IV.—*Test with Anti-paratyphoid B Serum from Lister Institute (C 51; stated titre 1 in 8,000).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	?	?	+++
1 in 500	0	0	+++
1 in 1,000	0	0	+++
1 in 5,000	0	0	++

V. As will be seen, even in very low dilutions (1 in 100), this serum (Table IV) yielded only slight, doubtful traces of clumping with *Aertrycke* and "H," whilst as against its own strain it went to 5,000 and beyond. It is therefore highly specific. "H" is thus shown to be identical with *Aertrycke* and absorption tests are not needed.

TABLE V.—*Test with Anti-paratyphoid B Serum from Lister Institute (C 89; stated titre 1 in 8,000).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 250	+	0	+++
1 in 500	+	0	+++
1 in 1,000	+	0	+++
1 in 5,000	0	0	+++
1 in 10,000	0	0	++
1 in 50,000	0	0	0

VI. Here again there is no need for absorption. This serum is highly differential, and gives the required information by means of agglutination alone.

VII. I also tried an anti-paratyphoid B serum prepared here by immunizing a rabbit against strain "R."

TABLE VI.—*Anti-paratyphoid B Serum, Strain "R."*

	Unabsorbed.			Absorbed with Aertrycke.		
Dilution.	Aertrycke.	"H."	Para-typhoid B.	Aertrycke.	"H."	Para-typhoid B.
1 in 100 ...	+++	+	+++	0	0	+++
1 in 500 ...	++	+	+++	0	0	+++
1 in 1,000 ...	0	0	+++	0	0	+++
1 in 5,000 ...	0	0	+++	0	0	++
1 in 10,000 ...	0	0	+++	0	0	++

I combine in the one table (VI) the results obtained with this serum in the unabsorbed and absorbed condition. It will be seen that the serum is highly specific, and might serve to at once distinguish between paratyphoid B and *Aertrycke*. Absorption removes the very last trace of the non-specific agglutinins, while the specific ones persist in well-nigh full force. The diagnosis of strain "H" as an *Aertrycke* or *suipestifer* is thus placed beyond all doubt.

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[1] BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 782. [2] *Journal of Hygiene*, vol. xi, 1911, p. 24. [3] Ibid., vol. vi, 1906, p. 40. [4] Ibid., vol. xi, 1911, p. 68. [5] *Kolle and Wassermann's Handbook*, second edition, vol. iii, p. 1005, et seq.

PERCHLORIDE OF MERCURY POISONING BY ABSORPTION FROM THE VAGINA.

BY
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THE unusual mode of administration of the poison makes the following case of interest.

An unmarried woman, aged 27, who had been in the habit of using mercury perchloride tablets dissolved in water as a vaginal douche, inserted one tablet (hydrarg. perchlor. gr. 8.75 in each) into the vagina, apparently under the impression that it would serve the same purpose as when dissolved and used as a douche. This was done at bedtime. I first saw her when she called at my consulting-room at 10 o'clock the following morning, complaining of pain and swelling of the vulva and giving a frank statement of what she had done.

I ordered immediate free douching with warm water. I saw her again at 1 p.m., and found that severe cramping pains in the abdomen had set in, accompanied by diarrhoea, followed later by severe and persistent vomiting. It is interesting to note that on examination I found the vaginal mucous membrane practically unaffected, though the external genitals were congested and oedematous.

At 7 p.m. I saw the patient again, when the symptoms were worse. The diarrhoea, pain, and vomiting continued; nothing would remain in the stomach; egg water was given without success. Hypodermic doses of morphine, gr. ¼, from time to time had little effect.

The following day a considerable quantity of blood was being passed in the motions, together with small flakes in the vomit. The patient complained of thirst, and was very somnolent. There was suppression of urine. On the third day the gums were swollen, inflamed and spongy, and of a dark colour, while the breath was fetid. Diarrhoea, pain, and vomiting continued persistently.

By the fourth day the pulse, which had up till then continued strong, began to waver. The salivary glands were swollen, and there was considerable salivation. The symptoms continued during the fifth day, and on the sixth day the patient showed signs of collapse, and died in the evening.

Post-mortem Examination.

The case was reported to the authorities, and Professor Harvey Littlejohn performed a *post-mortem* examination. The following conditions were found:

Skin.—Generally slightly jaundiced.

Heart.—Muscle pale and flabby. Both ventricles dilated, with resulting valvular incompetence.

Lungs.—Oedematous and deeply congested.

Stomach.—Mucous membrane showed slight signs of irritation and a few small haemorrhages.

Intestines—The upper part of the small intestine showed swelling of the mucous membrane, injection, and a general catarrhal condition. The whole of the ileum was deeply livid in colour externally, while internally the mucous membrane was of a uniform brownish-green colour, swollen, and in a necrotic condition. Here and there there were tumefied areas, with extensive blood suffusions under the mucous membrane, which were undergoing gangrenous ulceration. The necrosis was more marked in the lower part of the ileum and caecum. The contents of the small intestine consisted of a dark-brown fluid, apparently altered blood and mucus. The large intestine presented similar appearances, with marked infiltration of the submucosa.

Liver.—Some cloudy swelling, but otherwise appeared normal.

Spleen.—Engorged and somewhat enlarged.

Kidneys.—Enlarged and soft in consistence. Cortex pale and swollen. The capsule stripped easily. The medulla showed areas of congestion.

Pancreas.—No obvious changes.

Uterus.—There was no enlargement. There was no peritonitis.

Microscopic Examination of Tissues.

Microscopic examination of the intestine, kidney, and liver was carried out at the Pathological Department of the University of Edinburgh by Mr. R. Muir. The following is his report:

Large and Small Intestine.—Sections show extreme and extensive necrosis of the mucosa. Large numbers of intestinal bacteria have found this necrotic surface a suitable medium for their growth, large masses of these being found. The submucosa is swollen and extensively infiltrated by fibrinous exudate, especially in the small intestine, with some areas of leucocytic infiltration. This coat also shows marked necrosis, recognized by the complete loss of the nuclear staining reaction. The muscular coats also show necrosis, the fibres showing a hyaline degeneration with loss of nuclei. There is some cellular infiltration of the peritoneal coat, but this is not a marked feature. There are also present throughout these coats deposits of pigment, probably derived from blood. These have no special relation to any particular tissue, and may be *post mortem*. The whole condition is intensely necrotic with fibrinous infiltration.

Kidney shows extensive necrosis and catarrh of the renal epithelium of all the secreting tubules, especially in the convoluted series, many of these degenerated epithelial cells showing very marked granular degeneration going on to calcification. This calcification is very irregular in distribution among the tubules; the granules vary in size and have a strong affinity for the basic stains. The collecting tubules do not show so much necrotic change, but they contain granular and hyaline casts. The connective tissue of the renal substance is not much altered and the capillaries in the tuft show some slight thickening of their walls, but no necrotic change. The condition of the kidney is mainly that of intense parenchymatous degeneration going on to calcification.

Liver on the whole shows no gross changes, in fact it is extremely well preserved tissue. There is some degree of congestion and also some slight pigmentary deposit in the hepatic cells which at parts show some slight fatty degeneration. A striking feature is the well-preserved appearance of the liver cells, with numbers of nuclei undergoing mitosis. It suggests

to me that the poison has only acted as a mild stimulant to the liver tissue and has had no toxic effect.

Although many cases of poisoning have occurred from the use of mercury perchloride as a vaginal douche, I am not aware of an instance in which the circumstances were similar to the present case. It is interesting also to note the typical nature of the symptoms produced and the manner in which mercury picks out the lower end of the small intestine, the caecum, and the ascending colon as its selective site. The suppression of urine and the evident changes found in the kidney tissue show the marked action of mercury on this organ. The medico-legal aspect of the case is also of importance.

I am greatly indebted to Professor Harvey Littlejohn for his assistance in compiling the notes of the case.

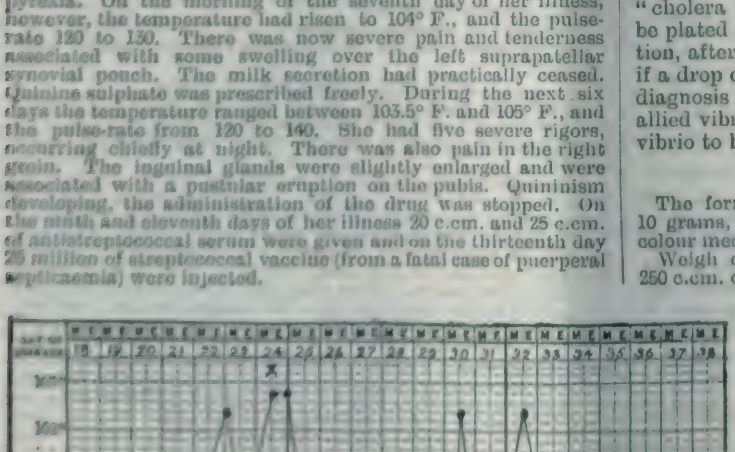
CASE OF PUERPERAL SEPTICAEMIA TREATED BY AUTOGENOUS VACCINE, WITH RECOVERY.

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THE following case presents features of both clinical and bacteriological interest:

Mrs. M., aged 28, was delivered of twins on February 3rd, 1916. Two years ago I had delivered her with forceps of her first child, and fully a year ago I curetted her for an incomplete abortion.

There was nothing very unusual about the labour, the first presentation being a footling ending in a breach, and the second a vertex. The children weighed 5½ lb. and 5 lb. respectively. There was a slight tear of the perineum. The patient continued well until the afternoon of the eighth day, when she felt hot and flushed. On the following morning she complained of rheumatic pains behind the left shoulder. She felt sick, and vomited freely. The temperature was 101° F., and the pulse 100. The lochia was not fetid. The uterus was firm and well involuted. There was no abdominal tenderness. The milk secretion was free. She had a superficial inflammation of the gums associated with a few carious teeth. Quinine salicylate, combined with Dover's powder, was prescribed. In the evening the temperature was 102° F., and during the following two days it ranged between 101.5° F. and 103° F. Rheumatic pains in the left shoulder and in the bursa over the left elbow were prominent symptoms. On the fourth morning of her illness she was given a vaginal douche. In the evening her temperature had fallen to 100° F., and she felt decidedly better. For two days thereafter there was no pyrexia. On the morning of the seventh day of her illness, however, the temperature had risen to 104° F., and the pulse-rate 120 to 130. There was now severe pain and tenderness associated with some swelling over the left suprapatellar synovial pouch. The milk secretion had practically ceased. Quinine sulphate was prescribed freely. During the next six days the temperature ranged between 103.5° F. and 105° F., and the pulse-rate from 120 to 140. She had five severe rigors, occurring chiefly at night. There was also pain in the right groin. The inguinal glands were slightly enlarged and were associated with a pustular eruption on the pubis. Quininism developing, the administration of the drug was stopped. On the ninth and eleventh days of her illness 20 c.cm. and 25 c.cm. of antistreptococcal serum were given and on the thirteenth day 25 million of streptococcal vaccine (from a fatal case of puerperal septicaemia) were injected.



Meanwhile, an autogenous vaccine was prepared from her own blood, the culture being a pure growth of a short chained diplo-streptococcus. Of this 25 million organisms were injected on the sixteenth day of her illness, and on the eighteenth day 50 million. Every third day thereafter she was given 50 million until near the end of her illness, when she had 75 million. The course of the temperature during the remainder of her illness is indicated in the chart. A curious feature in the case is the rise of temperature (marked ×) on the morning of the twenty-fourth day of her illness to 102.8° F. This was associated with a well-marked, fine, but discrete papular rash of scarlatiniform type, appearing first on the face, chest, and upper extremities, and on the following day, but less pronounced, on the lower part of the body and lower extremities. There was no erythema, urticaria, or itching, as frequently found in serum rashes. Desquamation occurred after the rash had gone. Shortly afterwards there was a fall in temperature, with a subsequent rise associated with abscess formation in the bursa over the right shoulder. After this was opened the temperature gradually fell to normal. She also had a dry, angry-looking herpetic eruption at the left angle of the mouth, which was not of the vesicular type as met with in most febrile diseases. She made an excellent convalescence, and is now in good health.

The source of infection is somewhat obscure, but clinically I am inclined to regard the case as one of scarlet fever which had developed during the puerperium. The organism has microscopic and cultural characteristics more in common with the organism described by W. Mair in the *Journal of Pathology and Bacteriology* (vol. xix, No. 3), in his article on "Experimental scarlet fever in the monkey," than with the ordinary *Streptococcus brevis* of the mouth. A similar organism I have since isolated from cervical and axillary glandular abscesses occurring in scarlet fever patients treated by the Milne method in their own homes.

The patient was treated in a house of one apartment, in which there also lived and slept her husband, mother, the twins, and for a time, her first child. There was no previous history of the patient having suffered from scarlet fever.

I am much indebted to Nurse Allan (the maternity nurse of the burgh), who attended the patient from the second day of the puerperium and throughout the illness, and also to Dr. John Anderson (bacteriologist to the Victoria Infirmary) for his services as clinical bacteriologist in the case.

A NEW SOLID MEDIUM FOR THE ISOLATION OF THE CHOLERA VIBRIO.

By CAPTAIN H. GRÆME GIBSON, R.A.M.C.

BASED on the fact that the cholera vibrio alone of all the intestinal organisms acidifies starch,[1] the following alkaline medium has been devised for its rapid isolation.

Owing to the medium possessing differentiating properties it should be especially useful in the detection of "cholera carriers," as the faeces emulsified in broth can be plated directly on to it. In the case of water examination, after enrichment in peptone water for a few hours, if a drop or two of the peptone water is plated a tentative diagnosis can be arrived at in eighteen hours owing to the allied vibrios taking a longer time than the true cholera vibrio to bring about acid production.

Preparation of Medium.

The formula is: Agar 30 grams, peptone 10 grams, starch 10 grams, sodium bicarbonate 1.5 grams, litmus (sufficient to colour medium), and water 1,000 c.cm.

Weigh out 30 grams of powdered agar and emulsify with 250 c.cm. of cold water. Then weigh out 10 grams of peptone (Chapoteaut) and 1.5 grams of sodium bicarbonate. Mix together and emulsify in another 250 c.cm. of cold water. The two emulsions are then mixed in a two-litre flask and another 500 c.cm. of water added. The solution is complete in the steamer. When dissolved the medium is clarified with white of egg and filtered in the steamer.

Weigh out 10 grams of potato starch, emulsify it with some of the filtered agar, and add the emulsion to the remainder of the medium.

The whole is sterilized by the fractional method, after which enough sterile watery solution of litmus is added to bring about a blue colour of the medium.

The final reaction of the medium will be found to be −2 to phenolphthalein. I tried several degrees of alkalinity and found that 0·15 per cent. sodium bicarbonate gave quite the best results.

If the plates are examined eighteen hours after inoculation, by looking obliquely through them with a dark background behind, the plate being held parallel to the window, the cholera colonies will be seen to have acquired a faint pink colour, while the colonies of the other intestinal organisms are blue or of a whitish colour. The examination is facilitated by the use of a hand lens. At this time the allied vibrios also produce blue colonies, but at the end of about thirty-six hours they also acidify the medium, though to a less extent than cholera.

At the end of twenty-four to twenty-six hours the cholera colonies have attained a delicate pink colour with a faint pink halo round them, while the other colonies still remain blue; also the colonies are of a good workable size to pick off and proceed with the serological tests.

After forty-eight hours, if the cholera colonies are in excess and the plate spread somewhat thickly, the medium itself becomes distinctly acid, and colonies other than those of cholera take on the pink tinge. However, the cholera colony even at this time can still be distinguished by the deeper red centre which the other colonies lack.

The only other organisms which are known to acidify starch are some of the diphtheroid group and some of the non-pathogenic water vibrios. These should not present any great difficulty, as Gram's stain on the one hand, and the serological test on the other, dispose of these organisms.

The following experiments have been carried out:

Experiment 1.—Ten cubic centimetres of broth were inoculated by emulsifying some faeces in it. To this was added a very small quantity of a culture of *V. cholerae*. The tube was well shaken, and 0.25 c.cm. of the broth transferred to a second tube of broth. Two drops of this broth were immediately plated on to the medium, the same rod being successively used for three plates. The first plate was too crowded to be of any use, but the second and third plates gave good discrete colonies, and on these plates the cholera colonies could be recognized in eighteen hours. Every colony on these plates was picked off, and all the pink colonies were proved to be cholera, whilst the blue colonies in every case proved otherwise.

Experiment 2.—The first broth tube from the previous experiment was kept at room temperature for two days. At the end of that time 0.25 c.cm. of this broth was added to 10 c.cm. of fresh broth, and a drop of this was immediately plated out as in the first experiment. The plates were rather too thickly spread to give good discrete colonies, but the cholera colonies could be easily detected. These colonies were again tested with cholera immune serum, and the differentiation proved correct.

Experiment 3.—This experiment was undertaken to see whether any of the normal water vibrios were capable of acidifying starch. The water was taken from a pond after heavy rain, and was taken straight to the laboratory. Some of the water was first enriched by incubating in peptone water for a few hours. One drop of this peptone water was then plated, and at the end of eighteen hours a few pinkish colonies were present. Some more of the water was plated direct, and in this case it took twenty-four hours before any pinkish colonies appeared. In both cases the pink colonies that were present were of a lighter shade than that which is produced by the cholera vibrio, and I do not think that they are very likely to be confounded with it. In addition, the red centre to the colony that is produced by the cholera vibrio in forty-eight hours was not present in these cases. This organism proved to be a normal vibrio of water.

Other Experiments.—The following organisms were also plated out: *B typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, coliform organisms, *B. dysenteriae* (Shiga and Flexner), *B. enteritidis* (Gaertner), streptococci, V. Finkler Prior, *V. metchnikovi*.

In no case did the above organisms acidify the medium, except in the case of the two vibrios, which produce a slight pink halo, but the colonies themselves, when viewed obliquely, do not become pink until a very much longer time has elapsed than that required to recognize the vibrio of cholera.

REFERENCE.

[1] Gordon, M. H.: Note on the ability of *V. cholerae asiaticae* to decompose starch, *Centralb. f. Bakt.*, 1 Abt., orig., Bd. 42, 1906.

NOTE ON THE VALUE OF HEXAMINE IN AURAL SUPPURATION AND IN MENINGITIS.

BY

DOUGLAS GUTHRIE, M.D., F.R.C.S.E.,

LIEUTENANT R.A.M.C.

HEXAMINE (urotropin) has come to be recognized as the most efficient of urinary antiseptics. Its action depends on the fact that it is for the most part excreted by the kidneys, and, in an acid urine, undergoes decomposition, liberating free formaldehyde.

Various experimenters have stated that after administration the drug may be recovered not only from the urine, but from the bile, pancreatic juice, saliva, milk, etc., from the synovial and cerebro-spinal fluids, and from nasal and aural discharges.

Crowe demonstrated that hexamine given by the mouth could be detected in the cerebro-spinal fluid withdrawn by lumbar puncture one hour later. He also asserted that after the subdural inoculation of dogs and rabbits with streptococci the administration of hexamine appeared in many cases to avert the onset of meningitis, and, consequently, he advocated its routine use prior to operations on the brain or spinal cord. Barton followed up these observations by suggesting that the drug might prove useful in middle-ear suppuration, as he had been able to recover it from aural discharges.

It seems probable, however, that there are two sources of fallacy in the results and deductions of these workers. First, they employed Hehner's sulphuric acid test, which does not differentiate between the drug hexamine and its decomposition product formaldehyde. Secondly, hexamine is not split up, and hence can be of no antiseptic value in any but an acid medium. Ear discharges and normal cerebro-spinal fluid are alkaline.

In view of these considerations the following investigation was undertaken. The first fallacy was obviated by the use of the Rimini-Burnam reaction, whereby formaldehyde can be detected in urine in a dilution of 1 in 150,000.

Three solutions are required:

(1) ½ per cent. solution of phenylhydrazine hydrochlor.
(2) 5 per cent. solution of sodium nitro-prusside.
(3) Saturated solution of caustic soda.

A small quantity of the fluid to be examined is placed in a test tube, and three or four drops of each of solutions 1 and 2 are added, then a few drops of solution 3 are poured down the side of the tube. A dark green colour indicates the presence of formaldehyde. Should the test prove negative, it is repeated with a fresh sample of the fluid which has been boiled with a few drops of sulphuric acid, when a positive result will show that hexamine was present.

As regards the second possible source of error, it was thought that if hexamine actually appeared in aural discharges its decomposition and consequently its antiseptic action could be favoured by the introduction of weak acids into the ear, just as intranasal lupus is treated by giving iodides by the mouth and applying hydrogen peroxide locally. It is known that in meningitis the reaction of cerebro-spinal fluid changes from alkaline to acid, a change which would appear to favour the action of hexamine.

Four untreated cases of suppurative otitis media were investigated, all the patients being children attending the ear and throat department of the Royal Hospital for Sick Children, Edinburgh. Local treatment was stopped. The hexamine was given by the mouth and in dilute solution. The fluids examined were: (1) Washings obtained by syringing the ear with a few cubic centimetres of distilled water, and (2) the urine.

CASE I.—H. H. Chronic otitis media dating from attack of scarlet fever a year ago. Large perforation. Much fetid pus. After 10 grains of hexamine, thrice daily for a week, the urine contained formaldehyde, the ear washings no formaldehyde and no hexamine. The dose was increased to 20 grains thrice daily, but had to be stopped in four days on account of pain on micturition and enuresis nocturna. Formaldehyde was present in quantity in urine, but no formaldehyde or hexamine in the ear washings.

CASE II.—L. B. Chronic otitis following measles two years ago. Membranes totally destroyed. Curdy fetid discharge. Ten grains of hexamine was given thrice a day for a week. The urine was then found to contain hexamine, but no formaldehyde; its reaction was neutral. The ear discharge showed neither hexamine nor formaldehyde. After 20 grains of hexamine thrice a day for a second week the results were exactly similar.

CASE III.—C. P. Chronic otitis for eighteen months. Small perforation. Profuse discharge. At the end of the first week, 10 grains of hexamine thrice daily, the urine contained formaldehyde. No hexamine or formaldehyde in aural discharge. At the end of second week (20 grains) these results were unaltered, but the patient had frequency of micturition.

CASE IV.—J. G. Discharge from right ear for three months. Small central perforation. Much muco-pus. Formaldehyde present in urine, but neither hexamine nor formaldehyde in the ear washings. Increase of the dose did not alter results.

It will be seen that hexamine or formaldehyde appeared in the urine in all cases, but in no case could either substance be detected in the aural discharge. The drug was given in fairly large doses, and symptoms of intolerance appeared in two of the cases.

With regard to the cerebro-spinal fluid, results appear to point to a similar conclusion, namely, that hexamine either does not make its way into this fluid at all or appears in such small quantity as to be of no therapeutic value. Intradural injections of hexamine may conceivably have some effect on the meninges near the site of injection,

but oral administration is useless. Two cases may be cited in support of this view.

1. E. M., suffering from pneumococcal meningitis, was given 30 grains of hexamine one hour before lumbar puncture. The cerebro-spinal fluid was turbid, reaction neutral; it contained no hexamine or formaldehyde. (Rimini-Burnam test.)

2. D. H., suffering from meningococcal meningitis, was given 50 grains of hexamine. Lumbar puncture one hour later. Cerebro-spinal fluid turbid, acid reaction; it contained neither hexamine nor formaldehyde.

In reading reports of cranial and spinal injuries sustained during the present war one frequently encounters the statement that "hexamine was given," but an opinion is seldom expressed as to the value of such treatment. The matter can be settled only by further investigations along the lines indicated above.

I am indebted to Dr. John Thomson and to Dr. W. G. Porter for their permission to record the cases.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CERTAIN BODIES FOUND IN THE URINE IN CASES OF TRENCH NEPHRITIS.

In the centrifuged deposit of the urines of twenty-five cases of trench nephritis treated at this hospital peculiar and distinctive bodies were discovered by our laboratory assistant, Mr. Mann. These bodies had the following characters:

The most striking consisted of three circular cells arranged somewhat in the form of a pair of spectacles. They were of a greenish or greenish-yellow colour. The individual cells measured about 26 μ in diameter, but the combined three when joined together measured only 60 μ in their greatest diameter, as they were superimposed or overlapped. The general outline was constant; in other words, each retained its original position. The contents were granular, with at times a nucleus circular in outline situated slightly out of the centre of the cell.

The second form met with was a circular granular body having all the characters of the laterally-placed bodies above described. This measured exactly the same as the individual cells described above. No doubt this was a free form.

The third form was an irregularly granular body with an indistinct outline, and probably this represents a degenerated form of the second form or the central cell of the first. From the second form distinct pseudopodic projections were seen.

In order to eliminate accidental contamination catheter specimens were taken in sterilized flasks from some of the patients.

A number of urines from other diseases were centrifuged and examined but no similar cells were found.

We are indebted to Dr. Coles of Bournemouth for much assistance.

A. R. FRIEL,
J. DRUMMOND,
Captains S.A.M.C.

Moat Dore Military Hospital, Bournemouth.

THE VALUE OF A MILK DIET PRIOR TO THE USE OF KHARSIVAN OR SALVARSAN.

The following figures show, I think, that if a person to whom salvarsan or kharsivan is to be given is put on a milk diet for a period of twenty-four hours prior to the operation, the toxic effects of the drug are reduced to a minimum, and the patient suffers little or no discomfort.

Prior to the method use of milk in all these cases, the majority of the venereal patients in the Union Hospital, Gateshead, were on an ordinary diet unless they were so ill that they could not take it, when, as a general rule, their diet consisted solely of milk.

My attention was drawn to the possible value of this diet one day when I saw five patients to whom salvarsan had been given the previous day. Of the five, two who had had milk only had no toxic effects whatever, whilst the other three, who were on ordinary diet, were really ill. The same thing occurred in the case of four women shortly afterwards. Two on milk were very comfortable, while the other two, on ordinary diet, had vomiting and diarrhoea. We then tried the effect of milk in all cases, and the results in the first 100 injections are given below. The procedure was to give four pints of milk only for twenty-four hours prior to the injection and an ordinary diet afterwards. In some cases patients had a full dinner a few minutes after the injection with no ill effects.

The usual toxic results that we had previously met with were (1) persistent headache; (2) vomiting; (3) diarrhoea; (4) rigors; (5) albuminuria. Of the patients on milk diet, in 77 there were no toxic effects; of the remaining 23 all had headache and 19 of them vomited—1 six times, 2 four times, 6 three times, 8 twice, and 2 once. Of those who vomited, 9 had diarrhoea also, and so had 3 of the remaining 4; 1 patient had albuminuria; there were no rigors.

Prior to the use of the milk one might say that every patient complained of headache to a greater or less extent, whilst the same might be said of vomiting.

LIONEL L. WESTROPE, M.D.,
Medical Officer.

Union Hospital, Gateshead-on-Tyne.

THE PREVENTION OF GALL STONES.

WHEN a sufferer from the agonizing attacks of gall stones asks his medical adviser what he can do to prevent other attacks, he usually receives the conventional answer that he must diet himself, take active exercise, and a course of alterative medicine, such as sodium phosphate. I believe these methods are quite useless. Stone in the gall bladder is, like stone in the urinary bladder, caused by the bladder not being completely emptied each day, and the unexpelled residue decomposes and precipitates the solid matter of which the stone is composed.

It is common knowledge that the best way to prevent urinary stone is to make sure that the bladder is completely emptied daily, and if necessary the patient must use a catheter for that purpose. To prevent gall stones from forming it is just as essential to empty the gall bladder completely each day. The method is to make pressure over the gall bladder in the early morning, before breakfast, with the round end of a dumb-bell weighing 12 lb. The gall bladder is usually full in the early morning, and, with gentle pressure at first, the contents can be heard escaping with a characteristic gurgle, and by increasing the pressure and a sort of rolling movement from the fundus towards the neck, the whole of the contents are pressed out. It is as well to keep to the right of the abdominal middle line and to avoid pressing on the aorta, as such pressure constantly repeated might do harm.

I feel almost inclined to rename the gall bladder the "castor-oil gland," for the expression of the gall bladder mucus is always followed within half an hour by an action as grateful as would be produced by half an ounce of the oil. At the commencement of this method there may be in the gall bladder lumps of thickened mucus or concretions, and there would then be some discomfort as they passed along the duct, but in a few days, when this débris has been cleared out, the patient, who may have long suffered from agonizing attacks of gall stones for years, will begin to experience peace in his epigastrium.

Any one may easily learn to practise this method on himself, but it should never be used during the course of an attack; then a rubber hot water bag and morphine are the best treatment.

Sunderland. THOS. A. WATSON, M.B., C.M.

MR. ALFRED GRACE, M.R.C.S., L.S.A., of Chipping Sodbury, Gloucestershire, brother of W. G. Grace the famous cricketer, left estate valued at, £2,134 gross, with net personalty £1,089.

STATISTICS collected by the American National Association for the Study and Prevention of Tuberculosis show that there are now nearly 3,000 agencies engaged in the fight against tuberculosis in the United States. The list includes 557 sanatoriums and hospitals, 153 tuberculosis boarding houses, 90 hospitals for the insane, 35 penal institutions making special provision for tuberculosis, 455 dispensaries, 310 open-air schools, and 1,324 anti-tuberculosis associations and committees.

Reviews.

DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS.

THE contents of Sir JAMES MACKENZIE'S *Principles of Diagnosis and Treatment in Heart Affections*[1] were originally prepared as lectures to post-graduate students, but the outbreak of war preventing their delivery he has published them in a book, dividing the subject matter into chapters instead of lectures, but retaining the colloquial form of expression.

He commences by setting forth his views on the methods and aims of medical research. He considers that the advance of medicine will be halting, and whole fields essential to its progress will remain unexplored until the general practitioner takes his place as an investigator. The chief efforts of the profession, he asserts, have been spent in the recognition of the more chronic diseases after they have killed the individual, or when they have gone beyond the stage of cure, but we should, on the contrary, endeavour to detect disease in the earliest stage. He holds that, could we appreciate them aright, the patient's sensations give the first indication of disease, and a proper appreciation of these sensations will enable us to understand many obscure complaints, such as abnormal heart action. The lack of appreciation of the significance of the patient's sensations is shown in the attitude of the profession towards pain; the fact that such expressions as a "tender liver," "a tender appendix," are used by teachers and in textbooks proves, he considers, that the profession is not cognizant of the simplest elements of the investigation referred to. Patients' sensations must be studied, and all associated phenomena carefully noted; bacterial invasion gives rise to sensations, and Sir James Mackenzie thinks it likely that each organism gives rise to peculiar sensations. To acquire a knowledge of the life-history of chronic diseases it is necessary to be able to follow individual cases from the start to the finish. It is, he says, a remarkable fact that there is not to be found in medical literature the history of one single individual carried on from the attack of rheumatic fever which started the valve disease in mitral stenosis, down to the time of death, and containing a record and due appreciation of the changes which took place.

Since a knowledge of the progress of disease reveals the meaning of abnormal signs and constitutes the basis of intelligent prognosis, investigation of prognosis can only be carried out by those who have the opportunity of watching individuals during the whole course of the disease. The opportunity for investigation in hospitals is too restricted; the general practitioner is the only investigator who has the real opportunity.

The governing motive of all clinical investigation when dealing with any particular symptom should be to answer the question, What bearing has the cause of this symptom on the patient's future? and, when the heart is concerned, whether it indicates, or foreshadows heart failure. Heart failure is defined by the author as the condition in which the heart is unable to maintain an efficient circulation during the efforts necessary for the daily life of the individual.

Various signs and symptoms of cardiac affections are discussed from this point of view, and it is laid down that these signs and symptoms arise from three definite and distinct sources:

1. Structural: that is, changes in the size, shape, or position of the organ, or modification of its material constitution.

2. Functional: that is, changes due to modification or inefficiency of the function of an organ.

3. Protective: that is, the presence of sensations, always disagreeable, produced by the intervention of the nervous system for the protection and resting of the organ.

The structural symptoms are discussed in chapters on increased size of the heart, murmurs and abnormal rhythm. The functional are described under breathlessness, fainting, dropsy, etc., and the protective under angina pectoris.

The sense of exhaustion, so common in cardiac cases, the author thinks, is not of cardiac origin. He believes that it is produced by a vasomotor mechanism and is brought about by a depletion of the higher nervous centres, the provoking agent being frequently a toxin.

The methods essential to the proper examination of cardiac cases have hitherto, Sir James Mackenzie says, not been utilized. In books on diagnosis nearly all the stress has been laid on physical examination and little attention given to the elucidation of the patients' sensations, nor has sufficient attention been directed to finding out what the manifestations of the heart may be in health. In treating of the different signs and symptoms he points out that in almost every case the symptom under discussion may be compatible with recovery or at any rate with useful, if restricted, life and a stationary condition of the disease. He insists that no serious view of a case, far less a grave prognosis, should be based on the presence of one physical sign, but he is convinced, notwithstanding many statements to the contrary, that, although the truth of this is admitted in theory, in practice it is ignored.

In the small portion of the book devoted to treatment the author lays down the rule that the essential principle is the care of the heart muscle. Rest, diet, exercise, and baths are discussed, but a warning note is sounded as to the extravagant claims made on behalf of certain systems of exercises and baths: "The reputation of Nauheim baths and of the artificial imitations of them depends . . . more on brazen advertisements, financial interests, and the slavish tributes of other spas than intellectual appreciation and application of the principles of treatment." With regard to drugs, the action of digitalis, strophanthus, the nitrites, sedatives, oxygen, and atropine are dealt with; caffeine, strychnine, and oil of camphor it is thought probably act only indirectly through the nervous system.

The book, containing as it does the experience and conclusions of a lifelong worker and pioneer in this branch of medicine, will command general attention. The fact that in places it exhibits some of the uncompromising expressions of opinion and the iconoclastic spirit of the pioneer makes it stimulating reading; and, while some of the author's conclusions may in the future be modified as the result of the continuous investigations he hopes to see undertaken, everyone engaged in the practice of medicine will find his book suggestive and inspiring.

[1] *Principles of Diagnosis and Treatment in Heart Affections.* By Sir J. Mackenzie, M.D., F.R.S., F.R.C.P., LL.D.Aberd. and Edin., F.R.C.P.I.(Hon.). London: H. Frowde; Hodder, and Stoughton. 1916. (Demy 8vo, pp. 332; 96 figs. 7s. 6d. net.)

ANIMAL PARASITES OF MAN.

IN the volume entitled *The Animal Parasites of Man*[2] the subject is considered from the zoological point of view, and the writers are concerned mainly with the embryology, ontogeny, and morphology of a great variety of organisms. The book is partly adapted from the fourth edition of Max Braun's textbook, and this involves a somewhat awkward separation of some clinical notes, which are given in a supplement. Recent discoveries are, moreover, embodied in the addenda, so that it is not always easy to obtain any required information. The book falls into three sections, each the work of one of the adapters. The sections on the protozoa and the worms open with very full introductions to the group, explaining in detail any points which are capable of generalization.

Dr. FANTHAM'S account of the protozoa is perhaps the most successful part of the book, though he would have done well to cater for the medical man a little more fully, and so help to bridge the gap between parasitology and medicine. We should like to have seen tables of the differences between the various spirochaetes or the various protozoal cysts which may occur in faeces. Dr. Fantham is singularly fair in dealing with debatable points; we may instance his treatment of the chlamydozoa, or of Mr. McDonagh's life-history of the organism of syphilis. We remember, of course, that the existence of a granule stage in the life-cycle of the spirochaete is very widely accepted, and has been demonstrated in some half-dozen different species. It appears that about seventy-five

[2] *The Animal Parasites of Man.* By H. B. Fantham, M.A.Cantab., D.Sc.Lond., J. W. W. Stephens, M.D.Cantab., D.P.H., and F. V. Theobald, M.A.Cantab., F.E.S., Hon. F.R.H.S.; partly adapted from Dr. Max Braun's *Die Tierischen Parasiten des Menschen* (fourth edition, 1908), and an Appendix by Dr. Otto Seifert. London: J. Bale, Sons, and Danielsson, Ltd. 1916. (Roy. 8vo, pp. 932; 423 figures. 45s. net.)

protozoa have been known to occur in man, many of them very rarely, and as wanderers from some other host.

The account of the worms, to use an unscientific but convenient term, is by Professor STEPHENS. This part of the book is exceptionally well illustrated and full of detail. Helminthology is beyond the ken of the ordinary practitioner, who only knows three or four worms, and treats them rather empirically; nevertheless, the whole subject is fascinating in its complexity and full of biological problems, such as the meaning of "individuals," and the alternation of generations. Then, again, the life-histories of these organisms are frequently rendered intricate because the parasite must pass from one species of host to another in order to become mature. The work of the Grouse Commission or the labours of the various investigators of "hookworm disease," or Leiper's researches on *Schistosomum* (*Bilharzia*), make one realize what a vast amount of labour may go to the elucidation of even one life-cycle. We should also realize that a full knowledge of the bionomics of a parasite forms the only possible basis for prophylaxis, personal or racial. This book describes many worms known to have occurred in man frequently or rarely, but of which the life-history is unknown.

The section on Arthropods (mites, ticks, and insects) is by no means as good as the rest of the book. The adapter is known as an authority on the classification of the mosquitos, and probably he is at his best when dealing with questions of pure systematics. He is, perhaps, less happy in his treatment of biological points, and he deals inadequately with methods of control or prophylaxis. The three species of human lice are dealt with in a very disjointed manner, and no mention is made of the fact that *Pediculus* is the vector of typhus or Mediterranean relapsing fever, though it is stated that Sulla, Herod, Cardinal Dupet, Philip II, and others died of "louse disease."

The book is probably intended to be more zoological than medical; nevertheless, we wish it contained more matter of everyday clinical importance. To most of us, for instance, the egg of a worm is of more importance than its booklets or its central nervous system.

The English into which the book is translated is never graceful and is occasionally obscure. The figures, many of them borrowed, are generally good, though only too frequently the magnification is not given. Typographical errors have not been entirely eliminated. The index is good and the bibliography beyond praise.

NOTES ON BOOKS.

A VOLUME on *General Surgery*[1] in the annual Practical Medicine Series contains in some forty sections an account of the progress made in surgery last year, from the American point of view. It contains much interesting reading for surgeons, and is well illustrated. As an example of the value of prophylactic treatment in tetanus, the editor, Dr. J. B. Murphy, whose death we had recently the sorrow to announce, notes that the septic wounds produced by the accidents incidental to the annual celebrations on July 4th resulted in 417 deaths from tetanus in 1903; in 1915, owing to the public appreciation of the value of timely treatment, there was but one such death. He also states that almost 20 per cent. of over 10,000 autopsies in cases of death from cancer showed no demonstrable metastases at all.

An admirably well-thought out and useful little book on *Medical Reporting in Pitman's Shorthand*[2] has been produced by Mr. H. DICKINSON. It should be of special use to intending reporters of medical lectures and discussions, whose needs he had in mind when preparing it. It is always difficult to take down technical matter, and as it is certainly most desirable that strict accuracy should be attained the would-be reporter of medical subjects will do well to study Mr. Dickinson's book. It should also prove useful to any shorthand writer who thinks of seeking a post as secretary to a medical man. The book does not claim to be a medical shorthand dictionary of outlines, but it contains those phrases with which the aspirant to medical reporting should be familiar.

[1] *General Surgery.* Vol. I. Edited by J. B. Murphy, A.M., M.D., LL.D., F.R.C.S. (Hon.), F.A.C.S. The Practical Medicine Series, comprising Original Editorial Choice of the Year's Best Publications. 1916. (Cr. 8vo, pp. 620; 49 plates, 150 figures.)

[2] *Medical Reporting in Pitman's Shorthand.* By H. Dickinson. London: Sir I. Pitman and Sons, Ltd. Toronto: The Commercial [illegible]. 1916. (Cr. 8vo, pp. 96. 2s. 6d. net.)

To those who want to learn how to make surgical bandages and dressings for the war we recommend the diagrams and descriptions of patterns designed and standardized by the surgical branch of the Central Dépôt of Queen Mary's Needlework Guild, compiled by ALICE SCOTT.[5] The full-sized work costs 3s. 6d., the abridged edition 1s.; all profits go to the Central Dépôt. The publication is most timely and serviceable, and we wish it the full measure of success it deserves.

A *Catalogue of the Pathological Museum of the Medical College, Calcutta*,[6] prepared by Dr. MCCONNELL, formerly professor of pathology and curator of the museum, and revised by the present occupant of those posts, Sir LEONARD ROGERS, has been issued in two volumes. This pathological museum is believed to have been the earliest established in a tropical country. It was founded in 1839, and began with some specimens collected within the twenty previous years by the Calcutta Medical and Physical Society. In 1843 the Calcutta Medical Board published an appeal to all medical officers in India, which was so successful that by 1848 the total number of specimens amounted to 2,000. The catalogue is published in a most convenient form, each volume being small and portable, whilst the type is large and clear. Though not so uniform as in catalogues where every specimen is described systemically after Paget's method, the letter-press appears to make the essential characteristics of each preparation quite clear by the use of capitals and Clarendon type. The series showing malformations of the intestine, entozoa, and calculi are very rich, while visceral disease, bone affections, and disorders of the circulatory system are well represented.

The *Textbook of Physics and Chemistry for Nurses*,[7] by Dr. BLISS and Mr. OLIVE, is a brave attempt to concentrate a mass of knowledge into pemmican for nurses. Magnetism and electricity are expounded in four pages, acoustics in one. Naphthalene is set down as one of "the benzenes," and its structural formula is given, with the information that it is also known as "coal-tar camphor," or "tar balls." The ash of sea-weeds is described as "vareel," perhaps an error for "varech"? The book is designed to contain only the amount of material that could "be intelligently digested by the average studious nurse in the time allotted to the subjects." Its appeal is more to the memory than to the intelligence.

[5] *Surgical Bandages, Dressings, and Slippers.* Diagrams by Alice Scott. London: P. Lund, Humphries and Co. 1916. (Cr. 4to, pp. 73; illustrated. 3s. 6d.)

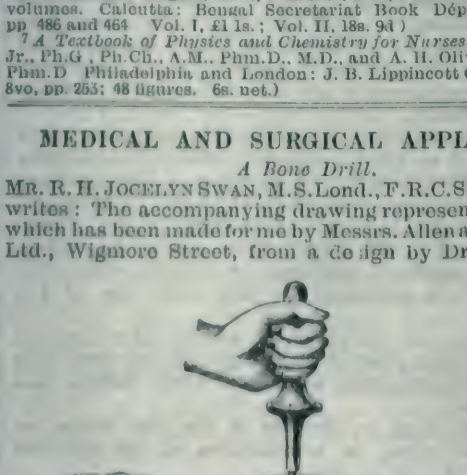
[6] *Catalogue of the Pathological Museum, Medical College, Calcutta.* By J. F. P. McConnell, M.B., M.C., M.R.C.S.Eng. Revised by Sir Leonard Rogers, M.D., F.R.C.P., B.S., F.R.C.S., I.M.S. In two volumes. Calcutta: Bengal Secretariat Book Dépôt. (Demy 8vo, pp. 486 and 464. Vol. I, £1 1s.; Vol. II, 18s. 9d.)

[7] *A Textbook of Physics and Chemistry for Nurses.* By A. R. Bliss, Jr., Ph.G., Ph.Ch., A.M., Phm.D., M.D., and A. H. Olive, A.M., Ph.Ch., Phm.D. Philadelphia and London: J. B. Lippincott Co. 1916. (Demy 8vo, pp. 253; 48 figures. 6s. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Bone Drill.

MR. R. H. JOCELYN SWAN, M.S.Lond., F.R.C.S. (London, W.), writes: The accompanying drawing represents a bone drill which has been made for me by Messrs. Allen and Hanburys, Ltd., Wigmore Street, from a design by Dr. G. Ramsey Phillips. The drill is fitted into a chuck connected to a toothed wheel which is rotated by a chain stretched on a bow. The great advantage of the instrument consists in the case with which even the hardest bone can be drilled with the least possible exertion, especially in awkward positions in which the drive is not direct.



I have used this drill in a large number of cases of bone-plating, and have found it greatly superior to any other design. It is easily cleaned, and the whole can be boiled for sterilization.

THE DELINEATION OF INTERNAL ORGANS BY AN ELECTRICAL METHOD.

THE manner in which the application of scientific methods to the medical work of the British Expeditionary Force in France is encouraged and the results obtained have been the subject of remark in various places, and several advances in medicine and surgery have already been recorded in these columns.

No public statement, however, has anywhere yet been made regarding a piece of work of an unusual and somewhat puzzling character, which has been in progress at one of the casualty clearing stations in France for several months; though very quietly performed, it has given rise to a host of rumours, surmises, and conflicting views.

The first subject that it brings into mind is *x*-ray photography, and the next is wireless telegraphy. It soon, however, becomes apparent that the work whatever its value has no relation to either of these methods.

The new work, in fact, appears to succeed just where *x*-ray photography fails, or, rather, it takes up the task of producing pictures of structures hidden far below the surface of the body just at the point where *x*-ray photography ceases to perform it effectively. In other words, the new work attempts the delineation not of dense structures such as bone, but of living soft organs, such as the liver, the kidneys, and the intestines.

That circumstance in itself is sufficient to confer on the work a good deal of attraction, but what may be regarded as of still more interest is that it may be conceived as utilizing the electricity which is believed to be generated in the body (and to some extent in all living tissues, vegetable as well as animal) as a concomitant of the performance of ordinary life processes.

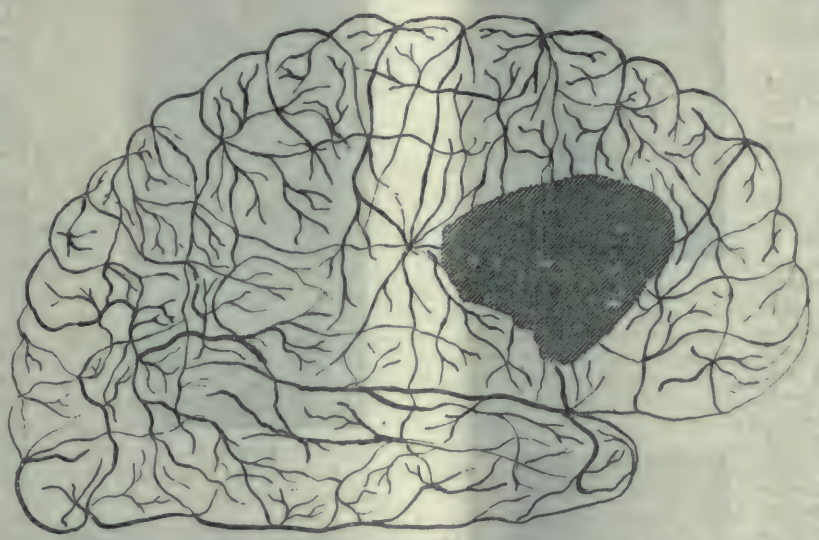


FIG. 2.—Brain picture, from a case of gunshot wound; it shows not the brain tissue itself (which, so far, it has not been found possible to delineate) but the blood vessels, and a large irregular patch, which is the site of the lesion. (This picture has for convenience been printed black on white. In the original the vessels showed white on a dark background, and near the middle of the patch was a small dark mark, which was believed to be a foreign body.)

This new work, therefore, presents so many points of interest that, whatever the importance it may hereafter be shown to possess, it is desirable to endeavour to give some account of it despite the facts that its theoretical basis is not easy to understand, that it is very far from complete in respect of technical detail, and that the extent of any usefulness it may prove to have in practice cannot yet be defined.

What the Work does.

What the work seems to do in its present stage is to enable it to be stated, without any manual or other examination, whether the more important viscera of a living patient—such as the liver, the kidneys, the spleen, and the brain—are intact so far as their gross anatomy is concerned, while at the same time it supplies evidence of any departure from the normal in the nature of a considerable enlargement or diminution in size, or an effusion of blood, or the presence of a foreign body, or the existence of a tear or cut of the visceral surface.

These things it does by providing pictures such as those here shown (see Figs. 1, 2, 3, 4, 5). One of these demonstrates a gunshot wound of the kidney; a second a gunshot wound of the brain; a third the caecum with inflammatory enlargement of the appendix; a fourth a piece of large intestine torn by a missile lodged in its lumen, and a fifth a traumatic abscess in the interior of the liver. All these pictures were obtained from living patients, and their accuracy was afterwards proved by a successful operation or otherwise.

It will be observed that they all present one common feature: the general outline is exceedingly clear, but no details are visible. The reason for this will be described later on.

The Visible Process.

The process of producing these pictures, as seen by the bystander, is very unimpressive. There is no darkening of rooms, no flashing of lights, and no crackling of spark-gaps. In fact, the whole proceeding is so brief, and seemingly so simple, that when the results are observed the first sensation is one of bewilderment.

A patient is laid on a plain deal table (insulated by standing it on glass), a little clicking is heard in a cupboard hard by, and after 60 seconds or so the bearers are directed to remove him. Nothing has been felt by the patient, little or nothing has been seen by the bystanders beyond what has been noted, yet a visible record of the outline of a living organ has been conveyed to a wax sheet. This is then printed on ordinary photographic sensitized paper by the employment of methods already familiar in several other connexions.

The Appliances Used.

If there is nothing impressive about the procedure itself, there is also nothing especially remarkable in the appliances employed. For the most part they are of quite a familiar kind. Some are kept in the cupboard mentioned, while the rest—namely, the electrodes and connected wires—are suspended in the room.

The main contents of the cupboard are seen to be two separate electrical batteries (Battery A and Battery B) of precisely equal strength, together with a means by which alternations in their currents can be produced and varied at will. The other contents include a revolving cylinder over which is suspended a needle hammer capable of side to side as well as up and down movement, the two together bearing a resemblance to a barograph. This cylinder carries a rolled sheet of paper treated with paraffin wax on which the outline of the organ under examination is initially recorded. The needle hammer mentioned is connected with a tiny circle of carbon like the diaphragm of a telephone machine, which is operated in its turn by a current detector capable not only of picking up and measuring, but also of concentrating currents too small to be convertible into force by any other means. The current in this particular case comes from the patient's body, arriving through a wire connected with one of the two electrodes mentioned as being seen outside the cupboard.

There are two of these electrodes each of which ends in a perforated zinc plate or zinc wire screen, which, is not placed in contact with the patient's body. One of these, hereinafter called Screen A, is about 18 inches broad by 12 deep, and stands vertically on a pedestal, which, being movable, can be put in the same plane as the patient's body and in its immediate vicinity.

The other electrode, Screen B, is about two-thirds the size of Screen A, and is held by wire supports (and movable along them) in the air in a horizontal position 4 or 5 feet above the centre of Screen A.

The primary result of this arrangement is that any electrical field emanating from Screen A is always at right

angles to that of Screen B. The fields themselves are respectively charged by the currents derived from the batteries A and B with their alternating interruptors.

Consequently it is open to the operator to choose at will the section of the body which shall be brought within the influence of the combined electrical fields, as also the plane of the body which the lines of force in Field A shall effect.

The appliances used have now been described so far as is possible without going into minute details, but one further point must still be mentioned. At given instants of time during the operation of the appliances the current in electrode B is very unstable, consequently it has placed around it a wire coil, which insulates it from atmospheric electricity.

The Method of Operation.

The machinery thus described is operated as follows:

The first step is to place the patient in the right position in relation to the two screens. He must be quite close and head on to the vertical Screen A, and the organ to be examined must be directly under Screen B, though at a considerable distance from it, and at the same time present the desired plane towards Screen A.



FIG. 1.

The right position having been secured the following steps are taken: (1) An intact wax sheet is put upon the recording cylinder; (2) the rate at which the cylinder shall revolve is determined; (3) the appliance which regulates the rapidity of the alternations is adjusted; (4) the currents from batteries A and B are simultaneously released, with the immediate result that the recording cylinder begins to revolve while the hammer needle moves across it steadily, giving rise at each stroke to a slight click. This movement of the needle is allowed to continue until it has twice traversed the cylinder from end to end, and the currents are then cut off.



FIG. 3.

What has happened in the meantime is that the current from battery A has reached electrode A, and has thence been projected horizontally from all parts of Screen A as an electric field. The same thing has happened in regard to the current from battery B, but the direction of the field projecting from Screen B has been vertically downwards.

What has also happened is that the two fields have met at right angles, and as they are of precisely equal strength, and are synchronized in respect of alternations, it might be expected that they would have precisely neutralized one another, and that consequently no exhibition of dynamic force would be obtainable from them.

But in practice this is not what occurs. On the contrary, provided that the body under examination is that of a living person (or is one in which merely somatic, not cellular, death has occurred), an effective current from below always manages to reach electrode B and thence passes to the detector mentioned as being among the apparatus in the cupboard.

The result, therefore, has been that the hammer needle mentioned has been put into operation and has tapped out on the revolving wax sheet below it a diagram which precisely resembles the outline of the living tissues lying vertically below Screen B.

This diagram can be discerned forthwith by holding the wax film against a strong light, and can be converted into an ordinary photograph such as those here shown by processes of a type quite familiar in various applied arts.



FIG. 4.



FIG. 5.

The Underlying Principle.

So far this account has been confined to a description of the results obtained and the machinery employed. The why and wherefore of the whole process, or rather, the underlying facts, are quite another matter.

When the results are compared with the visible means by which they are reached, they seem at first quite incomprehensible, if not incredible. It is certain, however, that they can be and are obtained, so it only remains to endeavour to account for them. The inventor, it was gathered, believes that the results are primarily due to the fact that the process interposes between two alternating electric fields of equal strength—and at the precise point where they meet—a third electric field, whose facultative potential force is thus released and can be converted into dynamic power. It is this released circuit which operates the recording needle, and the pattern tapped out on the revolving cylinder varies with the shape of the organ furnishing that circuit.

The foregoing is one legitimate way of summarizing the inventor's view in simple language. Another would be to say that the force operating the needle is the balance of current which remains after the horizontal current from electrode A, reinforced by the electricity contained in the organ through which it has

DESCRIPTIONS OF FIGURES 1, 3, 4, AND 5.

FIG. 1.—Picture of the kidney, from a case of gunshot wound of the back. The patient presented symptoms pointing to injury of the kidney. The picture was interpreted to indicate a wound of the lower part of the kidney. Laparotomy was performed, and the injured kidney removed. The patient recovered.

FIG. 3.—Picture of the cæcum and appendix. The patient had a colour history of repeated appendicitis, and the clinical picture was that of another attack. In the opinion of the surgical specialist there was a connexion between the clinical diagnosis and the condition disclosed in the picture. An operation was to have been performed, but an ambulance train arrived, and as there was no urgency about the operation the patient was sent down, and his subsequent history is not known. In the appendix may be seen an irregular white mark, which the surgical specialist believed to be a concretion.

FIG. 4.—Injured intestine. This picture shows a portion of the large intestine crossed in two directions by a fold of small intestine believed to be lying behind it. In the lumen of the large intestine is a light spot, which represents a foreign body. The wound by which it entered the intestine is shown by the oblique white track leading down towards it. The patient died before an operation could be performed. The correctness of the picture was confirmed on *post-mortem* examination.

FIG. 5.—Picture of the liver. This man was wounded in the axilla. He was found to be tender over the lower ribs. The outline of the liver is shown, and in the middle a light patch, believed to be pus, surrounding a foreign body. The case had not been operated upon at the time this report was made.

passed, has met the descending current emanating from electrode B.

However the inventor's view be expressed, it involves the supposition that every organ in the body constitutes and originates a separate electric field, and that the facultative dynamic power of this field, as also its shape, varies precisely with the constitution and shape of each organ in question.

The explanation here given may be insufficient to account for all the results, or even to be in direct conflict with accepted views concerning body electricity. But, after all, very little is at present known concerning organic tissues as a source of electrical force, and in any case the fact remains that it is on this theory that the inventor and originator of the process has worked out his discovery and is at present endeavouring to perfect it in respect of mechanical details.

While the greater part of the process has been developed by constructing a novel theory and converting it into a practice, a good many of the results so far obtained are due to experiment. It has been found, for instance, that the appliances must be tuned for different organs and different tissues.

In other words, the rate of alternations in the currents, and therefore the force of each electrical impulsive, must be varied according to the rate of vibration of the tissue molecules. Thus the electrical force residing in blood is very small; so, when blood vessels are to be delineated, the alternations must be very rapid. Contrariwise, since the electric force residing in heart muscle is great, the alternations must be slow when a heart is to be delineated.

The foregoing circumstance is the reason why the pictures shown in this article are so devoid of detail. In other words, the process, so far as it has at present been developed, never delineates more than one type of tissue on the same occasion, and the speed required for some tissues has not yet been learnt. This fact, however, can hardly be regarded as a total disadvantage, for from the surgical point of view it helps to make the discovery of immediate value. Take, for instance, the picture of a kidney here shown, or that of a liver. In the one case the instrument was tuned for kidney tissue, and in the other for liver, and in neither for blood or pus; consequently the outline of the two organs is shown quite clearly, and the effusion is represented by a patch of different tint.

So far we have not mentioned the discoverer's name. It is James Shearer, aged 30, at present a sergeant in the Royal Army Medical Corps working at a casualty clearing station. By birth he is a Scotsman, but he received his later education in America, where he graduated M.D., Ch.M. at the University of Washington, D.C., in 1907. On his joining the R.A.M.C. he could not be given a commission, as the medical degree he holds is not one of those recognized in Great Britain, but as soon as it was found that he was possessed of special electrical knowledge, and believed that he saw a way in which it could be utilized for the purposes of the war, he was given opportunities of developing his ideas by the commanding officer of the hospital of his unit (Lieutenant-Colonel Clements), with the approval of the Director-General of the Medical Services in France, Sir Arthur Sloggett.

SIGHT TESTS FOR THE BRITISH ARMY.

THERE is much to be said for and against the standards of vision adopted in the British army, to which reference was made in the BRITISH MEDICAL JOURNAL for September 16th, 1916. Since that note was published we have received some further information, which will be read with interest, since it describes the working of the military ophthalmic centres now established in this country.

"Ophthalmic centres" were established at the commencement of the present year at important stations in the various commands. Medical officers with ophthalmological experience were placed in charge of these centres with varying duties, according to the character of the station. If the centre happened to be the head quarters of a recruiting area the officer in charge became the referee of the recruiting medical board, to whom all cases below the official standard, or any which seemed to call for consideration from the ophthalmic standpoint, would be referred.

Each centre is attached to some military hospital, and the officer in charge of the centre acts as the ophthalmic surgeon of the hospital, the nature of his practice varying according to the suitability or otherwise of the hospital for operative work. Besides this he acts as consultant to the troops within a certain area, and sees cases referred to him by the medical officers in charge of the troops, supplying spectacles where needed by an admirable system which is working well.

The previous note in the BRITISH MEDICAL JOURNAL alluded to the possibility of unsuitable cases getting into the army and of suitable cases being excluded. These two points may be dealt with separately.

(*a*) *Enlistment of Unsuitable Cases.*—The cases of enlisted men who have found their way into eye hospitals at home with "high hypermetropia," "cataract," "retinitis pigmentosa," and "extensive choroiditis" are probably in the main those who entered the service before the present ophthalmic centres came into being. Except in those cases in which a man deliberately attempts to conceal his ailments (a very rare event at the present time), there ought to be little possibility of such mistakes occurring. All cases below the standard must be referred to the ophthalmic consultant to the board, and also any cases which seem to the examining members of the board to be doubtful, or in which the recruit makes any special complaint—as, for instance, of night-blindness, or some recurring affection such as iritis or corneal ulcers. Should a mistake have been made, the categories into which a man is placed by the recruiting medical boards only determine his initial sphere of training, or the special branch of the service to which he may at first be allotted. The army in training is continually under the supervision of travelling medical boards, who from time to time revise these categories.

(*b*) *Exclusion of Suitable Cases.*—The categories of the medical board lower than that for so-called general service do not seem to be generally understood. It is not necessary to define the many branches of the service which are open to spectacle wearers who are below the official standard for general service, but the prospects before such men are excellent if their vision can be suitably corrected, and if it should be decided at any time to send these men even into the trenches on the Western front this could be done as the men would be already under training.

The existing system for supplying spectacles to the troops works somewhat as follows: When a man commences his training visual defects should early be recognized by his officers, especially when he commences "firing." He is then referred to the medical officer of his regiment, who sends him, if he thinks necessary, to the nearest ophthalmic centre, as also if the man of his own accord complains of his eyes. When he arrives at the centre the officer in charge examines him, and if he considers that glasses are necessary a prescription is made out on the forms provided for the purpose, and measurements for frames are made by the optician attached to the centre who has enlisted in the R.A.M.C. The prescription is then sent up to the Army Spectacle Department, and in a few days an excellent pair of spectacles reaches the soldier, proper means being adopted to secure that the spectacles are satisfactory, and for the registration of the prescription.

E. P. QUAIN (*Surg., Gynaec., and Obstet.*, July, 1916) has collected 127 cases of rupture of bladder and fracture of pelvis with 34 recoveries. This is a mortality of 74 per cent.; 83 were reported before and 44 since 1890. Of the early 83 cases 11 recovered, a mortality of 86.7 per cent.; of the later 44 cases 23 recovered, so that the mortality was under 48 per cent. Quain shows a further proof of the increasing efficiency of treatment in this class of injuries by noting that out of 21 cases which occurred since 1905 only 8 died, a mortality of 38 per cent., but he adds an important qualification. The earlier series were taken largely from official autopsy notes, while the later cases were gleaned mostly from independent papers, and there is a tendency to report successful cases more readily than unsuccessful. The total mortality in all varieties of bladder ruptures with or without the complication in question or any other coincident injury is less than 25 per cent. In other words, fracture of the pelvis is the most serious complication of a ruptured bladder.

British Medical Journal.

SATURDAY, SEPTEMBER 30TH, 1916.

DOCTORS AS MEN OF ACTION.

At the present time, when the lawyer plays so large a part in public life, it may not be amiss to point out that a medical training, better perhaps than any other kind of professional education, fits a man for the most diverse spheres of activity. This is to be attributed to the breadth of outlook which is a natural product of the scientific study of medicine, but still more to the combination of rapid and accurate observation with swift decision engendered and developed by the emergencies that arise in medical practice. A doctor must be the exact opposite of the famous politician described by Carlyle as an "almost spectral kind of phantasm of a man . . . incapable of seeing veritably any fact whatever, but seeing, crediting, and laying to heart the mere clothes of the fact and fancying that all the rest does not exist."

The clear vision of fact and the promptness in action which are necessary in a doctor mark him out as a leader of men when a new field of enterprise opens up before him. It is not surprising, therefore, that so many who have begun as disciples of Aesculapius have, when the opportunity came to them, done signal service as explorers, administrators, governors of colonies, political officers, leaders of parties, and ministers of State. We need only mention the names of Mungo Park, David Livingstone, John Kirk, James Logan Campbell, Charles Tupper, Rutherford Alcock, Halliday Macartney, Robert Bredon, William MacGregor, Starr Jameson, and George Scott Robertson. To medical men is due the creation of the Forests, Post Office, Mints, Geology, and Telegraph Departments in India. Two doctors, George Clemenceau and Emile Combes, have within the last twenty years been Prime Ministers of France. In Germany Rudolf Virchow was for a long time the leader of the Liberal party; in Italy Baccelli was a power in the State as well as a conspicuous figure in the medical profession; in Portugal medical men—notably Affonso Costa, Antonio José d'Almeida, and Brito Camacho—have in recent years played a prominent part in the revolutionary movement and in the government of the country.

There is one field of action in which the doctor has been less conspicuous as a leader. Although he has everywhere won admiration by the calm courage with which he has done his duty in the face of death, he has not often exchanged the scalpel for the sword. But when he has done so, he has proved his fitness for what might seem an uncongenial calling. We need only recall the career of Major-General Leonard Wood, who, entering the United States army as a contract surgeon, became Colonel of the regiment of Rough Riders which covered itself with glory in Cuba. After the battle of San Juan he was appointed Military Governor of Santiago, then one of the foulest cities on earth. In him was centred the whole machinery of civil and military government. He united in his own person the offices of governor, judge, financial officer, school superintendent, health commissioner, water commissioner, and street commissioner. He not only cleansed the Augean stables of Santiago in a hygienic sense, but reformed all manner of administrative and other abuses. Later he was Governor-General of Cuba, and took the leading part in the reorganization of the government of the island, the establishment of schools, and the solution of vital sanitary problems. Accounts of his work were given in the British Medical Journal of April 22nd, 1899 (p. 973), and January 31st, 1903 (p. 271). In 1908 President Roosevelt promoted him to the rank of Major-General, and in 1910 he was appointed Chief of the Staff of the United States army. General Wood, who is now in command of the Eastern Department, is the leader in the movement for adequate national defence, and is regarded as the best soldier in the States. The position he has gained among his countrymen is shown by the fact that he is mentioned by the Washington correspondent of the *Times* as one of the "possibilities" for the Presidency. It is an interesting coincidence that Major-General F. C. Ainsworth, his second in command when he was Chief of the Staff, was also a doctor of medicine.

Dr. H. Raymondaud tells, in *Paris Médical* of April 1st, the story of two French army doctors who rose to high rank in the fighting force. Jean Pierre Joseph Bruyère was born in 1772 and served in the campaign of Italy as a surgeon of the first class. Preferring arms to the doctor's gown, he obtained, through the influence of Larrey, a captain's commission. He was a first-class fighting man and promotion was rapid. As colonel of the 23rd Chasseurs he went through the campaigns of 1805 and 1806, being made brigadier-general after the battle of Jena. He was created a baron of the Empire in 1808 and a count in 1811. As a general of division he commanded Masséna's light cavalry in the Russian campaign in 1812. He was a man of impetuous valour, and was wounded at Eylau, Wagram, and Moscow, finally dying after amputation through both thighs at the battle of Bautzen in 1813. The other, Jean Baptiste Rusca, was born in 1759, and served as a medical officer in the army of Italy in 1793. In that campaign he was given a combatant commission, and for his conduct at Loasso he was made a brigadier-general on the field of battle. He was promoted general of division in 1799. He was severely wounded at Lodi, and again at Trebbia. In 1801 he was in command of the island of Elba. In 1814 he was killed on the ramparts of Soissons, being then at the head of a division of the National Guards.

Paul Triaire, in *Dominique Larrey et les campagnes de la Révolution et de l'Empire*, mentions Colonel Lawless of the Scottish Legion, "a learned physician who had been professor of physiology in the University of Dublin." His taste for soldiering and his hatred of England led him to take service as a combatant under Napoleon. He was wounded at Kulm in 1813, and Larrey amputated his leg below the knee. Lawless, who as a doctor knew the dangers of the hospitals of that time, mounted his horse immediately after the operation and rode straight to Mayence where the first dressing was taken off. Thence he made his way to France, arriving there in good condition without any fresh dressing. Marbot in his *Mémoires* mentions Captain Fournier, adjutant-major to General Morland, commander of the *chasseurs à cheval* of the Imperial Guard. He had entered the army as a surgeon, but through Morland's influence obtained a combatant commission, and was killed with his chief at Austerlitz.

It may not be out of place to mention a famous instance of the opposite conversion. Thomas Sydenham, whom Gideon Harvey called "a trooper turned

physician," served on the Parliamentary side in both Civil Wars. In the first he left his studies, which he had just begun at Oxford, to take up the sword. In the second he was a captain of horse when he was a Bachelor of Medicine of Oxford, and in Scotland he acted in both capacities, physicking his men as well as leading them in action.

THE MEDICAL SERVICE IN THE NEW ADVANCE.

THE general effect of the advance made by the British troops on the Somme on September 15th and 16th and following days was to carry the line from where it had been left by the operations at the beginning of July forward for an average of between two and three miles, but to leave two deep indentations, one at Combles, near the middle of the line of advance, and the other at Thiepval, at its north-western end. The advance made on September 25th and 26th obliterated these two indentations and straightened out the line, which was at the same time advanced generally for perhaps about half a mile. One result of these recent advances will have been to put the medical arrangements as to field ambulances and casualty clearing stations, established after the earlier operations, somewhat out of date, and to render new dispositions necessary. Everything was in readiness, and, in fact, we believe that a number of casualty clearing stations had been brought up in anticipation of what has now happened, and placed in advance of those which bore the brunt of the work at the beginning of July. Field ambulances and advanced dressing stations were also, of course, pushed forward. Even so, the battalions in action must soon have got so far away from these stations that the task of carrying a man back from where he had fallen to these stations must have meant in some cases a heavy carry. Though this was the case, the nature and lie of the ground make it certain that the advanced dressing stations were under heavy fire during most of the time, as also the roads leading to the rear along which the wounded must have been evacuated. The extreme wetness of the weather during the greater part of the first three or four days; the scarcity of anything like real roads, many of those in the newly occupied area being little better than farm tracks; the general character of the terrain, and the depth to which the enemy's lines were penetrated must have made the difficulties of evacuation on this occasion greater than in the July push. Nevertheless, evacuation from the actual fighting line to the main dressing stations from the divisions and corps engaged was, we understand, conducted with rapidity and steadiness. From the main dressing stations to the casualty clearing stations chiefly employed the distance to be traversed was practically the same as in July, owing to the clearing stations having been pushed up. The personnel of these units had been strengthened by additional medical officers, orderlies, and nurses, and there was not anywhere any blockage. The men were loaded on to the ambulance cars, brought down rapidly, and quickly unloaded at the casualty clearing stations; there a great deal of hard and willing work was put in by all concerned, so that those wounded men who were fit to be evacuated to the base were very soon ready to be loaded into the ambulance trains which had been sent up to carry them down to the base. There seems to be reason to believe that the total number of casualties with which the advanced medical formations had to deal was not as large as was expected, although it included a considerable proportion of wounded Germans. Among our own men there was a large proportion of light cases. There was a threatening some weeks ago that gas gangrene might become more frequent, as happened at other parts of the front last year. Such cases as were observed during the Somme advances occurred chiefly in men who had been left out for some time owing either to the fact that they could not be reached or that they were hidden in some trench. During the recent advance cases of this serious complication have, we understand, been relatively rare.

All accounts agree in stating that the men themselves were curiously cheerful, and evidence of severe suffering was not often observed. The word "curiously" is often used in this connexion, but it is fully justified, because if a man has been working strenuously with head and body for hours at a time, has been more or less wet through for days, and then has a bullet through his arm or leg, with, perhaps, two or three minor injuries in addition, a certain amount of depression and gloominess in his aspect would not be surprising. However, the British soldier has always taken such misfortunes with a cheerful spirit, and his knowledge that the advance was being successfully pushed forward no doubt contributed to this attitude of mind, and will eventually contribute to his more speedy cure.

PREVENTION OF TRI-NITRO-TOLUOL POISONING.

IT may be remembered that some time ago we gave an account of a memorandum on Special Industrial Diseases, prepared by the Health of Munition Workers Committee and issued by the Ministry of Munitions.[1] It dealt, among other matters, with disorders produced in workers by various explosives, and indicated preventive measures which should be taken. The most important of these explosives seems to be tri-nitro-toluol (T.N.T.). Operatives employed in its manufacture and in loading it, either pure or mixed with other substances, into munitions, have been found affected with unusual drowsiness, frontal headache, eczema, and loss of appetite. In exceptional cases sudden collapse might occur after a few hours' work on a hot day, but generally the symptoms were at first slight, and, if exposure ceased, quickly disappeared; if the exposure were continued the symptoms tended to become more severe and might be associated with cyanosis, dyspnoea, palpitation, rapid weak pulse, constipation, vomiting, anaemia, pains in the limbs, and jaundice and bile-stained urine. In a few cases profound jaundice supervened, and death had been known to result. In one case quoted, the woman who died was aged 22 years, and had been exposed during about five weeks' employment in a munitions work to dust generated in manipulating a powder containing a moderate amount of tri-nitro-toluol. It appeared that she often left her home, which was five miles from the factory, without sufficient food, at 4.45 a.m., and that no adequate provision was made for her to take food on arrival before commencing work at 6 a.m. At this factory several other cases of illness occurred, and it was found that washing conveniences were primitive, cloakroom and overall accommodation inadequate, and personal supervision insufficient. The Committee pointed out that as the action of the poison, though progressive, was slow, precautions could be taken. In particular

[1] Health of Munition Workers Committee, Memorandum No. 8, Special Industrial Diseases. (Cd. 8214.) H.M. Stationery Office. Price 1d.

it was said that periodical medical examination of the workers, with power to suspend from employment any affected person, could be arranged; and it was stated that where this had already been done beneficial results had been observed.

The Ministry of Munitions has now issued a series of regulations for factories in which T.N.T. and other poisonous explosives are manipulated. The regulations apply to all the factories concerned which are engaged on work for the Ministry of Munitions. One regulation directs that a medical officer shall be appointed to examine every worker once in every fortnight, as well as workers referred to him at other times as needing special examination. Another regulation requires the appointment of a woman welfare supervisor at all factories in which women are employed. Every worker must be required to wear a suitable costume, which must be washed or renewed at least once in each week, and may with advantage be cleaned daily in a vacuum cleaner. The employer is responsible for the washing and repair of the costumes, and the costumes of workers manipulating T.N.T. must be kept apart from workers not so employed. Washing accommodation for workers must be provided in accordance with the standard adopted in regulations made by the Home Office under the Factory and Workshop Act. There must be an adequate supply of suitable soap and a separate towel provided for each worker daily. Every factory must have a canteen, at which must be available hot meals of a suitable character and price. At the works food must be consumed only in the canteen or other approved place, and every worker must be supplied daily at the expense of the employer with one pint of milk, or cocoa made with milk. So much for the regulations as they affect personal hygiene and health; and it is fair to expect that in carrying them out the employer, the medical officer, and the woman welfare supervisor shall have the intelligent co-operation of the workers.

As for the regulations dealing with the special precautions taken to prevent atmospheric poisoning, the employer is required to take all practicable means to prevent the accumulation, production, and dispersion of dust; and the operations of filling T.N.T. bags must be isolated from other operations. Further, wherever practicable, no person shall be in any workplace where exploder bags are filled, or blocks are pressed, for more than a fortnight without a corresponding period in work not involving contact with T.N.T. or other poisonous dusts.

The regulations seem well adapted to attain the end in view, and there can be no doubt that the work done by the Health of Munition Workers Committee has been very valuable. Medical officers to munition works may be glad to be reminded that the Committee has issued a series of memorandums discussing a variety of topics related to the maintenance of the health of munition workers, including such subjects as industrial fatigue, hours of work, employment of women, welfare supervision, and the construction and organization of canteens. In one memorandum on sickness and injury, which contains a general discussion, the Committee states that it has received evidence and reports from all parts of the country showing the economic and industrial value of the proper organization of a medical service within the factory, and was convinced that adequate schemes of treatment, especially of minor injuries, were an important means of preventing loss of time and inefficiency among the workers. The Committee, therefore, recommended that provision for organized treatment should be made in every munition factory.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

THE annual report for 1915 of the chief medical officer of the Board of Education[1] is a volume of less than one-half the usual number of pages, but it presents special features of interest. The war has caused a reduction of the normal medical staff, and it has affected the attendance of children at the schools. Early in the war the Board circularized the local authorities regarding the liberation of their medical officers for war work, and the new report gives an account of action taken at the suggestion of the Central Medical War Committee to set free still more men. The plan of work now in force allows the suspension, in whole or part, of the prescribed routine medical inspection of the groups of children, but provision is everywhere being made for the medical inspection of children of all ages who appear to be ailing, and for the maintenance, as far as practicable, of the forms of treatment hitherto carried out in the area under the authority's scheme. The returns for January, 1916, show a decrease in the age groups 12–13, 13–14, and 14–15 of 45,000 children, as compared with the ratio of the last ten years. In addition 15,000 have been exempt for agricultural work. These figures take no account of work done out of school hours or by half-timers. The extension of juvenile employment owing to the war has caused some concern to the department. The number of exemptions from school attendance for agricultural work is large, and it is said that in some areas they have been given too freely and without sufficiently careful ascertainment of the conditions of exemption prescribed. Some medical officers state that a considerable amount of overwork and consequent strain and fatigue has been entailed by employment out of school hours, and that children have shown signs of apathy, inattention, or somnolence in school, apparently attributable to this employment. Early entry into work means the loss of training at a time when it is just beginning to take effect on the young mind, and involves a physical strain youth is not calculated to bear. The report adds: "There is good reason to believe that in many areas the physical condition of the child thus employed is receiving the careful attention of the staff of the school medical service."

POISONING BY PRUSSIC ACID FUMES.

FUMIGATION with hydrocyanic acid gas for the destruction of vermin has been extensively used in India, the United States of America, and South Africa. The usual method adopted is to pour into a dish in the centre of the room to be dealt with measured quantities of sulphuric acid and water, adding the potassium cyanide at arm's length, and rushing from the room with all possible speed. The manipulator must wear rubber gloves or some other protection, or otherwise poisoning by the cyanide itself would almost certainly result. The gas is rather inflammable, and very quickly fatal when even one whiff of the strong vapour is taken. It is surprising that there have not been many more accidents with this very risky proceeding, and still more surprising are the recoveries. Dr. B. Cohen, who had the opportunity of attending two cases of poisoning by prussic acid fumes within a short time of the accidents, has recorded in a brief but important note the appearances found.[2] In his first case, a man accustomed to this method of fumigation incautiously reopened the door of the closed room on hearing the cry of a cat within. He must have been immediately overcome, for he was found shortly afterwards, by dwellers in the house who detected the faint smell of the gas, lying limp and insensible in front of the door with his head away from the direct line of fumes. When carried out into the open air he was found to be perfectly flaccid, with face and lips deeply suffused pink. Breathing was so slow that the bystanders thought it had

[1] H.M. Stationery Office. Price 9d.
[2] *S. A. Med. Rec.*, February 12th, 1916.

stopped. Dr. Cohen used artificial respiration, and in a few minutes the breathing became very noisy, with froth appearing in the mouth; the pupils were widely dilated and fixed; no odour of prussic acid was detected from the breath; neither urine nor faeces was passed; the pupils shortly afterwards became smaller and reacted to light, and the conjunctival reflex returned. The apparent improvement did not last long, for the teeth became clenched, the pupils dilated, the fingers, wrists, and elbows successively became flexed, and the arms moved convulsively; the left leg was drawn up, general convulsive movements ensued ending in muscular rigidity, and the pulse became small and weak. When the attack subsided the pupils reacted to light, and the conjunctival reflex became very active. A second attack resembled the first but was quicker in onset, more severe, and the duration of the convulsions longer. The third attack came within a few seconds after his teeth were clenched. The rigidity raised the body off the floor, and when it subsided the pulse was almost imperceptible and the respirations were shallow. The face grew ashen grey, and the patient appeared to be dying of heart failure. He was made to inhale aromatic ammonia, and $\frac{1}{250}$ grain of strophanthin was injected subcutaneously. Within a few minutes he improved. From the time of the accident till the time of the third attack barely one and a half hours elapsed. The patient improved steadily but remained drowsy. Fourteen hours after the poisoning, and after he had had a good sleep, he had quite recovered save for some temporary impediment to his speech. The second case occurred in a man who was in the direct current of vapour from an imperfectly sealed room that was being fumigated. Seen twenty minutes afterwards he was found to have lost control of his legs; his face was suffused pink, there were general tremors, pulse thready and numbering 140 to the minute, respirations deep, but he was quite conscious. Along with the flushings the patient had a sense of impending dissolution and a burning sensation in the eyes. The injection of strophanthin quieted the pulse. The manner in which the poison kills is not definitely decided. The pink colour of the face in conjunction with a practical cessation of respiration, as seen in the first case, may be explained on the view that prussic acid limits or prevents internal respiration. The tissues are directly acted on, and are prevented from using the oxygen of the blood and giving up carbon dioxide. The redness of the face would then be due to this, and not to a special compound of haemoglobin and hydrocyanic acid. The dilatation of the blood vessels probably contributes. Whether the respiratory centre is directly affected by the blood or indirectly by the interference with internal respiration, the proper treatment at the beginning is to perform artificial respiration, not only to maintain respiration, but also to eliminate hydrocyanic acid by the lungs. The convulsions and rigidity would throw an undue strain on the large veins and on the right side of the heart, as was shown by the slow, weak pulse and the immediate improvement after the administration of strophanthin. Venesection was formerly recommended for this condition, but probably the right heart may be eased as well and contractility stimulated by vigorous artificial respiration.

INJURIES OF NERVES.

DURING the present war a vast amount of information about injuries of nerves, their diagnosis, prognosis, and treatment, has been brought together in France, particularly by the Neurological Society of Paris. Dr. Tinel has selected the best part of it all, and has recently published an excellent account of the signs, symptoms, and diagnosis of nervous injuries.[1] The means of diagnosing functional from organic disease of the peripheral nerves are discussed at full length, and the indications for the operative relief of those nervous lesions that are amenable to surgical treatment are set out in detail. In an introductory note Professor Dejerine points out the need for the collaboration of physicians and surgeons in many of these cases, and the importance of making precise anatomical diagnoses in every instance of trauma or gunshot wounds of nerves. It is estimated that from 18 to 20 per cent. of the men wounded in the limbs have more or less important injuries of the nerve trunks; the percentage is far higher if the cases of slight trauma are eliminated from the reckoning. Dr. Tinel's essay is divided into three parts. The first gives a detailed account of the general examination for a diagnosis of injuries to nerves, and the second contains a mass of clinical information about cases involving either the arm or the leg. The third part is brief, and consists of an excellent summary on the subject of the prognosis and treatment of injuries of nerves. Dr. Tinel estimates that spontaneous recovery takes place in from 60 to 70 per cent. of the patients, although in 10 or 20 per cent. surgical intervention would have quickened the process of cure. Surgical operation for the suture of a divided peripheral nerve, or for its liberation from the grip of cicatricial tissue, is required in 30 or 40 per cent. of the cases. The suture of divided nerves should give satisfactory results in from 85 to 88 per cent. of the instances to which it is applied; the results are better if the surgical interference takes place early, but may be good even twelve or fifteen months after the receipt of the injury. Restoration of function after the suture of a nerve is necessarily slow, because, even under favourable conditions and in young subjects, the regeneration of the cut axis cylinder processes takes place at a rate of only 1 or 2 mm. a day. Dr. Tinel writes clearly, and has reproduced a number of photographs of patients and delineated schemes of nerve supplies. The information he has collected will be of particular interest to those who have to deal with wounded soldiers from the seat of war.

[1] *Les blessures des nerfs : Sémiologie des lésions nerveuses périphériques par blessures de guerre.* Par J. Tinel. Préface du Prof. J. Dejerine. Paris: Masson et Cie. 1916. (Roy. 8vo, pp. 319; 323 figures. Fr. 12.50.)

SYPHILIS OF THE SPINE.

SYPHILITIC disease of the vertebral column is usually regarded as a rare condition, and has received little attention in the textbooks. However, according to investigations recently carried out by Whitney and Baldwin[1] of San Francisco, the vertebral joints are far more commonly affected by syphilis than any others. Out of 100 cases of syphilis examined, only 26 were found to have perfectly normal spines. These observers distinguish two types of syphilitic arthritis, the toxic and the infectious. The toxic type resembles arthritis deformans, showing hypertrophic and villous lesions, and sometimes atrophic changes. Usually many joints are affected, those of the spine being among the most frequent. In such cases the spine is more or less uniformly stiff, and the characteristic osteophytes of hypertrophic joint disease are revealed by the *x* rays. The infectious type of arthritis includes two forms—the one destructive, due to gummatous osteitis of the vertebrae, closely resembling tuberculosis in its clinical features, the so-called syphilitic Pott's disease; the other a synovitis without destructive change. Special attention is directed to the latter form, since it has not been sufficiently recognized. The condition is described as affecting the synovial membranes of several vertebral joints, usually only a few, leading to diminished mobility from spasm, and afterwards to adhesions, which may cause complete fixation. These adhesions are said to be uninfluenced by antisyphilitic treatment, but may be broken down by forcible manipulation. When stiffness occurs, either from spasm or from adhesions, a deformity may be produced which may be mistaken for Pott's disease. This vertebral synovitis is

[1] *Journ. Amer. Med. Assoc.*, December 4th, 1915.

a comparatively early manifestation, but on account of the persistence of adhesions the deformity and stiffness may be found in old cases of syphilis with no other signs of the disease and a negative Wassermann reaction. It may, therefore, have some diagnostic value. A characteristic feature of these cases is said to be hypotonicity of the muscles and ligaments of the unaffected portions of the spine, especially the sacro-iliac joints, so that the patient can often touch the floor while keeping the knees straight, in spite of the localized stiffness. Pain is not so prominent a symptom as in tuberculosis of the spine. Although, in accordance with custom, the Wassermann reaction was resorted to in the diagnosis of these cases, the authors dissent from the view that this reaction is the deciding factor, and are of opinion that many cases of bone and joint syphilis give a negative reaction.

CONGENITAL GOITRE IN GOATS.

During the last twelve years Major Robert McCarrison, I.M.S., has published a large amount of interesting and highly valuable original work on the causation of goitre. In 1913 he delivered the Milroy lectures at the Royal College of Physicians, choosing as his subject the etiology of endemic goitre; an account of these lectures and some others of his publications on the subject will be found in the BRITISH MEDICAL JOURNAL of March 7th, 1914, p. 538. Quite recently he has reported[1] the results of his experiments on the production of congenital goitre in the goat, carried out at the Central Research Institute, Kasauli, India, in the years 1913 and 1914. As is well known, his view is that endemic goitre in human beings in India is an infective condition, due to a *contagium vivum* of unknown morphology that has its habitat in the alimentary tract. He has shown that a similar disease can occur in white rats, and that nearly two-thirds of the offspring of goitrous white rats are born with congenital goitre; this goitre is due to the action on the fetal thyroid gland of toxic substances derived from the maternal intestine. The research now reported is a continuation of the same line of work, with goats as the experimental animals instead of white rats. Its methods and results may be summarized as follows: Twelve healthy female Punjabi goats were penned and stabled together, rendered goitrous by the administration of cultures of microbes grown from the faeces of goitrous individuals, and covered by a healthy male imported from a non-goitrous locality. Eleven of the twelve bore kids, all of which were goitrous, and ten were stillborn, ill-developed, and hairless; these eleven large congenital goitres proved sterile on aërobic and anaërobic cultivation. Four control non-goitrous goats, fed with clean food and water, and kept muzzled to minimize the chances of accidental infection, gave birth between them to three kids that were free from congenital goitre. Four other control animals were similarly fed but not muzzled; two became goitrous, the other two did not, and between them these four animals produced three kids, two of which had small congenital goitres. A further experiment was carried out with one of the laboratory goats belonging to the Institute. The animal had a considerable goitre, and Major McCarrison successfully performed a right-sided thyroidectomy on it. It was then impregnated by the same male, and in due time gave birth to a healthy non-goitrous kid. The conclusion to be drawn from these researches is this: That congenital goitre in goats is due to the action on the fetal thyroid gland of toxic substances derived from the maternal intestine. These substances are the products of microbes originating in faecally-contaminated soil which are conveyed to man and animals by infected food and water. The toxicity of the cultures administered to the twelve first-mentioned goats above must have been very great, for the congenital goitres produced were, as a rule, of large size, as is shown by photographs reproduced in Major McCarrison's paper, and the offspring showed gross evidence of development retarded or brought to a premature close. The exact nature of the infecting agent responsible for this production of congenital goitre still remains a matter of speculation. It is a problem of great interest. We hope that it may presently meet with its solution at Major McCarrison's hands.

[1] *Indian Journal of Medical Research*, Calcutta, 1916, IV, 185.

"BRITISH BEEF STEW."

THE famous Russian General Brussiloff and a distinguished British novelist have agreed on the estimate that the war will continue until some day in next summer or autumn, but it is reported in the United States that the British Government has recently contracted for 600 million cans of beef stew. Allowing each man a can a day, this would supply an army of three million men for a period of nearly two years; but perhaps the men of the British army are capable, on the average, of consuming two cans of beef stew daily. Dr. John Aulde, of Philadelphia, has published an analysis of this beef stew. He says that it is composed of cooked beef 6 oz., rice 4 oz., beans 1 oz., onions 1 oz., carrots 1 oz., and that its value in food utilized is protein 50 grams, fat 60 grams, carbohydrate 37 grams, yielding 914 calories. He compares this with the "'balanced ration' so well understood by American stockmen." This contains 50 grams protein, 50 grams fat, 200 carbohydrate, and yields 1,490 calories. The carbohydrate in a day's diet should be as it is in this ration—four times the protein and the fat one-fifth of the whole. The British army stew is, of course, amplified by bread, jam, etc., and there is no advantage in putting more vegetable into it than will go to make a palatable stew. We must say the formula sounds an appetizing one, and ought to be much more acceptable than bully beef to all excepting those few unfortunate individuals who cannot bear onions. Dr. Aulde draws attention to the importance of an adequate supply of calcium in the diet. The beef stew contains 1.5 grains of calcium oxide and the same amount of magnesium oxide. The average dietary of American homes contains 10½ to 15 grains of calcium, and about half the quantity of magnesium; and he asserts that "when these proportions are reversed susceptibility to illness follows." "Deficiency of calcium," he says, "is the pivot in the production of rickets, a deciding factor in creating susceptibility to tuberculous infection in both adults and children, and a demonstrable condition in Bright's disease and diabetes. Recent investigations by the United States Public Health Service prove beyond question that the loss of lime salts is the sole cause of pellagra." This is a rather alarming picture, but even those who feel difficulty in accepting it as true will be pleased to know that our soldiers are not to be exposed to the risks enumerated.

DRS. BERNSTEIN AND FISH have published a report (*Journ. Amer. Med. Assoc.*, 1916) on an epidemic of poisoning by pies which occurred in July, 1915, in Westerley, Rhode Island, and in an adjacent township in Connecticut. It was traced to a restaurant where dough was mixed on July 2nd, and a batch of pies, apple, lemon, custard, etc. (but no meat), made on the following day; they were eaten on July 4th and 5th. Sixty people were seriously ill, four cases ending fatally. The attack in most instances came on from twelve to nineteen hours after the meal, the patients suffering from epigastric pain, burning sensations from the fauces to the stomach, great thirst, and cramps in the calves. Vomiting of green fluid and passage of green pea-soup-like fetid faeces continued for many days, and the diarrhoea was associated with tetanic spasms; one patient, a child, was comatose for three days with rigidity of the muscles of the neck. The temperature was high, but the pulse remained normal. Cultures were made and animals inoculated with a growth obtained from pie mixture and from a specimen of blood from one of the patients. These researches proved that the poisoning was due to the *Bacillus paratyphosus* B.

THE WAR.

SOME IMPRESSIONS OF A CIVILIAN AT THE WESTERN FRONT.

(Continued from p. 433.)

THE COMMANDER-IN-CHIEF.

SOON after my arrival in France, Sir Arthur Sloggett, the Director-General of the Medical Service of the British Armies, was good enough to take me with him on a round of inspection towards the Somme front. We had been running for some time along one of the broad, straight, poplar-bordered main roads, laid out by a soldier over a century ago, and now so well serving the turn of the armies of to-day, when the car turned off into a by-road. It was a fine early autumn morning, and I made no note of time or distance as we wound through tree-shadowed lanes the like of which may be found by the score in Southern England, but presently we drew up at a modest country house. "I must keep you waiting for a few minutes," my companion said, "for I have to see the Commander-in-Chief." Though the rumbling of the guns like distant thunder—continuous, but rising, as it were, into peaks of sound when the big guns gave their short, full-throated bellows—was an obsession, the shoulder-straps of the sentries at the gate bore the name of a famous volunteer corps in which I had once been a private, some contented hens strolled with me across the big yard surrounded by spacious red brick farm buildings, and the whole scene looked friendly and homely. I was aroused from a reverie by the call of my name, "Sir Douglas Haig will see you." I passed through the entrance doorway, crossed a stone hall, and entered a study with windows looking on to a tranquil garden. It was an inspiring experience to be greeted in that quiet, rather sombrely furnished room, with its serene outlook, by the man who had under his hand the largest fighting force that Great Britain has ever put into the field. It might have been a country gentleman in his house at home welcoming one to discuss some matter of local interest. But he turned at once to a relief map on the table and pointed out the positions at that moment, telling what had been done that morning by men, some of whom we were to see a little later returning to have their wounds dressed. He demonstrated other points on a map of the Somme front, and showed me a set of the map-like photographs our airmen take of the German trenches and defences, in which the long, straight high roads, with their poplar trees, the winding lanes and the scarred fields look as neat and as plain as in a perspective map. "I am glad," he said, "that you have come. I would wish you to see everything that interests you. I am more than satisfied with the way the medical service is going, but judge for yourself. We have nothing to conceal from people at home. We want them to know what we are doing." And the Commander-in-Chief's words expressed what seemed to me the sentiment all through the army and every branch of it, which is—Don't tell the enemy anything he does not know and which it might help him to know, but tell the people at home how we are doing things, for the better they understand the better they will be pleased. And that is the simple truth.

BASES.

The true base, the end of the lines of communication of the British armies in France, is England, and for the medical services the military general hospitals in Great Britain and Ireland; but the Channel causes a break, and from the first it has been considered advisable to establish medical bases at convenient points in France, where the necessary interruption in the journey may be turned to good account. These bases vary in magnitude and arrangement, but all are composed of a good many units. They usually, if not invariably, comprise stationary hospitals, general hospitals, and convalescent dépôts. A general hospital, according to the regulations, resembles in its organization, personnel, and equipment, the larger military hospitals in time of peace, but it maintains supplies of clothing, necessaries, and equipment for issue to patients as required. The regulations before the war directed that a general hospital should be organized for 520 beds—500 for men and 20 for officers—but the establishment has been doubled, and a general hospital, if the site affords scope, may be very much expanded beyond this, in the manner with which we have become familiar in the case of Territorial general hospitals at home. A stationary hospital is theoretically organized for 200 beds, but the regulations say that "it must be prepared to expand so as to accommodate a much larger number of patients on emergency," and this not infrequently happens.

To the civilian observer the distinction between a general and a stationary hospital, as seen under the conditions prevailing in France, may not be very obvious. This is probably to be explained by the relative shortness of the lines of communication on the other side of the Channel and to the fact that, as has been said, the true base is in the United Kingdom. In some instances, however, a stationary hospital is specialized in whole, or in part, to receive certain classes of cases. For instance, at one of the bases I was taken to a hospital camp which my guide spoke of as "the fracture hospital." It was a stationary hospital officially known by its number, but specially devoted to the treatment of fractures. Among its officers were surgical specialists who had shown special interest in the treatment of fractures. It contained at the time I visited it a good many cases of compound fracture of the thigh, and one could not but admire the skill and care lavished on men who had suffered wounds of this nature. They are, for several reasons, a very difficult class of case to treat. The man is very helpless, and unless the limb is immobilized suffers much pain and distress; but to immobilize it in such a way as to permit the surgeon to get at the wound, to allow the patient some freedom of movement so that he may shift his attitude in bed a little, and to facilitate nursing, is a problem difficult of solution. Much ingenuity has been expended at this hospital in devising appliances, some of which are of a very elaborate character, and have already been described in our columns. A month ago a note (p. 301) on the fixation of extension appliances was published, describing a glue used for fixing strips of dry gauze, and inspection of a few cases here made it plain that the glue acted efficiently in fixing the strips of gauze, and the patients were unanimous in saying that it was comfortable. The preparation consists of 50 parts each of common glue and tap water, to which 2 parts of glycerine and 1 part each of calcium chloride and thymol is added. The thymol covers the odour of the glue, the glycerine prevents it from becoming too brittle, and the calcium chloride increases the hydrophilic properties of the application. This is an important point, for the net result is that the gauze is easily removed without distress to the patient, although it is not the custom to shave the limb before application. The method of making extension by the use of this glue is cleanly, efficient, and comfortable to the patient. It has also the incidental advantage of being inexpensive.

One evening I watched the unloading of an ambulance train at a base which is also a port. Shortly before it came into the station a number of motor ambulances drew up, and, in addition, at this place tramcars were provided for slight cases. Three medical officers were on duty, and one of them was chiefly engaged in selecting the hospital to which the cot cases were to be sent. A motor ambulance was labelled with the number of the hospital to which it was to go, and it departed as soon as it was filled. Knowing something of the character of the various hospitals it was easy to understand the principle upon which the medical officers were working. Very many of the slighter

cases were directed to a general hospital near the embarkation quay of the hospital ships. Many of these men would, after a night's rest, be sent home in the morning or during the course of the following day. Others, again, who it seemed probable might be cured and returned to their units within a short time would be directed to the convalescent camp. Many of the fracture cases were directed to the "fracture hospital." Cases of wounds of the face were sent to another stationary hospital where there was a special facial department with a staff of surgeons, dentists, and dental mechanics. In yet another part of this area there was a special hospital for infectious diseases. Such cases are isolated on the train, and can be sent direct to the special hospital from the station.

On a later day during my visit to France I visited another medical base. We turned off the straight, century-old military road, which had brought us from an old historic town, to a very modern town erected on a sandy plain between estuary and sea. There was a small fishing town with a railway station a little way up the estuary, but the new temporary town was an independent organization, having its own sanitary arrangements, its own water supply, its own railway station, and, alas! its own cemetery. It was in the main a town of hospitals and convalescent camps for sick and wounded, and it was subject to a benevolent despotism which some philosophers have declared to be the best form of government. The despot here, like some others in history, had a keen eye for finance, but his operations provided luxuries not for himself but for his subjects, and they were secured not by squeezing them but by the utilization of waste products after the most approved modern method. His latest success in that direction was to salvage an incredible quantity of fat, a commodity which commands a very good price in the market to-day. The hospitals spread far, covering a wide extent of ground; the sandy soil on which they stood possesses some advantages from a sanitary point of view, attended, however, by certain drawbacks in the matter of foundations and road making. It may again be said that for the proper working of temporary tented or hutted hospitals good roads of approach and entry, and good firm dry paths, are very desirable but not always easily to be made.

This difficulty had not been felt in the case of a very well-appointed hospital built and maintained by the Order of St. John, for the several wards and offices were connected by covered corridors, with wooden floors. This hospital, regarded as a temporary structure and compared with regulation hutted hospitals, must, I believe, be considered a costly building; but, compared with brick or stone and mortar, it was cheap, and it may be asked whether those who have had experience of such an institution will be ready in future to approve the erection of many-storeyed hospitals of costly masonry work on confined sites in large towns. It seems not improbable that they will be disposed to favour the expenditure of more money on a larger site and less on construction. Experience proves that hospitals constructed on principles esteemed admirable by one generation are condemned by the next, and are torn down to be built up again in an equally expensive style. The underlying assumption has been that the general hospitals of a large town must be built in the centres of population where the majority of their patients reside, or close by the factories and works in which accidents most commonly occur. After the demonstration which this war has afforded on a huge scale of the efficiency of motor ambulances, it may well be asked whether a wiser policy might not be to have, after the manner of the army, several civil casualty clearing stations in the working centres, and general hospitals on ample airy sites outside the area of dense population.

However this may be, the amenities of the hospitals in this great camp were striking. The wards, though not lofty, were airy, and the abundance of light gave them a cheery aspect, which must have had a beneficial effect on the mental attitude of the patients. It was cheering also to the medical observer to know that the temporary character of the hospital did not prevent the application of scientific methods for the guidance of the surgeon. In one large general hospital here, for instance, a surgeon and bacteriologist were working in very close association, with the object of ascertaining the moment when the wound was sufficiently free from microbes to be closed. The bacteriologist was able to observe from day to day the diminution in the number of micro-organisms under treatment by, if I remember right, hypochlorite solution; when the number had been reduced to a safe minimum the wound was sewn up, with the very best results and a great saving of the time for which the patient would otherwise have had to continue under the surgeon's hands for daily dressings. In other places similar results were obtained by saline irrigation, or the salt pack, combined with the excision of the wound in suitable cases, either in an earlier or later stage. This method of excision of a ragged, contused, infected wound, which seems to be one of the most important of the surgical advances made during this war, had its origin, I believe, at Rouen, but it will now be found a part of the habitual practice of many surgeons from the casualty clearing stations onward to the base.

Shearer's Delineator.

I had not been long with the medical service in France before one of the consulting surgeons spoke to me of a new method for the delineation of organs *in vivo*, and the localization of lesions, which was being worked out at a casualty clearing station not far behind the Somme front. When he first showed me some of the results of this process in the form of outlines of the kidney, the brain, and the liver, I was inclined to assume that I was being made the victim of a practical joke. He at once admitted that my suspicions were not unreasonable, but quite seriously assured me that they were unfounded, and strongly recommended me to go and see. He told me that the results had been tested by observations both at operation and *post mortem*, and that the indications they gave had been proved to be correct. Later on, after hearing a good deal more gossip and conjecture, I was able to visit the casualty clearing station, and to see something of the manner in which the method is carried out. I found that the inventor, Sergeant (Dr.) Shearer, R.A.M.C., had been provided with a small hut divided into two compartments. That at the back was mainly occupied by an improvised dark chamber; in the front part were a couch, and a small cupboard which contained certain electrical apparatus, and the cylinder upon which the needle made the tracing. The inventor showed the whole apparatus in the cupboard freely, and demonstrated every detail, but I have to confess that I was not competent fully to understand his explanations. As a matter of fact, there is, I think, still a good deal of empiricism in his procedure. A patient with a gunshot wound of the head, was brought in on a stretcher and laid on the table between the screen above and the screen below, as described in an article at page 459. The cylinder was covered with a strip of paper treated with paraffin wax and the apparatus set going. One saw the cylinder carrying the wax paper revolving rapidly and the needle moving over it, making a series of marks upon it. The procedure, so far as the patient was concerned, was finished in less than a minute. The wax paper was then removed from the cylinder, and on holding it up to the light one saw that there was a tracing stencilled upon it. The paper was then taken to the dark room, rubbed over with a preparation of fine charcoal, and then shaken and dusted, so that the charcoal remained only in the tracing marked on the wax paper. A photographic print was then taken by direct contact and the negative thus obtained developed, fixed, and washed in the ordinary way. On examination in daylight it was seen to have upon it a tracing of the brain, showing the outline of the organ, the blood vessels, and an irregular patch which was held to indicate the site of the lesion. In reproducing such a negative (which is printed on p. 459) it was found most convenient to print it as a positive, but the black lines in the illustration were white in the negative shown to us, and the brain tissue was dark. The other illustrations are reproduced as negatives, so that they show with exactness the appearances actually presented to the surgeon. I saw also a specimen of a liver removed *post mortem* showing a large stellate wound of the anterior surface. I was allowed to compare it with the negative, and it appeared that the blur shown on it corresponded to the position of the lesion. I also saw other *post-mortem* specimens in which the accuracy of the method was demonstrated. I was not able to follow the patient from whom the negative I saw made was obtained, but I witnessed a *post-mortem* examination which showed the

weakness of the method in its present stage. It was also a case of gunshot wound of the brain. There was a wound over the left temporal region, and the negative which had been obtained from it during life showed a blurred area posterior to the wound, and Sergeant Shearer ventured the prediction that the missile had travelled backward, downward, and inward, and would be found at a depth of about two inches. The *post-mortem* examination, made in my presence, showed that in thus attempting to localize the position of the missile he was mistaken. It had traversed the brain in the direction he indicated—namely, backward, downward, and inward—but it had passed through the whole of the left hemisphere and the whole of the right, and was lying in contact with the cranium on the right side, having slightly torn the dura mater in this situation. At present, therefore, the method is subject to the same disadvantage as the *x*-ray method suffered when it was the custom to take skiagrams in one plane only. The inventor hopes shortly to overcome this difficulty, and proposes, I am informed, to publish a full description of his apparatus and its mode of action at an early date.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Lieutenant-Colonel R. P. Campbell, C.A.M.C.
Captain N. W. Broughton, R.A.M.C. (temporary).

CAPTAIN H. F. H. PLANT, A.A.M.C.

Captain Harold Frederick Hood Plant, A.A.M.C., aged 28 years, who was killed in action in the recent fighting in France, was the son of Colonel Plant (retired) of Brisbane, Queensland. He was educated at Bowen House School, Brisbane, and matriculated in 1908 from the Boys' Grammar School, Brisbane, to the Sydney University. At school he took a keen interest in all sports, and represented his school in football and rifle shooting. He rose to the rank of officer cadet in 1907, and obtained a commission in the Commonwealth Senior Cadet Forces. In March, 1908, he entered St. Andrews College, Sydney University, as a medical student. He represented his college and the university in rifle shooting and coxed the St. Andrews crew. He graduated in March, 1913, and acted as resident surgeon at the Lady Bowen Hospital, Brisbane, Queensland, for three months, after which he was resident medical officer at the Brisbane General Hospital for twelve months, and then the Hospital for Sick Children, Brisbane. He left Australia with the 1st Australian General Hospital, and later saw service with a stationary hospital at Gallipoli until the evacuation. He later rejoined the 1st Australian General Hospital, and at the time of his death was acting as regimental medical officer to an Australian battalion. The following notification was published in orders by the Army Corps Commander:

The Army Corps Commander wishes to express his appreciation of the very gallant conduct of Captain H. F. H. Plant, A.A.M.C., who, during the recent fighting at Pozières, distinguished himself by his unremitting efforts on behalf of the wounded, no less than his cheerful gallantry in action. The example of endurance and fortitude he set is acknowledged to have had the happiest influence on the battalion to which he was attached. The Corps Commander very much regrets that this gallant officer was later killed in action.

CAPTAIN C. E. H. SMITH, R.A.M.C.

Captain Charles Edgar Holton Smith, R.A.M.C., was killed in action on September 16th. He was the eldest son of the late Charles Smith, of Milligan Hall, Taunton, Somerset, and was educated at Edinburgh University, taking the Scottish triple qualification in 1911. After filling the posts of house-surgeon and house-physician at the East Suffolk Hospital at Ipswich, and acting as second surgeon of the British Red Crescent hospital in Tripoli in the late Italo-Turkish war, he went into practice at High Green, Cannock, Staffordshire. He joined the R.A.M.C. as a temporary lieutenant on November 1st, 1914, and was promoted to captain after a year.

Lieutenant E. H. McVicker, R.A.M.C. (temporary), attached Lancashire Fusiliers.

Wounded.

Captain C. F. Brady, R.A.M.C. (temporary).
Captain K. B. Dickson, R.A.M.C. (temporary).
Captain H. Good, New Zealand A.M.C.
Captain H. A. Harris, R.A.M.C. (temporary).
Captain H. Hart, Canadian A.M.C.
Captain J. Hart, R.A.M.C. (temporary).
Captain R. R. McClenahan, Canadian A.M.C.
Captain O. C. Martyn, R.A.M.C.(S.R.).
Captain J. A. Pridham, R.A.M.C. (temporary).
Captain W. R. Ranson, R.A.M.C. (temporary).
Captain G. H. Watson, R.A.M.C.(T.F.).
Captain I. S. Wilson, R.A.M.C. (temporary).
Lieutenant H. Farncombe, R.A.M.C. (temporary).
Lieutenant S. A. McClintock, R.A.M.C. (temporary).
Lieutenant R. Puttock, R.A.M.C. (temporary).
Lieutenant E. W. G. Young, R.A.M.C. (temporary).

Missing.

Captain T. L. Ingram, D.S.O., R.A.M.C. (temporary).

Died of Wounds.

Major A. Martin, New Zealand Army Medical Corps.

CAPTAIN S. M. GRAHAM, A.A.M.C.

Captain Stuart Millard Graham, Australian Army Medical Corps, who died of wounds in France on August 22nd, was the son of the late Sir James Graham, a well-known medical practitioner of Sydney, N.S.W., who took a prominent part in the public life of the State as Lord Mayor of Sydney and member of Parliament for Belmore, Sydney. Captain Graham was born in 1891, was educated at the Sydney Grammar School and at the Sydney University, where he graduated in 1913. Subsequently he served on the house staff of the Royal Prince Alfred Hospital and of the Crown Street Women's Hospital. He joined the Australian Imperial Force in 1915, serving first in Egypt and then for several months with the 3rd Australian General Hospital at Mudros until after the evacuation of Gallipoli. When the Australian forces were leaving Egypt for France he was posted to the 1st Field Ambulance, and it was while working at an advanced dressing station of this ambulance on August 19th that he received the shell wound which proved fatal three days later. Captain Graham had given promise in civil life of a brilliant future, and his military work was consistently good. He was extremely popular with a wide circle of comrades, who all deplore his death.

CAPTAIN E. P. LEAHY, R.A.M.C.

Captain Eugene Patrick Leahy, R.A.M.C., is reported as having died of wounds. He was the son of the late Mr. Donald Leahy, of Belfast, and was educated at the Victoria University, Manchester, where he graduated as M.B. and Ch.B. in 1913. After acting as house-surgeon of the Royal Infirmary, Chester, he took a temporary commission as lieutenant in the R.A.M.C. on February 1st, 1915, and was promoted to captain on completion of a year's service.

Accidentally Killed.

CAPTAIN T. STRAIN, R.A.M.C.

Captain Thomas Strain, R.A.M.C., was accidentally killed on service on September 16th. He was the youngest son of Mr. W. Strain, of Buarbrae, Wishaw, and was educated at St. Mungo's College and Anderson's College, Glasgow, and at the University, where he graduated M.B. and Ch.B. in 1906, and M.D. in 1910. He took the D.P.H. Cambridge in 1908, and filled successively the posts of resident medical officer of Enfield and Edmonton Joint Isolation Hospital; of assistant medical officer of health and school medical officer to the Ayrshire County Council; and of medical officer of health, bacteriologist, medical superintendent of the Infectious Diseases Hospital, and medical officer of the tuberculosis dispensary to the Barnes Urban District Council. Before the war he was medical officer of health and school medical officer of Heston and Isleworth Urban District, and consulting physician to the Richmond, Heston, and Isleworth Joint Isolation Hospital Committee. He took a temporary commission in the R.A.M.C. on April 12th, 1915, and was promoted to captain on completion of a year's service.

Prisoners Exchanged.

It is announced that the following officers of the I.M.S., taken prisoners by the Turks at Kut-el-Amara in April, have been released as exchanged prisoners, and transferred to India: Colonel P. Hehir, C.B., Majors C. H. Barber and S. Bose, Captains P. B. Bharucha and H. H. King.

DEATHS AMONG SONS OF MEDICAL MEN.

Brown, Lieutenant W. J. H., killed in action on September 4th, was the eldest son of the late Dr. Brown of North Shields and Mrs. Brown of Sydenham. He was educated at Tenbury and Tynemouth schools, and entered Durham University as a medical student. On his father's death he had to relinquish the medical profession, and went as under-manager to the Bertam estate, Straits Settlement, for two years. He returned to England in 1914, and on regaining his health joined the Norfolks in August, 1914.

Daly, A. C. de Burgh, Second Lieutenant Royal Dublin Fusiliers, younger son of Dr. de Burgh Daly, of Dublin, killed September 14th, aged 19.

Dinan, George Albert, Second Lieutenant Royal Dublin Fusiliers, the fourth son of Mr. John Dinan, of Knockeven, Rushbrooke, Queenstown, was killed on September 9th. He was born in April, 1891, and was educated at the Benedictine College, Ramsgate, and subsequently was a medical student of University College, Cork, and of Guy's Hospital, London. He received his commission in January of this year.

Douglas, Archibald Halliday, Lieutenant Royal Scots, the Lothian Regiment, younger son of Dr. Kenneth M. Douglas, of Edinburgh, killed on September 17th. He was educated at Edinburgh Academy, where he was *dux*, or head boy, in 1914; was captain of the school; and was for three years in the school fifteen, and for two years in the eleven. He was entered at Brasenose College, Oxford, and intended to read for the Indian Civil Service, but joined the Royal Scots on October 4th, 1914, going to the front in April, 1915.

Harris, H. R. S., Private, Australian Imperial Force, second son of Dr. and Mrs. Spencer Harris, of Ely, has been killed in action in France by a shell bursting in his trench. He had served in the Gallipoli campaign.

Hoole, Geoffry, Second Lieutenant London Regiment, killed on September 15th, in his 21st year, was the youngest son of the late Dr. Henry Hoole and of Mrs. Hoole of Streatham. He was educated at the Modern School, Streatham, and resigned his position on the staff of Lloyd's Insurance to join the Artists O.T.C. in September of last year. He was gazetted to his battalion in June, 1916, and had only been at the front for a few weeks.

Limrick, Paul Osborne, Lieutenant the King's Liverpool Regiment, only son of Dr. O. E. B. Limrick, of Liverpool, killed on September 12th, aged 19. He was educated at the Liverpool Institute, where he was a sergeant in the O.T.C., and at Liverpool University. He got a commission on December 10th, 1914, and went to the front last July.

Macdonald, Archibald Walter, son of Dr. Albert A. Macdonald, of Toronto, Canada, killed on September 15th, aged 27.

Milton, John Munro, Lieutenant Northumberland Fusiliers, missing (believed killed) since September 26th, 1915, was the only son of Dr. Herbert Milton of Cairo. He was educated at St. Vincent's, Eastbourne, and Wellington College, Berks, being school prefect in 1910-11. He passed the intermediate examination for the Society of Chartered Accountants in July, 1914. He was in Switzerland when war broke out, but managed to return to Cairo, which he left in November, 1914, to offer his service.

Myles, William Whitson, Second Lieutenant Cameronians, aged 20, youngest son of the late Dr. T. P. Myles and Mrs. Myles of Castle Street, Brechin, died of wounds on September 20th. He was educated at Brechin High School and Leys School, Cambridge, and was just entering the university when war broke out. He joined almost at once, and received his commission early in 1915.

Starr, Dillwyn Parrish, Second Lieutenant Coldstream Guards, second son of Dr. Louis Starr, M.D., LL.D., of Philadelphia, killed on September 15th, aged 32. He was born in 1884, and educated at Groton School and at Harvard, where he was for four years in the university football team. At the beginning of the war he joined the American Motor Ambulance Volunteer Corps, and for several months drove an ambulance for that unit, attached to the second French Army. In December, 1914, he enlisted in the Armoured Motor Car Service of the Royal Naval Air Service, and served with the Duke of Westminster's squadron in France, taking part in the battle of Neuve Chapelle. In May, 1915, he got a commission in the same service as sublieutenant, and served at Gallipoli and Suvla Bay. In December, 1915, he returned to England, and received a commission in the Coldstream Guards, returning to the front last July.

Tweedy, Trevor Carlyon, Captain Northumberland Fusiliers, eldest son of Major Reginald Carlyon Tweedy, R.A.M.C., of Kenilworth, was killed on September 15th, aged 21. He joined the sixth Territorial battalion of that regiment a year before the war began, on September 1st, 1913.

MEDICAL STUDENTS.

Birtles, Leonard, Second Lieutenant Durham Light Infantry, killed September 16th, aged 23, was the only son of Mrs. Henry Birtles of Putney, and was educated at Merchant Taylors School and at St. Thomas's Hospital. At the beginning of the war he enlisted in the Civil Service Rifles, and afterwards obtained a nomination for Sandhurst, being gazetted to the Durham Light Infantry on passing out. He was a well-known Rugby football player, having played for his school, his hospital, and for the Old Merchant Taylors' club.

Don, Archibald William Robertson, Lieutenant Royal Highlanders, the Black Watch, died on service abroad recently. He was the son of Mr. R. B. Don of Tealing House, Forfarshire, and was educated at Cambridge and in London, where he was studying medicine. His first commission was dated December 18th, 1914.

We regret to notice in the casualty list issued on September 24th the name of Sir Guy Butlin, Captain Cambridgeshire Regiment, the only son and heir of the late Sir Henry Butlin, among the wounded and taken prisoner.

In the same list among the wounded occurs the name of Lieutenant Weldon Champneys, Grenadier Guards, the surviving son of Sir Francis Champneys. We are glad to be informed that the wound is not dangerous.

NOTES.

HONOURS.

THE *London Gazette* of September 22nd and the Supplement issued on September 26th publish the names of a long list of officers decorated for services in the field. Among them are five medical officers who receive the D.S.O. and forty-three the Military Cross. Their names are given below, with the services for which they were decorated.

D.S.O.

Temporary Captain Lancelot Gerard Bourdillon, R.A.M.C.

When an officer had been killed carrying in a wounded sergeant, Captain Bourdillon went out in broad daylight, bandaged the sergeant's wounds, and only came in when certain that the latter could not live.

Temporary Captain N. W. Broughton, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. During a very heavy bombardment he, on three occasions, helped to dig out men from blown-in dug-out. Shells were bursting all round him, but he refused to take cover, and it was mainly due to his efforts that most of the buried men were rescued. He has done other fine and gallant work. (The death of this officer in action is recorded on p. 469.)

Captain William Kealty Campbell, M.B., R.A.M.C.(S.R.).

He went ahead of the bearers and dressed the wounded in the open under heavy shell fire. Whilst establishing advanced dressing stations he was wounded and half blinded by the explosion of a shell, but carried on his work. He set a splendid example to those around him.

Temporary Captain D. W. Hunter, M.B., R.A.M.C.

For exceptional gallantry and devotion to duty. This officer laboured incessantly, tending and clearing the wounded in the open and in front line trenches under very heavy fire. At a critical time, when casualties had been heavy, he steadied and reorganized his stretcher bearers by his magnificent example and skilful control. After the battalion had withdrawn he continued searching the battlefield for wounded. He showed absolute disregard of danger.

(Substituted for the announcement published in the *London Gazette* dated August 25th, 1916.)

Captain James Walker Jones, M.B., I.M.S.

For conspicuous presence of mind in closing with a soldier who had lost his reason and was moving along a trench prior to an attack with a bomb in each hand. Realizing the situation, Captain Jones closed with him, and wrenched one bomb from his hand. It immediately started to burn. Captain Jones threw it some yards away, and it burst on touching the ground. Two officers were injured by the explosion, and several others might have been injured but for this prompt and courageous action.

Military Cross.

Captain W. B. Allen, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He was telephoned for when an artilleryman was severely wounded, and came in at once over ground which was being heavily shelled at the time. On another occasion he did similar fine work under heavy shell fire.

Temporary Captain G. G. Bartholomew, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. His dressing station was continually under shell fire, but he tended the wounded with the greatest coolness and courage. He remained in the line thirty hours after the battalion had been removed. He had previously done similar fine work.

Temporary Lieutenant John Vincent Bates, R.A.M.C.

For tending wounded men under heavy shell fire, utterly regardless of his own safety. He made repeated efforts to save wounded men from burning when his dressing station was set on fire by a shell. His conduct throughout several days of heavy fighting was very fine.

Temporary Captain Cyril Armand Bernard, R.A.M.C.

For volunteering to conduct, under very heavy shell fire, stretcher-bearers bringing in wounded. He made several trips and brought in many wounded.

Temporary Captain Arthur Joseph Blake, R.A.M.C.

He tended wounded men incessantly day and night under most trying conditions. He went out into "No Man's Land" searching for any wounded men who might still be lying there.

Temporary Captain F. Dallimore, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. Under heavy shell and machine-gun fire, after his aid post had been blown in, he continued dressing the wounded, and only retired after every man had been attended to and safely removed. Twice previously he had done similar fine work.

Temporary Captain John Maitland Forsyth, M.B., R.A.M.C.

When the battalion was subjected to continuous heavy shell fire, he tended the wounded with great courage. On hearing that an officer was badly wounded out in the front, he went out at once under heavy fire to look for him. He has always carried out his duties under fire with the greatest coolness and courage.

Temporary Captain N. C. Graham, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. For several days he was constantly tending the wounded under heavy shell fire. He refused to leave the lines when the battalion had been relieved until he had attended to all the wounded of many other units. During the whole time he had hardly an hour's rest.

Temporary Captain Francis Joseph Henry, R.A.M.C.

He attended the wounded night and day unceasingly in the regimental "Aid Post," which was in an exposed position and damaged by shell fire. He also went into the open under heavy artillery and machine-gun fire.

Temporary Lieutenant James Arthur Liley, R.A.M.C.

He tended the wounded in the open and in the front trenches under very heavy shell fire. His coolness under heavy fire had a great moral effect on the men.

Temporary Lieutenant P. MacD. Little, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He collected and tended the wounded under very heavy fire during three days and nights. He also went out under heavy shell fire and brought in two wounded stretcher-bearers, and was going out again for two more, when a shell fell and killed them both.

Captain Campbell McNeil McCormack, M.B., R.A.M.C.(S.R.).

He directed the stretcher-bearers under heavy shell fire with the greatest coolness and courage. He succeeded in entering a village which had been heavily shelled, and, with another captain, a sergeant, and four men, collected the wounded into a dug-out and succeeded in getting them back later. He has frequently shown great courage.

Temporary Captain George Reginald Edward Gray Mackay, M.B., R.A.M.C.

He went across the open to tend the wounded in a trench which was being heavily shelled, and helped them into safety. On the same day he went out again to help some stretcher-bearers and wounded under heavy fire. He saved many lives, and set a fine example of courage.

Temporary Captain Dugald Black Maclean, M.B., R.A.M.C.

He worked incessantly, attending the wounded in the open, with practically no rest for three days, under heavy shell and machine-gun fire. His keenness and bravery inspired the stretcher-bearers. (The death of this officer in action was recorded last week, p. 435.)

Temporary Captain Samuel Wilson McLellan, M.D., F.R.C.S., R.A.M.C.

He brought up stretcher-bearers during the attack, and, though soon wounded and rendered unconscious by a shell, he resumed work immediately on his recovery, and carried on under very heavy shell fire. He worked without stopping for thirty hours.

Temporary Captain George MacLeod, M.B., R.A.M.C.

During several days of operations he worked unceasingly, tending and bringing in wounded officers and men, frequently in the open and under heavy fire. He set a splendid example to those around him.

Temporary Lieutenant Frank Percival Montgomery, M.B., R.A.M.C.

He collected and evacuated large numbers of wounded under heavy shell and machine-gun fire, working for five days in the open practically without sleep. He set a splendid example.

Temporary Captain J. McI. Morgan, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in action. He has shown an utter disregard of personal danger on several occasions when tending and removing the wounded.

Temporary Captain B. N. Norman, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He worked for practically forty-eight hours attending the wounded. His post was often shelled, but he only ceased work when he was physically incapable of further effort.

Temporary Captain Duncan Westlake Pailthorpe, R.A.M.C.

He attended the wounded in the open near the firing line under heavy fire of all descriptions, utterly regardless of personal danger.

Temporary Captain Murray Hulme Paterson, R.A.M.C.

He went out twice by daylight into "No Man's Land" and brought in wounded men. When his battalion was relieved he remained in his aid post till it was cleared of wounded. He did fine work.

Temporary Captain Arthur Owen Playford Reynolds, M.B., R.A.M.C.

For tending the wounded under heavy fire for thirty-six consecutive hours. He also made two gallant attempts to bring in a wounded officer under very heavy fire.

Captain Archibald Watson Russell, M.B., R.A.M.C.(S.R.).

He voluntarily remained days and nights in the trenches and in the open dressing wounded under heavy fire. He carried in several wounded men, and on one occasion he was partially buried.

Captain F. Sanders, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty in action. For forty-eight consecutive hours he worked in "No Man's Land," tending and carrying in the wounded, although he was wounded at the time.

Captain Noel Humphrey Wykeham Saw, R.A.M.C.(S.R.).

He worked incessantly for five days and nights tending the wounded brought in from "No Man's Land." He went out himself to direct operations connected with collecting the wounded quite regardless of the heavy fire.

Captain George MacDonald Scott, R.A.M.C.(S.R.).

For devotion to duty in tending the wounded in "No Man's Land" under heavy artillery and machine-gun fire. Finally he carried in a wounded officer on his back, but collapsed from his efforts. When he recovered he insisted on returning at once to duty, and continued dressing the wounded between the lines until he was knocked over by a shell and incapacitated.

Captain J. W. Scott, M.D., R.A.M.C.

For conspicuous gallantry in going forward with his stretcher-bearers and when all his party, with the exception of one non-commissioned officer, had become casualties he reached our advanced trench. In a shallow, broken trench he tended wounded for several hours. He carried back wounded at great personal risk, and for some time organized the removal of wounded from the advanced trench. (Substituted for the announcement published in the *London Gazette* dated August 25th, 1916.)

Temporary Captain Wilfred Archer Sneath, M.B., F.R.C.S., R.A.M.C.

He was out every night tending the wounded under fire. On one occasion he went out two hundred yards in advance of our front line and dressed a wounded man under machine-gun fire, afterwards bringing him in.

Temporary Captain J. M. Stenhouse, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during several days of operations, when attending to the wounded under heavy shell fire. He repeatedly exposed himself when dressing wounds, and finally was himself wounded.

Temporary Captain James Smith Stewart, M.B., R.A.M.C.

When the advanced dressing station was heavily shelled he worked continuously tending the wounded, and went up and down the road for the same purpose. He personally assisted in rescuing seven buried men under heavy fire.

Temporary Captain Allen Edgar Thompson, M.D., R.A.M.C.

For skill during operations when attending wounded under heavy fire for thirty-six consecutive hours. Many times he searched ruined trenches and open ground for wounded, and although struck several times by shell splinters, and once buried by shell explosion, he continued his gallant work.

Captain P. Thornton, R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty during operations. He did fine work among the wounded under fire, and, though badly wounded in two places, stuck to his work, though repeatedly urged to have his wounds properly dressed. He refused to leave the trenches until every wounded man had been brought in.

Captain G. Torrance, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He moved about under heavy fire and rendered first aid to about 180 officers and men. When his dressing-station was blown in by a shell and his sergeant mortally wounded he continued his work in the open.

Captain W. S. Wallace, M.B., R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty in action. Under very heavy shell fire he tended and directed the removal of the wounded. He continued working after being twice buried and partly stunned by exploding shells.

Temporary Captain C. McM. Wilson, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He worked for over an hour digging out wounded men, at great personal risk. He then returned to his aid post and attended to the wounded. Later, hearing that an officer had been wounded, he passed through 100 yards of the enemy's artillery barrage, dressed his wounds, and finally got him into safety as soon as the barrage permitted. On other occasions he has done fine and gallant work.

Temporary Lieutenant James Ernest Studholme Wilson, R.A.M.C.

He went up to the front line from his aid post through a very heavy barrage, in order to assist the wounded. By his pluck and skill he undoubtedly saved many lives. He afterwards controlled the evacuation of the casualties under heavy fire.

Captain William Louis Rene Wood, R.A.M.C.

He went under very heavy shell fire to attend to the wounded, and also assisted to dig others out. By his coolness and example he has rendered great assistance under the most trying and dangerous conditions.

Captain C. Cosgrove, Australian Army Medical Corps.

For conspicuous gallantry and devotion to duty in action. He tended the wounded throughout and for many hours after the action. He was frequently under heavy fire, but carried on quite regardless of personal danger.

Captain Samuel Charles Fitzpatrick, Australian Army Medical Corps.

During protracted operations he dressed wounded in the open under heavy shell fire, and worked continuously for four days, with but little rest or sleep.

Captain Joseph Patrick Fogarty, Australian Army Medical Corps.

He carried out his work among the wounded with utter disregard to his own personal safety. Two brigades owe him a deep debt of gratitude.

Captain K. H. Grieve, Australian Army Medical Corps.

For conspicuous gallantry and devotion to duty in action. Owing to the battered condition of the front-line trenches, he was compelled to carry on his work among the wounded in the open. Under very heavy shell fire he showed the greatest coolness and courage. Though joined many hours later by other medical officers, he stuck to his work without rest or sleep.

Captain George Aloysius Makinson Heydon, Australian Army Medical Corps.

For four days he attended the wounded under incessant fire, carrying them to his dressing station when the stretcher-bearers had become casualties.

Captain H. Rayson, Australian Army Medical Corps.

For conspicuous gallantry and devotion to duty in action. For several days he rendered first aid in the trenches under very heavy shell fire, and worked night and day till the wounded were finally evacuated.

MENTIONED IN DISPATCHES.

The following medical officers are mentioned in the dispatches from General Sir Archibald Murray, Commander-in-Chief Egyptian Expeditionary Force, published in the supplement to the *London Gazette* on September 25th.

Egypt.

Staff.—Lieutenant Colonel (temporary Colonel) A. E. C. Keble, D.S.O., R.A.M.C.; Major (temporary Lieutenant-Colonel) A. M. McIntosh, M.B., R.A.M.C.(T.F.)

R.A.M.C.(T.F.).—Captain (temporary Major) T. G. Buchanan, M.B., North Midland Mounted Brigade Field Ambulance; Captain R. Proudfoot, M.D., Welsh Divisional Sanitary Section; Captain A. L. S. Take, M.B., attached to Fife and Forfar Yeomanry; Captain H. F. Humphreys, M.B., 2nd South Midland Brigade Field Ambulance; Captain G. L. Eastes, 2nd London Sanitary Company; Captain E. Bromet, attached to East Riding Yeomanry.

Salonika.

Staff.—Colonel A. A. Sutton, D.S.O., A.M.S.; Colonel M. P. C. Holt, C.B., D.S.O., A.M.S.

R.A.M.C.—Lieutenant-Colonel E. T. F. Birrell, C.M.G., M.B.; Captain G. F. Rudkin; Temporary Captain H. H. Davis, F.R.C.S.

R.A.M.C.(T.F.).—Captain (temporary Lieutenant-Colonel, R.A.M.C.) T. C. English, M.B., F.R.C.S., 4th London General Hospital.

The work of the British Red Cross Society and Order of St. John of Jerusalem, under Sir Courtauld Thomson, is brought to the notice of the Secretary of State for War for services rendered.

A MAXILLO-FACIAL HOSPITAL.

The British Red Cross Society and the Order of St. John have combined to establish a Maxillo-Facial Hospital in Princes Road, Kennington, which will be opened on October 1st for the treatment of discharged soldiers and sailors. It is hoped that men discharged from the military hospitals as unfit for further service on account of injuries of the jaw and face will be directed to it, and also that patients who have already received treatment but whose condition may not be entirely satisfactory may be sent to the hospital for examination with a view to further treatment by dental, mechanical, and surgical means.

PHYSICAL CLINIC FOR WOUNDED AND DISABLED SOLDIERS.

The Physical Clinic for Wounded and Disabled Soldiers, which was opened at 125, Great Portland Street early in July, has now been taken over by the British Red Cross Society. At present only officers have been received for treatment, but a considerable number have taken advantage of the facilities here provided of whirlpool and other baths, massage, and mechanical exercise. The clinic is closed this week for extensions but will reopen on October 2nd.

AMERICAN HOSPITALS IN GERMANY AND AUSTRIA.

The Berlin correspondent of the New York *Staats-Zeitung* for July 1st (quoted in the Boston *Medical and Surgical Journal* of September 14th) gives an account of the work done by American doctors in German and Austrian war hospitals during the past year. In 1915 the American Physicians' Expedition Committee opened a large reserve hospital at Oppeln in Silesia, and now it has six in operation. Of these, four are in Germany. Besides the one at Oppeln, there are others at Deutsch-Eylau in West Prussia, Naumburg an der Saale, and Coblenz. There are two in Austria-Hungary. The hospital at Deutsch-Eylau has 1,200 beds, and deals with surgical cases, not only among the wounded, but among the civil population of many neighbouring towns. The equipment of the American hospitals is described as ideal, and their work is greatly appreciated by the Germans.

England and Wales.

THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

The extension of the London (Royal Free Hospital) School of Medicine for Women, which is to be opened by the Queen on Monday next, will make it one of the largest of the metropolitan schools. Its steady development is one of the most remarkable features in the recent medical history of London. As recorded over the mantelshelf of its Council Room, "the London School of Medicine for Women was established in August, 1874, through the efforts of Miss Sophia Jex Blake, M.D." The classes opened on October 12th, 1874, with fourteen students. The number rapidly increased, and in a few years a considerable expansion of accommodation was required. In 1900 new premises were built on the original site, but in 1914 further growth made large additions to the laboratory and class-room accommodation necessary. The whole of the sum of £30,000 required to build and equip the new extension has been subscribed in response to an appeal first issued by the Council on December 10th, 1914.

The number of students during the session 1915-16 was 330. Of some 1,120 women on the *Medical Register* for 1916, 600 received their training at the school. It is a school of the University of London, and can now give a complete course of medical instruction, including the clinical course which is pursued at the Royal Free Hospital and, under a temporary agreement, at St. Mary's Hospital, Paddington, to a total number of about 450 students; that is, to provide for an entry of about 90 new students each year.

The new buildings cover an area of 5,250 sq. ft. adjoining the Wakefield Street block of the school. Part of the extension bears the name of the "Consuelo, Duchess of Marlborough," Physics Department. It comprises a lecture theatre, a lecturers' research room, and rooms specially designed for experimental researches on light. The ground floor is connected with the students' common room in the main block in Hunter Street by a colonnade and open court forming the northern end of the main quadrangle. A fine panelled union room for the use of the clubs and societies of the Students' Union adjoins the colonnade. The "Maude de Cros" organic chemistry laboratory and a chemical research laboratory fill the remaining space on this floor. The whole of the first floor is occupied by an extension of the Physiological Department, which is a memorial to the late Miss Julia A. H. Cock, Dean of the School from 1903 to 1914. It comprises a large advanced physiology laboratory, galvanometer room, research room, demonstration theatre, and lecturers' research and private rooms. The second floor is an extension of the Anatomical Department, and includes a dissecting room, preparation rooms, demonstration theatre, and research laboratories. The top floor is devoted to an animal house.

Considerable structural alterations have been carried out in the existing buildings in Hunter Street during the summer vacation, including an enlargement of the Biological Department, the provision of a refectory, and a new large library.

The buildings will be ready for occupation at the opening of the session. The architects for the extension and alterations are Messrs. H. V. Ashley and Winton Newman.

Ireland.

TYPHOID FEVER AND CONTAMINATED WELLS.

A SPECIAL meeting of the Carrick-on-Shannon No. 2 Rural District Council was held by direction of the Local Government Board on September 21st, when the clerk read a letter from the Board on the outbreak of enteric fever in the Hillstreet (co. Roscommon) district. As a result the police authorities were compelled to close the police barracks there and transfer the men to Kilmore. The Local Government Board stated that its medical inspector (Dr. McCormack), who visited the place at the end of August, had reported that the water supplies were obtained by all those who contracted the fever at Hillstreet from wells liable to surface contamination of both animal and vegetable origin. Professor McWeeney, from his bacteriological examination of the samples of the public water supplies at Hillstreet, regarded with suspicion three of the four samples supplied to him, and considered the fourth a border-line water. The Board asked what action the council intended to take to provide a pure supply of water for the use of the inhabitants. The council replied that it believed that the fever was imported into the district, and that the water supply was sufficient.

DUBLIN CASTLE RED CROSS HOSPITAL.

It can hardly be necessary to recall the fact that since the outbreak of the war the official residence of the Viceroy in the Irish capital has been converted into a hospital for wounded soldiers, nor is it necessary to dwell upon the great care bestowed upon the many hundreds of sufferers received within the walls of the Castle and the good surgical work done there. It is no exaggeration to say that despite the great tax put upon the surgical and nursing staff—a tax scarcely deemed within the bounds of possibility in the happy days before the war—Dublin Castle has won a glorious reputation in its splendid mission of mercy. A "pound day," held on September 20th, afforded the citizens of Dublin an opportunity of showing their appreciation of the noble work which has been so

unostentatiously accomplished, and at the same time of marking their gratitude to the gallant soldiers who have suffered in the fight. From 10 a.m. to 5 p.m. gifts of the citizens poured into the hospital. They comprised all the most necessary commodities—from sugar to tea, from sago to cigarettes. During two hours in the afternoon the wards were open to visitors, and many took advantage of the permission. At present there are 236 wounded soldiers at the Castle, and, needless to say, all that the public send in for their welfare will be gratefully received by the staff. The day's arrangements were carried out by the staff under the supervision of Miss McArdle, the matron.

Acute Anterior Poliomyelitis.

The Registrar-General's weekly return of births and deaths in Ireland for the week ending September 16th states that in the week ending September 2nd two acute cases of poliomyelitis were reported in the Dublin registration area, and one in the week ending September 16th. One case was also reported in Belfast. No deaths from, or fresh cases of, the disease are reported from any other part of Ireland. Of the deaths of the children registered in the Dublin registration area last week, 58 were those of children under 5 years of age, 45 being infants under 1 year.

Canada.

Medical Health Officers of Nova Scotia.

At the annual meeting of the Association of Medical Health Officers of Nova Scotia the chairman, Dr. John K. McLeod, drew attention to the lack of permanency in office of the medical health officer in many districts in the province and the refusal of some municipalities to pay the expenses of the medical health officer incurred by attending the annual meeting of the association. A committee was appointed to approach the Provincial Government in respect to these two matters. Dr. Nicholls, director of the Public Health Laboratory, read a paper on cerebro-spinal fever from the standpoint of epidemiology, in the course of which he stated that the greater number of cases had occurred in the towns and cities, and drew an analogy between the disease and pneumonia. Dr. Cameron, of Halifax, stated that several cases he had observed had followed pneumonia or tuberculous pleurisy. The Chairman, in a paper on disinfection, contended that satisfactory results would ensue from a much less stringent quarantine and terminal fumigation would be rendered unnecessary, were proper attention paid to the immediate destruction of infective discharges. He advised isolation of the patient, disinfection of discharges and of clothing soiled thereby, scrupulous asepsis on the part of attendants, daily cleansing of patient's room, and a terminal house cleaning. The paper was discussed at some length, and a committee was appointed to assist the Provincial Health Officer in revising the rules for quarantine and disinfection. Dr. J. B. Black, a former member of the Canadian Parliament, discussed the subject of a Federal Bureau of Public Health and referred to the present anomalous situation, whereby large sums of money were devoted to measures designed to improve the health of farm animals, but no similar provision was made to conserve the health of the people. Although a quarantine service existed and provision was made for the inspection of food, there was a want of co-ordination, no organized channel existed through which matters of interprovincial or international concern could be settled, and Canada had no national laboratory.

New Brunswick Medical Society.

At the thirty-sixth annual meeting of the New Brunswick Medical Society, at St. John on July 18th, the president, Dr. W. W. White, referred to the need for better hospital accommodation in that city. The society expressed itself strongly in favour of abandoning the provincial medical examinations for those of the Medical Council of Canada. This question was also considered by the Council of Physicians and Surgeons of New Brunswick, which met on July 18th, but no definite decision was made. The next annual meeting is to be held at St. John in July, 1917, and Dr. S. C. Murray, of Albert, was elected president.

Effect of Prohibition in Manitoba.

The Prohibition Act has been vigorously enforced in Manitoba during June, July, and August, and Mr. J. N. MacLean, chief of the license inspectors of the province, reports that, compared with the three previous months, the number of convictions for drunkenness had been reduced by 90 per cent. In Brandon the number of convictions was 19, as compared with 133 during the previous three months. The convictions for crime in Winnipeg numbered 161 during the three months under prohibition, compared with 813 during March, April, and May. Fifty convictions for infraction of the Act had been secured, and the fines collected had amounted to 10,000 dollars.

Medical Attendance in Outlying Districts.

The provision of adequate medical attendance and nursing for the inhabitants of outlying districts in the Province of Saskatchewan, which has been under discussion for some time in both medical and lay circles, was brought before the Association at the same meeting by Dr. Valens of Saskatoon, and a committee was appointed to obtain information as to actual conditions, to meet representatives of other bodies interested in the subject, to consider the probable consequences of any scheme suggested, and to report to the next meeting of the association, or, if necessary, to a special meeting called to consider the matter.

Correspondence.

MALARIA IN MEN RETURNED FROM FRANCE.

SIR,—The long immunity from malaria enjoyed by this country tends to make us forget the necessity for excluding its presence under present abnormal conditions in men sent home from France suffering from wounds and fractures, or from pyrexia of undetermined nature. The following case shows that it may be unwise to accept a diagnosis of influenza or trench fever until the blood has been examined for malarial parasites:

A Canadian officer, aged 32, was taken ill suddenly in the trenches on July 27th, 1916, after three weeks of very dry, hot weather when the flies had been more numerous than usual. He felt giddy and feverish; his temperature at night was 102° F. For a fortnight he lay up in his dug-out thinking to get well. He was then admitted to a hospital, where the diagnosis was influenza; later, in another hospital, the diagnosis of trench fever was made. He returned to England on August 18th, and went into a hospital for officers in London. His temperature on admission there was 100° F. He complained of debility and pain (peripheral neuritis) in the calves of the legs and in the forearms. There the diagnosis of trench fever seems to have been accepted, and after eight days he was sent to Bath. He arrived with a temperature of 101° F. and feeling very out of sorts, but with no definite clinical signs beyond the nerve pains in the legs and arms.

After watching the course of his temperature for a few days, during which it remained practically normal for forty-eight hours and then rose again, I had his blood examined at the pathological laboratory of the Bath War Hospital. The report was that "malarial parasites are certainly present." The patient has never been to the East or suffered from malaria before.

This is one of about 15 cases which have come to my notice either under my own care or that of colleagues. In two of them the patients had not been out of England. The cases seem mostly to have been of the tertian type and exhibited the malarial parasite in the blood in specimens stained with eosin-methylene blue.

My object in publishing this note is to draw the attention of others, both in France and at home, to the necessity of carefully examining the temperatures not only of men invalided home with the diagnosis of influenza or trench fever, but also of the wounded. One case under my care—a perforating in-and out wound of the pectoral muscles—had, three days after admission, a rise of temperature to 102°. At first this was thought to be due to insufficient drainage, but the temperature remained normal for the next forty-eight hours, when it again rose, though the wound was draining and doing well. An examination of the blood at once settled the question by showing typical malarial parasites.—I am, etc.,

G. J. KING MARTYN, M.D.Camb., D.P.H.,
Physician, Mineral Water Hospital and War Hospital, Bath.
September 22nd.

SIR,—May I add a few comments to Dr. King Martyn's letter? I write, of course, as a layman.

The expression "trench fever" is perhaps a confession of ignorance; it certainly covers a number of fevers due to varying causes. Every one knows how prevalent malaria once was in England, and unless precautions are taken it may re-establish itself. What is not so well understood is the fact that the particular species of mosquito which conveys it from man to man is still very widely spread in our islands.

Anopheles maculipennis is one of our commonest aquatic insects. Professor Nuttall, Dr. Cobbett, and Dr. Strangeways published in 1901, in vol. i of the *Journal of Hygiene*, an account of its distribution in Great Britain, illustrated with maps. They said that "we find that *Anopheles maculipennis* is by far the most prevalent species in this country and other parts of Europe and apparently in America. This species has been found in England, Scotland, Wales, and Ireland." At the time they wrote they recorded only one case of ague known to them arising in England. I have seen another case lately, in the western country, a man who must have contracted the disease at home.

The fact that the Academy of Medicine of Paris, as was mentioned in your columns on August 28th, has appointed a committee consisting of men bearing such well-known names as MM. Laveran, Blanchard, Roux, Wurtz, and Mosny, is evidence that they consider the matter of malaria well worth watching.

Another disease which is conveyed by mosquitos is caused by the presence of the nematode parasite *Filaria*. Their larvae are also known to be conveyed by a species of mosquitos or gnats, though I do not think at present that any of our endemic *Culicidae* have been found guilty. Last month I saw two cases in which patients were infected by these parasites, one of whom had returned from the Cameroons and the other from West Canada, where he had associated largely with Chinamen. They both had microfilaria in their cutaneous blood vessels. We do not know the potentiality of our native *Culicidae* in conveying these organisms to a fresh host, but it is worth investigation.

As the autumn draws on the fertile female *Anopheles* will be retiring to disused sheds, outhouses, cellars, and such places, to reappear in the spring of 1917 with an increased appetite. By that time we ought to be prepared to keep her away from malarious and "filarious" patients. We should, I think, at the time of her re-emergence be able to segregate such patients in mosquito-proof buildings. Unless some such precautions are taken we may find malaria, which was so terrible a scourge in comparatively modern times, re-established in our midst, and, although I doubt it, elephantoid disorders due to *Filaria* may occur.—I am, etc.,

Cambridge, Sept. 25th. A. E. SHIPLEY.

ANTENATAL CLINICS.

SIR,—In your issue of September 23rd Dr. J. W. Ballantyne gives a useful and convincing account of a day in the antenatal clinic of the Edinburgh Royal Maternity Hospital.

Fourteen pregnant women attended and one woman with albuminuria who was found not to be pregnant.

Of the fourteen women who were pregnant four were normal; of the ten others, one had to have induction performed for fetal heart failure and was found to have central placenta praevia, three also required induction of premature labour, and one Cæsarean section for contracted pelvis, and one with a slight contraction was watched and allowed to go to term. Two others had swollen feet but no albuminuria and recovered under treatment. One had slight accidental haemorrhage and another pulmonary phthisis.

The proportion of cases requiring treatment at this clinic was of course exceptional, and it is probable that most of the women had already attended antenatal clinics at some outlying maternity centre or had already seen a doctor and had been sent on to Dr. Ballantyne for special advice and hospital treatment.

The account proves how useful antenatal clinics are and how valuable is the linking up of a general or maternity hospital with the surrounding maternity centres and clinics; and further, it shows the necessity, as Dr. Ballantyne insists, for prematernity beds being associated with the headquarters or consultative antenatal clinic.

Can Dr. Ballantyne tell us how pregnant women in Edinburgh are induced to attend local maternity centres for antenatal supervision? Is it through advice given by their medical practitioners and midwives or through health visitors or some other agencies? This, and linking up, are now the chief difficulties in ensuring medical supervision during pregnancy, for compulsory notification of pregnancy is impracticable.—I am, etc.,

London, W., Sept. 23rd. AMAND ROUTH, M.D., F.R.C.P.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

SIR,—I should be greatly obliged if you could afford space for a reply to your editorial note on the life-history of *Ascaris lumbricoides* (July 1st, p. 23).

The note does not refer to my theory that the rat and mouse are intermediate hosts in the life-history of *Ascaris lumbricoides*. Another theory is advanced, to the effect that the ripe eggs hatch in the alimentary canal of the definitive host (man or pig, or the cat in the case of *Ascaris mystax*), that the larvae then migrate to the lung, and pass through the trachea and oesophagus to the intestine where they become adult. It is suggested that had the appropriate definitive host been used in my experiments in place of the rat and mouse, further results would have been obtained. This suggestion appears to give insufficient weight to the experiments recorded by me in which two pigs were treated with enormous doses of ripe eggs of *Ascaris suilla*. It also overlooks the experiments of Leuckart on the pig, horse, dog, and cat, in which these animals were treated each with the eggs of its own appropriate ascaris.

It may be suggested that the lungs were not examined in these experiments. But according to the theory under discussion the larva in the lung is merely the precursor of the adult in the same host. Now millions of ripe eggs were used in my pig experiments and only one adult was found in the two pigs employed. Leuckart's experiments were entirely negative.

Errors of technique are excluded in my experiments since the same technique was used as in the experiments on the rat and mouse. If infection succeeded in (inappropriate) animals such as the rat and mouse, it cannot be supposed that it would fail in the pig, which according to this theory is the appropriate host. This theory is, therefore, in my opinion untenable.—I am, etc.,

August 18th. F. H. STEWART, Captain I.M.S.

SIR,—The following statistics have been collected in the island of Grenada, British West Indies, where the International Health Commission of the Rockefeller Sanitary Institute have supplied the Government with funds to carry on a campaign against hookworm infection; of this campaign I have for two years been director. Here and now I do not discuss more than the significance of the figures to the mode of infection by *Ascaris lumbricoides*.

I shall assume that the relative "infectivity" of the three different intestinal parasites enumerated may be inferred from the extent of their incidence, regardless of the mode of infection and other factors.

The relative infectivity on all ages is: Hookworm, 75 per cent.; trichuris, 85 per cent.; ascaris, 93 per cent. Almost the whole population (98 per cent.) are infected with one or a combination of these.

The relative incidence at the age period under 1 year is: Hookworm, 6 per cent.; trichuris, 9 per cent.; ascaris, 21 per cent. The total infection by these three at this period is 24 per cent.

At the age period 1 to 5 years the infection is: Hookworm, 30 per cent.; trichuris, 78 per cent.; ascaris, 92 per cent.; and the total infection 95 per cent. There are slight differences in the relative incidence for sex at these age periods, which may have significance; but meantime I shall ignore them and assume that there is no special infectivity for sex.

For the other age periods the infection of hookworm jumps to near its maximum at the period 5 to 15 years, attains the maximum in the 15 to 45 years period, and remains there for the farther ages. The other infections attain their maximum earlier and maintain it over all ages.

The "opportunity" of infection is evidenced by the incidence. At the age period under 1 year the "opportunity" of infection is least for hookworm, considerably

greater for ascaris, and not pronouncedly greater for trichuris. At the age period 1 to 5 years the "opportunity" is increased all round—is greatest for ascaris, least for hookworm, and relatively increased for trichuris.

It is plain, then, the "opportunity" is less "obvious" in infancy than in later years for all three infections, and that "opportunity" is greatest for ascaris infection at all periods.

Accepting soil infection as the main route for hookworm, it is to be expected that the early years of life give relative exemption from that infection. But an infection by ascaris to the extent of 21 per cent. among infants under 1 year demands a fairly "obvious opportunity"—an "opportunity" which offers and is evidenced in the infection of over 90 per cent. of children of from 1 to 5 years of age.

One would expect the manner of such wide infection to be staring in the face. But it is not known.

If it be supposed that the vehicle of infection is food, there is then reason for the scant "opportunity" under 1 year of age. But if it were food, it must almost of necessity be food eaten uncooked, and even in the tropics I fail to find any article of diet which, taken uncooked, should succeed in causing infection in over 90 per cent. of children from 1 to 5 years of age.

Captain Stewart says: "It is obvious that the transfer of the parasite from the bronchi of the rat and mouse to the intestine of man and of the pig could be readily effected. The intermediate host might readily contaminate the food of the definitive host or the dust and earth of his surroundings." The rat and mouse are ubiquitous; they are in the town and in the remotest hut, which, in the West Indies, may be several thousand feet up the hillsides.

I do not find the rat in general is a faecal feeder; in the West Indies the country rat is highly frugivorous, and an arboreal dweller. Soil of course is contaminated with human excrement, and, if the rat is specially susceptible to ascaris infection, he has ample opportunity of getting it. But what are the chances in favour of rat or mouse infecting food to be eaten uncooked, or of infecting food or dust or earth that will cause infection through the fingers to the wide extent shown in these figures?

I may add, without abstracting the figures for production here, that, whereas hookworm is practically only an infection of the country, trichuris and ascaris are found in townsfolk to practically the same extent as in country folk. The "opportunity," therefore, for infection by ascaris and trichuris is equally "obvious" in town and country. So are rat and mouse.

Again, the few individuals to be met in the population dealt with, who have none of these infections, are the socially well to do.

I have accepted the suggestion that the final route of infection in the human is by the mouth. If the intermediary rodent should be necessary to complete the scheme of ascaris infection, it would appear to be necessary further, to aid preventive measures, to show the route of the infection from the rodent to 93 per cent. of the general population in probably all the tropical belt.

I give these figures and make these animadversions with a desire to help. I have given much time to the study of the habits of the people in their homes and afield, but further than finding ascaris ova in drinking water and a general incrimination of the "fatal finger" of the hygienically unclean, I regret I cannot see what, from the figures, seems waiting to be seen.—I am, etc.,

ANGUS MACDONALD, M.D.Edin.,
D.P.H.Manc., D.T.M.L'pool.
Grenada International Health Commission,
August 21st.

THE MECHANISM OF SALINE DRESSINGS.

SIR,—The article on this subject by Dr. Kenneth Taylor in the JOURNAL of September 2nd contains a number of speculations which appear to be at variance with experimental facts.

It is assumed, for instance, that the "albuminous substances" (by which doubtless is meant the colloids of the cell) exert an osmotic pressure independent of the total osmotic pressure of the cell contents after a certain osmotic ratio has been established. This is, to say the least, a very curious idea. Each colloidal particle within the cell possesses an osmotic activity exactly equivalent to that of any single crystalloid particle, whether the latter be an electrolyte or non-electrolyte, molecule or ion. The low osmotic pressure of colloids is merely due to the paucity of their molecules, which, of course, are very much larger than those of crystalloids. The osmotic pressure of the colloids is to be differentiated in no way from the general osmotic pressure, and can cause no separate action. The author is apparently confusing this osmotic pressure of the colloids with the phenomenon known as *imbibition*, a property exhibited by these bodies under certain circumstances. The idea that the cell colloids imbibe water to an abnormal extent in the presence of a saline solution is entirely unjustifiable. The author remarks that "colloids and gells (*sic*) may attract and retain water from a saturated salt solution. *Presumably* (the italics are mine) those in the cells may do the same from 5 per cent. saline." It is not mentioned whether these colloids and gels are placed in the saline in the dried condition or not; but, as a matter of fact, the laws governing the imbibition of water by dead colloids are quite different from those pertaining to the living colloids in the cell. According to the experiments of Martin Fischer, the latter imbibe water only in the presence of acids, while the presence of neutral salts—for example, NaCl—inhibits this action. In the case of imbibition by dead colloids, on the other hand, this is favoured by salts, the favouring effect operating in the order of the Hofmeister series. Acids (other than the normal amino acids which are amphoteric) may be produced in a wound by bacteria or by lack of oxygen. There is no evidence for the contention that at a certain "concentration point" there is an abnormal imbibition of water by the colloids, but rather the reverse, as concentration leads to increased velocity of chemical reactions within the cell and the break up of the larger colloid molecules into small ones.

Again, as regards the passage of NaCl into the tissue cells, the author assumes that all the salt has to do is to "pass on" in exchange for water; but, in the first place, the cell membrane is a varying quantity, changing its character according to the composition of the protoplasmic contents. At one time it may be semipermeable as regards crystalloids; not so at another. This is part of the mechanism known as "selective absorption" on the part of the cell—a property which has even been shown to hold in the case of dead membranes (Ramsay). In the case of NaCl, this salt in the weak solutions used would practically be entirely dissociated. If the cell membrane were semipermeable as regards one ion, the other ion could not pass in owing to the electrostatic force, unless another ion of equivalent electrical charge crossed out at the same time. It is a matter of exchange, however, as regards the crystalloids in any case where the membrane is permeable. Further, the raising of the osmotic pressure within the cell owing to increased chemical activity resulting from concentration would hold in check any exchange with NaCl over and above the cell requirements—at least, very largely.

One other remark may be noticed. The author states that "no increase in albuminous bactericidal substances in the wound is to be expected from the process of osmosis." On the contrary, as the albuminous substances within the cell are raised in molar concentration, as mentioned, their activity as bactericidal agents would be increased. The enzymes, as well as the substrates, are increased.

The manner in which hypertonic saline acts when in contact with a wound may be described, so far as the facts of physical chemistry go, somewhat as follows: There is a loss of water from the tissue cells passing out to the saline solution. This causes increased concentration of the cell contents; colloidal molecules break down into smaller molecules or into crystalloid amino acids; colloidal glycogen may break down into crystalloid sugar, etc. NaCl or its ions enter the cell largely in exchange for electrically equivalent ions or equivalent salt molecules, the colloids being practically all retained. The osmotic pressure of the cell being thus raised, that of the lymph surrounding would also be raised by the passing out of molecules from the cells into the lymph channels. This in turn would cause an outflow of water from the blood into the lymph vessels; the current of lymph would be swollen, and diffusion of lymph into the saline dressing

solution would be augmented. In other words, hypertonic saline acts as a lymphagogue, and, so far as the statements attributed to Sir Almroth Wright are quoted in the article, in respect of the physical action of hypertonic saline, no exception can be taken to them, as it appears to me.—I am, etc.,

A. G. AULD.

London, W., Sept. 7th.

HEART AFFECTIONS IN SOLDIERS.

SIR,—Dr. Lewis and Captain Cotton kindly furnished me with particulars of the scheme of treatment in use at the Military Hospital, Hampstead, as described in the JOURNAL of September 23rd, p. 418, and we have found it of the utmost value in this general military hospital. Its adoption presents no difficulty, and it furnishes an excellent guide to the classification of heart affections in soldiers.

I cordially recommend medical officers in charge of military hospitals to employ it in all its details, and I can fully endorse the statement as to immunity from accident if the cases are thoroughly sifted before beginning the exercises, and carefully watched as the exercises advance.—I am, etc.,

JEFFREY RAMSAY,
Captain R.A.M.C.(T.),
1/1st East Lancashire Casualty Clearing Station.

The Military Hospital,
Aylesbury, Bucks,
Sept. 25th.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—Dr. Fothergill, in his letter of August 19th, says: "Every medical practitioner . . . must have felt profound anxiety as to the future of his profession as a consequence of the world-wide war." I am not so weighed down by anxiety as to the consequences of the war, and like to live in the present. I think that the cause of the gravest anxiety was in being, and had its origin long before the war. If we be true to ourselves, the war need cause us little anxiety; but if, as in the past, we be indolent, deficient in self-reliance, and unbusinesslike, then possibly, and indeed probably, the war may be taken advantage of to increase our discomfiture and still further lower our professional status. The war will not have been the cause; it may be an extra means for our enemies. The cause will be our chronic medico-political inertia and our want of union. Our civilization, social traditions, and customs will not be placed in the crucible at the termination of the war. Other wars—not so great as this, it is true—did not seem to alter much the habits of the belligerent nations after peace was restored. The Franco-Prussian, Russo-Turkish, Russo-Japanese, Hispano-American, and South African wars did not seem to alter much the civilizations and habits of the peoples involved, and I am not aware that, except by taxation, the status of the professional classes was relatively much altered. The amazing thing was the comparative rapidity of the recuperative process when peace was restored. Why should this war be different?

I, however, agree that there is cause for "profound anxiety" when we contemplate the effects of the sturdy Prussian seedlings planted here before the war, and the inroads which are being made on our profession without either consultation or consent, and to which we most tamely submit.

There is a school of thought in the highest places in our profession which assumes that when the Government through one of its Boards—such an antediluvian institution as the Local Government Board—evolves, on the advice of a few medical officials, and promulgates a scheme dealing with the most vital principles, rights, and privileges of our profession, we have simply to submit, and in sheer impotence agree. "The Government have made all arrangements," they say. By Order in Council, or some other of the modern system of delegated law making by regulation, the scheme is in force before we know of it. We are "articulate, and unable to protect the interests of medicine." The schemer is triumphant; our impotence is assumed.

The demagogue at the hustings becomes the democrat in the Commons, and begets the bureaucrat and the autocrat through his "regulations." Parliament, the direct representative of the people, has delegated its function and partly lost control. The permanent official becomes a super-man, the temporary one a political hack. This is one of our greatest dangers, this school in our own ranks. There can be no improvement unless and until we value our freedom and status, and are fired by an honourable pride in our profession and its independence—a pride incompatible with the school of thought I refer to—and say to the stipendiary politician, no matter what his station or position: "Sir, we have not been in any way consulted about your scheme, which concerns our very existence; consequently, we decline absolutely to assist you." Government schemes will then be more carefully evolved by Government schemers. By our virility and self-reliance, our status, honour, and interests will be duly safeguarded.

If we assume the attitude of the mendicant, we shall deservedly fill that of the slave. The politician's guiding star is not justice; his compass is set for expediency. He is actuated by votes. We have not large voting power, therefore our safeguard must be union.

Dr. F. Rees, whom I congratulate on his memory, has written an extraordinary letter. We are in "bad odour with public authorities," forsooth, "because we wish to maintain the honour and interests of our profession"; because "we seek freedom from unnecessary lay control"; and because "we complain of inadequate remuneration." Long may we cherish such ideals. "Our *raison d' être* is the good of the community." On what facts this novel diagnosis is based I do not pretend to know. The public bodies—the very cream of British intellect—generally so supremely conscious of their individual interests, would rob us of ours. We must take good care that their efforts fail. Truly we want medico-political as well as professional education; education of the public will follow as a necessary corollary. If we were better educated professionally there would be fewer trying to substitute for skill cunning and meanness.

Dr. Fothergill has his panacea in a new committee. Dr. Pochin wants another. Neither will serve our present purpose. Our danger is immediate and pressing. Further committees will only waste time; already we possess nearly a score. The profession is seething with discontent. Sporadically, as in Kent and Cheshire, men are driven to take the matter in their own hands. They are prepared for resignation from the panel. The Government, while living on a political truce, refuse truce with the profession. The reward of two years' war work and charity is to reduce notification fees, and now through the insurance bureaucrats to increase clerical work (without increased pay) by compelling panel practitioners to "devil" for the newly incubated experts. This is forced on by regulation, without consultation, and called an agreement. The Association as an organized body is meanwhile hibernating, or statuesque on a pedestal of "Wait and see."

Extra illness—increased venereal disease and invalided sailors and soldiers—is thrown on panel practitioners, and yet the Representative Body and the Council can do nothing better than start a new committee.

If we loved one another half as much as we pretend to love the public it would be better for medicine and for the public too. Let us act the part of men; the respect of the public will assuredly follow. Charity, when exacted by regulation, ceases to be charity; it is then slavery.

The Association, apparently heedless of the centrifugal forces at work, refuses to co-ordinate, organize, and guide effort. It thus loses members and confidence.

This is our most urgent want: Leadership—commanding leadership—just as the inspiration and skill of a great military commander gets willingly every atom of effort out of every fibre of his men.

Dr. Fothergill states "we must not think only of self." I most whole-heartedly agree; but let us remember

> This above all,—To thine own self be true,
> And it must follow as the night the day,
> Thou canst not then be false to any man.

—I am, etc.,

DENIS A. SHEAHAN.

Portsmouth, Sept. 26th.

SIR,—Those who still cling to the Association will not find encouragement in the note on the Commission of Investigation appointed by the Faculty of Insurance, nor in the Commissioners' letter of July 5th, published in the JOURNAL of September 16th. This article contains no promise of future investigation of the position of panel doctors. The unfair treatment of the profession under the

Insurance Acts began before the war. The rise in the cost of living, drugs, and transport, the call for more men for the R.A.M.C., and the severe pressure of work on doctors at home (which will increase during next winter) make immediate action imperative. General practitioners all over the country have been and are overworked, and some are threatened with physical breakdown. There is no valid reason why, though we are at war, medical men should be overworked and underpaid any more than miners or railwaymen, whose claims it is just to consider.

My friend Dr. Noy Scott writes of the desirability of increasing the membership of the Association. But I fear this will not be done by itinerating medical secretaries, however eloquent or persuasive. Concrete evidence of the value of the Association as a medico-political force is necessary. This may be freely conceded without undervaluing the half-crown victory of four years ago.

What is the lesson of the failure of the anti-Insurance Act agitation? Many of us know well, from personal experience, that the conditions of practice in different parts of the country are utterly diverse—for example, in agricultural, mining, and industrial centres. Again, in some places medical clubs have flourished for generations; in others they have never gained a footing. When the Insurance Act promised increased remuneration it was welcomed; elsewhere it was detested.

Nearly all the victories gained by the profession in the past have been local victories, the results of local organization and cohesion, doubtless backed up in many cases by the moral support of the whole profession.

One lesson, then, is that more power should be given to the Divisions of the British Medical Association. In a word, we need, under proper safeguards, home rule for the Divisions. Any resolution of a Division on matters affecting medical politics in the Division area, if not disallowed by the Council of the Association, should bind all members of the Association. For instance, a Division might decide that, in view of the large amount of needless work under the Insurance Acts, medical benefit should cease and insured persons make their own arrangements. Such a step would naturally only be undertaken after consultation with absent panel doctors. Such a decision (subject as aforesaid) would be backed by the whole Association. And so with regard to the terms and conditions on which insurance and other work is done in different areas. Only the stronger Divisions could act effectively, but their example would demonstrate the real power inherent in the Association. A resolution to this effect was debated and lost at last year's Annual Representative Meeting. If, however, something of the kind is not done soon the steady drift from the Association's ranks will go on. Local bodies on trade union lines (federated it may be) will take up the work which should have been done by the Divisions.—I am, etc.,

J. CUTHBERTSON WALKER.

Military Hospital,
Alexandra Park, Stockport,
Sept. 22nd.

SIR,—The question which is being repeatedly asked is, What society or association can best be trusted with our case? There is but one answer—the British Medical Association. Even the malcontents cry, Why cannot the British Medical Association take up this question or that? The Association is in a position to undertake any medical problem, and successfully if, and only if, the members of the Association are true to the Association. We are told that the Divisional meetings are badly attended as a symptom of the dissatisfaction of the members with the work of the Association. All the papers sent down by the Association for discussion at Divisional meetings refer to matters of vital importance to the well-being of the profession. All the members of a Division have adequate notice of the subjects to be discussed. If medical men are so dull and uninterested that they do not attend such meetings, they surely are to blame and not the Association.

How are we to increase the membership of the Association? By replacing apathy by energy. How are we to effect this change? I cannot answer the question. I remember asking a colleague why he was not present at a Divisional meeting at which some important matter was discussed. "These medico-political matters do not interest me in the least," was his reply, and this reply sums up the difficulties with which every active member has to contend, and the difficulties which hamper the Association. There are members who grumble at the amount of the annual subscription, and yet expect the Association to take up any case which may involve their personal interests. There are men who complain that clinical subjects are now rarely discussed at Divisional meetings, and yet when clinical material is provided these very gentlemen absent themselves. Instead of blaming the Association, let us pull ourselves together. That which is irksome in the doing is most frequently profitable in the result. I think that at all Divisional meetings dealing with the problems connected with medical practice after the war non-members of the Association should be invited to attend, and subsequently to join the Association.—I am, etc.,

Monkhams, Sept. 17th. S. J. ROSS.

THE ROYAL COMMISSION ON VENEREAL DISEASES.

SIR,—No doubt the Commissioners are right in refusing to recommend compulsory notification. It would lead to concealment, the increase of quacks, and innumerable other ill effects.

When compulsory notification does come, be it a hundred years hence, it will be followed by the same evasions. The sad part of it all is that we are once more relegated to the wait and see policy. Public opinion is to become more enlightened, adequate facilities for treatment to be provided, then it is possible that notification may be demanded. All this takes one back to biblical days when a leper was made to feel that he was an outcast.

Syphilis and gonorrhœa are microbic diseases no less than diphtheria and enteric. They are the cause of infinite more distress and illness than either of these latter diseases, yet, in an age when scientific enlightenment is supposed to be on the top of the wave, we are asked to shut our eyes to or to blink at the direst scourge to which the flesh is heir. Truly a puzzling conundrum for future generations to unravel.

A man becomes infected with venereal disease. He is supposed to have committed some crime, and he creeps into your consulting-room with shamed face and abject misery in his step, afraid to speak. A woman undergoes a thousandfold more misery, and probably hides her trouble until too late.

Why should this be? Public conscience holds up its hands in horror at the mention of the Contagious Diseases Act, shuts its eyes, and thanks God for a good dinner, caring little for the tragedy that is being enacted all round.

The subject is a delicate one—admitted, but we have made it so. It is the lack of courage to tackle the question scientifically that makes it difficult—the pandering to narrow-mindedness, and the dread of being accused of fostering a condition of things that has gone on since the world began, and will go on until it ends.—I am, etc.,

London, W., Sept. 9th. A. MACBETH ELLIOT, M.D.

EMOLUMENTS OF OFFICERS OF R.A.M.C. (SPECIAL RESERVE).

SIR,—I should like to emphasize a few of the points brought forward by your correspondent.[1] In the first place, I should like to point out that he puts our case forward very mildly indeed. I will compare the case of a captain (Special Reserve) with that of a temporary officer (for the first six months the conditions are worse). If a Special Reserve officer is stationed in England for some time he is losing badly, for at most he can only obtain £1 a day—namely, 15s. 6d. pay, 1s. servant allowance, 3s. 6d. field allowance—thereby losing, compared with an officer holding a temporary commission, £1 8s. a week. An officer in the Reserve invalided home, while in hospital, can draw no more than his pay—namely, 15s. 6d. The temporary officer draws 24s. as usual. Net loss, 8s. 6d. a day.

While on sick leave a Special Reserve officer draws his pay *plus* 3s. lodging allowance—that is, 18s. 6d. a day; net loss, 5s. 6d. a day. While in England, which may be some considerable time if he has already been out, he draws £1 per day; net loss, 4s. a day. Let me add that there is usually a considerable amount of trouble and inconvenience in getting allowances, especially if one experiences a succession of rapid moves, and also if one is in a garrison town.

[1] BRITISH MEDICAL JOURNAL, August 19th, p. 278.

To illustrate this last point let me mention my own case. I am at a hospital in such a town, but we have no mess and no officers' quarters; therefore all must live out. Instead of claiming field allowance, which I cannot do, I claim lodging allowance at 3s. a day, but the claim is returned from head quarters marked, "Not allowable—this officer should be quartered and messed in ..... barracks with ..... regiment," half a mile away. I am then under an obligation to live in a strange mess as an outsider with 15s. 6d. a day, or on pay and no allowances. In any case I lose, as officers with temporary commissions are given quarters in such places, and they do not lose 3s. a day by so doing. The net loss is still 8s. 6d. a day.

That is to say, men who have been ready at any moment to serve their country are penalized to the extent of 8s. 6d. a day when compared with those who have been practically compelled to join in the war.—I am, etc.,

SPECIAL RESERVE.

Obituary.

GEORGE WILKINS, M.D.,

EMERITUS PROFESSOR OF MEDICAL JURISPRUDENCE, McGILL UNIVERSITY, MONTREAL.

WITH the death of Dr. George Wilkins upon August 7th, at the age of 74 years, a familiar and burly figure has passed out of the Montreal medical world. Of late years he had given up one after another of his many appointments, and it was difficult for the younger generation of medical men to realize what he signified and what he accomplished in his prime. The student of to-day knew him through the many stories, all kindly, of old "Thquamouth epithenium" and his classes in histology and medical jurisprudence, stories that had descended, like the notebooks on the latter, from previous generations. Yet in his time he had been a pioneer, in the days when the dissecting room and the chemical laboratory—and not always either of these—afforded the only practical courses in preliminary science in the medical schools of North America. He it was who, becoming first lecturer in practical physiology at Bishop's College, and later lecturer in histology at McGill University, introduced in Montreal—if I am not mistaken—the first regular course in the practical study of histology in any medical school on the North American continent. Only three dozen years ago it was unheard of for the university to provide microscopes for the use of students. This did not deter Wilkins: he provided his own microscopes. For the medical school to supply a laboratory for histology was also too great an innovation. This again did not deter him: he held the class on practical histology in his own roomy house, and such is the force of habit that he continued to do so even after the tide had turned and universities and medical schools vied with one another in offering accommodation for laboratory work. It is well that the debt should be remembered that we of to-day owe to the lone enthusiasts who in the lean years gave of themselves freely, and made the present possible.

George Wilkins was born at Mountrath, Ireland, in 1842. He went to Canada at an early age, obtained his medical education at the University of Toronto, and received his degree in 1866. He settled in Montreal in 1871, after some five years spent partly as a ship's surgeon, partly in post-graduate work in London, where he took the diploma of M.R.C.S. He soon became associated with the medical school of the University of Bishop's College, a body now merged into McGill University; in the seventies and early eighties it was a thriving institution, which throughout the whole of its short career afforded to the McGill University some of its best trained and most active teachers. At Bishop's College Dr. Wilkins was first Professor of Pathology and later of Practical Physiology. He transferred his services to McGill University in 1882, being appointed Professor of Medical Jurisprudence and Lecturer in Histology. In 1876 he had been appointed physician to the Montreal General Hospital. Those who attended the meeting of the British Medical Association in 1897 will recall that in that year, as President of the Montreal Medico-Chirurgical Society, he took an active part in the welcome extended to Lord Lister and to the other visiting members of the Association.

Professor Wilkins was for long interested in life assurance. For many years he was associated with the Sun Life Assurance Company, and in 1880 he was appointed medical director of this, one of the largest Canadian insurance institutions. His services in this direction were recognized in 1911, when he was elected president of the American Association of Medical Directors of Life Insurance. For long years he was a regular attendant at the annual meeting of the Association of American Physicians at Washington. Among his other interests he dabbled in architecture.

His wife predeceased him by a few days. His son, Captain W. A. Wilkins, C.A.M.C., has done good service overseas with the 3rd Canadian General Hospital.

THE LATE SIR LAUDER BRUNTON.

SIR DYCE DUCKWORTH writes:

I am pleased to add to the appreciations in your JOURNAL of my old friend and colleague Sir T. Lauder Brunton.

He was one of the most remarkable men I have known in our profession. His earnestness and energy bore on the whole conduct of his life, but never spoiled his demeanour, or lessened his sweetness and sympathy. The warmest and most cheerful of friends, generous and hospitable, he irresistibly drew men to him. His powers for work of all kinds were extraordinary, and evidence of this was shown by his capacity to carry on laborious hospital duties and teaching together with complicated laboratory researches. The variety of his interests in medicine and pure science was truly remarkable. He travelled in both hemispheres, and over large areas of Europe. He found and made firm friends wherever he went. He was an outstanding figure at each International Medical Congress, and was generally regarded in the various capitals as one of the lights of British medicine. He kept close touch with his old masters in several Continental schools, but was greatly shocked by the conduct of most of the German professors on the outbreak of the present war.

Although his clinical methods were largely guided by his physiological knowledge, he was never averse from employing remedies of repute for the relief of suffering. His output of literary work was very large. Always sincere, dependable, and hopeful, he was the best of companions and conversationalists. His career throughout was an extraordinary one, and his place in medicine may almost be regarded as unique.

His patriotism and unselfish generosity manifested themselves throughout his life, and were nobly and unostentatiously rendered during the last years of his failing health. I imagine that few men have led so full, interesting, and wide a life as Lauder Brunton.

Our profession is much the poorer in many ways for his departure from it. R.I.P.

Dr. JOSEPH ADAMS, who had been in practice in Warrington for thirty-three years, died on September 15th. His wife had died a fortnight previously, and he went with his family for a short rest to Blackpool, and died suddenly there. Dr. Adams was born at Hanley in 1856, and educated at Northwood Academy. He studied chemistry and materia medica at the Royal College of Surgeons, Edinburgh, and worked for a couple of years at Messrs. Duncan, Flockhart, and Co.'s laboratories. After taking the Huxley medal in comparative anatomy, and the Balfour medal in botany, and attending courses in some London hospitals, Dr. Adams graduated M.B., M.Ch.Edin. in 1880. After a series of professional experiences in other northern towns, he settled in Warrington in 1883. He was appointed M.O.H. to the Runcorn District Council, and discharged other public duties with great ability. When 21 years of age he was a private in the University Company of the Edinburgh Rifles, in 1888 he was appointed surgeon-lieutenant to the Warrington Corps, and became surgeon-major; and the decoration of V.D. was conferred on him seven years ago. He helped the formation of the Warrington Corps of the St. John Ambulance Brigade, and in 1912 was made Honorary Associate of the Order of the Hospital of St. John of Jerusalem in England. When the war broke out Dr. Adams left Warrington with the Territorials, and accompanied them to a home station in Scotland; unfortunately his health broke down, and he was compelled to return. He resumed practice for a time,

but his wife's death affected him deeply. The funeral, which took place on September 19th at Lymm Parish Church, Cheshire, was attended by a large number of friends and by representatives of institutions with which Dr. Adams was connected.

THE LATE MR. KEOGH MURPHY.—Dr. John J. Blagden (Chester) has sent us the following appreciation of Mr. Keogh Murphy, supplementing the obituary notice which appeared in the BRITISH MEDICAL JOURNAL of September 23rd:

He was an ardent Freemason, was a Past Master of the Carthusian Lodge, and attained the coveted dignity of office in the Grand Lodge of England. A long list of academic honours gives but a poor idea of the man himself. "Pat Murphy" was certainly one of the cheeriest and most deservedly popular men of his time at Cambridge and in any other society of people into whose companionship he came. Gifted with far more genuine eloquence than is regarded as being an attribute of his race, with manners of unusual charm, with obvious sympathy with others, and with a delightfully ready wit and a sense of droll humour that is rarely equalled, he was an exceptional and delightful personality. Add to these qualities his undoubted skill in his professional work. He was ambidextrous to the extent that he held his scalpel when operating in his right or left hand with equal facility. As a staff surgeon in the Royal Naval Volunteer Reserve he served in the Hospital Ship *Soudan* in the North Sea from August, 1914; then in Gallipoli, and finally in the Royal Naval Hospital at Stonehouse, where he died in harness. He leaves a widow and an only son—a cadet at the Royal Military College, Wellington, Madras.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on September 21st, Dr. Frederick Taylor, the President, being in the chair.

Committee of Reference (War).

Arising out of a resolution passed by the Committee of Reference at its meeting on September 14th, the following resolution was proposed by the Second Censor (Dr. W. Pasteur), seconded by the Third Censor (Dr. Sidney Martin), and carried:

> The College authorizes its representatives in the Committee of Reference to consider in that committee and, if necessary, in conjunction with other parties, urgent medical questions arising out of the war, such as the treatment of disabled soldiers, and, when necessary, to advise the Government thereupon, the President undertaking to report from time to time to the College.

The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Extraordinary Council was held on September 22nd, when Sir Watson Cheyne, President, was in the chair.

Resolution of the Committee of Reference.

A memorandum from the Chairman of the Committee of Reference was considered, and the following resolution was adopted:

> That the College authorize its representatives on the Committee of Reference to consider in that committee, and, if necessary, in conjunction with other bodies, urgent medical questions arising out of the war, such as the treatment of disabled soldiers; and, when necessary, to advise the Government thereupon, the Committee undertaking to report from time to time to the College.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

ROLL OF HONOUR.

THE Dean would be glad to receive as soon as possible the names of past and present members of the medical school who are serving in H.M. Forces, together with details of rank and regiment and of any honours which have been awarded, in order that the roll of honour may be brought up to date.

The Services.

INDIAN MEDICAL SERVICE.

THE Secretary of State for India has decided that any officer appointed by nomination to the Indian Medical Service during the present suspension of appointments by competitive examination shall be allowed to count:

1. *As service for pension.*—Any service rendered by him during the present war as a medical or combatant officer or in a position usually filled by an officer.
2. *As service for promotion.*—Any service rendered after July 16th, 1915, which counts for pension under 1.

The reason for confining the service specially counting for promotion to service rendered after July 16th, 1915, is that this condition is necessary in order to prevent officers appointed by nomination during the suspension of appointments by competitive examination from obtaining seniority over those previously appointed by competitive examination.

It will be remembered that nominations are made by the Secretary of State for India on the advice of a selection committee; applicants must be over 21 and under 32 years of age. Full particulars can be obtained from the Secretary, Military Department, India Office, S.W.

EXCHANGES.

LIEUTENANT R.A.M.C., at present in field ambulance attached to regular division in France, would like to exchange with officer in base hospital, casualty clearing station, or hospital train. Address No. 3900, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

M.O. (Territorial), attached artillery unit eighteen months in the line, is desirous of effecting an exchange with R.A.M.C. officer on home service. Hospital work in London preferred. Address No. 3800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Regimental M.O. to an infantry service battalion in Egypt desires to exchange with M.O. in France or England. Address care of 53, Stramongate, Kendal.

M.O., second line unit, home services, wishes to exchange regimental M.O. abroad or unit under orders for abroad. Address No. 3898, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

SUMMER time is to be abandoned at 2 a.m. Greenwich time on Sunday, October 1st; that is to say, clocks which were altered to summer time must be stopped, or put back one hour or put on eleven hours, before the working hours of Monday begin.

THE session of the faculty of medicine in the University of Leeds will be opened on Monday next. The Honourable Rupert Beckett will deliver an address at 4 p.m. in the School of Medicine.

THE late Mr. Morton A. Smale left estate valued at £14,800. He bequeathed £1,000 to the Royal Dental Hospital, Leicester Square, for the payment of any debt or for providing poor patients with artificial teeth.

THE first meeting of the section of obstetrics and gynaecology of the Royal Society of Medicine will be held on Thursday next at 8 p.m. At the meeting of the section on November 2nd a discussion on the need for improvement in the care of pregnant women will be opened by Dr. S. G. Moore, M.O.H. Huddersfield, and continued by, among others, Drs. Amand Routh and Comyns Berkeley, and Lady Barrett.

A SPECIAL exhibition, illustrating the folklore of London, will be opened at the Wellcome Historical Medical Museum (54A, Wigmore Street, Cavendish Square, W.) on Monday next. The collection has been formed by Mr. Edward Lovett of Croydon, and consists of medical charms, amulets, and other objects used to avert disease, to ward off evil and to bring good fortune. The exhibition will be open daily from 10 a.m. to 6 p.m., except on Saturdays, when it will close at 1 p.m.

THE Lord Mayor of London announces that the council of the Lord Kitchener National Memorial Fund has resolved to found a number of scholarships to enable young Britons destined for a commercial career to study, travel, and gain business experience in the countries of the allied nations. The intention is that those elected to hold scholarships should begin their studies immediately, and should receive instruction in Russian, French, Italian, and other languages, in economics, and in offices or factories, and that immediately after the close of the war they should be sent for a year to travel in one or other of the allied countries in order to obtain a close familiarity with its language and an intimate knowledge of its commercial methods, needs, and opportunities.

THE committee for the British Prisoners of War Book Scheme has now been constituted, with Mr. A. T. Davies, of the Board of Education, as chairman, and Rear-Admiral J. F. Parry, C.B., hydrographer to the navy, as treasurer. The principal examiner to the Board of Trade (marine department) reported that nineteen candidates presented themselves at a recent examination at the camp at Groningen for the second mate and other certificates, and all passed in a highly creditable manner. This fact bears testimony to the value of the opportunities for self-improvement afforded at the camp. Further classes are now being formed, and evidence is coming in from camps as far distant as Asia Minor of considerable development in the organization of educational work among the men interned there. The committee appeals to the public to continue to help by offering suitable books, new or second-hand. Full particulars of the class of books needed can be obtained on application to Mr. A. T. Davies at the Board of Education, Whitehall, S.W.

Letters, Notes, and Answers.

The telegraphic addresses of the British Medical Association and Journal are: (1) EDITOR of the British Medical Journal, *Attiology Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

Mosquitos.

T. D. T. B. (somewhere in Belgium) writes: Barring the not infallible net, is there any preventive to deal with these insects? Or, after these stinging creatures have got home, is there any salve or what-not to relieve the exasperation of mind and soul and body?

*** Many preventive measures against mosquito bites have been recommended from time to time, but none has proved really satisfactory. The basis of most preparations is some strong-smelling volatile oil, such as oil of lavender, citronella oil, or eucalyptus oil. When first applied the smell repels the mosquitos, but as this passes off the insects bite readily again. After being bitten, ammonia may be applied to the puncture, or carbolic lotion, 1 in 20, or lysol solution. The cellulitis that occasionally follows such bites is probably due to an infection with streptococci or staphylococci, and the application of an antiseptic is useful in preventing this.

LETTERS, NOTES, ETC.

Association of French Army Doctors.

Dr. D. Roberts (Swadlincote) writes: Under "Medical News" in the Journal of September 23rd, fourth paragraph, is a short account of the above. All the objects named are excellent except the last one—namely, "preferential treatment in the matter of appointments." This is one of several methods by which the authorities in this country will try to swamp the general practitioner after the war. To say the least, it would be very unsportsman-like, and I think we can trust our chivalrous confrères at the front to avoid such a pitfall. Those who are now "holding the fort" at home in a medical sense are also deserving of consideration.

The Report of the Royal Commission on Venereal Diseases.

Dr. Robert Gibson writes: While agreeing with the Commissioners that compulsory general notification of venereal diseases is not yet called for, it seems to me that notification for some trades—for example, cooks, bakers, butchers, etc.—is already necessary and desirable. It seems too terrible to see cases of syphilis amongst such trades and to be unable to do more than tell them that they must not follow their occupation for a prolonged period. I have had, and still have, such cases under my care, but am helpless to prevent them from following their work. The last case, a cook in a restaurant, had a chancre on the index finger and a secondary rash over the body. As the law stands at the present time I am unable to compel this man to give up his work. The "enlightenment of public opinion" seems too far off for such cases.

Treatment of Laryngeal Tuberculosis.

Dr. Edward E. Prest (Ayrshire Sanatorium, New Cumnock) writes with reference to the note by "Medicus" in the British Medical Journal of June 10th, 1916, p. 840, that there is nothing wonderful in a patient recovering from laryngeal tuberculosis when absolute silence is prescribed; this should be the routine treatment. "Medicus's" case is a good example of one of the ways in which tuberculin may do harm when administered by an expert in tuberculin, or by any one else. That tuberculin may do good in certain cases of laryngeal tuberculosis seems clear, and when a cure takes place is analogous to the stimulation of a callous ulcer; on the other hand, such stimulation may simply lead to increase of the disease. It is not necessarily wise to stir up a latent tuberculous focus on the off chance of being able to cure it. It can seldom be possible to obliterate successfully and with safety every tuberculous focus in the body. If "Medicus" would like to know why tuberculin has been given up at Midhurst, he should read the Preliminary Report on the Treatment of Tuberculosis with Tuberculin (Bardswell), M. E. Lewis, 1914. Case 50 (p. 170) in the above report is a good example of how tuberculin administered may produce good results especially in chronic disease. Most of the other cases cited illustrate the fallacy of supposing that tuberculin has any universal application for good.

Lieutenant John Bain, R.A.M.C., commenting on the diversity of opinion regarding the treatment of laryngeal phthisis with tuberculin and complete disuse of the voice, writes: In my opinion, both these methods of treatment are necessary for a successful result in this type of tuberculosis, and more especially the latter. It has been my experience that unless absolute rest of the voice is insisted on the cure of laryngeal tuberculosis is either greatly delayed or does not take place at all. I was greatly interested to learn that Dr. Mackeith has had successful results without resting the voice, but, all the same, I cannot refrain from thinking that his results might have been even better had he taken the precaution to advise his patients to keep absolute silence for three months. I do not think it matters much what remedy we use to cure the tuberculosis—intravenous injections of iodoform, tuberculin, inhalations of garlic juice, or even an ordinary sedative antiseptic inhalation—so long as the voice is given absolute rest proportionate to the condition of the larynx when first seen. No doubt a fine climate like that of Madeira is a great help in bringing about a cure in these cases, but, like Dr. Mackeith, I have successfully treated cases of laryngeal tuberculosis in the town in which my patients resided, and have had every reason to be satisfied with the ultimate results.

Rhus Toxicodendron Poisoning.

Mr. L. P. Shadbolt, F.R.C.S. (Bushey) writes: I have had under my notice during the past month three cases of poisoning by the American poison vine or ivy (*Rhus toxicodendron*) which have led to the discovery of four very sturdy specimens of this objectionable creeper growing on two houses in this neighbourhood. My attention was first drawn to this subject by an article by Sir E. Ray Lankester in his Easy Chair Series, styled, "A rival of the fabled upas tree," some years ago. Last month a patient came to me for advice for a peculiar bullous eruption on his hands and wrists which was accompanied by intense erythema. Erythema was also present about his face and various parts of his body, notably the genitals. His work was that of a painter. On inquiry I found that he had been engaged in painting a house in this neighbourhood, and had to clear away certain creepers from the framework of the windows; further, that his "mate" was suffering in the same way and had been engaged on the same job; also that the gardener at the house in question periodically suffered from the same affection. Remembering the article referred to above I sought it out and read it over. It has appended to it some engravings of the leaves of *Rhus toxicodendron*, and those of the large-leaved Virginia creeper, *Ampelopsis quinquefolia*. The distinction between them is that whereas the poison vine has a leaf of three leaflets, of which the central one is possessed of a stalk about 2 in. in length, the large-leaved Virginia creeper has a leaf of five, four, or three leaflets, all growing from a central point, the leaflets having no independent stalks. I then went to the suspected house and there found, growing on its walls and reaching to the eaves, two luxuriant plants of the poison vine, easily identified by the long stalk of its central leaflet. Further search revealed another specimen growing on a fence in the garden, and on the neighbouring house yet another.

I sent specimens of the leaves of the plants to the Director of Kew for official confirmation, and in due course received his report—*Rhus toxicodendron*. The tenant of the house informs me that the creepers had been established there at least ten years, and it is remarkable that these three cases of poisoning by the plant are the only ones recorded.

*** Poisoning by this plant is much more common in America than in this country, and most of the literature about it is American, but cases have been recorded from time to time in this Journal. One of them—by Dr. H. W. Nott, of Little Sutton, Chester—was illustrated by a reproduction of the foliage (British Medical Journal, 1910, vol. ii, p. 545). The condition was described briefly by the late Dr. Radcliffe Crocker in his well known textbook, and also by Dr. Norman Walker in his *Introduction to Dermatology*. In the new edition (just issued) of Dr. Walker's book the account is fuller than in previous editions. It is illustrated by a drawing of the foliage and fruit, and reproductions of photographs of Dr. Nott's case. Dr. Walker writes: "The climate of the East of Scotland is too severe for the rhus. My worst case came from another part of Scotland, and occurred in a tramp to whom an apparently generous gardener had given half a crown and his dinner to prune a creeper that adorned one side of a mansion. The autumn tints of rhus leaves are lovely, and I have seen dermatitis caused by pressed leaves which had crossed the Atlantic and been used as table decoration."

Health Visitors and Birth Inquiry Cards.

Sir Francis Champneys writes: I notice an error in my letter published September 23rd, p. 438 (last paragraph, first line). "Enforced" should be "enjoined."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Remarks on Emergency Amputations in Military Surgery.

I. A SIMPLE MODIFICATION OF THE GUILLOTINE OR FLAPLESS METHOD OF AMPUTATION.

II. THE FORCEPS TOURNIQUET.

BY

LIEUT.-COLONEL J. LYNN THOMAS, C.B., F.R.C.S.,

CONSULTING SURGEON TO THE WESTERN COMMAND.

I.—*The Modified Circular Amputation with Lateral Incisions.*

I HAVE had the great privilege of studying carefully the methods introduced by Colonel H. M. W. Gray, C.B., in dealing with septic wounds of the extremities and of other regions. I have also had the advantage of putting them into practice, and am convinced that if they were applied in the first dressings to all cases calling for amputation, whether at the front, at the field ambulances, at the casualty clearing stations or at the base hospitals, the so-called "guillotine" or flapless method of amputation would soon cease to be practised.

It is to be borne in mind in the first place that the term "guillotine" or flapless amputation is not applicable to cases in which there is not sufficient skin to cover the raw surfaces when circumstances demand the removal of an entire limb from the trunk, whether this necessity be due to the severity of the mechanical destruction of the tissues or to the extent of infection. In this condition the surgeon must perform an operation of expediency; he must cut his coat according to his cloth.

It is to be remembered that the apparatus devised, or said to have been devised, by Dr. Joseph Ignace Guillotin (it certainly bears his name) for cutting through all the tissues of the neck at the same level, had the merciful quality of performing its work in one second, or an even shorter time.

The term "guillotine" is most improperly applied to the flapless operation with regard to the aspect of speed of execution; it has no vestige of a claim to be held on this account to be superior to the circular amputation of Celsus, which has enjoyed, or rather has survived, a reputation of some twenty centuries. Both—the guillotine and the Celsus amputations—take a varying number of minutes, the exact duration depending upon the skill, experience, and dexterity of the operator.

The "new" guillotine and the "old" circular amputations have two fundamental points in common: the first is that each takes about the same length of time to perform, and the second is that in both all the tissues are divided at the same level. Therefore there is no good reason for introducing a new nomenclature.

The Celsus circular amputation was modified a long while ago with the definite objective of minimizing the recurring physical pains, which caused the patient to dread the dressing of the stump; the modification also had the further important advantage that it saved the patient the trying ordeal of reamputation.

I feel convinced that one or more of the well-known modifications of the old circular amputation could safely replace the guillotine operation, and the one which appeals to me is that which consists in making two lateral incisions through the apparently healthy soft tissues right down to the bone.

The upper or proximal extensions of the lateral incisions are determined by the point at which sufficient soft tissues can be obtained to give ample covering for the bone. The main indications are speed and simplicity. The above modification of the old circular amputation renders it easy to adopt Colonel Gray's method of packing the wound, as shown in Fig. 4. It is also easier of performance than the "cuff" modification of Celsus operation when the surgeon is single-handed or inexperienced in the art of amputation. Further, the lateral incisions allow of better drainage than the cuff circular incision.

The following are the essential points in carrying out the circular amputation with lateral incisions:

1. The level at which the section of the bone is to be made must first be determined.

2. The proximal ends of the lateral incisions begin at this determined point, and are carried down to the bone and continued towards, or into, the damaged tissues, as shown in Fig. 1.

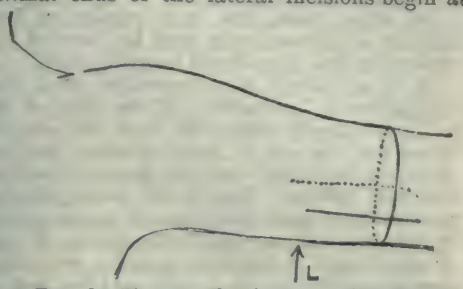


FIG. 1.—Diagram showing lateral incisions starting from the level (L) determined on for the section of the bone and continued towards or into the damaged tissues, and showing also the line of the circular incision.

3. A clean knife must be used for each lateral incision if available; if not, the knife should be thoroughly wiped and sterilized by flame.



FIG. 2.—Circular incision made and flaps retracted to the determined point.

4. The soft tissues are then divided by one clean sweep down to the bone after the manner of the old circular method.

5. The two flaps thus produced by the combination of the circular and the lateral incisions are retracted (Fig. 2) and the bone is sawn through at the level previously determined.

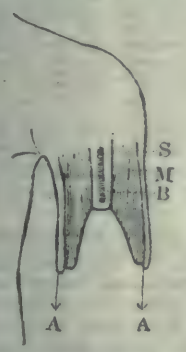


FIG. 3.—A A, Skin pulled in direction of arrows and forming funnel-shaped cavity; B, bone; M, muscle; S, skin.



FIG. 4.—Flap brought over cavity (G) packed with gauze.

6. The vessels are ligatured with silkworm-gut or catgut, not thread or silk, for fear of sepsis in the wound.

7. The flaps are then forcibly pulled down, forming a funnel-shaped cavity (Fig. 3) in which the muscles are not in apposition, as shown in longitudinal section in Fig. 4.

8. This cavity is firmly packed with sufficient gauze wrung out of Wright's hypertonic salt solution or Dakin's fluid so as just to allow the flaps to meet firmly over the packing (Fig. 4). The flaps are secured in position by three strips of self-adhesive strapping and the ends of the gauze are allowed to project at each corner through



FIG. 5.—End of stump ready for application of gauze dressing. S, Strapping; G, gauze.

the lateral incisions, in the manner shown in Fig. 5, so as to ensure drainage. The stump is then covered with a dressing of sterile gauze and a bandage.

The ordinary rubber drainage tubes, whether large or small, must not be used.

In some cases, but only rarely, a few interrupted sutures of silkworm-gut may be inserted to reinforce the strapping, but they should be quite slack.

It is a matter of observation that the dirty grey "diphtheritic" infections of the flaps of stumps, which not infrequently supervene upon the insertion of rubber tubes and the use of tight stitches, are usually rapidly overcome by laying open the flaps and packing with gauze and salt tablets. How much easier, then, would be the prevention of such infections if the surgeon would boldly in the first instance pack the whole of the raw surface. A tube, 5 mm. in diameter, may be put into the gauze; it should project on each side and be tied at its centre; holes should be made in it on each side of the point at which it is tied, so that Dakin's fluid, if that preparation be preferred, may be injected from each side into the pack. Personally I consider Gray's salt pack more suitable for the military emergencies existing between the front and the base.

II.—*The Forceps Tourniquet in Military Surgery.*

During the last eighteen years I have not used the rubber or any other tourniquet for any amputations of the thigh, nor for aneurysms in that situation.

Many of those who have seen the forceps tourniquet in use have adopted it, but as practical knowledge has the peculiarity of slow diffusion, I venture at this moment to draw attention to it again, as the field for its employment in war is very great. Binnie, Jacobson, Kocher, Charles Mayo, and Tuffier have all spoken with enthusiasm of its usefulness.

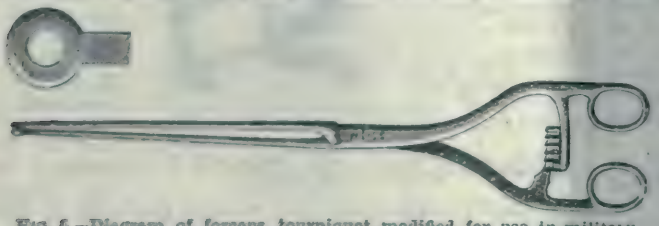


FIG. 5.—Diagram of forceps tourniquet modified for use in military surgery. It shows the probe-pointed blade. The ring at the point of the other blade is shown half scale at the side. The ratchet is of the Girard pattern, self-releasing. The instrument was originally introduced for controlling the femoral vessels (*Lancet*, 1898, vol. i. p. 1112). Later on, in the Boer war, it was used for this purpose, and for controlling other vessels (BRITISH MEDICAL JOURNAL, 1904, vol. ii, p. 835; also *Transactions* of the International Surgical Congress, Brussels, 1905). It is made by Messrs. Weiss and Son, London.

One blade is smooth and probe-pointed for underrunning the blood vessels to be controlled, the other is roughened and has an expanded ring-shaped end to prevent its slipping over the skin. A stab puncture of the skin is made at a point suitably placed in relation to the vessels to be controlled, and through it the probe-pointed blade is driven forcibly behind the large blood vessels (femoral artery and vein). When the forceps is closed the other blade firmly grasps the skin, and, owing to its roughened edge and the expanded ring end, does not slip. The forceps is securely closed by means of the ratchet on the handles. The time occupied in applying the forceps is not more than a second; the arteries and veins are simultaneously controlled, no assistant is required, and the instrument is always reliable; it is sterilized with the other instruments. The stab puncture in the skin is dressed with iodine and a pad of sterilized gauze, ½ in. in diameter, fixed on with strapping. In military surgery the nature and situation of the wound will often render it unnecessary to make a stab puncture for the probe-pointed blade; I have found, when recently using the instrument in France, that it is necessary, on account of the muscle destruction, to modify the forceps so as to bring the blades closer together. The parts to be compressed are in these conditions considerably thinned. The application of the forceps tourniquet to the thigh has been described, but it will be seen that it can be used also in amputations of the arm or at the shoulder. It has, in fact, been used with success in these situations.

THE INTRASPINAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM;

WITH THE REPORT OF CASES.

BY

A. ROCKE ROBERTSON, CAPTAIN C.A.M.C.,

IN CHARGE OF LABORATORIES AND WARD FOR TERTIARY SYPHILIS, THE GRANVILLE CANADIAN SPECIAL HOSPITAL, RAMSGATE.

IT is only within the last few years that a vigorous attempt has been made to treat this disease by the introduction of a powerful antisyphilitic remedy into the spinal canal.

After a brief localization within the primary sore, the *Spirochaeta pallida* very rapidly reaches the systemic circulation—probably within a few days after, or, some hold, even before the first appearance of the chancre. At this stage the spirochaete has been successfully isolated and cultivated from lesions and the blood in the human being, and in experimentally induced syphilis in rabbits and monkeys. The exceedingly fine, spiral, thread-like character and motility of the organism, together with its apparent preference for connective tissue and lymph spaces, cause it early to migrate into the vessel walls, or to pass through the latter into the surrounding connective tissue.

In infants dead of congenital syphilis the organisms are commonly found in vast numbers in the walls of the sinusoids of the liver and spleen, and also within the intermuscular lymph spaces in the wall of the heart. The toxin produced is apparently mild, and the tissues which chiefly respond to this irritation are connective tissue and endothelial cells. When the organism is present in great numbers within the circulating blood and in the connective tissue of the intima—that is, in the secondary stage—the consequent toxaemia is marked by the presence of fever, malaise, anaemia, vague nervous disturbances, general glandular enlargement, etc. Somewhat later the organisms have practically disappeared from the blood, many having perished, while others have penetrated deeply within, or passed beyond the vessel walls in certain localities, where they eventually give rise in the main to the formation of connective tissue lesions. Such lesions are found chiefly in the intima and adventitia of small vessels where the connective tissue, in particular, proliferates enormously. The intima may become so thickened that the lumen of the vessel is partly or totally occluded, and it is owing to this fact that tissues supplied by such vessels are rendered anaemic and in consequence eventually perish, only to be replaced by scar tissue. The organisms lie within or between connective tissue or endothelial cells, and thrive in these granulomata, which, being relatively avascular, are therefore anaemic. Thus, it can readily be seen that in the late secondary or tertiary stages of syphilis the organisms are located deep within these anaemic tissues, are relatively shut off from the blood and lymph stream, and also from antagonistic agents which the blood may contain. It is apparently owing to these facts that the tertiary manifestations of syphilis are often so resistant to treatment.

There are no accurate data to show what percentage of syphilitics in the secondary stage have actual involvement of the central nervous system, but, since the cerebro-spinal fluid has often been found to show changes, it is reasonable to suppose that many of the nervous manifestations of this stage are directly due to the action of the spirochaete upon the meninges, probably of the nature of a miliary syphilitic meningitis. In 1903 Ravaut, examining spinal fluid in secondary syphilis, found abnormal changes in 70 per cent. of all cases. Plant found changes in 66 per cent. Nonne and Montoux, as a result of their own investigations of spinal fluid, found that 40 per cent. of all cases of syphilis eventually exhibit some evidence of involvement of the nervous system. Gennerich thinks that all early constitutional cases (Wassermann positive) will, after salvarsan or mercury, develop an increase of lymphocytes and globulin—that is, a provocative reaction will be obtained in the spinal fluid. It seems, therefore, that nervous tissues and the membranes covering them are particularly susceptible to invasion

by the spirochaete, and, once this has occurred, the infection is likely to persist, for two reasons: (1) The arteries supplying nervous tissues are for the most part "end arteries," which, if they become occluded by syphilitic endarteritis, leave the tissue they supply in a relative state of anaemia—a condition which favours the protection and development of the spirochaete. (2) Any remedial agents introduced by the blood stream do not readily reach the cerebro-spinal fluid which bathes the infected meninges, because this fluid is not a transudate from either the lymph or blood stream, but is a true secretion of the ependymal cells of the choroid plexus. Thus, it can readily be seen how important it is to introduce some powerful remedial agent actually into the cerebro-spinal fluid, if one hopes for any marked effect upon the spirochaete localized in the meninges or the underlying nervous tissues. Especially is this desirable in the early stages of infection of the central nervous system, since, in the majority of cases, the lesions then are chiefly, if not entirely, vascular or meningeal. Later on, should the infection not cease spontaneously or under treatment, the underlying nerve tissue becomes involved in a definite manner. The spirochaetes invade the adjacent nerve tissue, causing marked proliferation of neuroglia and consequent degeneration of nerve cells. The clinical symptoms resulting therefrom will depend upon the locality of the infection. The basal meninges are most frequently involved, and the connective tissue overgrowth in this situation commonly causes headache and often injury to one or more of the cranial nerves which pass through. When the meninges covering the posterior roots and ganglia are involved the symptoms will ultimately be those of tabes dorsalis. Infection of the cerebral meninges and cortex, in a precisely similar manner, means paresis. Clinically, we often see the infection manifest itself as tabes, with later paretic manifestations, and vice versa—the condition being familiarly known as tabo-paresis. Less frequently gummata of the dura or pia-arachnoidal tissues occur. The underlying pathological process, both ætiologically and histologically, is the same for all, since, by means of Levaditi's silver impregnation method, Noguchi and others have demonstrated the spirochaete actually within these lesions.

The problem, then, is to detect syphilis of the central nervous system at the earliest possible stage, and then endeavour to arrest the process or destroy the spirochaete *in situ*. Since the introduction of salvarsan and neo-salvarsan great expectations have been aroused in this direction, especially since it is now possible to introduce these agents directly or indirectly into the cerebro-spinal fluid.

It was first attempted to introduce salvarsan directly into the subarachnoidal space. Wechselman in 1912, Marinesco in 1913, and also Levaditi and Marie failed to do this successfully on account of the strong toxic action of salvarsan. But Ravaut was successful in injections of neo-salvarsan without apparently producing any serious results. Wile followed Ravaut's technique in 15 cases—7 tabetics, 5 paretics, and 3 cases of cerebro-spinal syphilis; of these 7 showed marked improvement. He advised the use of only very small doses of the drug. This method is the direct introduction of neo-salvarsan. Other observers, however, who ventured this treatment reported untoward symptoms, and Alfred Gordon of Philadelphia had a most distressing result in which extensive gangrene and paralysis of the lower extremities resulted, eventually leading to death.

Swift and Ellis were the first to employ what is now regarded as the safest method—that is, first to give an intravenous injection of neo-salvarsan, and one hour later to withdraw about 50 c.cm. of blood, which is allowed to clot over a period of twenty-four hours. The resulting auto-salvarsanized serum is now pipetted off, heated to 56° C. for half an hour, diluted in 0.6 per cent. salt solution to a 40 per cent. strength, and about 30 c.cm. of this is injected into the spinal canal after an equal quantity of spinal fluid has been withdrawn.

Osborne has modified this method by adding a definite measured amount of neo-salvarsan directly to the patient's blood serum, and then injecting this into the spinal canal. Its advantage lies in the fact that a definite measured amount of the drug itself is introduced into the spinal fluid, whereas by Swift and Ellis's method the auto-salvarsanized serum undoubtedly contains an amount of the drug which will vary in each case. In fact, such an infinitesimally small amount of the drug is introduced by the Swift and Ellis method that it is difficult to understand how the drug in itself is the actual beneficent agent. Some observers believe that the drug acts by calling forth a larger production of syphilitic antibody, and that the activity of auto-salvarsanized serum depends upon its relatively larger content of syphilitic antibody than that of normal serum. However this may be, the fact remains that a large percentage of cases of central nervous system syphilis have shown marked improvement or have been completely cleared up—depending, of course, upon the degree of involvement. The present belief is, that in general paresis, and advanced tabes dorsalis, only partial improvement can be effected, but that in early tabes, and syphilitic meningitis the chances of a cure both from a clinical and laboratory standpoint are excellent.

The following cases embrace both slight and advanced involvement of the central nervous system. The laboratory examinations were made chiefly for determining the relative decrease in the strength of the complement-fixation reaction, and of the globulin content as a result of each intraspinal treatment, and to see how these compared with the changing clinical condition.

CASE I.

A. F. M., aged 36; May 28th, 1914. No admission of syphilis. Five weeks ago while reading in bed the vision of the left eye suddenly became blurred. The following morning this eye was painful, and he noticed then for the first time that the left pupil was much larger than the right. It remained dilated, and ten days later a Wassermann test of his blood serum proved strongly positive. During the last year he had had shooting pains in the legs which were worse at night and often awakened him.

August 8th, 1914. Pupils react well to accommodation but sluggishly to light, the left remaining much larger than the right. Optic discs normal. Knee-jerks absent. Slight anaesthesia of soles of feet. No definite Rombergism or ataxia. Diagnosis: Tabes dorsalis (pre-ataxic stage). Gave salvarsan 0.6 gram.

August 22nd, 1914. No change clinically; lightning pains severe. Wassermann reaction positive, but weaker than on August 8th, 1914. Gave 0.9 gram neo-salvarsan intravenously.

October 6th, 1914. Wassermann reaction of blood serum faintly positive.

October 9th, 1914. Feeling better; pains less severe and less frequent. Gave 0.9 gram neo salvarsan intravenously.

October 10th, 1914. Lumbar puncture. Spinal fluid limpid and clear. It shows marked increase of globulin by Noguchi's butyric acid test. Improvement of symptoms.

October 24th, 1914. Wassermann test of blood serum negative. Gave 0.6 gram salvarsan intravenously. Twenty minutes later withdrew 50 c.cm. of blood.

October 25th, 1914. Diluted 12 c.cm. of the auto-salvarsanized serum with 18 c.cm. of 0.6 per cent. saline, and gave intraspinally, first having withdrawn an equivalent amount of spinal fluid. Raised foot of bed six inches for four hours. Pain in legs somewhat severe four hours later, but soon subsided. Otherwise no other symptoms. Noguchi test gives weaker globulin reaction than on October 10th, 1914.

October 28th, 1914. Intravenous salvarsan 0.6 gram, and withdrew blood as before.

October 29th, 1914. Gave auto-salvarsanized serum intraspinally as before. Noguchi globulin test of spinal fluid faintly positive. General health of patient is markedly improved. The dilated left pupil is perceptibly smaller. The lightning pains are much less frequent and less severe.

January 14th, 1915. Intravenous neo-salvarsan 0.9 gram.

January 15th, 1915. Intraspinal serum as before. Spinal fluid gives positive Wassermann reaction with a minimum of 0.4 c.cm. Noguchi test faintly positive.

April 28th, 1915. No lightning pains since the last injection. Health excellent. Knee-jerks absent. Pupils still unequal, but the left is slightly less dilated than when last seen. Both also react to light more vigorously than on October 29th, 1914. Gave intravenous salvarsan, 0.6 gram.

April 29th, 1915. Gave intraspinal serum as before with no uncomfortable symptoms following. The spinal fluid gives a negative Wassermann reaction with 1.0 c.cm. The Noguchi test still shows a slight increase of globulin. The general health of the patient is very markedly improved; the left pupil is much smaller, though still larger than the right.

In this case the general health of the patient has undergone marked improvement. The dilated left pupil has diminished in size, and both have become more active to light. The lightning pains have been completely abolished up to the last date of treatment. A positive Wassermann reaction of blood and spinal fluid has become negative.

CASE II.

W. A. M., aged 51; January 1st, 1915. Fairly clear history of syphilis about eighteen years ago. Has always led a laborious

outdoor life until three years ago. Two years ago shooting pains in the legs began to trouble him, and during the last year the gait has been a little unsteady. There has been a numbness in the feet, as if walking on velvet. Has had cystitis for several months, with marked atonicity of the bladder. On examination: Pupils very small, inactive to light; fundi normal. Anaesthesia of palms of hands and soles of feet. Gait very slightly ataxic in daytime, but more markedly at night. Slight Rombergism: some muscular hypotonicity. Blood gives leucocytosis of 10,000, and strong positive Wassermann reaction with 0.1 c.cm. inactivated serum.

January 13th, 1915. Neo-salvarsan 0.9 gram intravenously; withdrew blood half-hour later. On following day gave intraspinous serum as detailed above. Spinal fluid is under pressure; is clear, shows marked globulin increase (Noguchi), and positive Wassermann reaction with a minimum of 0.4 c.cm.

February 1st, 1915. General health much improved; putting on weight. No lightning pains, and much less anaesthesia of feet. Has much better control of urine, and voids voluntarily. Gave intravenous salvarsan 0.6 gram.

February 2nd, 1915. Gave intraspinal serum. Spinal fluid gives increased globulin (Noguchi), and positive Wassermann reaction with a minimum of 1.0 c.cm.

February 20th, 1915. Intravenous salvarsan, followed by intraspinal serum as before. Spinal fluid globulin test (Noguchi) weaker than on February 2nd, 1915. Wassermann reaction positive with minimum of 1.0 c.cm.

April 14th, 1915. Intravenous salvarsan 0.6 gram. Intraspinal serum given eight hours later. Spinal fluid shows still an increase of globulin, but less than before. Wassermann reaction still positive with 1.0 c.cm.

May 10th, 1915. Intravenous and intraspinal treatment as above. Spinal fluid shows faint increase of globulin, and Wassermann reaction still present with 1.0 c.cm. The general health has steadily improved; he feels much less anaesthetic in the feet, and his hands are now normally sensitive. He has perfect control of the bladder.

June 14th, 1915. Combined treatment as given above; the spinal fluid shows no change.

September 3rd, 1915. Combined treatment as given above, using diarsenol for the first time. Spinal fluid shows very weak globulin reaction. Wassermann reaction negative now with 1.0 c cm., but positive with 1.5 c.cm.

October 20th, 1915. Combined treatment, using diarsenol. Spinal fluid shows very faint globulin reaction, and a negative Wassermann with a maximum of 1.5 c.cm. The patient's health is still improving, and he states that he is now in better health than he has been for several years. He is now able to carry on with his work as usual.

In this case of well-marked tabes dorsalis in the early ataxic stage, where both blood and spinal fluid gave a strong positive Wassermann reaction, and the spinal fluid showed marked increase of globulin, the Wassermann reaction has become negative, and the amount of globulin reduced to a trace. Clinically there has been complete alleviation of his distressing symptoms, particularly the atonicity of the bladder, so that he again has perfect control. The lightning pains have ceased; the anaesthesia has disappeared in the hands, and has markedly improved in the feet. He has gained in weight, and feels in excellent health.

CASE III.

D. S., aged 31. Primary sore in April, 1914. In August he had an ulcerated throat, and was treated with mercurial inunctions. In October he noticed that he was becoming deaf, and received an intramuscular injection of salvarsan. On November 23rd, 1914, Wassermann reaction of blood negative.

He was seen on March 7th, 1915, for the first time. Feels nervous; has headaches often; believes that he is becoming progressively deaf, for which he has lately been treated for Eustachian tube trouble without improvement. On examination, the pupils are unequal, the left is slightly larger. Both react to light and accommodation. All reflexes are normal. A diagnosis of central nervous system involvement was made on the strength of progressive deafness, inequality of pupils, headache, and nervousness. The spinal fluid is clear, and slightly under increased pressure; its Wassermann reaction strongly positive with 0.5 c.cm. Marked increase of globulin (Noguchi). Has been taking maximal doses of mercury by mouth. Wassermann test of blood strongly positive.

May 22nd, 1915. Gave intravenous salvarsan 0.6 gram, followed by intraspinous serum. Spinal fluid shows positive Wassermann reaction.

July 9th, 1915. Combined treatment as above. Spinal fluid: Positive Wassermann reaction with minimum of 0.5 c.cm. Globulin test strongly positive.

September 4th, 1915. Combined treatment as above, using diarsenol. Spinal fluid: Wassermann reaction negative with a maximum of 1.5 c.cm. Noguchi globulin test faintly positive. This is a very marked improvement since the last treatment two months ago. The patient's hearing is progressively improving, and the inequality of the pupils is very much less.

October 9th, 1915. Combined treatment as before. Spinal fluid: Wassermann reaction negative with maximum of 1.5 c.cm. Globulin test (Noguchi) very weakly positive. His hearing now is practically normal, but there still remains very slight inequality of the pupils. He has no headaches, is not nervous, and feels perfectly well.

The lesion here was probably an early syphilitic basilar meningitis of sufficient severity to cause headache and also irritation, and possibly constriction of the third and eighth nerves where they pass through the meninges. The nervousness was also probably the result of meningeal irritation. After four combined intravenous and intraspinal treatments all symptoms entirely disappeared, the defective hearing was restored, and the inequality of the pupils was much reduced.

CASE IV.

A. B. G., aged 30, seen on February 15th, 1915. Hard chancre six years ago and took mercury for one year. Two years later his blood gave a negative Wassermann reaction. Between three and four months ago the left pupil began to enlarge, though in every other respect he was perfectly well. Present condition: Right pupil widely dilated 8.5 mm. and absolutely inactive to light and accommodation. Ocular movements and fundi normal. All other cranial nerves normal. All other reflexes normal. Blood: Wassermann reaction negative. Spinal fluid gives positive Wassermann reaction with minimum of 0.5 c.cm. Globulin test (Noguchi) positive. Cell count 80 mononuclears to the cubic millimetre.

February 18th, 1915. Intravenous neo-salvarsan 0.9 gram. Twenty minutes later blood was withdrawn, and eight hours later auto-salvarsanized serum given intraspinally.

April 2nd, 1915. Combined treatment as above, using salvarsan. Spinal fluid shows the same degree of reaction as on February 18th, 1915.

May 22nd, 1915. Combined treatment as on April 2nd, 1915. Spinal fluid: Globulin (Noguchi) test strongly positive. Wassermann reaction positive with 1.0 c.cm.

July 3rd, 1915. Combined treatment. Spinal fluid: Globulin (Noguchi) test positive. Wassermann reaction positive with 1.0 c.cm.

August 6th, 1915. Combined treatment, using diarsenol. Spinal fluid about the same as on July 3rd, 1915.

August 23rd, 1915. Combined treatment as on August 6th, 1915. Spinal fluid: Globulin (Noguchi) test weakly positive. Wassermann reaction positive with minimum of 1.5 c.cm. This shows a marked improvement since the last examination.

Clinically there has been absolutely no change in the degree of inequality of the pupils, though his health in general is excellent. It may be assumed that with the degree of pathological change in the spinal fluid further subjective and objective symptoms would eventually show themselves had no treatment been interposed. Treatment has made a marked improvement in the condition of the fluid. Further treatment is to be given with the intention of still improving its condition and preventing the onset of graver central nervous system involvement.

CASE V.

J. S. S., aged 30, seen on December 4th, 1914. Chancre seven and a half years ago. No history of secondaries. About seven months ago he began to feel nervous without cause. While walking quietly, even, he would gradually but rapidly be overcome with a sense of weakness, would perspire freely, and tremble all over. He would also have some vertigo, and often upon getting up in the morning he would become nauseated. He slept poorly, but had no pain other than a dull ache over the eyes and occiput, which he thought might be due to constipation.

On examination he shows fair physique and nutrition. The pupils are unequal, the left larger and more sluggish to light than the right. Both accommodate. All ocular and other movements normal. Heart negative, except for slight accentuation of the aortic second sound. Radial arteries fairly hard and tortuous. Lungs negative. Thyroid normal in size. The outstretched hands show a moderately fine tremor, not increased under purposeful movements. Reflexes: Those of the upper extremities are markedly increased; both knee-jerks absent. Tendo Achillis reflex very weak. Plantar flexion. Slight Rombergism. No anaesthesia or disturbance in thermal sensation. The gait is not definitely ataxic, though it is slightly hesitating, which he attributes to weakness.

December 5th, 1914. Intravenous salvarsan 0.6 gram, followed the next day with intraspinal auto-salvarsanized serum. Spinal fluid shows Wassermann reaction positive with minimum of 0.5 c.cm. Globulin (Noguchi) test strongly positive.

December 21st, 1914, combined treatment as above. Spinal fluid shows no improvement, but he says he feels, and he looks, better.

January 3th, 1915. Combined treatment as before. Spinal fluid still positive with 0.5 c.cm., and Noguchi globulin test still remains strongly positive, but much less so than on the former examination.

February 27th, 1915. Combined treatment. Spinal fluid: Wassermann reaction barely positive with 0.5 c.cm and strongly positive with 1.0 c.cm. Globulin (Noguchi) test positive, but much weaker than on the last examination.

March 25th, 1915. Combined treatment. Spinal fluid positive with 1.0 c.cm., and the Noguchi globulin test is very weakly positive. Result: His health in general has improved very much; he feels stronger, more confident, and is eager to

return to work. There are no changes in the reflexes, and the tremor of the hands, though considerably diminished, is still marked. Only five combined treatments having been given, with marked improvement, a continuance was advised, but he left the city. About six months later he again presented himself, with a return of his old symptoms. He also has had for the first time some lightning pains at infrequent intervals, and a few weeks ago he first noticed on the plantar surface of the foot a painless shallow ulcer. There is definite decrease of sensation to pin-prick over the soles. The spinal fluid gives a positive Wassermann reaction with 1.0 c.cm., and the Noguchi globulin test is stronger than on examination six months ago.

The involvement of the central nervous system is evidently extensive in this case, and already degenerative changes in the sensory tracts are present. There is also a syphilitic basilar meningitis causing nervousness, frontal and occipital headache, and the lateral extension to the meninges covering the cortex for the upper extremities probably accounts for the increased reflexes of the latter.

Case vi.

H. D. K., aged 29. Primary syphilis nine years ago, followed by typical secondaries. Treatment was not commenced until he was in his secondaries. Took mercury regularly for one year. Three years ago he began to feel nervous, as he says, with headache at times, though not of a severe character. On examination: He is obviously worried over the state of his health (neurasthenia), and finds his work—that of motorman on a street railway—very fatiguing. He is a big fellow, of splendid physique and good nutrition. Pupils unequal, which he has never known before; the left being the larger and more sluggish to light than the right. Physical examination otherwise negative. Blood and cerebro-spinal fluid give negative Wassermann reaction. Cerebro-spinal fluid, however, shows marked increase of globulin (Noguchi).

November 3rd, 1914. Intravenous salvarsan 0.6 gram.
November 27th, 1914. Intravenous salvarsan 0.6 gram.
December 18th, 1914. Intravenous salvarsan 0.6 gram.
February 19th, 1915. Intravenous neo-salvarsan 0.9 gram, followed the next day by intraspinal injection of autosalvarsanized serum. Spinal fluid gives positive Wassermann reaction with 1.0 c.cm. Globulin test (Noguchi) strongly positive.
March 24th, 1915. Combined treatment as above. The globulin test is still positive, but the Wassermann reaction is negative with 1.0 c.cm.
May 4th, 1915. Combined treatment. Globulin test positive, and Wassermann reaction positive with 1.0 c.cm.
May 20th, 1915. Combined treatment. Spinal fluid shows very slight improvement since last examination.
June 9th, 1915. Combined treatment. Still very slight improvement of spinal fluid.
July 6th, 1915. Combined treatment. Slight improvement in spinal fluid.
July 30th, 1915. Intravenous salvarsan.
October 30th, 1915. Combined treatment. Spinal fluid shows very marked improvement. The globulin test (Noguchi) is only faintly positive, and the Wassermann reaction is negative with 1.5 c.cm.

After seven combined treatments the spinal fluid shows very marked improvement. The general health of the patient has improved. He no longer feels nervous. The dilated pupil is much more active, and has contracted perceptibly, though it remains still a little larger than the other.

Case vii.

J. B., aged 34. Seen on April 21st, 1915. Indefinite history of syphilis eight years ago. Nothing happened until seven weeks ago, when diplopia suddenly came on, with dilatation of the left pupil as well. Wassermann reaction of the blood negative, though it is possibly due to the fact that he has been taking mercury and potassium iodide since the onset of symptoms.
May 14th, 1915. Combined treatment given. Spinal fluid shows positive Wassermann reaction with 0.5. c.cm. Globulin test (Noguchi) strongly positive.
June 4th, 1915. Combined treatment as above. Spinal fluid gives weaker Wassermann reaction than before, requiring twice as much fluid. Globulin test strongly positive.
June 25th, 1915. Combined treatment. Wassermann reaction of spinal fluid, and also the globulin content unchanged.
July 16th, 1915. Combined treatment. Spinal fluid remains unchanged. Clinically, there is marked improvement. The diplopia has considerably decreased, and the dilated pupil is more active, and slightly more contracted.
September 6th, 1915. Combined treatment. The spinal fluid shows marked improvement, the Wassermann reaction being positive with 1.5 c.cm., and the globulin test being very much weaker.
October 7th, 1915. Combined treatment. The spinal fluid is still somewhat improved.

After seven combined treatments the improvement is very marked, though there still remains some diplopia, and dilatation of the left pupil. The patient had to discontinue treatments for the present, though continued improvement could be confidently expected under further combined treatments.

Case viii.

R. P., aged 34, contracted syphilis in February, 1914. In the following month secondaries developed, which quickly disappeared with one intravenous salvarsan 0.6 gram. The blood Wassermann reaction was strongly positive. This was followed by maximal doses of grey powder daily for one year, during which time four Wassermann reactions of the blood proved negative.
April 17th, 1915. For some weeks he has had several small areas of leucoplakia on the margin of the tongue, which are regarded as trophic lesions resulting from an early syphilitic involvement of the central nervous system.
April 24th, 1915. Spinal fluid is under slightly increased pressure, is clear, gives a positive globulin test (Noguchi), and also a weak positive Wassermann reaction. Combined treatment given.
May 14th, 1915. The areas of leucoplakia had entirely disappeared within a week of the combined treatment. The same intravenous and intraspinal treatment again given. The spinal fluid now gives a negative Wassermann reaction and negative globulin test.

During regular and maximal dosage of mercury—following a single intravenous injection of salvarsan—for one year, the blood reaction remained negative though a progressive involvement of the central nervous system, probably of the nature of a basal meningitis, supervened, manifesting itself only as small trophic areas of leucoplakia on the tongue. A single combined intravenous salvarsan and intraspinal salvarsanized serum treatment was sufficient to eradicate promptly the leucoplakia and restore the spinal fluid to its normal condition. A second combined treatment was given to consolidate the good result, and the patient advised to have one or two more for the same reason. As he was on military service this could not be done at present.

Remarks.

Of these eight cases, two (Cases iii and viii) showed early, and in Case viii slight, involvement of the central nervous system within a year of the primary infection. Each had received during the secondary period a single injection of salvarsan, followed by maximal doses of mercury by mouth, without, however, preventing the onset and progressive involvement of the central nervous system. It may be presumed, therefore, that this treatment was inadequate. A single combined treatment by intravenous salvarsan and intraspinal salvarsanized serum in Case viii sufficed to clear up the leucoplakia on the tongue and convert the pathological spinal fluid into a normal fluid. In Case iii a progressing nerve deafness was arrested, hearing restored to approximately the normal, the eye condition much improved, and the headache and nervousness abolished. The general health was also markedly improved, so that he was able to enlist for active service. The spinal fluid became negative to the Wassermann reaction.

The other six cases were all of long duration, and showed various manifestations of the disease. In all the general health was markedly improved, and where headache and nervousness were present they disappeared. Shooting pains, present in three cases, were abolished. In all but one of six cases, eye changes—usually inequality of pupils—were improved. In one case of early tabes dorsalis the atonic bladder recovered, and the anaesthesia of hands and feet was remarkably improved.

In seven cases the butyric acid test (Noguchi) for globulin was diminished to a faint reaction, and in one it was entirely abolished. The Wassermann reaction became negative in six of the cases.

Conclusions.

The consideration of these eight cases from both a clinical and laboratory standpoint shows us that we have a powerful form of therapy in the combined intravenous and intraspinal treatment. Whether the improvement will be lasting in these cases time alone will tell. Though the results resemble very closely those of other workers using the same method, and claiming good results, I feel that this system of treatment is destined to undergo considerable change ere we arrive at an ideal method.

The prefect of the province of Cagliari has issued an ordinance making compulsory the notification of leprosy in every stage. Suspected cases are to be detained for observation in the dermato-syphilitic clinic of the university. The houses and clothes of persons thus isolated are to be disinfected, and their families kept under observation. A pavilion of the Civil Hospital of Cagliari is set apart for cases with open sores.

NOTES ON A NEW ULCERATIVE DERMATO-MYCOSIS.

(With Special Plate.)

BY MAJOR ALDO CASTELLANI, M.D., M.R.C.P.,
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WITH REPORT ON THE CAUSATIVE FUNGUS

BY PROFESSOR E. PINOY,
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SINCE 1907 I have come across in Ceylon a peculiar ulcerative condition which is clinically very characteristic. As to its hyphomycetic origin there cannot be any doubt, as from all the cases I have grown the same fungus. Cultures of this fungus have been given by me to Professor Pinoy, who has kindly investigated it botanically and classified it. The disease would appear to be present also in the Federated Malay States, as one of the patients stated that the ulcers had begun developing while he was employed on a Malaya plantation. This patient was seen by Dr. F. Grenier, who very kindly allowed me to investigate the case. I have recently observed a case of the same disease in the Balkans.

Etiology.

As a rule no hyphomycetic elements are seen microscopically in scrapings from the ulcers and contents of the nodules. If the material, however, is inoculated in glucose-agar tubes, small yellowish amber-coloured colonies appear four to eight days after inoculation; they enlarge fairly rapidly, become hemispheric, and often coalesce in a knotty mass. At times the colonies may not fuse together; each colony then remains separate, reaches a large size, and occasionally presents peculiar radiating furrows as seen in certain species of trichophytons. In many cases, when the material has been collected from ulcerated lesions, the fungus grows in symbiosis with a coccus, and it may be somewhat difficult to separate the two organisms. When the inoculations have been made from lesions not yet ulcerated, the fungus only is present. The disease has been easily reproduced in two coolies (who volunteered) by injecting cultures of the isolated fungus. Cultures used for such experiments must be recent, as old cultures apparently lose their pathogenicity. The experiments on this subject will be reported in detail later.

Botanical Description of the Fungus by Professor Pinoy.

Professor Pinoy of the Pasteur Institute has kindly investigated the fungus, a strain from a Ceylon case I supplied him with, and the following is his description:

"The fungus isolated by Professor Aldo Castellani belongs to the hyphomycetes or *Fungi imperfecti*, and is of somewhat difficult classification. I propose to include it in the genus *Acciadium*, at least temporarily, and call it *Acciadium castellani*. The microscopic appearance on culture media (Sabouraud's agar, carrot) recalls somewhat the appearance of *Cladosporium herbarium*, with the difference that the colonies are whitish and amber yellow instead of being greenish-black. The growth consists of many small roundish masses which later on often coalesce, covered by spiculated formations consisting of erect, straight filaments parallel to each other or at times interlacing. These filaments are approximately 2 microns in diameter and carry laterally pseudoconidia of variable shape (Fig. 6, *s*), cylindriform, piriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns long with a breadth of 3 microns. This type of fructification recalls the type *Acciadium* described by Bodin in some species of the genus *Trichophyton*. These pseudoconidia become detached and then develop by sprouting, and mycelial filaments are formed (Fig. 6, *a*, *b*, *c*). Certain filaments produce spherical chlamydospores (Fig. 6, *ch*) arranged in small strings as found in certain fungi of the genus *Fusarium*. These small chains of chlamydospores are very frequently terminal, the dimensions being variable—8 to 10 microns."

Symptoms.

In a well marked case ulcers are seen practically all over the body, though on the face, scalp, palms, and soles they are in small numbers or altogether absent. The ulcers are generally sharply defined, roundish or oval, with red granulating fundus. Their appearance is well shown by the photograph of the arm reproduced in the accompanying plate. In certain cases there may be abundant purulent secretion, and the ulcers are often covered by thick yellow crusts. Gummata-like nodules and furuncle-like lesions may also be observed. Some of the superficial lymphatic glands are often enlarged. The lesions are not as a rule very painful, and there is little or no itching. The general condition of the patient is not seriously affected for a long time, but he often complains of weakness, general discomfort, and is unfit to attend to his work. Occasionally there is serotine temperature. In two cases in which the blood was investigated red blood corpuscles and haemoglobin were slightly below the normal, and in one case there was eosinophilia (5 per cent.). This feature of the blood may, however, have been due to intestinal parasites, the stools containing eggs of ascaris. The urine did not contain either albumin or sugar.

The course of the disease is long, and if left untreated there is apparently not much tendency to spontaneous cure.

Diagnosis.

Most of the patients came to me with the diagnosis of syphilis, but in none of them except one was there a history pointing to that infection, and in two of the cases in which a Wassermann test was carried out the result was negative. Moreover, scrapings from the ulcers never showed spirochaetes, and salvarsan and mercury have no beneficial effect on the condition.

Prognosis.

As already stated, the course of the disease is very long, and there is little tendency to spontaneous cure; on the other hand, if properly treated, a complete cure can be obtained fairly rapidly.

Treatment.

Potassium iodide acts fairly well. It should be given in full doses, gr. xx, three or four times daily. The drug appears to act better if the patient is given a salt-free diet, as first suggested by Professor Pinoy in other dermatomycoses. If potassium iodide is not well borne, siodin and other similar preparations may be tried, but the result is not so satisfactory. Mercury and arsenic have no beneficial effect on the course of the malady. As regards local treatment, it is sufficient to keep the ulcers clean by dressing them with weak mercury perchloride lotion. Ointments are badly borne in most cases.

FURTHER EXPERIMENTS ON ASCARIS INFECTION.

BY F. H. STEWART, M.D., D.Sc., CAPTAIN I.M.S.

I WISH to record some experiments made since the paper published in the BRITISH MEDICAL JOURNAL of July 1st was written. These experiments may still not be conclusive but they appear to be highly significant.

The first two have already been published in *Parasitology* of August of this year.

1. The rat, F, to which reference was made in my previous paper, was killed twelve days after the first infection and nine days after the last. No nematodes were found in the nasal cavities, mouth, trachea, lungs, or oesophagus. One dead ascaris larva was found in the stomach, a second, also dead and partially digested, in the rectum. The former measured 1.3 mm. after mounting in Canada balsam. Both were more advanced than the larvae from the lungs of other animals. They had doubtless undergone this further development under the stimulus of the intestinal secretions before they succumbed to the unfavourable surroundings in an inappropriate host.

2. Mouse B, killed on eighth day after infection with a single dose of eggs of *A. suilla*. Larvae measuring 1 to 1.5 mm. (in normal salt solution) in the trachea and lungs. No larvae in nasal cavities, liver, or alimentary canal.

3. Mouse C, killed on the night of the seventh day after a single dose of eggs of *A. suilla*; 50 to 60 larvae measuring up to 1.8 mm. in the lungs and trachea.

4. Mouse D, killed on eighth day after a single dose of eggs of *A. suilla*; 12 larvae in lungs. Largest measures 1 mm.

5. Mouse E, killed on eighth day after a single dose of eggs of *A. lumbricoides*. Not less than 100 larvae in roots of lungs and trachea.

ALDO CASTELLANI: A NEW ULCERATIVE DERMATO-MYCOSIS.



Fig. 1.—Glucose-agar culture of the fungus.

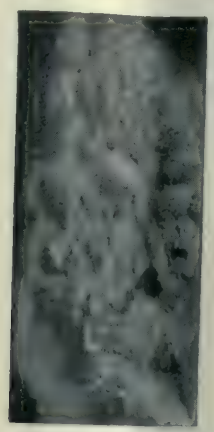


Fig. 2.—Glucose-agar culture of the fungus (older).

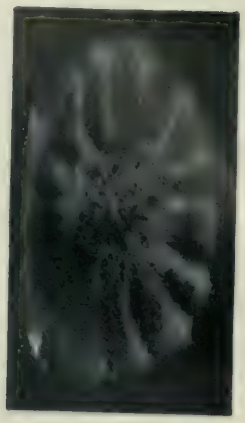


Fig. 3.—Glucose-agar culture; rare type of colony.



Fig. 4.—Microscopical appearance of the fungus in hanging drop culture twenty-four hours old.



Fig. 5.—Microscopical appearance of the fungus in hanging drop culture three days old.

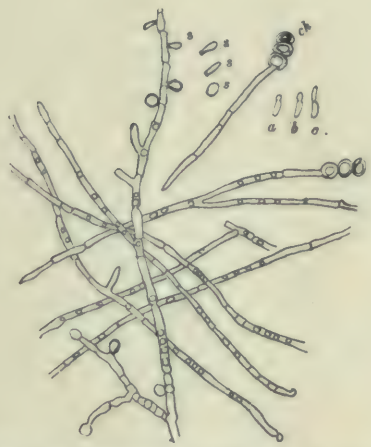


Fig. 6.—Microscopical appearance of the fungus in hanging drop culture five days old. *s* = Pseudoconidia. *a*, *b*, *c* = Development of mycelial filaments from pseudoconidia. *ch* = Chlamydospores.



Fig. 7.—Photograph of arm showing typical lesions.

6. Mouse F, died in the night of the fifth day after infection. Not examined.
7. Mouse G, killed on eighth day after infection with *A. suilla*. Numerous large larvae in lungs.
8. Mouse H, ditto. A few large larvae in lungs. Two larvae in mouth.
9. Mouse J, died on the third day after infection with *A. suilla*. Not examined.
10. Mouse K, killed on the eighth day after infection with *A. suilla*. Larvae in lungs.
Mice L, M, O, P, Q, R, S died from epizootic summer diarrhoea. Not examined.
11. Mouse T, killed on eighth day after infection with *A. suilla*. No larvae found in lungs. It is possible that this mouse did not actually swallow the eggs offered to it.
12. Two mice were examined without infection. No larvae found in lungs or liver.

The larvae of *Ascaris lumbricoides* and *A. suilla*, therefore, appear in the bronchi, trachea, and mouth of the mouse and rat on the night of the seventh day and during the eighth day after infection. I believe that they will be found to emigrate actively in the saliva on to the food which is being nibbled by the rodent.

13. *Experiment on the Quantity of Saliva Expelled by a Mouse in the Act of Biting.*—A mouse was held in the hand and irritated until it bit the finger of the observer. The skin was not broken, but two considerable drops of saliva remained corresponding with the upper and lower incisors. Larvae might readily be expelled in saliva in this manner.
14. Rat A had recovered from an attack of ascaris pneumonia one month previously. Killed on eighth day after a large dose of eggs of *A. suilla*. No larvae found in lungs.

It is possible that one attack of ascariasis in rats protects against subsequent attacks.

Experiments were made to test the power of survival of larvae in the outer world.

1. A portion of lung containing larvae was placed on a lump of hard earth which was standing in water. The lung was above the surface of the water. On the first day following the portion of lung was lifted and the surface of the earth scraped. No larvae were found in the scrapings. Active larvae were found in a small portion of the lung. On the second day following there were no larvae on the earth or in the water. The portion of lung was commencing to putrefy; the larvae present in it moved languidly.
2. Larvae placed in tap water were dead after three hours.
3. Larvae were placed in a 4 per cent. solution of hydrochloric acid, 0.8 per cent. salt. After fifteen minutes one larva was observed to be furiously excited. After twenty-four hours the larvae were dead.
4. Larvae placed in normal salt solution were alive and active after three hours.
5. Larvae placed in mouse's blood were alive and very active after three hours.
6. Larvae in mouse's blood with a little normal salt solution transferred to a small fragment of cooked meat. A number were alive after four hours.
7. Larvae in blood transferred to bread kept in a moist chamber. Larvae were alive after twenty-four hours.

The larvae, therefore, cannot live in tap water; they can survive for twenty-four hours on damp bread, and for forty-eight hours in fresh meat (rat's lung).

These experiments strongly suggest that man is infected by contaminated food.

Experiments on Infection of Pigs from Rodents.

Experiment 1, Pig B, was recorded in the previous paper. It was negative. It is possible that the pig was too old for ready infection.

2. Pig C. The faeces had been examined repeatedly, and no ascaris eggs found. On April 15th a portion of infected rat's lung was given to it. On May 13th infected mouse's lung. On May 24th the faeces did not contain ascaris eggs. On May 30th and 31st infected mouse's lung was given. On June 4th no eggs in faeces; June 6th, a few eggs in faeces (twenty-four days after May 13th). On June 11th, 12th, and 16th many eggs in faeces. On June 21st infected mouse's lung was given. On June 29th pig killed, and four male and two female ascaris, apparently of the same age, were found in the intestine.
3. Pig D. April 17th, no ascaris eggs in faeces. April 28th, infected rat's lung given (five days after infection of the rat with *A. lumbricoides* from man). May 24th, no eggs in faeces. June 11th, no eggs in faeces. June 15th (forty-eight days after April 17th) and 17th, unfertilized ascaris eggs in faeces. June 17th, infected mouse's lung (eight days after infection with human ascaris) given. June 24th, pig killed. One large female ascaris found.

This can hardly be considered a very satisfactory experiment. *A priori* it would appear doubtful whether fifth-day larvae would be infective. The long time (forty-eight days) elapsing between infection and the appearance of the eggs in the faeces is also somewhat against the validity of this experiment. On the other hand, the delay may have been due to the absence of the stimulus of the male. If this experiment is valid, it is proved that the ascaris of man and of the pig are one species.

The presence in Experiments 2 and 3 of worms of one age only, after repeated doses of infected lung, raises the question whether the adult worms found originated from the larvae administered or from other and accidental infection. On the other hand, it is possible that one infection prevents subsequent infections. In collections of worms removed by anthelmintics or *post mortem* I have never seen worms of obviously different ages associated together.

4. Pig E. June 20th, no ascaris eggs in faeces. June 21st, infected mouse's lung (eight days after infection with ascaris from the pig) given. June 25th, no eggs in faeces. July 24th (thirty-three days after June 21st), many eggs in faeces. July 25th, pig killed, three male, twelve female ascaris in intestine.
5. Pig F. June 25th, no ascaris eggs in faeces. June 28th, infected mouse's lung (eight days after infection with ascaris of the pig) given. July 4th, no eggs in faeces, infected lungs of two mice given. July 7th, 8th, 10th, and 22nd, no eggs in faeces. July 27th (twenty-nine days after first infection), pig killed, no ascaris in intestine.

Out of five experiments, therefore, three gave positive results, two negative. In estimating the value of the negative experiments the very high mortality among the parasites employed under somewhat unnatural conditions must be kept in mind. To obtain an estimate of this mortality I compared the number of ripe eggs given to a mouse with the number of larvae found in the lung. An average dose of eggs consisted of about 5,000, the average number of larvae found in the lungs has certainly not exceeded 50—that is, only 1 in 100 survives. It must also be remembered that the transfer from the rodent to the pig must be the most vulnerable part of the life-cycle, since the larva is a very delicate organism.

Conclusions.

If ripe eggs of *Ascaris lumbricoides* are swallowed by rats or mice they hatch. The larvae enter the bodies of the rodents either by boring into venules of the portal system or by ascending the bile duct. They are found in the dilated blood capillaries of the liver between the second and fifth days. The larva is in diameter three times the diameter of a red blood corpuscle of the mouse. It cannot therefore pass through a normal capillary. The liver cells in the neighbourhood of the larvae undergo rapid degeneration. The larvae are thus enabled to work their way into the hepatic venules and pass by the hepatic vein and vena cava to the heart and by the pulmonary artery to the lungs. In the lungs they are filtered off at the entrance to the capillary field. Embolism of the arterioles takes place, and the larvae pass with the effused blood into the air vesicles. They are found in the air vesicles on the sixth day, in the bronchi on the seventh day, and in the trachea and mouth on the eighth day after infection. It is probable that they emigrate in the saliva of the rodent on to food substances, such as bread. It has been shown that they can live for twenty-four hours on damp bread. The experiments which have been conducted so far tend to prove that the larvae from the lungs of rodents can infect the pig, and it is probable that in nature infection of man and the pig takes place by food contaminated by rats or mice.

Controls on Experiments with the Pig.

Pigs A and B were kept in the same outhouse in which Pigs C, D, E, and F were afterwards kept. They were, however, fed in a different manner. Pig A, after three months, was found to harbour one ascaris; accidental infection was therefore proved to be possible. Rats and mice doubtless had access to this outhouse. That accidental infection was not frequent is proved by the case of B, which was kept here for seven and a half months without being infected.

Pig G was obtained at the same time as Pig E, on June 20th. On arrival its faeces were found to contain unfertilized ascaris eggs. On July 2nd 0.7 gram of areca nut was administered, which must have caused the expulsion of the worm, since on July 24th and 27th and August 4th and 10th no eggs were present in the faeces. On August 16th again no eggs were found. This animal was kept in the same compartment as Pig E and fed out of the same bucket, but had not become infected in one month and fourteen days.

Pig H was bought on June 26th with Pig F. It was kept in the same outhouse as the other pigs and fed in the same manner. Its faeces were found to be free of ascaris eggs; 0.7 gram of areca nut was administered to it on July 2nd. On July 3rd,

7th, 8th, 9th, and 10th the faeces were free of ascaris eggs. On July 16th very large doses of eggs of *Ascaris mystax* 10 days old and of *A. marginata* 7 days old were given to it. These eggs contained active vermiform embryos. On July 17th a second dose of the eggs of *Ascaris marginata* was given from the same culture now 14 days old. On July 22nd, 26th, 27th, and 31st, and on August 4th, 10th, and 16th the faeces were found to be free of ascaris eggs.

These cases of Pigs B, G, and H prove that accidental infection was not common under the conditions of the experiments and therefore greatly enhance the value of the positive experiments with Pigs C, D, and E.

The experiment on Pig H of administering ripe eggs of *A. marginata* and *mystax* was performed to exclude a somewhat remote possibility—namely, that the life-history of *Ascaris lumbricoides* (*suilla*) was highly extended and that *Ascaris mystax* (or *marginata*) was only a stage in the life-history of *Ascaris lumbricoides*.

Corrections.

1. In the summary of results in the paper published in this JOURNAL on July 1st the following sentence occurs: "Between four and six days after infection they (the larvae) are found in the blood vessels of the lungs, liver, and *spleen*." I have never found larvae in the spleen. The statement is due to a clerical error in the manuscript.

2. The following sentences also require correction: "On the tenth day they are found only in the air vesicles of the lung and in the bronchi." "On the sixteenth day the host is free from parasites." Further experiments proved that the larvae appeared in the bronchi on the seventh day and that no larvae were found in the respiratory tract later than the eighth day after infection. The inaccuracies were due to the use of repeated infection in the earlier experiments.

Experiments on Infection of Mice with Ascaris marginata of the Dog.

Mouse N. July 9th: Given eggs of *A. marginata* six days old, containing embryos. July 12th: Eggs nine days old. July 13th: Eggs ten days old. July 14th: Mouse killed; no larvae in liver or lung.

Mouse P. Died on the first day after infection with eggs of *A. marginata* eleven days old. Larvae present in the liver.

Mouse U. Killed on the first day after infection. Larvae in liver, none in lung.

Mouse V. Killed on the fourth day after infection. One larva found in liver, none in lungs or trachea.

The mouse is therefore the intermediate host of *Ascaris marginata* as well as of *A. lumbricoides*.

VACCINE IN MEDIASTINAL ACTINOMYCOSIS.

BY

W. S. MALCOLM, M.D.,

DUNDEE.

ONE cannot fail to be impressed by the increasing frequency with which one or other of the protean forms of actinomycosis is being recorded. This increased recognition is due not wholly to habitual examination of discharge or tissue, but largely to greater familiarity with the forms the ray fungus may assume in its life cycle.[1] The increase in the number of diagnosed cases gives an ampler field for improving treatment. Mr. Telford's article[2] on actinomycosis of the parotid, in which treatment by salvarsan met with success, illustrates what is meant, and adds another to the list of cases similarly treated. Certainly we are confronted at times by advanced or inaccessible actinomycosis where iodine locally cannot be employed, where massive dosage by potassium iodide[3] has met with limited success, where the disease is beyond the limit of surgical procedure. At such a time the only recourse is to a method by which we rely on the vascularity of the part ensuring the presence of the remedy at the seat of disease by introduction of a substance such as salvarsan, or by use of a vaccine. The employment of vaccine in the treatment of actinomycosis has been so rarely mentioned as to form an excuse for recording even a single case. The patient had actinomycosis at one of its less usual sites. It came to the body surface in the precordial region from the anterior mediastinum. Presumably the infection was air-borne, and inspired directly or indirectly from the mouth after chewing infected straw or grain. The fungus has been recognized at all the stages from the epithelium of the air vesicle through the visceral pleura adherent to its parietal layer or to the pericardium to the areolar tissue subjacent to the chest wall and to the subcutaneous tissue through intercostal spaces. This case presented a boggy swelling in the region stated. A shorter route for infection would have been through the skin, but there was no evidence in its favour. Languor, and pain on coughing were present before any swelling was observed, and the latter appeared from within outwards. The burden of *post-mortem* evidence and of the clinical history of similar cases favour the pulmonary route. There may be no initial cough, and no sputum[4] to attract notice in such cases, yet the oldest lesions are pulmonary.[5] Fortunately, one cannot confirm or refute one's conceptions of this case by *post-mortem* findings.

Though a radical operation involving rib resection had been successfully performed two years before this treatment was initiated, and iodide in maximum doses swallowed month after month and pound after pound, two sinuses continued to discharge, one of which was connected with a nodule on the pericardial surface. Collie's case[6] attracted attention to the potentialities of a vaccine, although Wynn[7] first of all, and others[8 1] since have employed it.

Treatment was started by weekly subcutaneous injections of 2½ million actino-fragments. The dose was gradually increased up to 10 million. The latter was an overdose. The temperature gave no indication of this. No opsonic indexes were done. The patient's sensations proved a rough and ready index. Overdosage made him feel wretched and caused anorexia, and if one failed to recognize the importance of these symptoms and continued the overdose, a local reaction was set up, the nodule standing out in higher relief from the pericardial surface. This observation was verified, and on reverting to smaller doses the nodule receded, becoming flatter on each occasion. Ultimately 4 or 5 million was found to be an effective dose without bad effects, and this quantity was continued till about fifty doses had been given. The discharge soon lessened, the sinuses healed, the nodule in time could not be made out, and a "fullness" present in the parts disappeared.

Considerably fewer doses might have sufficed, but in view of the serious nature of the illness and the wish of the patient to "make sure of it" they were carried on. If records of other cases treated by vaccine were available they would prove of certain value. When confronted with the duty of applying this treatment one felt the lack of records to be a severe handicap. References to some of the other instances of pericardial involvement by direct spread are given.[9]

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[1] Foulerton, *Lancet*, 1913, i, 361. [2] Telford, BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 534. [3] Wild, Ibid., 1910, ii. [4] Godlee, *Lancet*, 1901, i; Bridge, *Journ. Amer. Med. Assoc.*, 1911, November 4th; Israel, *Aktinomykose des Menschen;* Knox, *Lancet*, 1904, ii, 1204. [5] Martin, *Journ. Path. and Bact.*, 1896, iii, 78; Israel, *Virchow's Archiv*, 1878, Bd. 74, S. 15. [6] Collie, BRITISH MEDICAL JOURNAL, 1913, May 10. [7] Wynn, Ibid., 1908, i, 554. [8] Monsarrat, Ibid., 1909, i; Whittier, American Association of Pathology and Bacteriology, 1909; Harbitz and Grondahl, *Amer. Journ. Med. Sci.*, 1911, September; Kinnicutt and Mixter, *Boston Med. and Surg. Journ.*, 1912, July 18th; Haynes Lovell, Royal Society of Medicine, 1913, January 14th. [9] Weigert, *Virchow's Archiv*, Bd. 84, S. 303; Rubrith, *Annals of Surgery*, vol. xxx, p. 435. Konigund Israel, *Berl. klin. Woch.*, 1884, No. 23.

POST-MORTEM FINDINGS IN A CASE OF EXOPHTHALMOS OF LONG STANDING ORIGINALLY DUE TO GRAVES'S DISEASE.

BY RONALD MACKINNON, M.B., CH.B.,

CAPTAIN R.A.M.C.(S.R.).

THE condition which produces exophthalmos in cases of exophthalmic goitre has never been clearly understood. It seems to me desirable that the following notes on a case in which all the other symptoms of Graves's disease had disappeared, but the exophthalmos remained to a marked degree, should be put on record:

J. B., aged 35 years, was admitted with acute lobar pneumonia (double) and died on the sixth day of the disease. There was nothing unusual about the illness during life or in the condition of the lungs after death. He had very marked exophthalmos of both eyes, together with external squint and cataract of the left eye. The eyeballs were sluggish in movement and the eyelids followed them without lagging. Winking was normal.

History.

Late in 1901, while he was in the Boer war, the graver signs and symptoms of exophthalmic goitre began to show themselves. He returned to England and was treated for three years, but made no progress. In 1904 he attended a clinic at Vienna. There he began to improve, and he continued his treatment till 1906, when all the graver signs and symptoms

had disappeared, except the exophthalmos, which persisted. He then went to Switzerland, where some practitioner assured him that he could cure the exophthalmos (which was very disfiguring) by injections into the eyeball. An injection was performed into the left eye, with the result that the sight of that eye was lost. However, he considered himself practically cured of the disease.

He was accepted for active service, and was able to carry out arduous and responsible duties during the first sixteen months of this campaign.

An examination was made of the eyes and the base of the skull to see if any definite anatomical cause could be found for the exophthalmos.

The body was thin, but not emaciated. The eyes were still prominent. There was no pigmentation of the skin. The fat was of a deep yellow colour.

The *thyroid* was normal in size, colloid appeared rather deficient. The two chief abnormal features recognized in microscopic sections of the gland were a marked vascularity and an increase of the glandular tissue at the expense of the colloid. The latter change was not so marked as in many typical cases of exophthalmic goitre, since a number of acini with thinned out peripheral cells and a fairly large central mass of colloid persisted. The greater part of the tissue, however, resembled an acinar gland, consisting of closely packed tubules with fine central lumina, many of which contained traces of colloid. The acini varied a good deal in size, and were lined with cubical or columnar cells, both being represented in one acinus in many places. The cubical cells predominated. The cells of columnar shape stained more heavily with haematoxylin and had the appearance of more recently formed elements.

The *thymus* was persistent but small. The spleen was normal. A small accessory spleen was present.

The *pituitary* and *suprarenal* glands showed no macroscopic lesions, and were normal in size and texture. There was no enlargement of the lymphatics, and the cervical ganglia showed no change.

The *heart* was normal, and there was no thickening, hardening, or dilatation of the blood vessels.

Lungs.—The right was solid and in the stage of grey hepatization; the left contained patches of consolidation. Both lungs were adherent from recent pleurisy.

The *parenchymatous viscera* showed cloudy swelling. This was verified microscopically in the case of the kidneys.

The *meninges* were considerably congested and slightly opaque. There was no bony deformity or tumour at the base of the skull, and the brain showed no macroscopic lesion.

On removing the supraorbital plates nothing unusual was found. Owing to the protrusion of the eyeballs, the retro-orbital space was abnormally deep. This space was filled with fat.

Inasmuch as the patient did not die till the sixth day of disease and the amount of lung involved was considerable, one is justified in considering that the pneumonia was an adequate cause of death.

I am much indebted to Captain J. W. Macleod, R.A.M.C., who did the histological work.

Note by Colonel Sir Wilmot Herringham.

The interesting feature in this case is the persistence of the exophthalmos when all the other graver symptoms disappeared. We hoped that there would be some definite anatomical cause discoverable. In cases in which the disease is recent no satisfactory explanation of the proptosis has ever been given. It is at once remarkable and disappointing that even in such a case as this, where the disease has been of old standing, we have been unable to add anything to the knowledge already in our possession.

A UNIVERSAL LEG FRAME, SPLINT, AND CRADLE COMBINED.

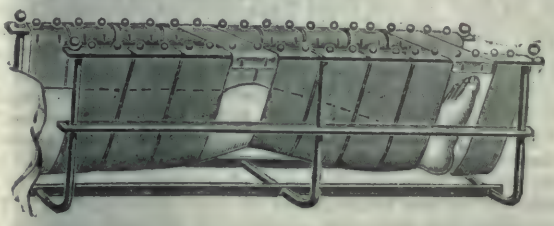
By MARTIN J. CHEVERS, L.R.C.P. and S.Irel., Manchester.

In the British Medical Journal of December 26th, 1914, I briefly mentioned a "universal combined leg splint and cradle," designed by me and made by Messrs. James Woolley, Sons, and Co., Ltd., of Manchester. I had then had it in frequent use for upwards of ten years, but I have since discovered so many further advantages in it that I feel justified in describing it more fully.

The splint consists of a galvanized metal frame, 32 in. long, 7 in. deep, and 9 in. wide; along the top on each side is fixed a row of brass studs, which serve to secure a series of ten straps. These straps, each 3 in. wide, are eyeletted, so as to be adjustable to half an inch; they are made of waterproof material, and may be sterilized by boiling.

The advantages I claim for the splint are:

1. It is adaptable to any size, shape, or length of limb or amputation stump, and removal of one or more straps when being used on either the anterior or posterior aspect of the limb allows of easy access to a wound wherever it is placed without disturbing the limb.



2. By removing a strap, heel pressure can be relieved.
3. Elevation of the limb can be attained by steady graduated support to the whole under-surface.
4. It can be used as a double inclined plane by regulating the straps.
5. One or more straps can be used over instead of under the limb or amputation stump in order to steady it.
6. If alternate straps are lowered nearly to the bed, but so that the leg still swings, and the others buttoned tense across the top of the splint the latter act as a bed cradle or as a rest for lotion trays or irrigation solution.
7. If any portion of the foot should project above the splint, an adjustable and detachable guard (∩-shaped) can be used; its legs fix firmly in holes placed at intervals in the upper parallel bars of the splint to remove the weight of the bed clothes at any required spot; this guard has a notch at the top, so that if the leg has been placed in another splint it can be suspended from the notch.
8. The waterproof straps are specially useful for keeping an ice-bag or dressings in place when the constriction of bandages is not advisable, or when excessively moist dressings are necessary, or where continuous irrigation is required (the receptacle being placed within the splint, underneath the suspended leg).
9. The splint, when the limb is suspended in it, is almost immovable by the patient on any ordinary mattress and covering; the leg can be placed in an abducted position and fixed extension applied by placing across the end perpendiculars of the splint a flat board containing a central perforation through which the extension loop can be passed and the loop retained there by passing through it one or more pieces of wood according to the tension required, counter-extension being attained by a graduated rise in the thigh straps towards the popliteal space. If required, fixed extension and counter-extension might be attained for the thigh if the upper end of the splint (that is, the U-shaped bar) is surrrounded with Gamgee padding or spongiopilin, and made to act as the ring of a Thomas's knee splint.
10. The foot may be kept at right angles to the leg or valgus prevented by wrapping two or three turns of a bandage round the foot and making the ends fast at each side to the perpendicular or parallel bars.
11. For fractured patella I find the splint acts better than a Thomas's knee splint on account of the steadiness of the side bars, over or round which the bandages are passed, and across the front of the leg, keeping a firmer pressure on the pads placed above the upper fragment and below the lower fragment.
12. In cases of severe infection, where flush amputation has been necessary, skin traction in after-treatment is facilitated.
13. The waterproof straps can be made use of for a Thomas's knee splint; when passed round the bars they are secured by means of ordinary bone studs passed through the eyelets in the straps, attaining without any trouble perfect equality in the length of the straps—a matter of importance. I have used a Thomas's splint in conjunction with my frame, both on account of the protection the latter affords and for the purpose of suspending the Thomas's splint from the notch in the top of the ∩-shaped cradle guard.
14. The disturbance caused by putting on and taking off bandages, the heating and constriction of the limb which may be the result of bandaging can all be entirely done away with, the straps being used instead; they

retain a dressing in place at any point, whether anterior, posterior, internal, or external. In order to retain an anterior dressing the centre of the strap is placed on the dressing, and the extremities are passed beneath the middle side parallel bars of the frame, and then upwards to be buttoned to the studs of the upper parallels according to the tension required (or a bandage can be used in the same way, knotting the ends together after having passed over the upper parallels). The proceeding in order to retain an internal or external dressing in place is to first pass one end of the strap round the centre parallel bar of the frame, and fix by uniting the eyelets by means of ordinary bone studs, then pass the other end of the strap beneath the limb round over its anterior aspect back to the same side of the frame, and then either beneath the central or upper parallel to be buttoned to the brass studs on the upper parallel. The proceeding for retaining a posterior dressing requires no explanation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CASE OF SPONTANEOUS RUPTURE OF SPLEEN: SPLENECTOMY: RECOVERY.[1]

E. H., aged 44, was admitted to the Princess Christian Hospital, Weymouth, on March 8th, 1916, with a bad septic hand, which required several incisions, and eventually the removal of the first finger.

He had had a bad attack of syphilis twenty years earlier, for which he was treated at a lock hospital in London for six months.

He was getting on quite well, and had been allowed up and about for several days, when on the morning of April 21st, while trying to get out of bed to dress, he felt an acute pain in the epigastrium. He was reported to be perspiring freely; clammy, very pale. The temperature was subnormal, the pulse about 60, and the respirations 24.

When I saw him about 10 a.m. the epigastric region was tender and slightly distended. The liver dullness was diminished, and the apex beat displaced upwards. He was very pale, and evidently in a good deal of pain. The pulse was 90. Drs. Macpherson Lawrie and Nuthall saw him with me later, and we decided to operate if his condition did not improve.

After midday his pulse began to get rapid and weak, and his condition evidently worse. The pulse rose to 120, and, with Dr. Lawrie's help, I opened the abdomen to the right of the middle line. On opening the peritoneum there was a gush of bright blood, which continued in large quantities, swamping everything, and making it for the time impossible to find out from where the bleeding proceeded. I put my hand over the stomach, and was able to feel a mass of clot under the left lower ribs; three handfuls of clot were removed from this region. While doing this I felt the spleen, and found an irregular tear on the anterior surface, from which steady oozing was proceeding. Grasping the spleen, I pulled it up to the wound, and immediately the bleeding stopped. The patient was by this time *in extremis*. The splenic vessels were ligatured and the spleen removed, the abdominal wound stitched up quickly with through-and-through stitches, leaving about one quart of saline in the abdominal cavity.

He was given ½ c.cm. pituitrin on the table, and every four hours after till 10 a.m. next day. Strychnine $\frac{1}{30}$ grain was also given every four hours, and he also had continuous saline by the rectum for twenty-four hours, by which time he had absorbed four pints.

After the first twenty-four hours he gave very little anxiety, and the wound healed by first intention. He left the hospital during the first week of June.

Dr. Nuthall kindly examined his blood on June 25th, and reported:

Red cells	4,910,000
White	7,720
Haemoglobin	75 per cent.

It is difficult to say what the cause of this serious condition could have been. Unfortunately, the spleen was not examined; it was not enlarged, but was certainly friable, my fingers easily making holes in it when grasping.

Was the condition due to syphilis, or to the septic condition, or both combined? He had never contracted malaria.

Weymouth. JAMES MILLER, M.B., CH.B.

[1] The patient was shown at the meeting of the Dorset and West Hants Branch of the British Medical Association on July 19th.

Reviews.

TYPHOID AND PARATYPHOID FEVERS.

TYPHOID fever has long been known as the scourge of armies in the field. Possibly the paratyphoid fevers A and B have equally ravaged armies in days gone by, but of this we have no certain knowledge. We do, however, know that these two infections have been abroad among the combatants during the last two years of war, and that they have given rise to a considerable amount of sickness among the fighting troops of all the nations involved, although that amount has been far less, thanks to protective inoculation and hygienic precautions, than was expected. Drs. VINCENT and MURATET[1] have recently published an admirable account of the three fevers, with full clinical descriptions of the various forms they may take and the complications to which they may give rise. Their book is based largely on the recent work on these fevers published in Europe and elsewhere, but, as is perhaps natural, its data have been collected mainly from the observations of the French military physicians. A very interesting chapter is that in which the differential diagnosis between typhoid fever and the two paratyphoids is considered. The authors remark on the comparative shortness of the incubation period in paratyphoid fever, a matter of at most from nine to fourteen days, but often less than a week; in typhoid fever the incubation generally lasts from a fortnight to sixteen or twenty days, and may be as long as five or six weeks. The onset is usually more abrupt in paratyphoid than in typhoid fever, with rigors and vomiting, occipital headache, and often an eruption of herpes on the face, lips, or buccal mucous membrane. In paratyphoid fever there are often heavy night sweats; rose spots appear in some 60 per cent. of the patients, and may recur for days after the defervescence; moreover, signs of meningism are relatively common. Constipation is the rule in paratyphoid fever, and it is said that the liver as a rule becomes enlarged during its course. In general, paratyphoid fever lasts less long than typhoid, and the patients are not nearly so ill; the temperature rarely rises above 104° F., and, as was pointed out by Torrens and Whittington (BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 697), the temperature chart often exhibits a certain spikiness. So far as the mortality of the three fevers goes, the death-rate for adults in typhoid is said to be from 11 to 14 per cent., though it is considerably higher in the second half of life. Merklen and Trottain recorded 10 deaths in 356 cases of paratyphoid A and 5 in 90 cases of paratyphoid B; among 2,725 cases of paratyphoid fever Sacquépée found 41 deaths recorded—a mortality of 1.5 per cent. Cases of every degree of severity occur in both paratyphoid A and B; the milder cases often escape recognition, being diagnosed as indigestion or "gastric fever." Death, when it does occur, is most often due to bronchopneumonia, intestinal haemorrhage or perforation, toxic absorption, collapse, uraemia, or meningitis. Relapse occurs with equal frequency—in 10 per cent. or so of the cases—in each of these infections. The complications that may be observed are identical. There is, it seems, no radical difference between typhoid and paratyphoid fevers from the clinical point of view; the differential diagnosis must be made either (and preferably) by cultivating the infecting bacillus from the patient's blood or by special agglutination tests. The ophthalmo-diagnosis of typhoid fever as distinguished from paratyphoid, proposed by Chantemesse, does not furnish trustworthy results.

A full account of the epidemiology of typhoid and paratyphoid fevers is given by Drs. Vincent and Muratet; they attach great importance to fatigue as a cause predisposing to its acquisition, and also to excessive heat,

[1] *La fièvre typhoïde et les fièvres paratyphoïdes (symptomatologie, étiologie, prophylaxie).* Par H. Vincent et L. Muratet. Collection Horizon, précis de médecine et de chirurgie de guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 189; 97 figures. Fr. 4.)

because it increases fatigue. The dangers of the urinary typhoid carrier and paratyphoid carrier to the community are pointed out; to a large extent, as Dr. Vincent has pointed out, these fevers are diseases due to dirty hands. A chapter at the end of the volume gives a good account of what has been done in recent years to lessen the incidence of typhoid and paratyphoid fevers by preventive inoculations; the triple vaccine ("T.A.B.") protecting against all three infections is recommended for the present conjuncture.

ELECTRIC TREATMENT OF GONORRHOEA.

In a small book entitled *A New Treatment for Gonorrhoea*[2] Dr. Russ has published an account of his electrolytic treatment, a note on which has already appeared in this Journal (June 12th, 1915). The treatment is based on the fact that bacteria suspended in salt solution are attracted to the positive pole of a constant electric current passed through the fluid, and also killed. The apparatus used consists of a perforated platinized or rubber catheter furnished with a platinum stylet and a rubber collar which fits the meatus. The catheter is filled with a 2 per cent. solution of sodium iodide, and the stylet is connected with the positive pole of the battery. A lint-covered pad lined by a flexible metallic core and wrung out in warm saline solution is applied to the perineum and scrotum, and connected with the negative pole. A current of 1 to 3 milliampères is passed for ten minutes, and then reversed for another ten minutes. When the catheter is withdrawn, masses of muco-pus containing numerous dead gonococci protrude from the perforations. Pus cells are also attracted to the positive pole, and in this way the glands and follicles of the urethra are said to be emptied of their contents. The patient should have a full bladder, and pass half the urine before and half after the treatment. The treatment is repeated every day till the discharge is slight, and then every other day till it ceases. Acute gonorrhoea, in the author's experience with over 70 cases, is cured after from ten to twenty-two applications. The method is also applied to the posterior urethra by means of special catheters in cases of chronic gonorrhoeal urethritis, and is continued till the urethral filaments are free from pus.

This form of treatment merits further attention, as it is both scientific and ingenious. Instead of attacking the gonococci in their strongholds by means of bactericidal agents, which too often do not reach them, they are lured, so to speak, from their entrenchments by electrolytic action. In the introductory part of his book Dr. Russ makes some interesting remarks on the theory that gonococci remain dormant for long periods and then revive. He asserts that it is untenable owing to the fact that it is only spore-bearing organisms that are capable of a resting or dormant stage. The gonococcus, which has no spores, "is either dead and quickly excreted or alive and multiplying; and in the latter case it is always associated with pus formation, varying from a profuse discharge to a small group of leucocytes in a urine thread."

NOTES ON BOOKS.

Dr. Batten's Lumleian lectures for 1916 give a full and up-to-date account of *Acute Poliomyelitis*,[3] or infantile paralysis, its nature and treatment. The first chapter deals with the epidemiology of this widespread disease; the first epidemic, a small one in Sweden, dates back only to the year 1881. The incubation period may be a matter of hours only, but is usually from one to four days. The disease rarely occurs or spreads in institutions, unlike the other acute specific fevers of children. Particular attention is given to the many small epidemics of the disease that have occurred in Great Britain, the first dated 1897. Dr. Batten gives a good account of the morbid anatomy of acute poliomyelitis and the experimental work to illustrate it. The clinical manifestations of the disease are described fully and with great clearness, and a satisfactory account of the treatment, the least satisfactory part of the affection, follows. These lectures are well illustrated, and contain a vast amount of useful information.

[2] *A New Treatment for Gonorrhoea.* By C. Russ, M.B.Lond., M.R.C.S.Eng., L.R.C.P.Lond. London: H. K. Lewis and Co., Limited. 1916. (Demy 8vo, pp. 45. 3s. net.)

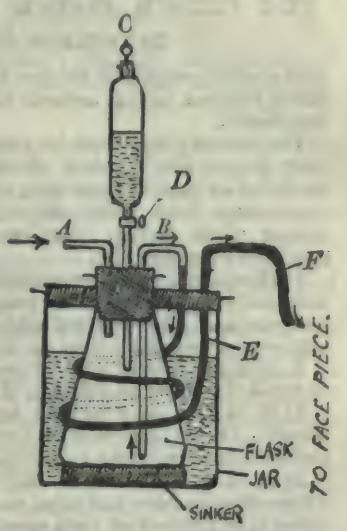
[3] *Acute Poliomyelitis: Its Nature and Treatment.* Being the Lumleian lectures delivered at the Royal College of Physicians, London, 1916, by F. E. Batten, M.D., F.R.C.P. Reprinted from *Brain*, London, 1916, xxxix. For private circulation.

MEDICAL AND SURGICAL APPLIANCES.

A Warm Ether Apparatus.

Dr. Joseph W. Bigger, M.B.Dubl. (Sheffield), writes: In the British Medical Journal of August 19th an apparatus for the administration of warm ether vapour was described. On testing the apparatus we found that, while it was successful in the case of women and children, it frequently failed to keep a vigorous man anaesthetized. One of the reasons for this seemed to be that the cold air, entering very cold ether, was unable to carry with it enough ether (either in the form of vapour or droplets) to the warming coil to produce a sufficiently rich vapour under the mask. By warming the air before allowing it to bubble through the ether, an attempt to obviate this difficulty was made, but without much success. In addition, it was felt that the continual pumping of air (especially with a Higginson's syringe) was an unjustifiable labour for the anaesthetist and a serious matter if he had to administer anaesthetics for several hours daily; the use of the foot in place of the hand did little to lessen the work. So it was decided to utilize the patient's own lungs and to make him suck in the etherized air instead of pumping it to him. This necessitated a tight-fitting face-piece with a valve for expiration. The problem of how to vaporize a sufficient quantity of ether was also tackled and the following apparatus was fitted up.

A large conical flask (500 c.cm. capacity) is fitted with a three-hole rubber stopper. Through one hole passes a short glass tube (A) by means of which air enters the flask. Another glass tube (B), which passes through the second hole, reaches almost to the bottom of the flask. By this tube the air and ether vapour leave the flask. The third hole carries the tube from the ether container (C) which is merely a dropping funnel, such as is used in chemical laboratories. The container holds 8 oz. of ether and is provided with a stopcock (D) by which the amount of ether entering the flask is regulated. The free end of the glass tube (B) is fitted with about 3 ft. of rubber tubing (E) which is coiled round the flask. The object of this is thoroughly to warm the air and vapour before the mixture reaches the patient. The flask with its encircling coil fits into a large earthenware jar. The neck of the flask is tightly fitted through a hole in the cork of the jar, which has in addition two smaller holes—for the entry and exit of the warming coil. The flask, coil, and cork of the jar form one unit, so that the whole can be lifted easily from the jar. The flask has a heavy lead sinker attached to it by means of cords to prevent it floating in the water of the jar. The distal end of the warming coil (E) passes to the face-piece which is a nitrous oxide inhaler without the bag. The free end to which the bag was formerly attached is fitted with a rubber stopper through which a short piece of glass tube passes and the rubber tube is connected to this. The internal flap-valve of the inhaler is removed, but the external flap-valve, which allows expiration but prevents inspiration through it, is left in place.



The method of using the apparatus is this: The flask, cork and coil unit is removed from the jar which is then half filled with hot water from the tap and the unit replaced. The ether container is filled with ether and the mask closely applied to the patient's face. After a couple of breaths have been taken the stopcock is turned on so that ether drops into the flask at the rate of one or two drops a second. This ether is almost immediately vaporized in the hot flask and air mixed with vapour is drawn in by the patient through the coil to the mask and so to his lungs. It should be noticed that the tube of exit from the flask is near the bottom, while the entry tube is close to the top, for ether vapour is much heavier than air. The richness of the mixture reaching the patient is regulated by (1) the amount of ether allowed to drop into the flask; and (2) the metal slide valve at the top of the inhaler unit by which pure air can be admitted to any extent desired.

Anaesthesia is usually induced by chloroform, as this is both more rapid and pleasanter, and as soon as the patient is "under" the mask is substituted; but the apparatus may be used from the beginning (I have used it in this way with complete success): or nitrous oxide may be used for induction by means of a three-way tube fitted to the inhaler instead of the direct tube described.

By using this apparatus, rebreathing (as in Clover's inhaler) is eliminated. Fresh air and ether vapour are taken into the lungs at each breath.

Our experience has hitherto been limited, but I have described the apparatus in the hope that others interested in the subject of warm ether may give it a trial. We have had no cases of ether bronchitis or pneumonia following its use, whereas, in many cases where the method of dropping ether on a gauze mask was used, the subjects were "chesty" for several days after operation. The saving of ether by this method as contrasted with the "open" method is remarkable and not to be ignored.

I am not aware of any similar apparatus having been described before, but if it has I must apologize to its author for my unconscious plagiarism. I have to express my thanks to the honorary surgical staff of the Royal Infirmary for permitting me to experiment with my apparatus, and to my colleague, Captain N. J. Wigram, R.A.M.C.(T.), for his helpful criticisms and suggestions and also for the accompanying diagram.

THE FRENCH SYSTEM OF DEALING WITH DISABLED SOLDIERS.

The system employed by the French in dealing with disabled soldiers is for several reasons difficult to describe succinctly.

The underlying principles are of old date, but since the war began the method of their application has been modified on several occasions, and the modifications have sometimes been retrospective, sometimes not. Hence, among other things, identical terms have not always identical meanings.

Furthermore, both the principles and the methods are intimately bound up with other principles and systems not necessarily concerning soldiers. Taken together, the underlying principles may be described as follows:

1. It is the duty of every French citizen of military age to serve the State as a soldier if required.

2. It is the duty of the State to compensate correspondingly any servant who, owing to performance of duty, suffers loss of capacity for self-support.

3. It is also the duty of the State to assist any family whose breadwinner has been summoned to its service, provided that the pay of such servant is insufficient to enable him to continue to help his family himself and that such help is absolutely required.

4. Furthermore, such responsibility does not end with the servant's life.

The methods based on these principles are in general terms as follows:

Calling Up.

A list of all men of military age or shortly to reach it is maintained in all French parishes and those whose names figure in it must present themselves whenever required to do so by the officers in charge of the lists. They may be able to show that on one ground or another they are not liable to serve; but otherwise if their services are required they are examined as to their physical fitness for military duties.

Such examination may have four different results. (1) The man may be *ajourné* or put back for a time because, in point of physical development and strength, he is still a long way below the average of young men of his age, or (2) *exempté* because considered permanently unfit for any form of service whatever, or (3) accepted as fit for one of the auxiliary services, or (4) classed as fit for general service.

Formerly a man twice *exempté* was permanently free from all military obligations, but now an *exempté*, as also a man classed as only fit for an auxiliary service, is liable to be re-examined every three months. In general terms an auxiliary service may be described as any work for the army which can be done indoors, or which does not involve the carriage of arms.

For the guidance of recruiting medical officers the Minister of War has issued a code prescribing the way in which the examination should be conducted and the points which should govern the classification of any given individual.

Invaliding.

The question of the right classification of a man again arises if he is discharged from some medical unit after treatment for a wound, injury, or illness.

[In addition to hospitals for acute cases, the French have also hospitals for chronic and more or less convalescent cases, as also places which are a kind of a cross between the divisional rest camps of the British army and its base convalescent dépôts.]

He is then again examined and put into one of the following classes:

A. Fit for general service.
B. Temporarily unfit for general service.
C. Fit for one of the auxiliary services.
D. Permanently unfit for any service.
E. At present unfit for any service.

Men of A class, after being given a short period of leave, are passed back to their units through the ordinary channels. Men of B and C classes are also given leave, and are then assigned to a physical training camp or an auxiliary service. They are re-examined from time to time, and as soon as found fit for general service are re-classified. The fact that a man is assigned to an auxiliary service does not diminish any claim to compensation on discharge which he might otherwise possess.

Men belonging to class D are those rendered unfit for service by some such clearly irremediable cause as the loss of one or both eyes, the amputation of one or more limbs, or complete and hopeless loss of the use of one or more limbs. Such men, in virtue of a law passed long before the war, are as soon as possible discharged from the army as medically unfit, provision being made for the future in ways to be described later on. These men used to form the class known as *Réformé No. 1.*

Men belonging to the E class are those whose illness or injury has left behind it some physical defect or infirmity which unfits them at present for any form of service, but which may or may not diminish or disappear.

These men used commonly to be allowed to return to their homes on sick leave lasting sometimes as long as six months or were released from all military obligations for a year. In the former case they continued to draw the pay of their rank, and, if privates, about one franc a day as food allowance. In the latter they received a small temporary pension. In either they were free to seek or not to seek civilian hospital or other treatment and to engage, if they pleased, in their old or any other work they could do.

Those released from all duty for a full year and then found on re-examination to be still unfit for service were generally permanently invalided, and if their disability was brought about, or had been materially increased, by the performance of duty, received an allowance as long as their disability remained. The result in either case was that the man became known as a *Réformé No. 2.*

But these methods of dealing with men of class D, though not entirely disused, are no longer in favour, except when the men concerned require for their recovery little beyond prolonged rest and comfortable surroundings, or, on account of their status outside the service, can be relied on to secure for themselves any form of treatment required.

All the rest are now usually drafted to dépôts established near therapeutic institutions of various orders: hydropathic, neurological, physiotherapeutic. At these dépôts the men are treated like ordinary soldiers, but are practically relieved from all duty other than that of sedulously carrying out the treatment prescribed for them at the institutions to which they are assigned. In their spare time they are at liberty, if they choose, and if it does not interfere with their treatment, to attend any school in the locality which purports to teach men new trades, or how to carry on already familiar trades despite their disabilities or infirmities whatever they may be.

Such re-education schools are usually maintained either by private philanthropy or by the public authority of the locality in which they are situated. Attendance at them

is always both voluntary and free, and apart from other advantages they offer the attraction of acting as labour bureaux for partly disabled men.

A man drafted to one of these dépôts continues to be treated at the institution to which he has been assigned until its authorities come to one or other of the following decisions:

1. That the case should be sent to an institution of a different order.

2. That his infirmity has so improved that he is again fit for general service or for one of the auxiliary services.

3. That his infirmity cannot be further decreased by any form of active treatment whatever.

Decision 1 receives due attention, and decision 2 leads to the man being relegated, after a course of ordinary physical exercises, to class A or class C.

All the rest go before an invaliding board, which again reclassifies them. Such board, if in any given case it considers that the remaining disability is (1) the direct outcome of the performance of military duty or has been materially increased thereby; and (2) in extent is appreciable because equal to a loss of more than 10 per cent. of working power; and (3) will certainly persist at least a year, proceeds to draw up a report recommending, with a precise statement of all the reasons, the temporary or permanent invaliding of the man and the grant of either a pension or a renewable allowance. It only recommends the former if it feels certain that lapse of time will not lessen the disability in any respect whatever. If the case of any man does not meet all the conditions named, the Commission simply recommends him for permanent or temporary discharge, adding nothing on the subject of the grants.

Whatever its terms may be, the report of the board is sent to a consultative commission in Paris, which, after studying it, either refers it back for further information or reconsideration or forwards it to the Minister of War, advising that the recommendations be confirmed by a decree. The decree issued, the man becomes a *Réformé No. 1* if granted a pension or renewable allowance, and a *Réformé No. 2* if granted neither. As a rule, no one is invalided for less than two years, and every man not permanently invalided is liable to be re-examined and reclassified at the end of that time, and is certain to be so if he has been granted a renewable allowance. Also on such re-examination will depend whether his allowance is withdrawn, left at the same amount, diminished or increased, according to the condition of his disability as compared with what it was at the time he was invalided. Such examinations are repeated every two years, the allowance being converted into a fixed pension if an appreciable disability is still found at the fifth re-examination.

The oldest and largest of the physiotherapeutic institutions to which reference has been made is the Grand Palais Clinique in Paris, and the result of its work may perhaps be taken as a fair sample of that of the system as a whole.

It is claimed that in addition to the great military gain represented by the large number of men whom it has rendered fit to resume army work of some form or kind, its existence is of very great value to the Financial Minister. It has been claimed, in fact, that the financial gain from the working of this institution during the first six months of its existence is equal to a capital sum of about £800,000. This estimate, of course, is mainly based on the fact that the allowances and pensions that have to be allotted shrink *pari passu* with the extent to which the infirmities of the patients passing through the clinique are diminished by the treatment administered.

Pensions and Allowances.

Men invalided out of the service as belonging to class C receive one or other of four rates of pension according to the severity of their disability, and can claim admission to certain Government institutions and preferment for certain civil appointments. They are also entitled to be kept provided with artificial limbs, etc., and the blind to be taught suitable trades.

The pension rates are primarily founded on the amount the man concerned would have received if he had served as a soldier throughout the whole of his life, but if his disability is one which necessitates the services of an attendant, the highest superannuation rate is increased in the case of soldiers by 30 per cent. and in the case of officers by 20 per cent.

The net result is that in the case of privates the highest rate of pension is about £40 a year, and the lowest about £24 a year. But there is some talk of these rates and the rates of all allowances being raised.

A renewable allowance, on the other hand, may be any one of eight rates, the highest equal to the simple maximum of the superannuation rate and the lowest a proportional part thereof. The rate assigned depends mathematically on the degree to which the working capacity of the individual concerned is deemed to be reduced by his infirmity below that of an average healthy man. For the guidance of invaliding boards there has been issued by the Ministry of War a code which is based on the experience of civil life and indicates the percentage of loss of working power considered to be represented by almost every conceivable medical or surgical infirmity.

Unlike an allowance, a pension cannot be reduced even if it be subsequently found that the supposedly irreparable disability has improved or disappeared. On the other hand, a higher class of pension can be successfully claimed if within five years of the original grant the pensioner can satisfy the authorities that his disability has increased.

Family Considerations.

The effect of the award of a pension does not necessarily end with the pensioner's life. His descendants, if he leaves any, or even in certain circumstances his ascendants, can claim to be allotted a portion of the pension drawn by him.

A pension, moreover, is in any case drawn by the widow and children of a soldier who dies from wounds received in the performance of duty or of disease contracted in the same circumstances. It amounts to about three-quarters of the maximum pension which would have been awarded if the deceased man had served as a soldier for the longest possible period, or in the case of the family of a deceased soldier to about £21 a year.

If the widow remarries, half her pension is reserved for the benefit of the children by her first marriage, if any, and half for the benefit of herself and any children by her second marriage. She can, if she chooses, commute her own half into a lump sum, which then constitutes a kind of dowry.

The pay drawn by a private is only 25 centimes a day, so arrangements for the benefits of the families of soldiers, whether permanently in the army or temporarily mobilized, have always been necessary, and at the beginning of the war those previously existing were somewhat modified. The allowance now made to the person who represents the head of the family in the soldier's absence is at the rate of 1 franc 25 centimes a day, with an addition of 50 centimes daily for every child under 16 years of age. Any person claiming these allowances on behalf of a family must prove beyond doubt that it was dependent for its maintenance on the labour of the absent soldier. Once this has been done, the allowance granted cannot be withdrawn until the end of the war, unless either the soldier dies and the family receives a pension; or the soldier is released from service, with or without a pension or allowance, and is proved to have found and to be able to retain employment which renders him quite as capable of supporting his family as before he was called up for service.

Finally, it should be added that the person treated as the head of the absent soldier's family (if any) is not necessarily his wife; and that for a claim for a family allowance to be successfully made it is not necessary that the children should be legitimate. It appears, in fact, that in certain circumstances even a pension can be successfully claimed on behalf of illegitimate children.

Brigade Surgeon-Major E. A. Gibbon, R.A.M.C. (retired), High Sheriff of co. Wexford, left personal estate in the United Kingdom of the gross value of £32,989.

The United States Public Health Service has set on foot a campaign against hay fever. An endeavour will be made to induce legislatures to enact laws to provide means for the destruction of weeds which are known to cause the disease. It is said that 2 per cent. of the population of the United States suffer from hay fever.

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

THE winter session of the Middlesex Hospital medical school was opened by an address by Surgeon-General M. W. Russell, C.B., Deputy Director-General of the Army Medical Service (War Office). It was, he said, not inappropriate that an old student whose time had been spent in the military forces of the country should be the spokesman on that occasion, and his subject, the historical relation of the hospital and school to war and the military forces, was equally appropriate.

He first recalled the fact that during the revolutionary wars in France the hospital placed at the disposal of refugees who reached this country destitute and broken in health a ward or wards, in which some thirty or forty persons, mostly priests, were housed and restored to health and vigour. An expression of their appreciation of the kindness and hospitality shown to them was on record.

The first great name connected with the hospital which shone with undiminished renown in military surgery was that of Sir Charles Bell. He left Edinburgh for London in 1804, and five years later went to work at Haslar Hospital among the sick and wounded from Sir John Moore's Corunna army. In 1812 Bell was appointed surgeon to Haslar Hospital, and it was while holding that post that he went to Brussels to work among the wounded from Waterloo; the Royal Army Medical College possessed a priceless memento of his work in the form of his collection of water-colour sketches of the wounded whom he attended. These drawings were still worthy of study as examples of the injuries sustained by our soldiers a century ago.

Florence Nightingale was for a time connected with the Middlesex Hospital, although it could not be claimed that it had had a large share in her training, for the conditions of training of nurses in those days, between 1840 and 1850, were not such as to satisfy even modest demands. Now, when our nursing service stands unchallenged as the most efficient, it was chastening to remember that Florence Nightingale to equip herself for her life's work thought fit to resort to the Protestant Deaconesses at Kaiserswerth in Germany, and to the hospitals under the nuns of St. Vincent de Paul in Paris. It should be remembered that in 1854 Florence Nightingale volunteered to give help with the cholera patients in the Middlesex Hospital, and it might not be too much to say that before going to the East she gained most of her practical experience in the stern work of emergent nursing in the wards of the Middlesex Hospital.

Two surgeons to the hospital when the speaker joined it —Mr. Hulke and Mr. Lawson—had both had experience of military surgery in the Crimea. Mr. Hulke would rarely allude to his military experiences, which had been great in the hospitals of Smyrna and before Sebastopol. Now and again when speaking of the blessings of Listerism, which he was one of the first whole-heartedly to adopt, he would drop a remark on the prevalence of gangrene and pyaemia in the Crimean hospitals, and one grim story he would occasionally tell of the number of dead who on account of these pestilences were put overboard from the crowded hospital transports on the voyage home. Some interesting letters written by Mr. Hulke from the seat of war to his relatives revealed the same strong, purposeful man as his students knew later, animated by the same high ideals, the same strict devotion to duty, and the same absorption in the work in hand. Mr. Lawson shared in the hardships and glories of Alma, Inkerman, and Balaclava. Later in the campaign he experienced a most severe attack of typhus, and lay for some time between life and death, being eventually sent home in a paralysed condition. He, too, seldom mentioned his military experiences, and "it was only," Surgeon-General Russell added, "when I had made my decision to join the Army Medical Service that he congratulated me." Since the Crimea the Middlesex Hospital had had its representatives in most of the wars that had taken place.

Mr. Andrew Clark, who was for so long connected with the hospital as surgeon and dean of the school, had held for thirty odd years a commission as medical officer in the auxiliary forces, so that when the Territorial medical service was created he had fitted himself to take a high administrative post therein. At present Mr. Alfred Webb Johnston, now a major R.A.M.C. and D.S.O., was worthily representing the hospital in a base hospital in France. When the O.T.C. was founded Major Johnston helped by his inspiring efforts to make the Middlesex contingent a model of what such contingents should be. It could be said authoritatively that the medical officers who joined the army after going through the preliminary training of the O.T.C. were of greatly enhanced military worth. The rudiments of their new profession were already theirs, and they were able at once to undertake technical duties without loss of time, and with insight and intelligence which would have been lacking had they not availed themselves of the preliminary grounding given them in the school corps. Surgeon-General Russell also referred to Major Dauber, who had been surgeon to the Sussex Yeomanry, and early in the war was appointed to the East Anglian clearing hospital. It was quickly chosen for active service and dispatched to the Mediterranean. As the unit was proceeding to Gallipoli the ship was torpedoed, and Dauber perished with others of his unit on the threshold of what promised to be military work of high value. Among old students who had given military service reference was made to Dr. Leslie, who entered the Egyptian service, and accompanied Baker Pasha on his ill-fated expedition, and met his death at the hands of the dervishes. Middlesex Hospital men were to be met in the Navy, the Army, and the Indian Medical Service, but their numbers were too few; in a school of such importance there should be some official whose business it was to study the students, learn their potentialities, and give them the information they required to aid them in choosing their career. The resources and conditions of the public services should be as an open book to the students as well as the openings in civil life; only in this way would the Navy, the Army, the Colonial services, and the great public health services get their due.

The staff and old students of the hospital had responded well to the call of the country for medical officers in the present struggle. In every grade of the military hierarchy they were doing their share. From trench to base there was no sphere in the wide-flung line of operations—at home, France, Salonika, Mesopotamia, and Africa—where they were not taking their full share of the burden. In conclusion Surgeon-General Russell said:

"I will only ask you to note how, under the great pressure of the nation's peril, the component parts of the profession have been welded into one homogeneous whole. We have become a nation in arms, and as each new demand has been made, the profession has responded; much has been asked and given, but more will be wanted. The cadres of a great national corps must be kept filled. Civil and military elements have been pressed into one great unit, with one aim and with one object. Ways and means must be found to perpetuate this union. This is one of the problems to be solved after the war, and I do not think I am too sanguine in thinking that our recent experiences have eased the difficulties and pointed out the road. Meanwhile we may, without boastfulness, take comfort in the thought that great work has been and is being done, that the fires of common effort and common sacrifice now burning so brightly in the nation at large, are burning not less brightly in the profession and in this school, and that the corps to which I and so many of you belong—I speak of it in its wider sense, embracing all who are doing military medical work for the Crown—has justified the motto which is its inspiration and its guide, '*In arduis fidelis.*'"

As the result of a series of experiments with *Bacillus bovisepticus* or snuffles bacillus, which belongs to the haemorrhagic septicaemia group and is pathogenic to the rabbit, Miller and Noble arrived at the conclusion (*Journal of Experimental Medicine*, vol. xxiv, No. 3) that infection is favoured by chilling after the animals have been accustomed to heat. The disease occurs frequently in rabbits under natural conditions, so that the authors consider the application of the experimental results to similar respiratory conditions in man less open to objection than similar experiments with other infections. They have, however, obtained some evidence that any marked change of temperature predisposes rabbits to this infection, the severity of which varies with the amount of change, and that a change from low to high temperature has an even more marked effect than that from high to low.

British Medical Journal.

SATURDAY, OCTOBER 7th, 1916.

THE DISCHARGEABLE DISABLED SOLDIER.

The Naval and Military War Pensions Act provided that the War Pensions Statutory Committee it set up should "make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment." The Act received the Royal Assent on November 10th, 1915. The constitution of the committee was announced by the Prime Minister in the House of Commons on January 4th, 1916. It held its first meeting under the presidency of its chairman, the Prince of Wales, on January 17th, and a second full meeting on February 1st. At this second meeting the Prince said that the problem of the men disabled, whether from wounds or disease, was difficult, but it was the duty of the nation to see that they were provided not alone with pensions, but with employment suited to their new conditions, and, if necessary, trained. At the beginning of March the Parliamentary Secretary to the Local Government Board announced to the House of Commons the constitution of the Disablement Subcommittee which the Act required the Statutory Committee to appoint for the purpose of making provision for the care of disabled officers and men. Since then there has been no public announcement as to the activities of the Committee in this direction, if we except a circular issued at the end of July dealing generally with the matter, from which it appeared that the number of disabled sailors and soldiers at the end of May was estimated at over 30,000; since then the number must have been largely increased.

So far as the public has been made aware, however, the Statutory Pensions Committee would not appear as yet to have devoted to this aspect of its functions the attention which is desirable. It may be that the reasons for the silence are sufficiently cogent; possibly the pensions side of the work has absorbed the greater part of the interest and time of the Committee, but the fact remains that there is still much leeway to make up. A great deal of information with regard to the best method of treating and training the disabled has been accumulated and many minds have been turned to the problem, so that it should now be possible to formulate the general principles by which the Statutory Pensions Committee ought to be guided in this part of its statutory duties. One point which has been regarded as fundamental is still undetermined: it is the question whether the disabled soldier who cannot again be made fit for military service should be retained under military control while there is reasonable prospect of his being returned ultimately to civil life as a useful member of the community, or whether he should be discharged from the army, leaving it to civilian effort to do what it can for him. We hope to show that this difficulty need be no bar to the immediate preparation of a scheme, and that it makes little difference to the principle of that scheme whether the answer to the question be in the affirmative or in the negative.

The first step, in our judgement, is that the Statutory Pensions Committee, of which Mr. Cyril Jackson is vice-chairman and chief executive officer, should shoulder the responsibility which has been placed upon it by Parliament, and should seek the assistance of other bodies only in the directions and to the extent in which those bodies are definitely concerned. Machinery for dealing with the matter must in any event be brought into existence. We suggest that it will be necessary to place the whole organization for the health, training, and employment of the disabled soldier in the hands of some person of approved administrative capacity. If it be decided that the disabled soldier whose condition is of such a nature that he may be improved by medical treatment and by training shall remain under military control, the administrator should be the head of a new subdepartment of the Army Medical Department, but should keep in touch with the Statutory Pensions Committee by attending its meetings. If the military authorities do not see their way to retain the men under control, then the administrator should be responsible to the Statutory Pensions Committee. In the one case his superior will be the Director-General of the Army Medical Service, and in the other the vice-chairman of the Statutory Pensions Committee. With the administrator there should be associated not only men versed in business and in philanthropic endeavour, but also a substantial proportion of medical men, chosen for their interest in the subject, and their knowledge of the means for promoting the health and training of disabled soldiers. In any event the Committee should contain officers of the Army Medical Service to represent that side of the problem; should military control be instituted they might constitute a majority.

The procedure which should be followed in the case of a sick or wounded soldier may now be traced. We will leave out of consideration men whose disability is of so slight and temporary a nature that they may reasonably be expected to be returned to the army within a period of, say, six months. The man with whom we are concerned is he whose disability is more serious. After a period of treatment and convalescence, he is examined by a military medical board. If this board decides that it is unlikely or impossible that he can again become fit, the man enters the category of dischargeable disabled soldiers, and the decision of the board should be at once notified not only to the military authorities and the Chelsea Commissioners, but also to the Statutory Pensions Committee. Whether the man remains in the army or not, and whether he is retained under military discipline or not, he becomes from that moment a subject of interest to the Statutory Pensions Committee, which should open a record for him, containing particulars as to his name and home address, the nature of his disability, the military unit in which he then is, and the destination to which it is proposed he should be sent. If it is arranged that the man remains under military control the Statutory War Pensions Committee would merely file the record for the time being; but if the opposite view prevails and the man is discharged, his case must be taken up by the Chelsea Commissioners, which must fix his "State pension." At the same time, the Statutory Pensions Committee should send notice of the man's discharge to the local pension committee, which should then take steps to assist him to return to his pre-war occupation or obtain some other. If the man is helpless, and if his private means do not permit of his living in comfort, the

duty is imposed on the Statutory and local Pensions Committees of seeing that he is admitted to a suitable home for incurables or provided with a supplementary pension, which will enable him to obtain suitable nursing and attendance at home. If his disabilities are such as to prevent him from returning to his old or any other work, but his physical condition is such as to afford hope of improvement, he should be sent to one of the special military hospitals or camps suitable for the treatment of his particular disability.

The stages involved in dealing with a disabled soldier may be summarized as: (1) Surgical and medical treatment; (2) training and re-education; (3) reintroduction to civil life. In the case of a man who can be returned to the army, a large part of the necessary process is involved in (1), but physical training and manual re-education materially assist recovery. Consequently command dépôts, camps, and special hospitals have been established wherein stage (2) is carried on. That the military authorities have not entirely repudiated responsibility for returning men to civil life with some measure of repair is shown by the fact that the provision of artificial limbs is undertaken, and that men who can never be fit for active service are already given treatment in the special military hospitals, and in some instances training and education in convalescent camps and in command dépôts. What is wanted is the systematic inclusion of training and education in the work of these military institutions, and the extension of their functions so that they may clearly include the dischargeable disabled soldier. The establishment of new centres for the treatment and education of men who have again become civilians would be wasteful. Equipment would have to be duplicated, though after the war that now used at the military hospitals will no longer be needed, and it would be necessary also to attempt to duplicate personnel for medical treatment, for the administration of massage and electricity, and for instruction in gymnastics. It is very doubtful whether it could be found.

In extending facilities which already exist it will probably be recognized that while physical training is of more importance in the case of men who will again be rendered fit for the army, greater attention will have to be paid to re-education in that of men who must return to civil life. In the event of the military authorities declining to retain them under their control the Statutory Pensions Committee should at once approach the War Office with a view to arranging a scheme for the extension of training and re-education to the men for whom the Committee is responsible. It is earnestly to be hoped, however, that the military authorities will take a broader view, and will entrust the extension and organization of centres for treatment, training, and re-education to an administrative head of a new subdepartment of the Army Medical Department.

The dischargeable disabled soldier, if transferred by the direction of a medical board, or of a board of experts, to one of the military centres suitable for his disability, would there obtain medical and surgical treatment at the hands of experts; massage, electricity, physical exercises, and training for usefulness in after-life would be available to him, and periodic medical boards would decide at what point the man was fit to be discharged from the centre. If the man were retained under military control, his discharge from the centre would coincide with his discharge from the army. When the board decided on his discharge, the Chelsea Commissioners and the Statutory Committee would be notified; the man would then return to civil life and would have a claim to such advantages as are obtainable from existing civilian agencies. The State pension to which he is entitled would be fixed by the Chelsea Commissioners. The Chancellor of the Exchequer stated shortly before Parliament adjourned that the principle by which the Chelsea Commissioners were to be guided was that the State should pay a flat rate of pension without regard to a person's income or social status, and that the flat rate should be supplemented by pensions provided partly out of the six millions voted to the Statutory War Pensions Committee and partly by contributions from voluntary sources, such as the Navy League and the Kitchener Memorial Fund. A discharged man, therefore, who regards himself as still unfit for work will be entitled to apply to the Statutory Pensions Committee, through the local pensions committee, for a supplementary pension. Decision will often be found very difficult, and the committees will need expert medical advice. It is to be hoped that all the authorities concerned will bear in mind that the main object is to get the discharged disabled man back to some suitable occupation, and that the pension is to be regarded as a separate gift to discharge the debt the country owes him, and not as a means whereby he may live in idleness for the rest of his days.

But the duties of the Statutory Pensions Committee towards the discharged man extend much beyond the grant of a supplementary pension. On receiving a notification from the military authorities that a man has been discharged the Committee should communicate the fact to the local pensions committee of the area to which the man is going, and it will be the duty of this committee to help the man to find suitable employment. For this purpose the local committee must be in close touch with other bodies, and especially with the Labour Exchange and the local Insurance Committee. Through these two bodies the man can receive assistance in obtaining employment, and ordinary medical attendance, but in no case should the Statutory Pensions Committee and its local committees cease to regard themselves as primarily responsible for the care of the discharged disabled soldier.

We are quite aware that any scheme which can be suggested for dealing with so difficult a problem must present administrative difficulties, but we believe that such difficulties can be overcome. In a question of such national importance it must be the desire of all to work out a scheme by which the best possible result shall be obtained, and all departments, bodies, or individuals likely to be brought into relation with the treatment and training of the disabled should be willing to take their proper place in the mosaic. The main object is to establish such a system of dealing with disabled men as will ensure that succeeding generations shall not curse us for failing to deal wisely and fairly with a problem which must affect our children only less than ourselves.

THE NEW MEDICAL INSURANCE REGULATIONS.

IT is becoming more and more evident that in many parts of the country at least one of the proposed new medical regulations—that is, Article 3—will not receive anything like willing acquiescence from panel practitioners. Nominally this regulation—which will be found in the SUPPLEMENT for last week, p. 94—is being made in order to link up the panel service with the new arrangements for the

treatment of venereal diseases and the treatment of disabled soldiers and sailors, but practically it will apply to any expert services whatever that may at any time hereafter become available. It will have been seen from the letter by the Medical Secretary of the British Medical Association published last week (Supplement, p. 93) that the Commissioners at first intended to specify definitely the obligations of panel practitioners in relation to consultants and specialists, but that the Insurance Acts Committee persuaded them to make the terms of the regulation more general. They have done so by binding practitioners to take such steps "as may reasonably be necessary in order that the patient may derive full advantage from the provision of such services." It may be doubted whether the Commissioners have not in this way under the guise of a concession taken away with one hand far more than they have given with the other. For the question at once arises, Who is to decide what steps are reasonably necessary? To this there can be but one reply—that in the event of a dispute the Commissioners will be the ultimate judges unless the case is taken to a court of law. We already know from their first proposals that they consider it reasonable (1) that the panel practitioners should give to the expert all necessary information as to the patient's previous history and the practitioner's diagnosis and treatment; (2) should furnish specimens for laboratory examination; and (3) should attend with the patient for consultation with the expert when the nature of the case so requires. Though the Commissioners have agreed not to insert these terms in the regulation, there is no ground for believing that they have in any way narrowed their ideas as to what is reasonably necessary, or that they will hesitate to enforce them, while the vague terms of the regulation will give them power almost indefinitely to extend even their first ideas. Judging both by past experience and by the present "concession," the panel practitioners may well say: Quidquid id est, timeo Danaos et dona ferentes.

In other respects, too, the new regulation is so framed that it must inevitably give origin to doubtful questions. At present disputes often arise as to whether certain services come within the province of panel practitioners, and patients in order to save their pockets demand services which their panel doctor holds to be not such as can "be properly undertaken by a general practitioner of ordinary professional competence and skill." But under the new regulation, while the present difficulty will still remain, there is nothing to prevent patients habitually demanding specialist treatment as it will cost them nothing. They may thus put their panel doctor to a great amount of extra trouble, such as writing out a full description of the case and going perhaps in many cases long distances to meet a consultant; there is no indication that for this extra labour there is to be any extra remuneration. The provision that a public body must in organizing such special services have consulted the Local Medical Committee will in many areas be practically inoperative, as the public body is in no way bound to act upon any representations from the Local Medical Committee. On the other hand, the proviso to the regulation not only directs a Panel Committee, when it prepares a scheme to define the duties of practitioners, to consult the Insurance Committee, but it will be bound to take effective notice of the representations of the Insurance Committee as the scheme requires the approval of the Commissioners, and it may be taken for granted that such approval will not be given unless the Panel Committee specifies all the obligations which the Commissioners have now or may in the future have in their minds. In short the regulation is so worded as to give the Commissioners power to pile up duties on panel practitioners—such as, for example, filling up periodical reports on all special cases like those required for tuberculous cases—and all this can be enforced on the simple plea that it is necessary to enable patients to obtain the full advantage of any special services that now exist or that may be established in the future.

There is good ground for believing that in the not distan tfuture there will be a great extension of special services for the insured. Not only may sanatorium benefit be extended to dependants of the insured, but it is to be remembered that already under Section 8 (1) (*b*) of the Act of 1911, in addition to tuberculosis, "any other disease which the Local Government Board with the approval of the Treasury may appoint," may be included under sanatorium benefit. It is probable also that an attempt will be made to link up with the insurance scheme the great general hospitals and the special hospitals for diseases of the eye, ear, nose, and throat, while a step has already been taken in the direction of providing special treatment for maternity cases. All this may be right and proper, for probably no one will deny that one of the anomalies of the insurance scheme is that it stops short with providing the services of general practitioners, and has until recently left the insured to charity or to their own resources when they required any specialist treatment, except in the case of tuberculosis.

But the question will arise, Who is to pay for all the special services that ought to be, and probably will be, provided for the insured? In the case of the special provision for venereal diseases the question has already been settled, as the county and county borough rates will be responsible for the cost, with a liberal grant from the Treasury; and something similar applies in the case of specialist maternity treatment. But will that be the case all round? There will always be the temptation to encroach on the medical benefit fund, and to alienate for special services at least part, if not all, the present Treasury grant to medical benefit. But both the Government and the Commissioners must have become aware that nothing will so certainly and so closely unite the profession as an attempt to reduce the present remuneration of panel practitioners. The whole insurance scheme would at once be put in danger of collapse, as it cannot exist without the co-operation of the medical profession. But apparently the authorities consider that they can find another way. Instead of at one fell swoop reducing the medical fees, which would lead to instant and serious revolt either now or after the war, a plan far more likely to succeed would be, gradually and by slight increments at a time, to extend the obligations of panel practitioners without touching the present remuneration. The new regulation is distinctly a move in this direction; for the present it may involve nothing but what any practitioner would gladly do for his patients whose interests he has at heart. But the regulation contains far greater potentialities, and in the hands of authorities that have shown little sympathy with the profession, it makes legal the imposition of fresh duties and obligations which would be even more disadvantageous than a reduction of medical fees, as any neglect of those duties once imposed would put the panel practitioner in a most invidious position in the eyes of the public. The Insurance Acts Committee has given only a

provisional assent to the new regulation pending the conference of Local Medical and Panel Committees on October 19th, but the Committee has distinctly stated that it would prefer that there should be no new regulation at all on the subject.

If fresh duties are imposed beyond those any average practitioner would gladly discharge towards his patients without any new regulation, all such fresh obligations should be paid for. The fact that the British Medical Association has expressed a wish that the discussion of fees should be postponed until after the end of the war is quite beside the question. In common justice it must be admitted that the wish could have been expressed only on the understanding that the conditions of service remained as at present, and to argue that because such a wish was expressed the Commissioners are therefore at liberty to impose any number of extra duties now and to postpone the question of payment for them to an indefinite future is an insult to common sense. Even with their present duties the present methods of payment of panel practitioners have become a reproach to the Insurance administration. In this connexion we would draw attention to the letter which appeared in the SUPPLEMENT of September 23rd from the Honorary Secretary of the Bath Panel Committee on the financial administration of the Insurance Act. Relying on a letter which is there quoted from the Insurance Commissioners, the secretary argues that "if a person is disabled and lives for twenty years the medical benefit fund is not credited with a single penny in respect of his treatment, and, being disabled, he probably needs a good deal of attendance," and adds that, as far as is known, "no financial arrangement for crediting the medical benefit pool for the treatment of soldiers discharged through disablement has been made." The question is at present under discussion between the Government departments concerned, but there appears to be a disposition in some quarters to throw the whole onus for treatment on the insurance scheme, and it is difficult to see how, apart from a special Government grant, that can be done without putting a serious amount of extra work on the panel practitioners, and nothing is said of any addition to the general medical benefit pool. The extra unpaid work will consist not only of ordinary medical treatment of the disabled, but, under the proposed new regulation, will include all the obligations towards any specialist services which the Commissioners may consider "reasonably necessary."

PENETRATING WOUNDS OF THE LUNG AND PLEURA.

PENETRATING wounds of the lung and pleura are of frequent occurrence in the present war, but fortunately they are proving to have an unexpectedly low mortality. Time was when over 90 per cent. of these patients died, as was the case with the French army in the Crimean war. In the Spanish-American war bullets were smaller and had a higher velocity than in the Fifties, and the mortality was only a little over 25 per cent. In the Boer war it had fallen to 14 per cent., and it is said to have been less than 4 per cent. among the Japanese in the battle of Mukden. Dr. Hale White stated some time ago in a clinical lecture[1] that none of the many cases he had seen in hospital since the outbreak of the war had proved fatal. This, no doubt, would be because the cases reaching England would be those that had survived the immediate dangers of these wounds, and were less likely to succumb to their more remote risks. It is, indeed, stated in the official *Memorandum* on the Treatment of Injuries in War, issued by Sir Arthur Sloggett, D.G., in 1915 to the medical officers in France, that "it is most important that no move should be permitted for several days, but at the end of a week the patient should be sent to the base . . . men with wounds of the lung should not be sent across the sea earlier than a fortnight after the injury. Three weeks is a safer time limit to guard against the risk of a fresh haemorrhage or pneumothorax."

An interesting paper on the subject has recently been written by Dr. R. D. Rudolf,[2] who finds that these wounds are most often caused by rifle or shrapnel bullets, or by pieces of shrapnel or shell. Very few are due to bayonet wounds, and no example of sword wound of the chest has yet come under his notice. A striking feature of many of these cases has been the small amount of injury caused by the passage of the shot or fragment through the chest. Wounds that ought theoretically to be fatal here are often practically harmless. The patient may complain of nothing more than a little discomfort or slight haemoptysis, as in an instance quoted in which a rifle bullet entered the second right intercostal space near the sternum and came out just below the angle of the left scapula. Contrariwise, what appears, anatomically speaking, to be a safe wound, may quickly end in death. The wounds most to be dreaded are those caused by pieces of shrapnel or shell. These do more destruction in the tissues, and often carry pieces of clothing in with them to infect the wound.

Laceration of the lung may produce pneumothorax, haemothorax, or, less commonly, a combination of the two. Pneumothorax may also be produced by the entry of air from outside, when infection and empyema are much more likely to occur. Dr. Rudolf notes that the bell sound, one of the more important physical signs of pneumothorax, according to the books, is often absent in these cases. The reason for its absence is obscure; for the sign may be present when the tension of the gas in the pleural cavity is greater than, equal to, or less than the tension of the circumambient air. As regards haemothorax, he finds that the blood most often comes from the lung, less frequently from a torn vessel in the chest wall. All the patients, he says, have fever at first, and this may last for many days in cases in which the blood does not become infected. The greatest danger for these patients, indeed, is that of infection; but the effused blood remains sterile in about three-quarters of the cases. Operation and free drainage are usually, but not invariably, required when the haemothorax becomes infected, but aspiration alone may bring about a cure. If a sterile haemothorax is small it may be left alone; if, however, it is large enough to displace the heart it should be removed by aspiration, the fluid being replaced by gas in order to avoid the dangers of a sudden re-expansion of the collapsed lung. Two needles should be used, one to withdraw the blood, the other to admit the gas that is to take its place temporarily. Some clotting is believed to take place in all cases, and in a few instances massive clotting of the haemothorax occurs. In the majority of cases of haemothorax, however, a part—it may be a large part—of the fluid can be removed by aspiration, and Dr. Rudolf advises the use of a good-sized cannula. He adds that it is not uncommon to find pneumonia develop on the opposite side of the chest in patients with traumatic haemothorax.

[1] *Lancet*, December 4th, 1915.

[2] *Quart. Journ. of Medicine*, Oxford, 1916, ix, 257.

Stress is laid on the importance of the collaboration between physician, surgeon, and skiagrapher in all instances of penetrating wounds of the lung and pleura. The services of the skiagrapher are, of course, invaluable to the surgeon who has to remove a foreign body from the pleural cavity or lung. They are also invaluable to the physician, who may have great difficulty in the diagnosis between combinations of such various conditions as massive collapse of the lung, the presence of fluid in the pleural cavity, pneumothorax, pneumonic consolidation, and traumatisms of the lung tissue.

THE DISABLED SOLDIER IN FRANCE.

Elsewhere in this issue (p. 492) is published an article giving an account of the arrangements now in force in France with regard to the treatment of soldiers who have become more or less incapacitated. Attempts to remove the after-effects of injuries by physiotherapeutic methods have commonly played some part in the work of French subsidiary medical institutions and dépôts for convalescents, "éclopés," and "inaptes," and to this extent the French military authorities may be regarded as having previously paid some attention to the problem. Nevertheless they were for long disposed to abandon any attempt to treat the more marked and obstinate kinds of physical disability at a comparatively early date. Now, however, as will be seen, it is an outstanding point in the military medical system of France that no disabled soldier shall be allowed to leave the army as medically unfit until every effort that modern science can suggest has been made either to remove his disability or reduce it as much as possible. Clinics such as that at the Grand Palais, Paris, which was described in this Journal early this year, are now playing a very important part in the French army system, and are doing a great deal towards reducing the magnitude of the problem of disability, as are the military orthopaedic and other special hospitals in this country. The system now approved in France and in operation in many districts, if not in all, is in principle very similar to the plan we have advocated for this country. This is the more interesting because the question has been approached and the conclusion reached by different routes. The aim of the French authorities is military and financial; they desire on the one hand to diminish the preventable wastage in the army caused by the discharge of men who might possibly be rendered fit once more to take their place in the ranks, and, on the other, to lessen the drain on the financial resources of the State which results from the fact that all soldiers discharged from the French army because of incapacity brought about by the performance of duty become *ipso facto* entitled to compensation so long as the incapacity exists, and in proportion to its extent. The considerations which have had most weight in the proposals made for this country have had regard not only to the need of returning men to the army, but also to the effect on national economics and the work of the medical profession of returning a large number of men to civil life before the maximum improvement in their condition has been produced and before they are fit to engage in any remunerative occupation. There are plenty of cases in which a man, after some injury, experiences a certain difficulty in using some particular set of muscles and is then tempted to abandon any attempt to use them. In such cases the disability, which at first may be almost purely functional, ends by becoming structural and permanent. This fact is well recognized among neurologists, and in physiotherapeutic institutions there are generally to be seen patients who are being taught to exercise once more their will over certain muscles. It must be admitted that the circumstances surrounding the problem, and to some extent constituting it, are not altogether identical in the two countries. There are, for instance, differences of thought between Great Britain and France in regard to the treatment that should be accorded by the State and local authorities to persons who either cannot or will not provide for their own needs; moreover, as will be seen on turning to the article which has been mentioned, the expenditure involved by the continued mobilization of a soldier—in the way of pay and allowances—is very much less in France than it is in this country. Nevertheless the balance of argument is in favour of the view that the system which will work best in this country must be founded on principles not differing materially from those so successfully applied by the French Ministry of War.

CLEAN WIGWAMS FOR CIVILIZED MEN.

In his presidential address delivered at the annual meeting of the Sanitary Inspectors' Association on September 28th Sir James Crichton-Browne, speaking of social and domestic reform after the war, dwelt on the vital importance of housing reform. We cannot, he said, send the brave men who have fought for us abroad back into hovels and dug-outs and funk holes at home, such as are still in many places, both in town and country, the only available shelter for the poor. We must not any longer leave multitudes of our people huddled together in dwellings that are incubators of disease and debasers of morality. We must recognize the right of every civilized man to a clean wigwam, and of every civilized family to a decent lodging, whether they can afford to pay for it or not. The true causes of slumdom are cheap and nasty buildings, overcrowding, and abject poverty. The two effectual remedies, Sir James Crichton-Browne declared, are a living wage and extensive building operations under the direction and, if need be, with the assistance of the State. Congested areas in towns must be demolished, and 300,000 good habitable cottages are wanted in the country immediately. With this pronouncement may be compared that of Surgeon-General Gorgas in an address to the Conference of Health Officers held at Rochester, New York, which was quoted in our issue of April 29th, 1916 (p. 627). The chief of the medical service of the United States army then said that the extraordinary improvement in the health conditions of Panama was due to the social betterment produced by high wages. He added that if such wages were now paid in New York, "all the poverty, sickness, and degradation caused at present by low wages would be rapidly ameliorated." But high wages alone will not settle what Carlyle called the "condition of the people question." The worker must be taught how to use his larger earnings in a rational way rather than to his own further degradation and to the enrichment of the publican. In too many cases the high wages now paid in arsenals and munition factories have not led to social betterment in the working classes. The medical profession has preached the gospel of health, in season and out of season, but great as has been the progress in many directions, among the poor the seed of sanitary knowledge still in large measure falls among thorns. This is not because our poorer brethren are in any way more wicked than their better-to-do fellow men, but because the unwholesome and depressing surroundings amid which they have to live drive the father, and too often the mother, to the public-house for passing relief from the squalor of their home. Until they are better housed they will continue to drink. It is useless for the moralist to denounce this as sinful, and we are glad to note that some of the more enlightened among the clergy recognize that the responsibility lies with landlords whose greed forces working men to live in filthy and unhealthy hovels. In the crusade against this evil we gladly welcome the help of such ministers of religion as the Rev.

H. J. Sharpe, rector of Marston Morteyne, in Bedfordshire. In a pastoral letter to his parishioners, dated August 24th, Mr. Sharpe, after giving figures showing the appalling amount of the national expenditure in drink, invokes the testimony of medical men to the fact that workers in town and in country alike are often housed as no rich man would house his cattle, in small airless insanitary huts where large families are being brought up by struggling mothers. "What wonder," he asks, "if some of the children fall away under the drink crave? What wonder if others fall into darker crimes for which their poor mothers blush?" Doctors can exhort people to better ways of material living, but their efforts would be greatly helped if clergymen of all denominations would, like Mr. Sharpe, use their spiritual influence to promote thrift and sobriety among their flocks. It is altogether right that poor people should have the means of getting clean wigwams, but they must learn to keep them clean and to bring up their families in decent conditions; otherwise a vicious circle of abject poverty and reckless wastefulness will be established that will make real improvement hopeless.

A BELGIAN PRISONER IN A GERMAN CAMP.

FURTHER testimony to the brutality with which the Germans treat their prisoners comes to us from a Belgian source. The story of a two years' captivity in Germany is told by Alphonse Sibenaler, a quartermaster-sergeant in the Belgian army, in *Le Journal* of September 23rd and 24th. He was wounded and taken prisoner in the defence of Namur on August 23rd, 1914. He was sent to Münster-Lager in Hanover, where crowds of men were huddled together in roughly-made huts and tents, twelve hundred being packed in a barn. Even for the wounded there was nothing but straw to sleep on. Nothing, says Sibenaler, can give an idea of the brutality of the discipline at the beginning. The prisoners were awakened by blows with the butt end of rifles, and the guards struck and even killed their unfortunate charges on the most flimsy pretext. The lightest punishment was deprivation of bread. The medical service was disgraceful, although continual inoculations were carried out. When there were more than three patients there was no pretence of examination. After a time, British prisoners began to arrive. Sibenaler bears witness to the special barbarity with which they were treated. In December, 1914, he was sent to Scheuen, near Celle, where the conditions were atrocious. He fell sick, and in April, 1915, was returned to Münster-Lager, where he found that the state of things had somewhat improved. Corporal punishments had ceased, but the food, which had never been abundant, after a time became altogether insufficient. In 1915 the soup was eatable; in 1916 the daily ration was 300 grams of black bread made of a hash of potatoes and sawdust, which very quickly became mouldy; in this state it was generally served out to the prisoners. At midday they had soup made of dried fish with beetroot and flakes of maize; from time to time they got a little bad meat. In the evening they had preserved fruit, which was generally bad. The rations, in short, were quite unfit for human food, and the commandant of the camp used them to fatten his pigs, ducks, geese, and rabbits. The prisoners lived almost entirely on supplies sent from outside, but many whose families were in territory occupied by the Germans received nothing. Yet they were compelled to do hard manual labour, and this, combined with the want of food, caused many deaths. At Verdun, where he was for a very short time in the early part of 1916, Sibenaler found that the tone of the guards had greatly changed; they spoke with emotion of the civil population of Belgium and Northern France, for whom they professed a warm regard! On the other hand, they displayed a frantic hatred of England, declaring that unless she had come in victory would have been theirs. In August, 1915, Sibenaler managed to escape, after two unsuccessful attempts for which he was severely punished. It is edifying to read of the newborn pity for the victims of his cruelty felt by the Teuton under the stress of growing fear of the future. Fear with him takes the place of that true culture which *emollit mores nec sinit esse feros*. Any improvement in his conduct to helpless people who fall a prey to his savagery is to be welcomed, whatever its source. Nevertheless, we are inclined to take the hatred which he reserves for us as a compliment.

THE WORK OF THE EXPANDED R.A.M.C.

IN this issue are published two tributes to the way in which the civil profession has responded to the demands made upon it to supply medical officers for the greatly enlarged corps required to meet the needs of the great armies the people of the British Empire have put into the field. The response has come from all ranks and ages of the profession, and from every part of the empire. Not only has the response been large numerically, but the work done by those who have joined has earned the highest praise from experts. The one tribute was paid by Surgeon-General Russell, deputy director-general at the War Office at home, in the address he gave at the opening of the winter session at the Middlesex Hospital, and the other by a senior medical officer holding a most responsible position with the British armies in France. These officers have seen different aspects of the matter, but their conclusion is the same. The officer who has watched their work in France expresses admiration of the way in which medical officers who have joined the army from civil life, previously unaccustomed to military duties, have quickly grasped the situation, and in a few months have become veterans. He describes their work as splendid, and expresses the hope, in which we would venture strongly to concur, that when the medical history of the war comes to be written the work of the civilian practitioners who have joined the Royal Army Medical Corps will be placed in its true perspective. Surgeon-General Russell, in the concluding words of his address at the Middlesex Hospital, noted how, as we have become a nation in arms, the medical profession has responded to each new demand upon it, and has embarked on its duties in a spirit which has ensured that the civil and military elements have been pressed into one great unit, with one aim and with one object. He also expresses the hope, in which again we would warmly concur, that ways and means shall be found to perpetuate this union. It is, we think, true that the regular officers of the R.A.M.C. have in the not very distant past lived too much apart from the general body of the profession. This is no doubt due in no small measure to the fact that the majority of them for a good many years after they first join spend much of their time abroad, and that they thus tend to get out of touch with the civilian profession, to the disadvantage of both parties.

THE ECONOMIC ASPECT OF THE TUBERCULOSIS CAMPAIGN.

THE gradual accumulation of experience in dealing with tuberculosis is enabling municipal medical officers to form definite judgements as to the relative value of existing methods, and as to the actual return that is being obtained in response to the great outlay of time, energy, and money incurred. We have had occasion to refer to the reports of the tuberculosis officer for the county borough of Middlesbrough on a previous occasion (BRITISH MEDICAL JOURNAL, March, 1916), and his account[1] rendered to the health department of that borough for the year 1915 serves to emphasize and amplify many of the points to which we then drew attention. Dr. H. A. Ellis, with considerable experience in similar work in Australia, is able to point to steady and increasing success, owing no doubt to the wise

[1] County Borough of Middlesbrough, Health Department. Report of the Tuberculosis Medical Officer (Dr. H. A. Ellis) for the year 1915.

determination of the board by whose authority he works to devote primary attention to early cases. His methods and the smooth relations which he is able to maintain with the local members of the profession are described in detail. The passive hostility of a certain class of working people, and more especially the objection of mothers, is being overcome, and the number of attendances, particularly to the evening clinics, is steadily increasing. The importance of early recognition among school children is insisted upon, and frequent inspection and periodic record of weight in all cases is strongly urged. It is highly significant that the deaths among children all occur in cases that have been notified for less than six months. Among those whose disease has been recognized and treated for a longer period the mortality is almost *nil*. Not less important is it to note that the system of notification as a means of checking the risk of infection is more or less of a failure. The large proportion of deaths that have to be recorded within a few months of notification goes to prove that infective cases are being allowed to mix freely with the healthy until such time as they are compelled to call in medical assistance. The danger to children, always liable to be handled, nursed, and kissed by their unthinking relatives, is manifest. The number of young children who are infected either by this means or by way of tuberculous milk is very considerable, and the more closely the danger is examined the more evident it becomes. Recent figures show a much higher percentage than many of the estimates made in former years. In the treatment of the young, the economic importance of a steady supply of good milk is strongly insisted on, and the allocation of funds for the purpose by public bodies is recommended. The enforcement of a period of rest, lying down for a definite time daily, is found to be even more efficacious in the case of children than in adults. Dr. Ellis has endeavoured to form an estimate of the actual liability of the population in any given urban area to tuberculosis, and comes to the conclusion that 60 per cent. are infected at some period of their lives, and that 20 per cent. suffer at some time from active tuberculosis, but that only about 9 per cent. die of the disease. Looking to the financial side of the question, he contends that much money and effort are wasted owing to a want of system in expenditure, and urges that the diffusion of available funds over the various means of treatment is impairing the efficiency of the whole. The first essential, he holds, is early diagnosis, and money is best spent on early cases, and the dispensary therefore comes first; until it has been efficiently equipped no other expenditure should be undertaken. Home treatment, if carefully conducted, will often render the sanatorium unnecessary, but if it is required it should, he thinks, be in the form of rest and fresh air for a period not exceeding three months. The general sanatorium for the cases that have not been taken at the early stage, and, finally, the hospital for the advanced case, can only be employed after the financial resources of the primary treatment have been secured.

The Bordeaux School for the Industrial Training of Crippled Soldiers, of which some account was given in the British Medical Journal of June 10th (p. 825), is now installed in the buildings of what was formerly the Grand Séminaire, which are to be its permanent quarters. On September 8th an official visit was paid by representatives of the municipality, the general council of the Gironde department, and the Bordeaux Chamber of Commerce, the three local corporations which in conjunction with the State provide the funds. They inspected the prothetic service under the direction of Dr. Gourdon, and saw one-legged men walking easily without the help of a cane, one who had undergone amputation through both thighs walking with two sticks without crutches, and examples of very simple apparatus for the restoration of the use of the arm in cases of resection of the elbow and radial paralysis. There was also a specimen of an artificial hand worked by the transmission of the movements of the chest to the fingers.

THE WAR.

SOME IMPRESSIONS OF A CIVILIAN AT THE WESTERN FRONT.

(Concluded from p. 469.)

Too Many Medical Officers?

It was not uncommon last winter to hear the statement that the Army Medical Service in France was overmanned, and it was sometimes asserted that members of staffs of certain base hospitals might have only a few hours' work a day. Such statements were heard less often during last spring and summer; the larger army holding a much longer line, and the more vigorous fighting have combined to make the work of medical units in certain areas much heavier, and whenever operations are active at any part of the front the bases are busy.

The practice seems to be to keep a newly joined medical officer at the base for a time, demands from the battalions, batteries, and advanced medical units to replace medical officers killed, wounded, or sick being met by sending up men who have been longest at the base. While at the base they gain a good deal of technical administrative information, and by working in the hospitals become acquainted with the conditions under which the wounded arrive there, and the facilities for treatment. By seeing and treating the men on admission they observe how dressings and splints are applied at the front, and sometimes, perhaps, take note of mistakes which they will avoid when their turn comes to be working at the other end. Most of the demands for replacements are for regiments and batteries, and experience proves that only young men are physically fitted for such posts. This would seem to be the chief reason why a large proportion of the medical officers at the base are, as I was given to understand, between 35 and 45.

The term "front" may be used, in its application to the medical service, to comprise all units from the casualty clearing stations forward. It includes, therefore, the field ambulances and motor convoys. The former are responsible for the wounded from the time they leave their battalions; that is to say, in operations habitual in this war, from the time they leave the trenches or artillery posts until they leave the head quarters of the field ambulance. Motor convoys bring them down from the field ambulances to the casualty clearing stations.

Casualty clearing stations are directed to be mobilized in the proportion of one to each division of a field army. Such a unit is described in the regulations as the pivot upon which the removal of sick and wounded turns, as it is the central point to which the collecting zone converges and from which the evacuating zone and distributing zone diverge, and is the unit for establishing a channel or flow of sick and wounded between divisional ambulances and the line of evacuation. It must pass the wounded rapidly down the lines of communication, so that it may not itself become clogged.

Some casualty clearing stations we found more than half empty, and their medical officers disposed to grumble that they had not enough to do and sometimes that other similar units were getting more than their fair share of cases. It was undoubtedly true that some of these units were at the moment much busier than others. This seemed to depend on a variety of circumstances, chiefly, I gathered, on the exact part of the front where operations were at the time most active, and the trend of the roads down from it. The half-empty casualty clearing station had been busy a little earlier, and would probably be as busy again when another part of the front grew active, or when the pressure on casualty clearing stations on another road made it advisable to divert the wounded from it.

The establishment of a field ambulance includes ten medical officers, and field ambulances are directed to be provided at the rate of three to each division. A division at full strength contains, I believe, in theory somewhere about 20,000 men. Some of those who believe that economies in the number of medical officers employed in France might be effected assert that the allowance of three field ambulances to a division is too liberal. This is an administrative question only to be settled by experts who have extensive experience of what may happen, especially

when things in the fighting line go wrong. All I will venture to say is that, watching the working of the system when the division engaged was advancing and doing well, it seemed that everything was going smoothly, quickly, and without haste, and that there was a considerable reserve of power to meet an emergency which might at any moment have arisen had the division, for example, been checked or repulsed with heavy loss. The fact is that you may strike an average for an army during a campaign, but you cannot strike an average for a division on any particular day; you must prepare for the worst.

In such a war as this with large stretches of the line held immovable for months there must be times, often long times, when a division does little. Its military value is that the enemy knows that it is there on guard. When the division is inactive, its field ambulances can have very little to do and the medical officers may find their idleness irksome, and may be disposed to think that their energies are being wasted, and that they would be more useful at home. But this conclusion does not rightly follow from the premisses. The question whether a division has too many field ambulances when it is actively engaged can only be answered by experts having experience of what has happened, and may, therefore, happen again.

Of the motor convoys critics assert that they need not have medical officers. But, apart from considerations connected with medical emergencies during transit, it is wise to recognize that they are medical units, and that it is a dangerous principle to approve any plan which places the command of medical units in the hand of another branch of the army. Here again it seems clear that the matter is one to be determined by expert opinion.

The work at the general and stationary hospitals at the bases in France is of the same character as in the military general hospitals at home, and involves no greater risk to life or health. There are the same intervals of comparative slackness; during last winter there seem to have been periods when the work to be done was mainly of a routine kind and quite light. When fighting at the front is active the curve of admissions in proportion to the number of beds rises more quickly and to a greater height than in a military hospital at home. The practice this summer seems to have been to admit to a hospital at the base all wounded and sick except the minority, who were sent to convalescent camps in the expectation that they would be fit to rejoin their regiments without going home. Speaking generally of hospitals at a base, it would seem that, owing to the fact that evacuation to England can be carried on day by day, the number of occupied beds tends to fall after a rush more rapidly than in the case of military general hospitals at home. This does not apply, at least in anything like the same degree, to hospitals or sections of hospitals set apart for the reception of serious cases; the steady stream of fresh cases, the number of operations to be performed, including the adjustment of severe fractures, to say nothing of after-treatment, make a continuous call on the energies of all, which so far as could be judged, had not been relaxed since the beginning of July. During all this period hospitals of this kind have been near the limit where distinct understaffing begins, and it is true to say that in many instances and for considerable periods the staffs have had to work longer and harder than it is quite wise to ask.

In the general hospitals or sections, which are not specialized, the medical and surgical staff is, so far as my inquiries went, very much below the regulation establishment, which, however, in existing circumstances, when the home base can be reached so quickly and easily, is apparently in excess of requirements. No attempt is, in fact, made to keep the medical personnel up to the sanctioned establishment, and a staff less than half as numerous, if not officially recognized, seems to be a standard tacitly accepted. It is not large enough for easy working during a push, but it is adequate in quiet times, and will probably be sufficient during the winter, if, as happened last year, active fighting diminishes and there is no serious epidemic.

Demands for reinforcements for regiments, batteries, and field ambulances must be met when they come. They are in the nature of things most likely to come in large numbers when military operations are active, and when consequently the pressure on the base hospitals is greatest. Further, when much activity is expected it may be considered prudent to reinforce the casualty clearing stations, and this makes a further demand on the medical staff at the base. At such periods, then, it is the base hospitals that are most liable to suffer reduction in personnel below what is desirable, and it will be the younger men who will be taken. It has been suggested that periods of temporary shortage at the base might be met by sending over "teams" from this country to fill the gap, and it appears probable that difficulties in the way of carrying out this plan may prove not to be insuperable.

It is not possible for a visitor to form a sound personal opinion on the question whether a smaller number of medical officers would suffice in France, but at the hospitals and clearing stations at which I made inquiry—and they were many—the answer was always to the same effect, though the tone varied; sometimes it was sarcastic, sometimes it betrayed a slight tinge of annoyance, only rarely was it admitted that the staff was sufficient. Commonly the reply was that the unit was undermanned, just able to get through the work in ordinary times, but hard pressed and overworked when the troops were attacking. The general conclusion seems to be that during the last four or five months the medical staff in France has been numerically as low as is compatible with efficiency, and that at busy times many of its members have been very hard worked, in some instances overworked.

A "quiet time," if of short duration, does not materially affect the position of advanced medical units. They have to clear up the situation left by the previous "push," and some of them may have to move forward, a change which entails a great deal of work.

There is a constant wastage among medical officers due to deaths, wounds, and sickness, and this must be made good if the standard is to be maintained. It can be made good from two sources at home—by medical officers newly commissioned, and by the return of others who have recovered from the wound or sickness for which they were invalided home. The first source is controlled by the professional committees and the second by the Army Medical Department, and it seems clear that both must be prepared to give constant attention to the problem.

As to what may be the possibilities of next winter no opinion can be expressed, but it may be observed that many medical officers will desire leave home to attend to their private affairs, and have deserved it.

SOME OTHER CRITICISMS.

A man who goes to France as the guest of the British Medical Service there must very soon catch its spirit—a spirit of keenness informed by a lively belief that difficulties exist to be overcome, and an openness of mind that is ready to consider any new idea and to put it to the test if it seems to be sound. Such an environment breeds optimism in all who come within its sphere of influence, and it is admitted that the tone of these notes has been optimistic. They have reflected the impression made on the writer by observation of the way in which the members of the medical profession, the great majority of them until the other day civilian practitioners, are tackling problems new to them, and some of them new to medicine and surgery, and to sanitary administration.

But the men doing the work would be the last to think that they were attaining perfection, and it will not be out of place to refer to certain criticisms which the publication of these notes has brought from surgeons at home. As they have to do with surgery and not with administration, they will be all the more worthy of attention. One has reference to the circular, or so-called guillotine amputations, the results of which, as seen in this country, are described in terms of very emphatic condemnation. As this matter is dealt with by Lieutenant-Colonel Lynn Thomas from experience both at home and abroad, in a paper published this week (p. 481), no attempt will be made to discuss it here. Another allied subject is what is described as the abuse of the drainage tube, and in particular of large tubes, not only after amputation—a subject mentioned in the paper already referred to—but also for many wounds of limbs and trunk in which, when the cases reach this country, they are seen to have had a mischievous effect. It is held that adequate drainage can be obtained by other means less open to objection. Another subject of criticism is the manner in which some cases of fracture of the thigh have been splinted. The general opinion seems to be that

for men who have to be moved Thomas's splint should always be used until something more effective has been invented, which does not yet appear to be the case.

The practice of closing wounds which have been septic also comes in for some criticism. It is not questioned that when judiciously used the results of the method are very satisfactory both to the patient and to the surgeon, but it would seem that its application calls for the exercise of sound surgical judgement controlled by systematic bacteriological examination. In those hospitals in France in which I saw this practice followed very great care was exercised to avoid premature suture—that is to say, to postpone it until the infection of the wound had been reduced to proportions with which the tissues could be confidently expected to deal.

Expert Opinion on the Medical Service To-day.

As a nation we are justly proud of having raised an army of many millions which is proving itself the equal of the armies of our allies, and superior to the armies of our enemies. As a profession we may be as justly proud of having provided this great army with a medical staff which is proving itself thoroughly efficient. Of the medical officers now serving in France probably nearly nine-tenths were before the war engaged in civil practice, yet the visitor forms the impression that they have taken up this new work in a buoyant and thoroughgoing spirit. It was very satisfactory to have this impression confirmed by officers of experience, not only senior medical officers, but officers in other branches of the service. I have already quoted the words of the Commander-in-Chief; I may now quote the words of a senior medical officer holding a most responsible position with whom I had spent a long day, during which he took me to many medical units and showed me the elaborate and complex organization of the medical service of an army in the field. When I was bidding him good-bye next morning he said:

"I am glad to have the opportunity of making you the medium of informing the profession at home how nobly the medical officers—Territorial, Special Reserve, Temporary Commissioned, and from the Dominions—have responded to the calls I have made upon them from time to time at the front. All these officers have joined the army from civil life, previously unaccustomed to military duty and the hardships attendant on active service. The work they have done has been invariably of the best quality. To explain the character of this work would require a treatise; suffice it to say that wherever any body of troops is quartered, from the trenches to the base, medical officers are also there, required to undertake the multifarious duties that devolve on the medical service in war; they include administration, duties of command, medical and surgical work, preventive medicine, and all other matters associated with the health and comfort of an army in the field. The point I have in my mind, and which reflects so much credit on all concerned, is that without very much preliminary training these officers have quickly grasped the situation, and in a few months have become veterans. Their work has been splendid, and I hope when the medical history of the war comes to be written all these matters will be placed in their proper perspective. In the meantime, I think the profession at home should know how the services of those who have given up comfortable homes and have come out to France to assist are appreciated, and how nobly they have responded to the calls that have been made upon them."

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Lieutenant-Colonel Arthur Nimmo Walker, R.A.M.C. (obituary notice published at p. 508).

Captain G. V. Bogle.

Captain Gilbert Vere Bogle, New Zealand Medical Corps, was killed while attending on the wounded on September 17th, aged 32. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1912, and, after acting as house-surgeon in the gynaecological wards of the Royal Infirmary, Edinburgh, went to New Zealand, where he was in practice at Hawkes Bay, till he returned to Europe with the Expeditionary Force.

Captain N. W. Broughton, R.A.M.C.(Temp.)

Captain N. W. Broughton, whose death in action we recorded last week, was the son of a well-known solicitor in Sydney. He was educated at the Sydney Grammar School. He entered the medical school of the Sydney University in 1908, and, after graduating, came to England and joined the R.A.M.C. At the university he was associated with practically all the undergraduates' associations, and took a prominent part in the work of the Undergraduates' Club, the Sporting Committee, and the Undergraduates' Union. He gained his University blue for cricket in 1912, and for football from 1909 to 1913. He represented the Sydney University in football against the New Zealand universities, and gained selection in various senior metropolitan teams in Sydney football. He was an extremely popular man at the University, and his death will be deeply deplored.

Captain M. P. Inglis, R.A.M.C.

Captain Maurice Paterson Inglis, R.A.M.C., was killed in action on September 17th. He was the second son of the Rev. William Balfour Inglis, B.D., of the Union Church, Valparaiso, and grandson of Dr. Maurice Paterson, lately Principal of Moray House Training College. He was educated at Watson's College, Edinburgh, and at the university in that city, where he graduated as M.B. and Ch.B. in 1914. A friend writes: "During his university career he showed great professional ability, besides proving himself an exceptionally fine all-round athlete. His tall commanding figure, his handsome bright open face, his unassuming courteous, genial manner, will live long in the recollection of all who were privileged to come in contact with him. He was, indeed, one of those to whom the profession look for the maintenance of its highest ideals, and one whose loss is greatly to be deplored. Much sympathy will go out to his parents, his wide circle of relations, and to the lady whom he was to marry." He got a commission as lieutenant in the Special Reserve of the R.A.M.C. on May 12th, 1913, was called up for service on November 10th, 1914, and went abroad in February, 1915.

Captain R. J. Wooster, R.A.M.C.(Temp.).

Captain Reginald Joseph Wooster, R.A.M.C., was killed in action on September 15th, aged 29. He was born in 1886, the fifth son of J. Ratcliff Wooster, Esq., of The Mount, Castlebar Road, Ealing, and was educated at St. Paul's School and at St. Mary's Hospital, where, after taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914, he held successively the appointments of house-surgeon, house-physician, and casualty house-surgeon. He took a temporary commission as lieutenant in the R.A.M.C. on October 10th, 1914; was promoted to captain on completion of a year's service; and was attached to the Rifle Brigade when killed.

Died of Wounds.

Major A. A. Martin, New Zealand A.M.C.

Major Arthur Anderson Martin, New Zealand Army Medical Corps, whose death was recorded in last week's British Medical Journal, died on September 17th of wounds received the same day, aged 40. He was educated at Edinburgh University, where he gained the Carlyle Scholarship in anatomy, the Grierson Scholarship in materia medica and pathology, and the Mackenzie Prize in practical anatomy. After graduating M.B. and Ch.B. with honours in 1900, he was house-surgeon to the Hospital for Sick Children, Great Ormond Street, London, and senior house-surgeon, Royal Hospital, Sheffield. He served as a civil surgeon in the South African Field Force in 1901–2, gaining the medal, and reported in our columns at that time from No. 13 General Hospital a case of traumatic aneurysm in the left groin treated by ligature of the common iliac artery, in which the patient recovered. He returned to this country, and graduated M.D.Edin. in 1903, taking the diploma of F.R.C.S.Edin. in the same year. He went to New Zealand, where he settled in practice at Palmerston North, and was surgeon to the hospital in that

town. He was appointed a representative of the Division to the Annual Representative Meeting of the British Medical Association at Aberdeen in 1914, and was in this country when the war broke out. He at once joined the R.A.M.C., the date of his first commission being August 14th, 1914. He was attached to the 15th Field Ambulance, and was through the battles of the Marne and Aisne, and was mentioned in Lord French's dispatch of January 14th, 1915, for gallant and distinguished service in the field. He was for a time surgical specialist to the No. 6 General Hospital, Rouen, and while holding that office contributed a paper entitled "Notes from a temporary clearing hospital at the front" to our pages on January 23rd, 1915; in it he dealt particularly with cases of gas gangrene and wounds of the abdomen. He afterwards returned to New Zealand for a short time, but in February, 1916, joined the New Zealand Army Medical Corps and became second in command of No. 3 Field Ambulance; it was while serving in that capacity that he received the wounds which caused his death. Those around him say that he was utterly regardless of danger or self. In New Zealand, where he practised at Palmerston North, he will be mourned as a generous and helpful friend by many who loved him, and where his ability and dominating personality will be much missed by numbers who admired and respected him.

He was the author of the much read book on the present war called *A Surgeon in Khaki*, published by Messrs. Arnold.

CAPTAIN J. DEIGHTON, R.A.M.C.(S.R.).

Captain John Deighton, R.A.M.C., died of wounds on September 19th. He was the third son of Lieutenant-Colonel Deighton, R.A.M.C.(T.F.), and was educated at Cambridge and at the London Hospital, graduating as B.C. in 1914, and as M.B. in 1915. After acting as emergency and receiving-room officer at the London Hospital he took a commission as lieutenant in the Special Reserve of the R.A.M.C. on November 3rd, 1914, and was promoted to captain after a year's service. He was attached to the King's Own Royal Lancaster Regiment when killed.

CAPTAIN M. PETO, R.A.M.C.(TEMP.)

Captain Morton Peto, R.A.M.C., died of wounds on September 22nd. He was the youngest son of the late Rev. A. H. Peto, of Leeds, and was educated at the Leeds Grammar School and at Leeds University, where he graduated as M.B. and Ch.B. in 1912. Subsequently he held the posts of ophthalmic and aural house-surgeon and of house-physician at Leeds Infirmary, and of house-surgeon to the Leeds Hospital for Women and Children. During the war he had served successively with a field ambulance, with the Cameron Highlanders, and with the Royal Berkshire regiment, being attached to the last when killed. He was mentioned in Lord French's last dispatch, and received the Military Cross on June 3rd, 1916. He took a temporary commission as lieutenant in the R.A.M.C. on September 26th, 1914, and became captain after a year's service.

Died on Service.

MAJOR A. H. BENSON, R.A.M.C.(TEMP.).

Major Alfred Hugh Benson, R.A.M.C. (temporary), died suddenly at Seamer, near Scarborough, on September 24th, soon after his return invalided from the front. He was the only surviving son of the late Richard Benson, was educated at Bristol, at Radley, and at Caius College, Cambridge, and took the diplomas of M.R.C.S. and L.S.A. in 1887, the L.R.C.P.Lond. in 1888. Previous to the war he was in practice at Cleobury Mortimer, Shropshire. He served in the South African war, was wounded at Johannesburg and received the Queen's medal with five clasps, and the King's medal with two clasps, besides being mentioned in dispatches. During the present war he had been at the front eight months, commanding a Mounted Brigade Field Ambulance, and had since been employed on home service. He leaves a widow, a daughter, and a son, who is serving in France.

Wounded.

Captain W. Ainslie, R.A.M.C. (temporary).
Captain E. A. Alldridge, R.A.M.C. (temporary).
Captain J. A. Andrews, R.A.M.C. (temporary).
Captain T. E. B. Beatty, R.A.M.C. (temporary).
Captain J. Brown, New Zealand Medical Corps.
Captain J. F. Burke, R.A.M.C. (temporary).
Captain D. Chiles-Evans, D.S.O., R.A.M.C.(T.F.).
Captain H. G. Fraser, R.A.M.C. (temporary).
Captain H. A. Gillespie, R.A.M.C. (temporary).
Captain J. Green, R.A.M.C. (temporary).
Captain W. L. A. Harrison, R.A.M.C. (temporary).
Captain E. S. Jeffrey, Canadian A.M.C.
Captain E. S. Johnson, R.A.M.C. (temporary).
Captain W. B. Laurence, R.A.M.C. (temporary).
Captain W. Morrison, R.A.M.C. (temporary).
Captain P. J. O'Reilly, R.A.M.C. (temporary).
Captain J. S. Wallace, R.A.M.C. (temporary).
Captain H. E. P. Yorke, R.A.M.C. (temporary).
Lieutenant G. B. Ferguson, R.A.M.C. (temporary).
Lieutenant T. Russell, R.A.M.C. (temporary).
Lieutenant T. W. Sweetnam, R.A.M.C. (temporary).
Lieutenant R. F. Williams, R.A.M.C. (temporary).
Lieutenant J. R. Williamson, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Armitage, Douglas W., Second Lieutenant Royal Sussex Regiment, youngest son of Dr. J. Auriol Armitage, of Netherwood, Hastings, reported missing at Loos on September 25th, 1915, and now presumed killed in that action. He was educated at Oundle School, where he held a scholarship, was in the O.T.C., and was captain of football and of the school in 1912. He entered Pembroke College, Cambridge, in that year, and in his second year at College obtained a Divinity prize. Enlisting in the Public Schools Battalion in September, 1914, he got his commission on February 26th, 1915, and went to the front in September, 1915, being killed very shortly after.

Baly, C. J. P. Tyson Sugar, Lieutenant The Buffs, East Kent Regiment, elder son of the late Dr. P. P. Baly, of Westward Ho, killed on September 15th, aged 19. He got a commission on December 30th, 1914.

Barkas, J. C. P., Lieutenant Durham Light Infantry, son of Dr. T. C. Barkas, of Newark, was killed recently. He got a commission on August 15th, 1914, and was for some time attached to the King's Shropshire Light Infantry.

Eccles, John Dennison, Captain London Regiment, eldest son of Major W. McAdam Eccles, R.A.M.C.(T.F.) died on September 27th, of wounds received on September 9th, aged 20. He was educated at Tretherne House and at Winchester College, where he was President of the Boats in 1913–14. He got a commission on September 6th, 1914, became lieutenant on November 21st, 1914, went to the front in July, 1915, was wounded in December, and received the Military Cross for conspicuous bravery. He returned to the front in April, 1916, and received his company, which he was leading in an attack when he was mortally wounded.

Fawsitt, Thomas Rubie, Second Lieutenant York and Lancaster Regiment, elder son of Dr. Fawsitt, of Holmfield House, Union Street, Oldham, killed September 16th, aged 30.

Leggatt, Ashley Gordon Scott, Second Lieutenant Royal Field Artillery, only son of Ashley Scott Leggatt, M.D., of 2, Walton Place, London, S.W., killed on September 16th, aged 31. His commission was dated December 28th, 1914.

Mackay-Coghill, Hugh, Captain Highland Light Infantry, second son of the late Dr. J. D. Mackay-Coghill, reported wounded and missing at Givenchy, September 25th, 1915, now presumed killed on that date, aged 36. He was born at Kandy Castle, Ceylon, in 1879, and entered the army in 1900, serving through the latter part of the South African war, and gaining the Queen's medal with four clasps. He became captain on May 16th, 1907, and on January 16th, 1911, was appointed an Assistant District Commissioner in Sierra Leone. He resigned this post to rejoin his regiment in September, 1914, and went to the front immediately after his return to Europe.

Maguire, Hugh, Second Lieutenant 3rd Connaught Rangers, attached 7th Royal Inniskilling Fusiliers, killed in action in France on September 9th, was the third surviving son of Dr. Conor Maguire, of Claremorris, co. Mayo. He was educated at Clongowes Wood College and University College, Dublin. His commission was dated January 29th, 1916.

Snowball, J. H., Second Lieutenant Royal Field Artillery, eldest son of the late Dr. Snowball, of Melbourne, killed September 14th, aged 30.

Trechmann, Kuno Griffith, Second Lieutenant Northumberland Fusiliers, elder son of Dr. Trechmann, of Hampstead, late of Sydney, New South Wales, killed July 2nd, aged 20.

Webb, Henry Carlyle, Captain Border Regiment, son of the late Dr. H. J. Webb, killed September 19th, aged 25. Before the war he was at Aspatria Agricultural College. He became captain on April 18th, 1915.

Wilson, Charles Blair, Captain Canadian Infantry, only son of the late Charles Blair Wilson, M.D., of Florence, killed September 17th. He was educated at Hollis Hill and at Winchester, and had only been two months in Canada when the war began.

MEDICAL STUDENT.

Goddard, J. Lister, Second Lieutenant Norfolk Regiment, reported wounded and missing on September 15th, and since reported killed. He was the third son of Major C. E. Goddard, of Wembley, Middlesex, and had completed his second year as a medical student at University College, London. He got a commission on September 22nd, 1914, and went to the front a year ago.

NOTES.

Honours.

Second-class Senior Sub-assistant Rafi-ud-din Khan, of the Indian Subordinate Medical Department (Bengal), has been admitted to the Second Class of the Order of British India, with the title of Bahadur.

The Military Cross has been conferred upon Second Lieutenant Charles Ely Rose Sherrington, Oxford and Bucks Light Infantry, aged 19, the son of Professor C. S. Sherrington, F.R.S., of Oxford. The following is the account of the service for which the decoration has been bestowed: "When the enemy in great numbers counter-attacked his trench, he held on till almost surrounded, and then withdrew with the survivors of his force, eighteen in number, in such a manner that our line remained intact. Later the position was regained by a counter-attack."

England and Wales.

London School of Medicine for Women.

On October 2nd the Queen opened the extension of the London School of Medicine for Women, a description of which appeared in the British Medical Journal of September 30th. Her Majesty was received by the dean, Miss Aldrich-Blake, M.D.; the Duchess of Marlborough, treasurer of the Extension Fund; Mr. F. D. Acland, M.P., chairman of the council; and Miss L. M. Brooks, secretary and warden. Among those present at the ceremony were the Earl of Rosebery, chancellor, and Sir Alfred Pearce Gould, vice-chancellor of the University of London, of which the school is a part; the presidents of the Royal colleges; Sir John Broadbent, representing St. Mary's Hospital, with which the school is temporarily affiliated for clinical teaching; Dr. Mary Scharlieb, the Duchess of Bedford, and the Marchioness of Lansdowne. After a short address by the dean, describing the progress of the school, Dr. Winifred Callis, lecturer in physiology, thanked the Queen for the interest in the undertaking she had shown, specially mentioning that Her Majesty had given a scholarship to the school. Mr. Acland read a telegram of congratulation from Dr. May Thorne and the twenty-nine other former students of the school now working with the Royal Army Medical Corps at Malta. He said that throughout the war the Queen had given a splendid leadership to women in the hospital and the workroom. Her interest in the school as a part of the movement for the opening up of wider fields of usefulness to women was an encouragement to them all. The Queen then formally declared the buildings open, with an expression of her best wishes for the success of the school. Her Majesty afterwards inspected the new laboratories.

Leeds University Medical School.

The annual distribution of prizes at the Leeds University Medical School took place on October 2nd. The attendance was much smaller than usual and a number of the winners of prizes were unable to receive them in person owing to absence on military service. The Duke of Devonshire, who presided, said nothing appealed to their admiration and hope more than the work done in the medical school which represented the oldest part of the University. The annual address was delivered by the Hon. Rupert-Beckett. Sir Berkeley Moynihan, in proposing a vote of thanks, said 94 per cent. of the medical men who were wearing khaki to-day were civilians by training and habit. In July last he was in France, and saw the whole of the medical work that was done there. In his report he stated that after seeing all that he could almost surreptitiously, always by surprise, he felt he had walked into theatres and seen as good work as if he had gone haphazard into a series of theatres in the London hospitals. Never in his life was he so proud of his profession as when he was in France.

Scotland.

The proposal to remove the Scottish Divisional Office of the unemployment section of the insurance scheme for Scotland from Edinburgh to London has aroused great opposition in Scotland. The corporation of Edinburgh has recently unanimously adopted a strongly worded protest, and instructed the Lord Provost's Committee to take immediate action.

It was announced at a meeting of the Edinburgh parish council last week that a satisfactory arrangement had been made with regard to soldiers who had become mentally unfit on account of the war. Under a scheme approved by the Secretary for Scotland they would be treated as private patients, and would be chargeable, not to the rates, but to the Treasury.

The new ward recently added to Springburn Central Hospital, Glasgow, was formally opened by Surgeon-General Culling, D.D.M.S., Scottish Command, a short time ago. He referred to the generosity of the North British Locomotive Company in not only giving the original hospital with three wards, but when further accommodation was needed adding a fourth ward, providing 87 additional beds. Sir George Beatson, who presided, said that while the ward had been in use for some time the Scottish branch of the Red Cross Society considered that some opportunity should be taken to acknowledge the generosity of the company, and Sir Hector Cameron, in proposing a vote of thanks, remarked that what he admired more than its generosity was the ingenuity with which the company had hidden its gift from the public.

Village Scheme for Disabled Soldiers.

A further step towards the realization of the scheme of the Scottish Veterans' Garden City Association for the housing and care of permanently disabled soldiers and sailors has been made, for the foundation stone of the first settlement at Longniddry has been laid. It is proposed at once to erect twenty cottages, and for this purpose a sum of £19,000 has been collected, but it is hoped eventually to increase the number of cottages on the site to forty. The site is six acres in extent, and the cottages to be erected will contain two, three, or four rooms. Part of the ground is reserved for workshops, a public washhouse, and a public hall. Similar schemes are being worked out in other districts, including Perthshire and Aberdeenshire. At the opening ceremony Lord Wemyss, from whom the site had been obtained, said that the homes were not for soldiers totally incapacitated, but for those who were handicapped, the intention being to enable them to live in the garden city with their families untrammelled and unrestricted. They would be encouraged to continue their own trades or to learn new ones in the workshops. Another ceremony was performed by Mrs. Parker, sister of Lord Kitchener, who laid the foundation stone of the Kitchener Memorial Cottages. She expressed the hope that similar schemes would be established in England, for the work should not be centralized, since the great desire of many a wounded man was to get back to his own part of the country. She urged prompt action, for owing to the multiplicity of Government committees and voluntary committees, the men were being bandied about and often left in penury while formalities were being completed. Sir George Beatson, in proposing a vote of thanks to Mrs. Parker, spoke of the special orthopaedic department about to be established in Glasgow. Everything would be done for the soldier that the best skill in that direction could devise, but it was a comfort to know that if they remained disabled the Scottish Veterans' Garden City Association existed to give them further care in their battle of life. The Kitchener Memorial Cottages are established to the memory of Lord Kitchener and are to be devoted "to the use and comfort of those who have suffered in the service of their country and of humanity."

Dunfermline College of Hygiene and Physical Education.

In a report on the work of the Dunfermline College of Hygiene and Physical Education dealing with the two years 1914–15 and 1915–16, Dr. L. D. Cruickshank, medical officer and chief inspector of physical training to the Scottish Education Department, states that during the former session it was carried on under great inconvenience. Owing to the requisitioning of the new buildings of the College by the military authorities on the outbreak of the war, a serious difficulty was encountered in providing accommodation for the largest number of students ever enrolled. The conditions could not have been faced for another year without serious impairment of the efficiency of the training. The methods of instruction

and the general level of the work are said to have been satisfactory. Anatomy, physiology, and hygiene were taught with exceptional skill and thoroughness, and a high standard was maintained in practical gymnastics and dancing. There has been "a most commendable improvement" in the methods and practice of teaching. Dr. Cruickshank says he has been in close touch with the College throughout the past two years, and he is of opinion that the administration has been efficient and the organization excellent. Generally his experience has been that persons trained in the institution have proved successful teachers and acceptable colleagues on school staffs.

AMBULANCE TRAINS IN ABERDEEN.

Two ambulance trains, carrying 284 wounded soldiers, arrived at Aberdeen on October 1st. The men had all been engaged in the recent advances. The first, which brought 136 patients, was the hundredth to bring sick and wounded soldiers to Aberdeen since the war began, the average number in each train being 120. It was the fifty-sixth train in connexion with which the transport arrangements have been carried out by the Red Cross Society. The first contingent of wounded arrived in Aberdeen on September 27th, 1914. The second train brought 148 patients. Among those present were Colonel Scott Riddell, Surgeon to the Royal Infirmary, Red Cross Commissioner; Colonel Marnoch, Professor of Surgery in the university; and Dr. Matthew Hay, M.O.H. With the arrival of this train the number of sick and wounded soldiers brought to Aberdeen since the beginning of the war amounts to over 12,000.

Ireland.

TUBERCULOSIS AND HOUSING.

AT the conference of Irish Municipal Associations, City Hall, Belfast, the Chairman, Alderman King Kerr, M.D., read a paper entitled "Suggestions to municipal authorities for the treatment of tuberculosis." The Insurance Acts in conjunction with the Notification Acts had, he said, for the first time placed the treatment of tuberculosis on a practical basis, from which the most beneficial results might be hoped if public authorities took full advantage of them. They were enabled by these Acts to take into their own hands the entire control and carrying out, under Local Government Board supervision, of the measures to be adopted, the Government undertaking to meet half the deficit remaining after deducting the insurance contributions. Whilst not excluding cure, even in pulmonary cases, and whilst regarding surgical cases taken early with the most hopeful eye, it was to prevention that their most strenuous efforts must be directed. He gave some particulars of the scheme in operation in Belfast; the points to be impressed on authorities were simple, but full of importance and hope. The clearing away with all possible expedition of unhealthy homes, and provision of healthy ones; the encouragement of medical men to seek out and report all cases of young people showing signs of impaired vitality, and the dealing with these children through an open-air life, and the building up of their impaired physical condition.

Mr. Field, M.P., said that until they had good houses for the people to live in they could not expect to cure tuberculosis. Mr. Sibthorpe (Dublin) mentioned, as showing what could be done if this question were resolutely faced, that since the new housing scheme had been completed in Kingstown the death-rate of children under one year of age had so fallen that it was now the lowest in the United Kingdom. Mr. Kennedy (Kingstown) expressed the opinion that in every primary school in Ireland classes should be introduced for teaching the rising generation the importance of fresh air and the best way of keeping dwellings in a sanitary condition.

Mr. T. Dawson (Tipperary) read a paper on the provision of dwellings for labourers under the Landed Property Improvement Acts, and the manner in which operations thereunder had been carried out. He said that in the urban districts of Tipperary there were 85 houses on the Ecclesmore estate which were provided under the Acts referred to in the period 1878 to 1880, the amounts borrowed totalling £7,500. Taking it for granted that the longest possible period for repayment (35 years) applied to this loan, it was apparent that the money borrowed was now paid off. The rents derived from these cottages amounted to at least £600 a year, and of the 85 tenants there was not one "labourer required for the proper cultivation of the estate." The owner of these houses owned the principal portion of the town of Tipperary, and the Council had not been able to have a single house erected on this property under the Housing of the Working Classes Acts. In January, 1915, the Council applied at a Local Government Board inquiry for sites on the property in question to the extent of 2a. 3r. 18½p., on which it was intended to have 97 houses erected. The owner bitterly opposed, eventually appealing to the county court against the order of the Local Government Board Inspector, with the result that, as matters now stood, the Council was authorized to acquire only 24 perches on the worst portion of the property, on which six houses could be erected. He sincerely hoped that such a state of affairs did not exist on any other estate. Nevertheless, he submitted that the Association should have the whole question thoroughly investigated, and, if necessary, call the attention of Parliament to the matter.

A resolution was proposed, seconded, and discussed, directing the honorary secretaries to lay the facts before the Chief Secretary and the members of Parliament, and to urge that the better housing of the working classes should receive the immediate attention of the Irish Government.

Correspondence.

ANTE-PARTUM CLINICS.

SIR,—In his "Notes on an Antenatal or Pregnancy Clinic," which appear in the JOURNAL of September 23rd, Dr. Ballantyne takes some trouble in defending his use of the word "antenatal," and from some expressions that he uses it is evident that he is replying to some criticisms contained in a recent article of mine. He quotes from four well known writers, but the curious result is that all these quotations go to support the statement that the word has been inappropriately used by Dr. Ballantyne and others. The authors of repute whom he quotes all use the word "antenatal" in a sense which refers to the child only, and not to the mother. We speak of a person's natal day as a synonym for his birthday, and antenatal life refers to the child's life before birth. It is the application of the word to the pregnant woman which seems to me objectionable. The word is harmless when employed as Dr. Ballantyne first used it in his phrase "antenatal pathology," which applies to the pathology of the infant alone, although the title of his first book on the subject, *Diseases of the Foetus*, is more to the point. Antenatal treatment is generally understood as treatment of the unborn infant. An "antenatal clinic" ought to mean a clinic concerned with the unborn child, and if used in any other sense is not correct. The "antenatal treatment of the expectant mother," if literally interpreted, can only mean the care of the expectant mother before she is born, which is absurd.

Dr. Ballantyne has been much puzzled to find a word for his clinic, and still hesitates between "antenatal" and "pregnancy" clinics. The latter, however, he finds "rather ungraceful." It is not difficult to find another word. What is wrong with "antepartum"? This word, which is as old as the study of midwifery, means "before the act of parturition." It refers both to the mother and to the child, and in that differs from "antenatal" and is therefore more correct. As regards the expression "expectant mother," there is no difficulty in knowing what it means. It is generally understood as meaning a woman who is looking forward with confidence and some degree of hope to the birth of a child. It is a figure of speech, an ellipsis, and may be used with propriety by "the poet, the novelist, the divine, and the justly-admired man of letters." It might even be used by a journalist. But it seems hardly definite enough for a scientific writer. Does a young married woman with a tumour, who believes herself to be pregnant, come under the category of an "expectant mother," or does it even include an unmarried

woman who is unpleasantly surprised to find that she is pregnant?

Dr. Ballantyne, no doubt, thinks all this merely "pedantic purism," but, as Sir Francis Champneys remarks in his letter in the same number of the JOURNAL, "People are apt to think that a new technical word implies a new discovery." Dr. Ballantyne still apparently believes that his antenatal clinic is something new and peculiar to his hospital, but, as I have already pointed out, antepartum treatment and the care of the pregnant woman has been a feature of St. Mary's Hospital, Manchester, for many years. The morning's work in his particular clinic, which Dr. Ballantyne describes, is the sort of thing that has been going on every day for years in the out-patient department of St. Mary's Hospital.—I am, etc.,

Manchester, Sept. 27th. ARCHIBALD DONALD.

HEALTH IN PUBLIC ELEMENTARY SCHOOLS.

SIR,—I venture to think there is no class of medical practitioners of greater value to the State than those who take a real interest in the health of the children of the working class, and especially of those in the public elementary schools. The work is by no means easy, but, with patience and experience, an ordinarily observant doctor may become expert in tracing the various diseases to their respective causes. I would roughly classify the diseases under two heads: (1) Those due to excessive ventilation and low temperature in schoolrooms. (2) Those due to mental or nervous disorders, such as fright of the teachers, or rough schoolfellows, and overpressure of the brain by too long hours at lessons.

In order to treat the cases successfully it is essential to discover the cause of illness. If a child who suffers from catarrh of the nostrils, or the throat, be compelled to sit in a draught for many weeks, he may become the subject of chronic tonsillitis, or otitis media, with subsequent otorrhoea. If a child is severely punished by a teacher, he may develop severe chorea within twenty-four hours. I have seen two cases of chorea this year which are of peculiar interest, as they indicate a traumatic origin having medico-legal interest.

On January 20th a boy aged 13 was brought to see me by his mother. He was obviously afflicted with chorea, and very weak. His mother told me that on the previous day, in the course of physical drill, he had a blow with the teacher's fist over the heart, which caused severe pain. He was very restless, and unable to sleep that night, and was unable to attend school the next day. I ordered him to be kept quiet, and gave him liquor ferri perchloridi as a tonic. For several weeks the movements of chorea were painfully severe, and then slowly decreased. The mother at once consulted a lawyer for the purpose of claiming compensation. The boy has already been nearly eight months under my care, and has lost all these months so far as education at school is concerned.

The other case of chorea was more serious. A girl aged 9, fond of school and most regular in attendance, returned home on March 2nd, at mid-day, in a highly excited and nervous state, and told her mother that teacher had caned her on the hand, and afterwards seized her by both arms and shaken her violently. The mother wrote a letter to the teacher and complained of what she had done to her child. During the following night the child screamed loudly in her sleep. Next day she managed to go to school and was much worse the following day. The mother then kept her in bed a week, hoping the rest would restore her. But she got worse, and on the tenth day from the ill treatment I was called to see her. I found her in bed in a state of nervous collapse, with constant and strong choreic movements, quite unable to feed herself, or even hold a tea-cup. She remained in this condition several weeks, and then gained strength enough to get up daily for a few hours. For many weeks she was irritable and troublesome, requiring constant watching. She is still feeble in mind and not able to attend school.

I know of many other cases of chorea which were the result of fright, and I think fright is the most frequent cause.

When a scholar is struck or shaken by a teacher, the result is more serious than a blow or a shake during play; the mental element of shame and fear of the teacher is a strong factor, and probably a stronger factor than the physical pain. I wish to point out that cases of illness from punishment can only be detected by the family doctor, and his duty is to report such cases to the school medical officer, in order that inquiry can be made and the teacher receive due warning to treat all children with patience and kindness.—I am, etc.,

Torquay, Sept. 29th. H. H. TIDSWELL.

JUNG'S PAPER ON ANALYTICAL PSYCHOLOGY.

SIR,—Dr. Long's reply is not quite ingenuous, nor does she quote me correctly. My words were (BRITISH MEDICAL JOURNAL, August 19th, p. 275), "it seems to me a mistake to use this symbolic language [that is, the symbolic language of dreams, which I had just previously in the same sentence mentioned] in waking life." Dr. Long omits the word "this," which is vital to my meaning, and substitutes "daily" for "waking," thus completely altering the sense of the passage, which she nevertheless puts into quotation marks as if it were mine. It is not mine. I never said such a silly thing as she puts into my mouth; and all her comments based on the assumption that it is mine fall to the ground. She says that my expressions come from the unconscious itself. I have asked her before, and I ask her again, what evidence she has of her assertions about the unconscious. She does not answer, and she will not answer; because she cannot answer. There is no evidence. I can speak positively of my own expressions. They did not come from the unconscious, whatever that may be, but were deliberately and intentionally framed by my conscious self. If Dr. Long's garbling of my words came from her unconscious, I suggest that she should educate her unconscious in conscientiousness.

At last we have a definition of the unconscious. Dr. Long defines it as "the psychological contents which form the background of consciousness." Contents of what? Of consciousness? Then how can the contents of a thing form the background of that thing? And of what do these contents consist? What are they? A definition should define what a thing is, not where it is, or what it is contained in; and Dr. Long's definition does not even tell us what the unconscious is contained in, much less what it is. The definition is no definition. It is not even a description. To say that the contents are psychological contents does not help us in the least, and would not help us even if we knew what meaning Dr. Long attaches to the word "psychological." It is clear that she attaches to this word some peculiar meaning of her own, for she speaks subsequently of psychological incest, which is quite meaningless unless we attach some peculiar meaning to psychological. We might as well speak of psychological murder, or psychological arson. I should like to know from Dr. Long whether stocks and stones are psychological. They are usually considered to be unconscious, and, if so, they must be part of the great Unconscious. They are, I suppose, contents of the unconscious, but whether they are psychological contents we must leave to Dr. Long to determine.

It is satisfactory to know from Dr. Long that there is very much in the unconscious besides what is uncleanly, but if this is so, how is it that the cleanly "contents" of the unconscious escape all notice from the psychoanalysts? Why is it that the uncleanly "contents" absorb their whole attention? How is it that we never hear of any but these uncleanly contents?

Dr. Long assures us that we are forced to direct our researches to the unconscious. I beg her pardon, but for my own part I feel no such constraint, and there are many others in the same case. When I find that research into what is undefinable and unintelligible reveals only what is disgusting, and leads to nothing but assertions for which no evidence is produced, even after demands repeated again and again, I do not find myself by any means forced to pursue my researches further in the same direction. On the contrary, I am confirmed in my suspicions that that which is undefinable and unintelligible does not exist, and that assertions for which no evidence can be produced rest upon no evidence and are not worth consideration. I freely admit that there is much literature (mainly German) upon the subject, but I do not recognize any obligation to study the literature of a subject merely because that literature is copious. There is much literature on Supralapsarianism and Sublapsarianism; there is a very extensive literature on Sabellianism, Tritheism, and Manichaeism; there is an enormous literature on the Arian heresy; but the existence of all this literature lays upon us no obligation to study it. If, when we sample it, we find it a mere beating of the air; a string of assumptions without any foundation; a series of assertions unsupported by any evidence; we are absolved from any obligation to study it further, and may safely look upon

it as evidence of a past craze, and leave it to gather dust on the shelves of libraries, to line trunks, to wrap books of more worthy contents, and to be read by people who do not know when they are wasting their time.

Dr. Long is good enough to recommend to me a German book upon incest. I am much obliged to her, but not being a psycho-analyst, I have no interest in the subject. Even if it had been written by an Englishman I should not have read it. I have read in my time an immense number of German books on the mind, and I have never found in one of them written since Kant anything worth remembering, and I have given up the search in despair.

Finally, I will make an appeal to Dr. Long. Psycho-analysis, like other things made in Germany, has had its day, but its day is over. It is now exposed, blown upon, and discredited. It has been very skilfully advertised, and has been made very profitable, but its day is now past. It was always silly, and it is now not even fashionable. Had she not better abandon it before she is irretrievably left behind?—I am, etc.,

Parkstone, Dorset, Sept. 23rd. CHAS. A. MERCIER.

THE POSITION OF THE PROFESSION AFTER THE WAR.

SIR,—The profession *is* in bad odour. What is the cure? Not "strong leadership," not necessarily universal adhesion to the "Association," but local organization. Strong local bodies in every district, owning no loyalty but to themselves and their professional interests, federated, as suggested by Dr. J. Cuthbertson Walker (September 30th), with a central head quarters, would soon bring that respect to the profession which is accorded to all those who know their own interests and how to protect them.

Let us drop all that which is connoted by the words "consulting room," and change it for "office."

The Association, having the machinery, would well serve as the centralizing body, provided it is prepared to adopt strict business methods. In this way the profession will lead itself, and not weakly bow either to a "strong leader" nor a guiding "Association." Only local bodies can know whether this or that suits them, and to make them come into line with an other-opinionated majority is to cause disaffection from the interests of the profession. Let each district express its mind, as has successfully been done in some parts of the country. Let, then, the Association courageously suggest that meetings are called locally of all medical men; not under the aegis of the Association itself, but as the "medical men of So-and-so."

Time passes, and the enemy is already at work, counting on finding us as unorganized to-morrow as yesterday.—I am, etc.,

September 30th. ORGANIZER.

SIR,—I see Dr. Sheahan, in the BRITISH MEDICAL JOURNAL of September 30th, accuses me of wanting another Committee. That is not so; I doubt the utility of another Committee, and said so. What I want is another official assisted by the necessary staff and responsible to the Council. I regret that my letter was mutilated in the JOURNAL office, or it would have given a much clearer impression of what I think this official could do. A certain paragraph was omitted with my consent, but another section of my letter, in which I pointed out that the new official should be a journalist, not only because, as such, he would have been well used to lobby work, but because he could educate the profession as to the ill effects of projected legislation and by articles in the lay press could create a public opinion against such legislation in advance, was omitted without my knowledge or consent.—I am, etc.,

Oldham, Oct. 1st. F. L. POCHIN, M.D.

ACCORDING to the *Medical Record* there was in the last days of August a sharp decline in the number of cases of poliomyelitis in New York City; for the week ending September 2nd only 477 cases were reported. On September 4th there were 3,783 patients under treatment for the disease in all the New York hospitals. The total number of cases up to September 9th was 8,486 with 2,100 deaths. It is estimated that the total cost of the epidemic will be about £300,000.

Obituary.

ARTHUR NIMMO WALKER, M.D.CANTAB.,

LIEUTENANT-COLONEL R.A.M.C., SURGEON TO THE ST. PAUL'S EYE HOSPITAL; OPHTHALMIC SURGEON TO THE DAVID LEWIS NORTHERN HOSPITAL AND TO THE SCHOOL FOR THE INDIGENT BLIND, LIVERPOOL; OPHTHALMIC SURGEON TO NOBLE'S HOSPITAL, DOUGLAS, I.O.M.

THIS war is bringing out the best and noblest characters of man, and seldom have these been better portrayed, and now sacrificed, than in the case of my dear friend and former pupil, Lieutenant-Colonel A. Nimmo Walker, who was killed in action on September 24th, at the age of 42 years. He was a distinguished student at Liverpool and a graduate of Cambridge University, where he took his B.A., M.B., B.C. in 1899, and M.D. in 1910.

I have known him since his childhood, and I have always held him in the highest admiration both for his character and ability. He acted in the Royal Infirmary as my house-physician, and I never had a more able or more conscientious assistant. I well remember on one occasion, after the death of a patient, he was much perturbed in mind by a fear that he had not done all that he might have done. When he spoke to me on the subject I had much pleasure in being able to assure him that if he had failed to save the patient, which I did not think was possible, he had in no way, either by omission or commission, contributed to the death—a death which I had looked upon from the beginning as inevitable.

Immediately after his tenure of office at the Royal Infirmary he volunteered for service in the South African war, and served as a civil surgeon for fully twelve months. He did splendid work, and in the regiment to which he was attached the rate of sickness was very low. At first his commanding officer rather looked upon him as a young faddist and pooh-poohed his ideas of having all the water which the men drank boiled. He was soon converted when he found that the incidence of typhoid fever, which was then rampant, was very low in his regiment.

When Nimmo Walker returned from South Africa he intended to start in practice as a physician, but he soon found that the men who had stayed at home had picked up the chief plums, and there was no suitable vacancy left for him. It was always thus in this country, and yet you will still find men defending the principle of voluntaryism in war whereby the best are sacrificed for the mediocre who never would be missed.

He then followed in his father's footsteps and took up the speciality of ophthalmology, of which he soon became a brilliant ornament and practical exponent. In his association with the School for the Indigent Blind he found that a large amount of blindness was preventable, and consequently took up with enthusiasm the subject of ophthalmia neonatorum. At first, I regret to say, he met with some opposition from his professional brethren, but Walker was not a man to be diverted from what he considered the path of duty and of righteousness by any opposition, although it might mean to him serious financial loss. His pioneer work has since been handsomely acknowledged. Miss Van Blarcom, secretary of the Committee for the Prevention of Blindness, State of New York, was sent over to this country to study this subject. After giving a full account of Nimmo Walker's work, she said:

> One could dilate at length upon the details of this admirable work and the great care and thought with which it was planned, but the highest tribute that can be paid to it is to report that largely by this means the occurrence of blindness from ophthalmia neonatorum has been practically wiped out in Liverpool.

In the report of the Ophthalmia Neonatorum Committee of the British Medical Association it is stated:

> The Liverpool plan affords an almost ideal method of grappling with a large proportion of the cases of infantile ophthalmia, and affords an excellent instance of what may be accomplished by co-operation between health authorities on the one hand and local hospitals on the other. The writer does not hesitate to suggest that what has been successfully initiated in Liverpool might well be imitated in London and other large cities.

On the formation of the Territorial Force Walker joined the combatant ranks and eventually became a major in a brigade of artillery. On the declaration of war his brigade

was mobilized and spent twelve months in training at Sevenoaks. When there was a dearth of medical men at the front he was strongly urged to leave his battery and join the R.A.M.C. He sought my advice in the matter, and freely discussed the pros and cons. I pointed out that there was a real dearth of surgeons; the conscription Act was not then adopted; morever, I knew that his mother and the other members of his family wished him to join the R.A.M.C. He brushed the family wishes to one side as he said they were influenced by questions of his safety. His wish was to know in what capacity he could do most for the country. If he were given ophthalmic work he had no doubt he was a better ophthalmologist than an artillery officer; but, on the other hand, if he were sent out in charge of an ambulance, it was such a long time since he had done any general surgical work that he had no hesitation in saying that he could do better work in the artillery. I ventured to offer the opinion that the War Office would show sufficient intelligence to put him to his own job. Regarding safety, that did not enter much into his calculation; if he were killed there was simply an end to his career, but, on the other hand, he acknowledged that if he were maimed for life it would be a very serious matter for him. He did not like to appear to his men (whom he had trained and for whom he had a real affection) to be now seeking a safe job, and if his battery had been then going to the front there is no doubt that he would have gone with it; but the battery had not then got the new guns, and there was considerable uncertainty as to whether it would ever go to the front, and a strong probability that it might be retained in the reserve in this country. This uncertainty was the deciding factor in making him change into the R.A.M.C. He was practically appointed ophthalmic surgeon to one of the large military hospitals in this country, but was displaced, and, by the irony of fate, Nimmo Walker was sent to the front in charge of an ambulance, first as major, but he was afterwards promoted to the rank of lieutenant-colonel. A man of Walker's ability and tenacity soon mastered all the details of his new work. His success is well shown in the numerous letters which his mother has had from the front, a few extracts from which I can publish without any breach of privilege. The A.D.M.S. writes:

I have only known him since May last, but our association has been very intimate, as we saw each other daily, especially during the present great battle. I am not exaggerating when I say that Colonel Walker was my right hand man, and I trusted and respected him to the utmost. He was the soul of honour, as brave as a lion, beloved by his officers and men, and esteemed by every one in the division. During the desperate fighting which ended in the capture of one of the enemy's strongest positions, he displayed conspicuous bravery, and I recommended him for the immediate reward of the D.S.O. I beg to offer you my very sincere sympathy, and I feel that later on it may be some consolation for you to know that your son died as he lived, endeavouring to save the lives of others. I shall always remember your son as a very gallant soldier, a typical English gentleman, and a dear friend.

The senior chaplain writes:

It was an honour to know such a man as Colonel Walker. He was a man in a thousand, and one only wishes there were more men like him. His first thought was for those who were under his care. Indeed it was through his care and thoughtfulness for his officers and men that he met his death. When the shelling began he stood in the open and ordered all his men under cover, and he would not move until he saw that all were safe first. A true and fearless soldier standing at his post to the last; always cheery, a true Christian and English gentleman, one beloved and respected by all who knew him. His one thought out here was for you, his mother; you were always in his thoughts, and your name was often on his lips.

This filial piety, referred to by the chaplain, was a trait in Walker's character which I always admired.

Nimmo Walker's career is ended, and many a man might feel proud to be able to leave such a record. "Well done, good and faithful servant; enter thou into the joy of thy Lord."

James Barr.

ST. CLAIR B. SHADWELL, M.D.,

WALTHAMSTOW.

A formal announcement of the death of Dr. St. Clair Shadwell, Walthamstow, at the age of 64, was published last week. It occurred at his residence in Walthamstow on September 23rd. He received his medical education at Guy's Hospital, took the diploma of M.R.C.S.Eng. in 1875, and that of L.R.C.P. in 1876. He became D.P.H.Eng. in 1891, and graduated M.D.St.And. in 1895. After acting as resident obstetrician at Guy's Hospital, and clinical assistant to the Hospital for Children, Great Ormond Street, he settled in practice in Walthamstow. He was for thirteen years M.O.H. for the district; he became a member of the Society of Medical Officers of Health, and contributed two papers to *Public Health*, the one on the need of infectious hospital accommodation for the suburban districts of the metropolis, and the other on the Inebriates Act, 1898, regarded from a public health point of view. He was a certifying factory surgeon, medical examiner to the Board of Education, and medical officer to the Post Office. He joined the volunteers at an early date, and eventually retired with the rank of Surgeon Lieutenant-Colonel (1st Volunteer Battalion Essex Regiment), and received the Volunteer Decoration.

Dr. Shadwell was a member of the British Medical Association, and took a very active interest in its work, especially in matters concerning the Metropolitan Counties Branch. He was one of the small body of men, including Dr. Brickwell of Chigwell and Dr. Percy Warner of Woodford Green, both of whom have predeceased him, who kept the Division together through good and bad fortune. He was one of its early chairmen, an office in which he showed unfailing courtesy and tact. He was Representative of the Division in 1907, 1908, and again during the controversy as to the Insurance Act in 1910, 1911, and 1912. During those anxious times he expressed the views of his Division in a manner very satisfactory to it. Dr. Pottinger Eldred, an ex-secretary of the Division, to whom we are indebted for some of these particulars, writes:

"The strongest feature in his relation to the Association was his great loyalty to it, and when men consulted him with regard to joining other similar associations his answer was invariably that 'he would not do so; as for himself, he would sink or swim with the Association.' The assistance he gave to the local Division at all times was of the utmost value. His death will leave a gap very difficult to fill. He enjoyed the trust and confidence of men of all shades of opinion on account of the breadth of his views upon medical politics and ethics. For a period of eight years I was intimately associated with him in connexion with the work of the Association, and received very valuable help and suggestions for the efficient performance of my own duties during some very critical times.

"Of late years his health prevented him from taking part so vigorously in the affairs of the Association, but he always had its welfare at heart and was deeply interested in all matters concerning it. He served with regularity for years on many committees, but in such a modest and retiring manner that few men were aware of the great services he rendered. He faced his last illness with a calm courage, knowing that it was only a question of 'how long,' which was the admiration of those who had the privilege of seeing him shortly before the end, and an example to all."

He was a member of the council of the Metropolitan Counties Branch for a good many years, and was at one time chairman of its Ethical Committee. He was also for a short time a member of the Central Council.

ROLAND PLAYFAIR CAMPBELL, B.A., M.D., C.M.McGill,

Lieutenant-Colonel C.A.M.C.

No heavier loss has fallen upon the Canadian Army Medical Service than the death at the front of Lieutenant-Colonel Campbell. It is difficult to write of him in measured terms, so great was the respect he inspired in all who came in contact with him; so whole-hearted was the devotion of his colleagues and of his unit towards him; and so thorough, modest, and capable was he in all his duties, whether as a medical man or a soldier.

"Bly" Campbell, as all his friends termed him, was of the manse, the son of a distinguished Canadian Presbyterian, the late Rev. Professor John Campbell. He was born in Montreal in July, 1876, and had a distinguished career as a student, graduating B.A.McGill in 1897 and M.D., C.M. in 1901. Following graduation, he was for two

years resident in the Montreal General Hospital; then for more than a year he continued his studies in Germany, becoming interne at the Pathological Institute at Göttingen, and working also at the Surgical Clinic at Breslau, where, under Neisser, he became specially interested in genito-urinary surgery, which he made his life-work.

Returning to Montreal, he was appointed medical superintendent of his old hospital, holding this position for three years, until 1907. Later he was made assistant surgeon and given charge of the genito-urinary clinic of that hospital. From being demonstrator in pathology he became lecturer in genito-urinary surgery at McGill University. Keenly interested in research, he wrote several papers upon renal pathology and surgery. When Ehrlich, prior to placing salvarsan at the disposition of the profession in general, sent over a supply of this drug in advance to the leading syphilologists in North America, Campbell it was who first received it in Canada, and tested and reported upon it. He was, in fact, an admirable example of the research surgeon, and had a profound influence in encouraging other young surgeons in Montreal, who seemed naturally to gather around him to undertake research. He was thus largely influential in the establishment in the university of a department of experimental medicine open to practitioners in the city.

He had joined the C.A.M.C. in 1905, and in 1910 was placed in command of No. 5 Canadian Field Ambulance at Montreal. An enthusiastic soldier, he offered his services at the very beginning of the war, and from No. 1 Field Ambulance was attached as major to No. 1 Canadian General Hospital, C.E.F. With this unit he was in charge of the Canadian sick through the winter of 1914–15 at Salisbury Plain, there accomplishing excellent work under very difficult conditions. In the meantime No. 6 Canadian Field Ambulance was being assembled at Montreal by Major Burnett, and in March, 1915, Campbell was called back to assume command of this unit as lieutenant-colonel.

It has been urged that so capable a specialist should have been employed by the Canadian Army Medical Service in direct connexion with his speciality; but Campbell was a soldier before everything and preferred the command of his unit at the front to any administrative or special position that could be offered to him, nor is it any exaggeration to say that his unit rapidly made a reputation for itself by its remarkable capacity and *esprit de corps*—even its horse lines were acknowledged to be the best along the whole front. In Sir Douglas Haig's dispatch of June 15th he was mentioned for gallant and distinguished conduct in the field.

During the three days' operations beginning on September 15th he was placed by his A.D.M.S. in charge of the clearing of the ground in the front area, and to quote that A.D.M.S. (Colonel Fotheringham), "With his usual sense of duty and disregard of personal safety he was well up with the advance on the morning of Saturday the 16th . . . trying to estimate the situation for himself rather than to depend on information from regimental medical officers and bearers." It was here, just after dawn, when conducting a group of bearers towards safety, that a shell exploded and a fragment fractured his right arm, while another penetrated his chest. Borne back to a dug-out he there refused to be treated, directing that others whose wounds were not hopeless should be looked after; he died within half an hour, of internal haemorrhage.

He was a very perfect gentleman, and the manner of his death was but the epitome of his life.

The late Sir Victor Horsley.—Major G. Grey Turner, R.A.M.C.(T.F.), writes: The sudden death of Sir Victor Horsley was a profound shock to those of us serving in Mesopotamia. We had all seen him so full of energy and apparently so little affected by the climate that it appeared established that he, at least, would not be bowled over by the great heat. When I met him in Alexandria in March last, after an interval of three or four years, I noticed that he looked considerably older, and in conversation it was plain that his strenuous work in that city and at the Dardanelles had affected him very much. But the comparative quiet after the evacuation had given him the opportunity of making a trip to Luxor, and I shall not forget the enthusiasm with which he showed me a beautiful series of photographs he had taken. Many had been made in the very early morning to avoid the shadows, and were beautiful works of art. At a largely-attended clinical meeting, held at No. 17 General Hospital, Sir Victor opened a discussion on the treatment of gunshot wounds of the head, and gave us the results of his experiences in the present war. It was characteristic that on this occasion he referred to the way that his latest experiences had confirmed the suggestions which he had made years before regarding the mechanism of optic neuritis in cases of cerebral tumour. By his work in Alexandria and on the Peninsula he had certainly richly earned a rest in England, and I understood that as he considered his work in Egypt over, it was his intention to return home. I was therefore no less surprised than delighted to hear soon after my arrival at Busrah that Sir Victor was to come out as consulting surgeon to the Mesopotamian Forces. On Good Friday I had the good fortune to accompany him round the wards of the 3rd British General Hospital; it was a delightful clinical morning, to which I shall always look back with great pleasure. He took the keenest interest in everything, and at once saw where his advice and influence might be of service to the patients and to the staff. From the first it was evident that there was much to occupy his energetic mind, and it was only too obvious that his stay in Mesopotamia was to be taken up with hard work, in spite of the climatic conditions. Shortly afterwards he went up the lines and made two trips to the front, inspecting the field ambulances, etc. I had a cheerful letter from him, dated June 17th, in response to my request for his advice and assistance, but I did not again see Sir Victor until just after my arrival in Amara, when I happened to come across him just as he was about to be admitted to hospital. Though looking ill, he was as cheerful as ever, and at once began to talk about some arrangements of mutual interest. He attributed his trouble to the heat, which had been very trying for some days, and on this particular afternoon the thermometer had reached 120° F. in the shade. But he thought that his indisposition had been overcome, and that in a few days he would be well again. This was about 7 p.m. on Saturday, and by Sunday at 8 p.m. he was dead, in spite of the devoted attention of the staff of the hospital. Even those of us who have only made a short sojourn in this country are very familiar with sudden death, but this was too great and unexpected a calamity, and was the cause of profound depression among the medical units stationed here. Sir Victor told me that up to that fatal Saturday he had been absolutely well, and that he had not felt the heat too trying. I am told that it was a very usual thing to see him in Amara during the heat of the day, and there are many who thought that he exposed himself too much and did not sufficiently respect the climatic conditions. The funeral took place on the evening of July 17th, and was very largely attended. He was buried at the same time as some seven other soldiers, among them a patient on whom he had operated, and in whose case he had taken an especial interest. Colonel Green, A.D.M.S., the commanding officers of all the hospitals, and between eighty and a hundred members of the R.A.M.C. and I.M.S. followed the body to the grave. It seemed fitting that after his work for the service Sir Victor should have found a soldier's grave; and as he was laid to rest the sun was setting in the direction of the distant battle line which he had visited, and the crack of a Maxim at practice accompanied the burial service. The coffin bore the simple inscription—"Colonel Sir Victor Horsley, A.M.S. Died 16/7/16."

All of us here feel his death very deeply. We know that we have lost a wise counsellor and friend just at a time of special need. The A.M.S. will be much the poorer, for we all felt that his great and stimulating personality was of great use to our cause.

My own personal loss is very keen. It is now nearly eighteen years since I went to town as a recently qualified youth with the object of doing some post-graduate work. At that time Sir Victor Horsley was a very busy man, at the height of his fame, but he took much trouble to help me in various ways, and his kindness to me has continued in the intervening years. We all feel the deepest sympathy for Lady Horsley and her family in their great trial.

Dr. Andrew Woods Smyth, a surgeon of considerable distinction, died at Donemana, co. Tyrone, on September 4th, in his 84th year. He was born at Castleberg, in the same county, and in 1849 went to New Orleans, where he took the degree of M.D. in 1859. From 1862 to 1887 he was a member of the Louisiana State Board of Health, and for many years he was house-surgeon of the Charity Hospital, New Orleans. During the last ten years of his residence in that city he was director of the United States Mint. In 1894 he retired from practice and returned to his native country. He was a man of wide information, and took a keen interest not only in science, but in literature, music, and other forms of art. His name was best known to the profession by its association with one of the very few successful operations for the treatment of subclavian aneurysm by ligature of the innominate artery. In Treves and Hutchinson's *Manual of Operative Surgery*, third edition, 1910, p. 372, it is stated that among twenty-four cases collected by Ashurst only two of the patients survived. One of these was a man on whom Smyth operated in 1864. This case is recorded in the *Sydenham Society's Biennial Retrospect*, 1865–6. It is sufficiently remarkable to make the details worth recalling. The carotid was tied as well as the innominate, so as to stop the regurgitant flow of blood; notwithstanding this precaution, on the fourteenth day haemorrhage to syncope occurred. Haemorrhage recurred at intervals for a period of thirty-seven days, and was temporarily arrested by filling the wound with shot, till, on the fifty-first day after the operation, a "terrific" haemorrhage took place, stopped by syncope. As this bleeding came from the distal side and from the subclavian artery, the vertebral was tied, with perfect success; bleeding did not recur. "This fact," says Erichsen (*Science and Art of Surgery*, tenth edition, 1895, Vol. II, p. 194), "is of the utmost surgical value; it shows that the secondary haemorrhage, which may be looked upon almost as the necessary sequence of the ligature of the innominate artery, may be arrested and the patient's life saved by the ligature of the principal arterial branch that communicates with that and carries regurgitant blood into the distal end of the artery which was originally ligatured." The following is the subsequent history as obtained from Smyth by Erichsen: "After ten years of good health, in which the patient was able to follow his employment as a ship's steward, the pulsation returned, and the aneurysm reached a size larger than before. Thinking it might be fed by the internal mammary Smyth ligatured that vessel but without result. About six months later an abscess formed over the sac and the aneurysm became diffused into it, and, as a last effort to save the patient's life, the sac was laid open. The haemorrhage was profuse, and the openings of the vessels into the sac could not be seen, so that the operator had to content himself with plugging the wound. The patient died a few days after. The *post-mortem* examination showed that the circulation had been carried on chiefly by means of the aortic intercostals and branches of the axillary artery." Dr. Smyth also made some original researches on the kidney. In a letter from his brother, Dr. William Woods Smyth, of Maidstone, which was published in the British Medical Journal of September 23rd, 1911 (p. 711), it is stated that "A. W. Smyth showed that there was no communication between the Malpighian corpuscle and the uriniferous tubules, as taught by Bowman; that there was no filtration; that the water reached the tubules by their own epithelial cells; that the glomerule was a vascular hydraulic ram, acting with such force as in one instance to push a calculus half an inch in diameter down a ureter." Dr. Smyth was the author of two books, *The Collateral Circulation of Aneurysm*, and *The Structure and Function of the Kidney*. He married a granddaughter of the late Senator Bouligny of Louisiana, and leaves one daughter, the wife of the Rev. David Hay of Donemana.

Dr. Lanphier Vernon Jones died on September 8th at Bletchingley, Surrey, aged 53. He was the son of the late Dr. Orlando Jones, of Harrogate, and studied at Trinity College, Dublin, taking the degrees of M.B., B.Ch. in 1888 and becoming M.D. in 1892. He was for a period resident medical officer to the Adelaide Hospital, Dublin, and after settling in London acquired a large practice in the West End. He was a member of the British Medical Association, and contributed several papers to this Journal; he was also a member of the council of the London and Counties Medical Protection Society. The funeral took place at Bletchingley on September 11th.

Universities and Colleges.

UNIVERSITY OF LONDON.

St. Bartholomew's Hospital Medical School.

The following entrance scholarships have been awarded: Entrance Scholarship in Arts (£100 for one year) to E. H. Weatherall, Bolton Grammar School. Senior Entrance Scholarships in Science (£75 each for one year) to C. F. Krige, Hertford College, Oxford, and A. G. Shurlock, Jesus College, Cambridge. Junior Entrance Scholarship in Science (£150 for one year) to C. H. Andrewes, Highgate School.

UNIVERSITY OF EDINBURGH.

Military Service.

The calendar of the University of Edinburgh for 1916–17 gives a list of those members of the university who have been killed on service; they numbered 211 on July 15th last. The number on service at that date was 4,526, and there were, in addition, 460 cadets in the O.T.C. preparing for commissions. Over 1,100 ex-cadets, out of a total of 3,379, hold commissions—artillery 383, engineers 121, infantry 491, and medical units 169; naval commissions numbered 229. There are 756 privates in one or other of the services. The honours gained during the same period are as follows: C.B., 4; C.M.G., 15; D.S.O., 20; Distinguished Service Cross, 2; Military Cross, 54; D.C.M., 2. Over a hundred men have been mentioned in dispatches, some more than once.

UNIVERSITY OF ABERDEEN.

A special diet of the final professional examination in medicine was held in the first week of October, to afford candidates the opportunity of obtaining their medical and surgical degrees without waiting until the next ordinary examination, which will not take place until March.

UNIVERSITY OF GLASGOW.

The winter session at the University will open on October 16th. By an Army Order of August 26th, registered medical students now serving with the colours, if not passed for General Service, Class A, are to be relegated to Class W, Army Reserve, and sent back to continue their studies, subject to the condition that they join the Officers' Training Corps at the University. This will affect many medical students who have been called to the colours, as well as those still at the University. Under an arrangement with the Scottish Education Department and the War Office, the Registrar is able to give certain students certificates stating that they are full-time students, and these students, if not passed as fit for Class A, will be transferred to Class W. This arrangement will cease at the discretion of the War Office.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE.

The *Calendar for 1916–17*[1] contains all the university information required by students and others, and, in addition, gives examples of the papers set at its recent matriculation examinations. The examiners in Greek and Latin unseen translations may be congratulated on the pretty turn of fancy shown by their selection of passages of unusual topical interest for candidates of to-day—such as Caesar's description of his dealings with barbarian tribes and Xenophon's account of fighting against barbarians.

[1] *University of Durham College of Medicine, Newcastle-on-Tyne. Calendar for the Year 1916–17.* Newcastle-on-Tyne: A. Reid and Co., Ltd. 1916. (Cr. 8vo, pp. 205.)

The Services.

EXCHANGES.

Captain R.A.M.C.(T.) attached to Staff of General Hospital, B.E.F., France, offering ample scope for surgical work, desires exchange with Territorial Officer at home, preferably stationed in or near London, or Eastern Command. Please state full particulars as to unit, station, and duties in confidence to No. 4000, British Medical Journal Office, 429, Strand.

A French hospital for Russian wounded is to be established at Petrograd. The Municipal Council of Paris has voted a subvention of £2,000 towards the cost of foundation.

Medical News.

THE Harveian Oration before the Royal College of Physicians of London will be delivered by Sir Thomas Barlow at 4 p.m. on Wednesday, October 18th.

A COMMUNICATION has been received by the Medical Secretary from the Petrol Control Committee stating that in cases where a medical practitioner discontinues using his car the duty on the amount of petrol which he has not used will be refunded. Full particulars should always be given of the circumstances in which a refund of duty is requested. A licence authorizing the purchase of motor spirit is not transferable.

A COMMITTEE formed by members of the Royal Microscopical Society, the Quekett Microscopical Club, and the Photomicrographic Society is arranging for microscopical exhibitions in the late afternoons or evenings at Y.M.C.A. huts in various centres in the metropolitan area and the home counties, and invites the co-operation of owners of microscopes. Communications may be addressed to the Honorary Secretary, Microscopical Department, Y.M.C.A., Tottenham Court Road, W.

THE National Dental Federation of France has organized an interallied congress of dentistry, which is to be held in Paris on November 6th to 13th. The congress, which has the official sanction of the Minister of War, will devote its attention to wounds of the jaw and face, to military dentistry and prothesis, and to the organization of services of dental surgery for the army during and after the war. The honorary president is M. Justin Godard, Under Secretary of State for the Army Sanitary Service. All dentists belonging to any of the allied countries are invited to take part in the congress. Communications should be addressed to M. George Villain, 45, rue de la Tour d'Auvergne, Paris.

A GENERAL meeting of the Medical Society of London will be held at 8 p.m. on Monday next, when the retiring President, Sir StClair Thomson, will draw attention to a plaque removed from the Society's house in Bolt Court to the present library. The plaque was erected originally by Dr. John Coakley Lettsom, the founder of the Society. At 8.30 the incoming President, Lieutenant-Colonel D'Arcy Power, R.A.M.C.(T.), will deliver an address on John Ward and his Diary. At a meeting on October 23rd Mr. D. McCrae Aitken will demonstrate cases illustrating orthopaedic principles and methods in military surgery, and on November 3rd a discussion on epidemic nephritis will be introduced by Captain Langdon Brown, R.A.M.C.(T.). The Lettsomian Lectures will be delivered by Colonel Cuthbert Wallace, C.B., A.M.S., and the oration by Sir William Osler.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: to EDITOR of the BRITISH MEDICAL JOURNAL, *Articulate Westrand, London*; telephone, 2631, Gerrard. COMMERCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Advocate Westrand, London*; telephone, 2630, Gerrard. MEDICAL SECRETARY, *Meltacra Westrand, London*; telephone, 2634 Gerrard. The address of the Irish office of the British Medical Association is 15, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

AMBERLEY asks for suggestions in the treatment of a man aged 45 who suffers from intolerable itching, worst at night, chiefly in the axillae and round the genitals. The urine is normal. No cause is apparent.

C. DE R. asks what local preparation can be prescribed in the following case: A girl, aged 7, received a blow from an ear of Indian corn on her left eye. When seen one month later there was a marked iridodonesis, with a small iridodialysis on the lower side of the eye, considerable dilatation of the pupil and traumatic paralysis of the iris. There was no luxation of the lens, and, besides the facts mentioned, nothing abnormal was noticed in her eye, except, perhaps, a slight rise in the tension. Even the vision seemed to be almost as good in the left as in the right eye.

INCOME TAX

F. inquires whether he can deduct (1) the amount of his subscriptions to the British Medical Association and kindred associations, and (2) the loss incurred in the publication of a medical book.

*** (1) On a strict interpretation of the law, as illustrated by a fairly recent decision in the Scottish courts, possibly not, though the opinion of the House of Lords in the case of Usher's Wiltshire Company *v.* Bruce suggests that it might be allowed on the broad ground that the subscriptions represent annual payments made for reasons of commercial or professional expediency. In any event, such portions of the subscriptions as represent payments for the supplying of current medical literature should be allowed, though the onus of showing what proportion is so represented may rest on our correspondent.

(2) To bring the transaction within the scope of the Income Tax Acts for assessment or for allowance it should be shown that it is not of an isolated and casual nature, but that there is in existence something in the nature of a "business" or "vocation" of writing books for sale. The likelihood or otherwise of recurrence, the intention with which the book was published, and all the other circumstances attending the publication may affect the answer to the question.

WHEN DOES THE INFECTIVITY OF GRANULAR OPHTHALMIA CEASE?

UNCERTAIN asks when a patient who has been suffering from acute granular ophthalmia, but has still a little redness and swelling of the bursal conjunctiva of one upper lid, may be considered so far cured as to admit of his mixing with soldiers in camp.

ANSWERS.

MOSQUITOS.

H. D. writes: I am a martyr to mosquito bites. My experience is that if I wash my face and arms with carbolic soap and apply Lloyd's euxesis shaving cream to any exposed parts at bedtime I suffer little or no inconvenience from their bites. The carbolic renders the bites innocuous, and the eucalyptus smell in the cream keeps the mosquitos off.

DR. R. L. WOTHERSTON (Bradford) states that she has found the following plan recommended by an old negress in America satisfactory: After being bitten, wet the affected part with saliva, then immediately rub in common salt. Vinegar is better than saliva. Citronella oil generally saves the situation if used in abundance.

LETTERS, NOTES, ETC.

CARE OF DISABLED SOLDIERS.

DR. S. E. WHITE (London, W.), writes: The Statutory Committee, in entering on its new duties for the care of disabled soldiers, makes special mention in its circular of those uncertifiable transiently nerve-shaken men who have been discharged from the army to their homes. It points out that of such cases there are an infinite variety, many showing quite novel phenomena, requiring to be dealt with in a variety of ways, and not easily to be disposed of according to the institutional plan obtaining hitherto in the treatment of aggregates of mental cases. In fact, nearly all the wounded are naturally more or less nerve-shaken, and the great majority recover their balance with rest and care in the base hospitals. As the Committee's circular points out: "The worst thing for an (unwounded) patient of this class is to be placed in an institution to brood over his ailment. The efforts of the local committees should be directed to finding employment, giving them every encouragement and assistance, and keeping always before them that they are *curable*, and that in a short time they will be normal citizens." The gain from an economic point of view need not be dwelt on; the gain to our brave soldiers will be incalculable.

The first thing needed is a register of all discharged uncertifiable soldiers of this class. Then those who are not getting on very well at home ought to have an opportunity of spending a little time in a convalescent home to help their recovery in cheerful surroundings, to give them interest and occupation, to set them on their feet again, and link them up with their old, self-supporting life. If such homes were attractive, ex-soldiers would go to them willingly; and, to banish apprehension, they ought to be removed altogether from anything connected with suspicion of insanity or its inevitably depressing atmosphere. Many benevolent people would be glad to lend their houses to be equipped and staffed, if the local committees would accept their offers and lend their valuable advice and assistance in the matter of organization. As the BRITISH MEDICAL JOURNAL noted recently, these discharged men are now free agents, and they cannot, if uncertifiable, be legally placed under detention.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE MORPHINE-HYOSCINE METHOD OF PAINLESS CHILDBIRTH.

OR SO-CALLED "TWILIGHT SLEEP."

BY

F. W. N. HAULTAIN, M.D., F.R.C.P.E.,

AND

BRIAN H. SWIFT, B.A., M.B.CANTAB.

[From the Royal Maternity Hospital, Edinburgh.]

LAST year a popular work, entitled *Painless Childbirth in Twilight Sleep*, was published by a lay author. In it a careful and excellent summary was given by various experts; it included also a somewhat amusing personal interview with a prominent British obstetrician, who not only gave the treatment unqualified commendation, but also in the form of a letter added a benediction to the value of the methods employed.

As is natural to expect with such testimony, the subject has been energetically exploited by women interested, who in some cases merely desire to know its real value, but in other instances uncompromisingly demand its adoption in their confinement. Having the Maternity Hospital clinic at our disposal, we felt we might be able to give an opinion from actual practical experience, and perhaps help others who are less fortunately placed in the way of gaining experience, but who are equally subjected to popular demands.

In the first instance, it should be clearly understood that there is a vast difference between the true so-called "twilight sleep," as devised and carried out by Kronig and Gauss, and the ordinary haphazard scopolamine-morphine treatment which has been freely practised by many of us for the last eight years. In the former a complete analgesia and amnesia is the object aimed at in the conduct of labour, so that the patient becomes absolutely free from any knowledge of pain, or indeed of any recollection of the process having occurred. It will be useful, therefore, first to give a brief outline of the technique.

As soon as the pains begin the patient is put in a quiet and darkened room, and plugs of cotton-wool are put in her ears. When the pains occur regularly every five or six minutes and the os is of a size sufficient to admit two fingers the initial dose is given. This consists in the hypodermic injection of morphine hydrochloride gr. $\frac{1}{4}$ with hyoscine hydrobromide gr. $\frac{1}{100}$. The patient usually rapidly begins to feel drowsy, and in an hour may fall off to sleep but awakes when the pains come on. The second injection of hyoscine gr. $\frac{1}{150}$, is usually given at the end of an hour. Half an hour later the patient's memory is tested by showing her some object and then allowing her to sleep. Sometime afterwards the same object is shown her again, the patient being awakened. If she recognizes the object as one that was shown her before, another dose of hyoscine gr. $\frac{1}{150}$ is called for; if, however, she does not recognize the object and says it had not been shown her before, then the depth of desired unconsciousness has been obtained. This memory test is repeated later, and, if necessary, similar doses of hyoscine may be required. The patient usually sleeps between the pains, but generally is conscious during them. She does not, however, fully appreciate the pains as such, and, if asked about them, generally describes them otherwise.

The child is usually born normally, and, after the birth of the placenta, the patient falls into a normal sleep for four to six hours and awakes quite fresh. During the labour she should be catheterized. This is most important, especially in long labours. Patients very often complain of thirst, and in such cases should have water to drink.

Kronig lays stress on what he calls islets of memory. For instance, the patient whilst coming out of the narcosis may hear some noise or see some action which arouses her and may remain in her brain, so that she will remember it, and after the labour will build up her ideas of the labour from this one fact. Thus, the baby should be removed to another room, so as to avoid the mother hearing the child cry and so forming an islet of memory.

The morphine-hyoscine method has been extensively used in America, especially since the beginning of 1914. Hellman has discussed the work done, and has shown that when the Kronig technique was used the results had been excellent.

In the British Isles this method had not been used so extensively. Kronig's technique had not been adhered to, and most observers have not given repeated doses, but usually one or two doses, in order to lessen the pain. In 1908 Buist published a paper on "Scopolamine-morphine in natural labour." He did not repeat the injections of hyoscine in any number, but seemed rather to give the morphine and hyoscine simply so far as to alleviate the distress of the patient. He summarizes his treatment as follows: "Whenever your patient is distressed by the pains and you expect the labour to last more than an hour, give an injection of hyoscine and morphine; and if you expect it to last a considerable time, repeat the injections, if necessary, in three or four hours." From this it may be inferred that Buist did not try for true "twilight sleep," but rather an alleviation of the pain in distressing cases.

In 1907 Croom published a paper on the subject, and quoted 65 cases. In his cases, however, the injections were always given late in the second stage, when the pains were very severe. This is not the true so-called twilight sleep of Kronig. He seldom found it necessary to repeat the dose, and does not mention repeating the injections with hyoscine alone. In 1915 Croom published another paper, in which he advised the injections to be given at the beginning of the second stage. The repetition of the initial dose, and not of pure hyoscine, also differs from Kronig's technique. Perhaps the greatest advantage of Kronig's method is that the patient is relieved of suffering through a tedious first stage.

In 1911 Giuseppi published a paper in the *Practitioner*, and gave his results based on a series of 37 cases. As the initial dose in most of his cases he used morphine gr. $\frac{1}{4}$, hyoscine gr. $\frac{1}{100}$. This initial injection was given when he considered the amount of pain complained of was sufficient. He did not use the size of the os as a guide. To use his own words, he says, "The time for the administration of the first dose was therefore decided not by the state of the os or by the frequency of the pains, but by the amount of suffering." He never repeated the morphine, and in 16 cases the hyoscine was repeated once only. He did not seem to lay much stress on amnesia, but gauged his results rather from the amount of pain. Thus in 16 per cent. no pain was felt; in 27 per cent. very little pain was felt; in 37 per cent. pain was decreased, and in 19 per cent. pain was felt as usual. It is very difficult, of course, to compare the degrees of pain in the cases of various observers.

Giuseppi goes on to state that in seven cases the mothers did not know of the birth of their children. As this is really the true amnesia, the percentage of true "twilight sleep," therefore, was very low. This was most probably because he did not repeat the hyoscine, and so the narcosis obtained was not deep enough for true amnesia.

In our cases the Kronig technique was rigidly adhered to in the first eight cases, the memory test always being applied, and the results were highly satisfactory. After this, however, less stress was laid on the memory test. We found that it was most useful for the first two or three injections, but that when once the patient had lost her memory it was quite satisfactory and safe to continue the injections of hyoscine gr. $\frac{1}{150}$ at regular intervals of one hour. It was also noticed that after several cases had been treated with this method one learnt to judge from the patient's general appearance whether another injection was required or not. The method of giving the hyoscine every hour relieves the physician of much trouble, as nurses can simply be directed to give an injection at such specified times.

There is, however, a chance of the patient becoming restless, which, according to Kronig, is due to faulty dosage, or to over-dosage. The pharmacology of hyoscine —or scopolamine as it is sometimes called—is not very definite, but Cushny quotes that "Hyoscine in large doses sometimes gives rise to delirium and excitement resembling the delirium caused by atropine."

Whether this restlessness in the case of "twilight sleep" is due to over-dosage or not, is difficult to say. In quite a number of cases over twenty injections of hyoscine were given without the slightest ill effect. In one case only was there very marked restlessness. In this case the patient began to be restless after the third injection, which seems to put over-dosage of hyoscine out of the question. In one case forty-five injections were given without the least sign of restlessness. This was the greatest number of injections

given in any one case, and shows that hyoscine is not so dangerous as it is supposed to be. Restlessness, therefore, is probably an idiosyncrasy of the patient to the drug. Before these investigations the greatest number of injections in any one case was twenty-two; and Hellman warned that more than this might be harmful. However, in several cases we have given more injections without any ill effects to mother or child.

As it is impossible in hospital to isolate each case in a separate room, it was found that by darkening the room and placing a screen round the patient, whose ears were plugged with cotton-wool, the desired result was obtained. As soon as the patient's memory was gone, injections were given at the fixed interval, usually at intervals of three-quarters of an hour or an hour, according as the patient appeared to be deeply under or not. The second dose was usually given three quarters of an hour after the initial dose of the morphine and hyoscine. In one case, however, the first injection had such a marked effect that the second was not necessary for four hours; on the other hand, if the time before the second injection is given is too long, the morphine will have worn off and the hyoscine will not take effect.

There were in all 40 cases taken consecutively—36 primiparas and 4 multiparas—and with the above technique of regular injections the results were excellent. The initial injections were given early in the first stage, if possible.

Dosage.

The initial dose was, in 36 cases, morphine gr. $\frac{1}{4}$, hyoscine gr. $\frac{1}{150}$; in 3 cases, morphine gr. $\frac{1}{6}$, hyoscine gr. $\frac{1}{150}$. The results of these three cases were: One case total amnesia, one case slight amnesia, and one case no amnesia. In these two last cases there was marked analgesia. It seems, therefore, that, although this smaller dose of morphine will do quite well in some cases, the larger dose is to be preferred. In the other case the initial dose was hyoscine gr. $\frac{1}{150}$ alone. This was given in order to see if it would ease the pain in any way. The hyoscine was repeated twice in doses of gr. $\frac{1}{150}$, but without any effect at all. Morphine gr. $\frac{1}{4}$ was then given, and the case became one of normal "twilight sleep." The reason for trying this method was that in one case the injection of the initial dose of morphine and hyoscine stopped the pains. This is apt to be so if it is given very early before the pains are quite regular, which rather helps to prove that the morphine has some effect in diminishing the strength of the pains.

In three cases the morphine was repeated. One case was a very long labour, in which, after the first twelve injections of hyoscine, the patient began to recover consciousness, so that morphine gr. $\frac{1}{4}$ was given. This had a beneficial effect, and the patient passed well under narcosis again. The second case was also one of a long labour; the pains at one period stopped altogether, and did not start again for twelve hours, and then were not very good. The child in this case was slightly oligopnoeic. The remaining case was one in which the pains seemed to be stopped by the initial injections, although strong before. The pains returned in ten hours, when the morphine was given again. The baby was slightly oligopnoeic. The labour was completely amnesic.

The smallest number of injections by which amnesia was obtained was four, including the initial dose, and the greatest number forty five, including two doses of morphine. The average number of hyoscine injections per case was eleven; this is in the total number of cases. In the thirty cases in which the results were perfect, the average number was twelve injections.

Results.

Total amnesia and analgesia were obtained in 30 out of 40 cases—namely, 75 per cent. This means that the patient had no memory whatever of the labour after the first pin-prick, and so, being unable to remember anything, says she had no pain. The patient, however, may have complained during the labour of something, but has not appreciated the something as pain. The other cases varied from slight amnesia 13 per cent. to no amnesia 12 per cent. It was found that in practically every case there was at least slight analgesia. However, three cases were in some degree practically failures. In one treatment was started very late—namely, when the os was fully dilated, and the injections seemed to have no effect. In another the patient was a primipara of 42 with a very long and painful first stage.

It is interesting to compare these results with those of Hellman, whose are the latest published. His results were obtained at the Lebanon Hospital, New York.

	Our Cases.	Hellman.
Amnesia	75.0%	67.95%
Slight amnesia	13.0%	13.59%
No amnesia	12.0%	18.12%

Complications.

Restlessness.—In one case only was there marked restlessness so that the injections had to be stopped, but the mother had no recollection of having been restless. This was the second case on which the method was used, so the defect may have been due to lack of knowledge or faulty dosing. The case is described later. Hellman also notes such a case. One observer advises the repetition of the morphine in cases of restlessness, but this was not tried.

Post-partum Haemorrhage.—There was only one case of this incident, and it was easily checked by hot douching and pituitrin.

Forceps Cases.—There were 14 forceps cases in the 40 cases, or 35 per cent. This, no doubt, seems a large percentage, but is no higher than under ordinary circumstances in our practice, which entails the application of forceps after the second stage has lasted three and a half hours. From this it may be inferred, so far as we could decide, that the scopolamine-morphine did not in any way interfere with the strength of the pains. In five cases forceps were applied without chloroform; in the others they could have been applied without pain, but the patients, on being interfered with, became restless, so chloroform was given, merely to allow of their more simple application.

Comparing the statistics for these complications with those of Hellman:

	Forceps.	Post-partum Haemorrhage.
Royal Maternity Hospital ...	35%	3.3%
Hellman	9.06%	2.5%

Giuseppi in his paper quotes a percentage of 33 forceps cases.

Baby Statistics.

In the 40 cases there were 40 babies, 5 dead born, but in only one of these was the labour normal.

One was a case of contracted pelvis with prolapse of the cord. The child was turned and extracted with difficulty. The patient only had four injections, and then chloroform. She had come into hospital well on in labour, with a previous history of a stiff forceps case. The second dead-born baby was a very badly nourished premature child of a woman who had a very bad heart lesion. The third was a craniotomy for contracted pelvis, where the second stage was allowed to continue for nine hours to permit of moulding. The fourth a premature child of seven months. The fifth was a normal labour, which lasted twelve hours, during which eleven injections were given.

Out of the thirty-five babies born alive, only four required any artificial stimulation. In two of these cases the morphine had been repeated, and the labours were very long. In all cases the child cried on being smacked and having cold water thrown on it. In several cases the method of injecting the morphine and hyoscine late in the second stage, to relieve the pain, was tried. This was done in patients who were too far on in labour for the proper technique to be attempted; in these it was generally found that the babies born were oligopnoeic. This helps to prove that when the initial injection is given in the second stage the chances of the baby being born oligopnoeic are very much increased.

Hyoscine alone has evidently no effect on the child. In the case of forty-five injections the baby cried at once.

From these points it can be seen that the danger to the child is very slight. The four cases of oligopnoea were not at all severe, and required only slight stimulation.

Comparisons.

The following cases are worthy of mention.

CASE I.

Mrs. H., 1-para, aged 34. Admitted 2.15 p.m., February 27th. She had had three eclamptic fits before admission. She was

due in the middle of March. Her blood pressure was 168, and she was treated with veratrone. She had two more fits, but after more veratrone her blood pressure went down to 80, and they ceased. Her urine contained 4 grains of albumin per ounce, and she passed 6 oz. At 10 a.m. next day the patient went into labour, and at 11.30 was given morphine gr. ¼, hyoscine gr. $\frac{1}{150}$; the os admitted one finger, and the pains were strong. Her blood pressure was taken every half-hour and veratrone given when it was high. The injections of hyoscine were given every hour; after the third injection her memory was gone, and she was sleeping. The injections were continued, and the baby was born at 11.30 p.m. with forceps without chloroform (to bring the head over the perineum). The baby cried at once. The veratrone was continued during the labour to keep the blood pressure low. The mother and child both did very well, and left hospital twenty days later.

Case II.

Mrs. M., aged 31, 1-para. Admitted 11.45 p.m., March 14th. Os the size of a shilling; pains strong. At 1 a.m. on March 15th, morphine gr. ¼, hyoscine gr. $\frac{1}{150}$; the hyoscine was repeated in gr. $\frac{1}{200}$ doses every hour. The patient slept; she said she felt pains a little, and at 2.30 p.m. became more awake. Morphine gr. ¼ was given at 2.30 p.m. The hyoscine was continued every three-quarters of an hour. These were continued all the next day, March 16th; the patient was sleeping most of the time, and when asked if she felt any pain, she complained of a sore shoulder and wandered in her talk. At 9 p.m. on March 16th, the head appeared to have stuck, so forceps were applied. The os had been fully dilated for some hours, but the patient had been left to see if the child would be born spontaneously; for the fetal heart sounded good, and the patient's condition likewise. As the patient was slightly restless, chloroform was given. It was a firm pull, and there was a slight tear. The baby was born at 9.45 p.m., March 16th, and cried at once. Next day the patient could remember nothing except the pain she had when she came into hospital. She had quite lost count of the days, and did not know what day it was. The total number of injections in the case was one morphine gr. ¼, hyoscine gr. $\frac{1}{150}$, one morphine gr. ¼; forty-three injections of hyoscine gr. $\frac{1}{200}$. This was the greatest number given.

During the labour she had drinks of water and was catheterized. She appeared very fit the next day after the labour, and the child was very well.

Case III.

Mrs. A., 1-para, aged 26. Admitted February 18th. On February 18th the pains were very strong and regular, and the os admitted two fingers. Morphine gr. ¼ and hyoscine gr. $\frac{1}{150}$ was injected. In half an hour the patient was sleeping, the hyoscine was injected after an hour. She was very congested about the face, and complained of great thirst. She was sleeping between the pains, but awoke during them. At the end of three hours from the first injection (she had had two of hyoscine and her memory had gone) she began to get a little restless during the pains. The injections were continued, but the restlessness got worse. She became obstreperous, tearing her hair, throwing herself about, and trying to bite the nurses. She had to be held in bed. However, she did exactly as she was told at the time—namely, when told to lie down she did so, but the restlessness soon started again. It was decided to stop the injections. Her memory was still gone, but it was difficult to apply the test. Two hours later she was much quieter and delivery was quite normal. She had eight injections. She slept for six hours, and then she felt quite all right. She could not remember anything about the restlessness, but just remembered the baby being born. The baby cried at once.

Summary of Procedure.

The following is a summary of special points which are most important:

1. In the case of a primipara the first injection must not be given too early, as it tends to stop the pains. The rule of giving the first injection when the os admits two fingers, and the pains are regular, is a useful one. In the case of a multipara, however, the injections cannot be given too early after the pains have started. It is generally found that the first injection is given too late.

2. The second injection, namely, the first $\frac{1}{200}$ gr. of pure hyoscine, should be given about an hour after the initial injection, whether the patient is well under or not. If this injection is delayed the effect of the morphine tends to wear off, when the future injections of hyoscine will not take effect.

3. The injection can with safety be repeated either at hourly or three-quarter hourly intervals.

4. Do not repeat the morphine in the latter part of the second stage or the child will most probably be born oligopnoeic. If the hyoscine is not taking effect, then it is well to give the mother a slight whiff of chloroform; thus the hyoscine is allowed to work and the patient gets again into the condition of "twilight sleep."

5. The patient's friends must be kept away from the room, which ought to be quiet and darkened.

6. Patients, if thirsty, must be given water to drink.

7. The bladder must be catheterized during long labours.

8. Remove the baby to another room after birth, so that the mother cannot hear the cries, otherwise she may remember the cry and so piece together, and so imagine her whole labour.

Conclusions.

From the foregoing experience it may be stated that we have a safe and efficient means of managing labour painlessly in the majority of cases. It requires, however, the constant attendance of a competent attendant. This rôle can be efficiently undertaken by a reliable nurse under supervision, which makes its adoption in better class private practice possible to the medical practitioner.

It is of special value in primiparae, in whom as a rule the first and second stages of labour are long and painful.

It is also of great value in a prolonged second stage, due to a large head or slightly contracted pelvis, as it allows of head moulding without unduly exhausting the patient.

So far as amnesia is concerned, it is of little use to commence the treatment during the second stage.

The strength of the uterine contractions is not diminished, hence its advantage over chloroform. There are no contraindications to its use beyond extreme restlessness, which is very exceptional, and probably due to an idiosyncrasy.

The absence of exhaustion after even a long labour is one of its greatest advantages.

Thirty-seven of the forty patients rose from bed on the third day after labour.

It is regrettable that such a great deal of publicity has been given to the subject, and that prominent specialists have allowed themselves to be exploited through the lay press, as the lay community suffers from the want of knowledge and sense of proportion which allows of an estimate of its value under various conditions, and is therefore too apt to attempt to force the hand of the careful practitioner. At the same time, the method of management of labour is so good from the point of view of relief of suffering, that it may help materially to bring about the increase of the birth-rate so much required, which is perhaps the only argument in favour of publication in lay journals, etc.

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RETRACTION OF THE UTERINE MUSCLE ASSOCIATED WITH OBSTRUCTED LABOUR.

BY

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In 1906 I reported two cases of premature retraction of the uterus occurring in primiparous patients. In both cases the brim of the pelvis was contracted moderately, and in one there was some oblique distortion. In neither case was the bony obstruction of the pelvis too great to prevent delivery with forceps or with the cephalotribe after perforation of the fetal skull. Since then I have seen two more cases.

My reason for again bringing the subject forward is because I know that this condition is not often recognized and that I have altered my own views in the light of further experience.

In order to make the condition clear I will give one case in detail.

A primipara, aged 30, rather short in the long bones and square about the head, went into labour at full term on June 27th, at 10 p.m. She was seen by the doctor next morning; he found the os about the size of half a crown (about 3 cm.). The fetal head was high above the brim and freely movable. The head seemed half extended. The diagonal conjugate was taken and measured 4¼ in. The cervix hung loosely below the presenting part. By 8.40 p.m. on June 28th the os was apparently fully dilated, but still not filled by the presenting part. The doctor came to the conclusion that there was enough room to allow of an easy delivery with forceps. The membranes had

been ruptured a few hours before; forceps were applied with ease, but moderate traction failed to bring the fetal head down into the brim. About 11 p.m. forceps were again applied, but without result. The patient seemed quite well, and as the uterine contractions had slacked off, the doctor decided to wait till the morning, hoping that the fetal head might be driven and moulded into the brim. Forceps were again applied on the morning of June 29th, but without any result.

I saw the patient early in the afternoon, about forty hours after the onset of labour. I measured the pelvic cavity digitally, and found that the sacral promontory was high up and the diagonal conjugate 4¼ in. The ilio-pectineal lines seemed massive and narrowing the transverse diameter. The external measurements, taken afterwards, were of no practical value. Thus this was a rickety, flat, generally contracted pelvis, the contraction being only moderate. The cervix was fully dilated, but was hanging down unfilled by the presenting part, and was very oedematous. The fetal head was of normal size. It was lying above the brim, and could be made to flex or extend at will. It could also be rotated around a vertical axis. On passing my hand above the mobile fetal head, a thick band of uterine muscle was found to have formed round the neck of the child. Two fingers were passed along the neck of the child above the limit of the band; the clavicle and arms of the fetus could be reached. The condition was clear — the uterus had gone into tonic contraction while the head of the child was still high above the brim. The neck of the child was therefore above the lower limit of the retractile and contractile muscle. The retractile uterine muscle had moulded itself to the fetal neck, forming a firm muscular ring, while the thinned-out lower zone contained the mobile fetal head.

As the patient lived on a farm twenty-two miles away from the hospital, I thought it would do no harm to make one attempt to pull the shoulders through the muscular ring. She was put deeply under chloroform, and after perforating the fetal skull and applying traction with the cephalotribe it was obvious that the fetus and uterus had become one welded mass. Traction merely brought the whole mass down, and when released there was an elastic recoil to the original position. I removed the fetus by Caesarean section, but the patient, who was in a cyanosed and collapsed condition, died next day.

In all these cases there is some form of contraction or distortion at the pelvic brim. The fetal head does not engage and remains high above the brim, and is very mobile. The uterus continues to contract and retract. The membranes rupture early and the cervix hangs down unfilled by the presenting part. At some time after the membranes rupture the uterine muscle passes into a state of tetany, and since the neck of the fetus is high above the brim, it lies within the retractile zone of the uterine muscle. A firm mass of muscle forms round the neck of the fetus and grips it, so that the shoulders can neither pass through nor can the fetal head rise. The uterine cavity has therefore become hourglass in shape. The upper cavity contains the trunk and the lower the head. As retraction progresses the uterus moulds itself to the fetal trunk and neck, while the lower zone becomes progressively thinner. This condition may come on a few hours after the rupture of the membranes, and when once established constitutes one of the most terrible complications met with in obstetric surgery.

In a great number of moderately contracted pelves the fetal head settles in the brim. Here is a very different situation. In dealing with such cases it is only necessary to overcome the mechanical obstruction, for the neck of the fetus lies within the lower zone of the uterus. Thus if early retraction of the uterus takes place, its lower limit is above the shoulder of the fetus. Delivery with forceps or cephalotribe can be effected according to circumstances. When the fetal head is high up and the retraction ring has formed round its neck, no amount of traction will be of any use, because the trouble now lies above at the retraction ring. The shoulders cannot pass below this ring, and the whole mass—uterus and fetus—becomes as it were welded together.

Some of the cases are admitted with a leg and the head presenting. This tells its own tale. Version has been attempted, and a leg brought down, but the fetal head cannot rise, so matters are only made worse, and if delivery is attempted the uterus will be ruptured. These poor cyanosed patients are admitted into hospital in a state of exhaustion, and with the vagina hopelessly lacerated. For hours they have been under an anaesthetic; delivery has been attempted with forceps, cephalotripsy, and even by version.

This condition is ill described in textbooks, and is not recognized by many obstetric surgeons themselves. If a practitioner has missed an obviously contracted pelvis and has spent the whole night with his colleagues attempting to deliver a fetal head through an impossible pelvis, then blame him as much as possible. The cases here described come under a different heading, and they present great difficulties both in diagnosis and in treatment. In order to save the child a very early diagnosis is necessary, while any great delay endangers the mother's life.

Diagnosis and Treatment.

The patients are all primiparae. They are either the subjects of infantile rickets or have some deformity, such as old disease of the hip-joint. Let us suppose that the patient is at full term and labour has just begun. The abdomen may be pendulous and the fetal head felt just above the brim. The measurements of the pelvis are taken. If there is great deformity, say a diagonal conjugate of 3½ in. or less, the mechanical obstruction is so obvious that steps would be taken to meet it. In all the cases I have seen the mechanical obstruction has not been very great.

In the second case, published in the *Lancet*, "Mr. Targett's case," May 12th, 1906, the measurements of the pelvis were taken clinically, and I measured the bony pelvis after removing it at the *post-mortem* examination. The actual measurements from bony-points were:

Interspinous diameter	8½ inches.
Intercristal diameter	9½ ,,
Posterior interspinous	3½ ,,
True conjugate	4 ,,
Right oblique	4½ ,,
Left oblique	4⅝ ,,
Transverse	5 ,,

In fact, a woman who is an obvious dwarf or has a hopeless pelvis is in a far more safe position than one who has less pelvic contraction, especially if there is oblique distortion at the brim of the pelvis. Let us premise that the pelvis is only moderately contracted, and the doctor estimates that he can deliver with forceps if necessary. The presenting part is a vertex and lies high above the brim. It seems flexed or it may be half extended. Labour is allowed to proceed. The uterine contractions are strong and the os dilates, but is never filled by anything except the membranes. These rupture early and the cervix hangs down and becomes oedematous. It feels dilatable, but is not completely dilated. The uterine contractions continue, but after a while there seems to be no attempt at bearing down, and the patient complains of a continuous uneasiness about the abdomen. The fetal head is still above the brim. It seems to become more mobile, because the lower zone is thinning out, and when the uterus contracts it seems to be lifted higher up. If the examining hand be passed above the head the retracting ring will be found. Just about this time forceps are applied, and if the real state of affairs is not at once recognized, disaster will follow.

The position of the fetal head is perhaps the most important point. Before labour sets in it is high above the brim, while in a primiparous woman it should be right down in the pelvic cavity.

As the first stage of labour proceeds the head still remains high up, and as labour still progresses it becomes more mobile and will even ascend. At first, then, the fetal head cannot enter the pelvic brim because of the bony obstruction, but later this becomes of secondary importance because a retraction ring has formed around the fetal neck. It is this ring which is the cause of failure to deliver by mechanical traction from below. No amount of traction will bring the shoulders of the fetus through this retracting barrier of uterine muscle. The ring will hold even with the patient at the point of death.

With regard to the treatment, it is clear that an early diagnosis is all-important. One cannot too much emphasize the fact that a high and mobile fetal head occurring in a primiparous woman means trouble. It is a simple indication of trouble, but one often neglected. If the practitioner thinks there is room enough to allow of forceps delivery, and the fetal head is high above the brim and movable, the patient may be placed deeply under chloroform and morphine. If moderate traction fails to bring the head into the pelvic cavity, and if, when the traction is released, there is an elastic recoil of the fetus and uterus, no further attempt should be made. Caesarean section is the only safe means of delivery, making it even possible to save the child as well as the mother. It is absolutely wrong to persist in any further attempt at delivery from below.

While performing Caesarean section on one of these cases, which, unhappily, was only a last desperate attempt

to save the mother, I had great difficulty in extracting the fetal head from the lower thinned-out uterine cavity. The retraction ring held firmly, although the patient was deeply under morphine and chloroform. It was also interesting to note at the time of the operation that, although there was a firm band of uterine muscle around the neck of the fetus, there was no sign of this externally. I opened the upper cavity of the hourglass and caught a leg. I had to deliver the fetal head, which was below the muscular bar, by jaw traction. I mention this fact because it shows the persistence of the muscular tetany in a collapsed patient under both morphine and chloroform.

It will be noticed that I have made no reference to text-books or papers. I wish only to give a clear clinical account of a condition which I know occurs time after time without being recognized. Many practitioners may go thirty years without seeing a case of this kind, or never see one at all.

In one of the latest books on obstetrics this condition is lightly touched upon. The author states that it is due to (1) the administration of ergot, or (2) to spasm, caused by repeated attempts at delivery. He recommends the administration of morphine gr. ½, deep anaesthesia, and appropriate means to overcome the obstruction.

I have never seen any cases in the early stages of labour, but from the careful accounts given by the doctors in charge I feel sure that the retracting barrier had already formed when forceps were first applied. Again, the measurements of the brim in each case had been taken, and if the real trouble had been simply a mechanical obstruction at this point, the fetal head could have been delivered either with forceps or with the cephalotribe. I have seen a patient who had been more or less under deep anaesthesia and morphine for ten hours, yet the retracting uterine muscle still gripped the neck of the fetus. None of the cases had been given ergot. Of the four cases I have seen, only one recovered. Two died within a few hours of delivery, while the last died suddenly of pulmonary embolism on the fourth day of the puerperium. In my former paper I suggested that decapitation with delivery of the fetal head, followed by version, was a means of effecting delivery, but in the light of further experience I am now convinced that Caesarean section is the safest and best method of treatment. The earlier this is done the better.

Conclusions.

I would make the following suggestions:

1. Be on your guard when dealing with a short, thick-set woman with a square head and short long bones.
2. A high position of the fetal head, occurring in a primipara, should at once denote serious trouble.
3. Measure the diameters of the pelvis, but do not place too much store upon your estimate. The brim may be obliquely distorted, and this will prevent the head from entering the brim and at the same time will not show up in your calculations.
4. Cut-and-dried rules on pelvimetry are useful only in severe contractions of the pelvis.
5. Remember that to apply forceps to a fetal head which is movable and high above the brim is an obstetric operation requiring the most careful consideration, and should only be undertaken after careful examination of the condition of the uterine muscle around the neck of the fetus. If the examining hand can be passed easily beyond the shoulders of the fetus, an attempt at delivery with instruments may be made. If there is the least evidence that the uterine muscle is retracting round the neck of the fetus, Caesarean section should at once be performed.
6. When once the retraction ring has formed around the neck of the fetus, it will grip it firmly until the patient is almost at the point of death.

P.S.—Since writing this short paper I have seen another case. In spite of much bruising and laceration of the vagina an earlier diagnosis rendered it possible to save both mother and child by Caesarean section.

We are glad to learn that Professor Kocher of Berne has recovered from a severe attack of double pneumonia and pleurisy which he experienced in the spring and is resuming his work as professor of surgery. His recovery, at the age of 75, from so severe an illness is evidence of the vigour of his constitution and will be a source of great gratification to his many friends in this country.

BREATHLESSNESS IN SOLDIERS SUFFERING FROM IRRITABLE HEART.

BY

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(Report to the Medical Research Committee.)

Breathlessness may arise from any one of a great number of causes, some of which, like mechanical impairment of the heart or lungs, are apparent, while others are more obscure. The immediate stimulus to the respiratory centre is in most cases a chemical one, so that the difference between the cases in which the cause of breathlessness is explicable and those in which it is obscure depends on whether there is an evident clue to a chemical change in the blood which may be transferred to the respiratory centre. Thus, in the commonest physiological type of breathlessness, that due to muscular exercise, carbonic and lactic acids are passed into the blood and stimulate the respiratory centre; in the case of patients recently gassed the want of sufficient functional lung surface dams back the carbonic acid in the blood and so produces breathlessness. More obscure, because the cause has to be sought directly in the blood itself, is the condition of acidosis, though this, in respect of its symptom of breathlessness, falls into the same group with that of the previous cases, since in all alike the exciting stimulus to the respiratory centre is a relatively acid condition of the blood.

The object of the present paper is to draw the attention, and especially, at the present time, of those charged with the care of military patients, to another and more subtle cause of breathlessness. The reason for our doing so is that we have found it to exist in five out of six cases in which the cause of the breathlessness present was so far in doubt as to make a systematic examination of the chemical properties of the blood desirable. The cause of breathlessness to which we refer is the absence of an adequate supply of "*buffer*" *salts* in the blood. The patients in which this condition is present are to be found amongst those who are diagnosed as having "irritable hearts" or "trench hearts," that is, among the number of soldiers invalided during the period of training or while on active service because they are unable to tolerate physical exercise. In these cases exertion produces some of the following symptoms—namely, excessive fatigue or actual exhaustion, attacks of giddiness or actual fainting, palpitation and pain usually situated in the precordial region. The patients to whom we refer show no constant physical signs, but in the majority of them the heart rate is abnormally high when the subjects are up and about. Moderate exercise increases the pulse-rate excessively. It is the rule to find high respiratory rate in these subjects while they are at rest, and in some cases this rate may be as high as 40 per minute.

Let us now turn to the consideration of "buffer" salts, and to some explanation of the part which they play in the pathology of the cases under consideration.

The blood is at all times receiving and parting with acid and alkali. These variations in constitution, if effected in an ordinary saline solution, would produce changes in relative acidity and alkalinity which would be physiologically intolerable; their effect on the brain alone would be to excite or depress its various centres to extreme limits. The respiratory centre, for instance, would be stimulated to violent dyspnoea by the acidity resulting from trivial exercise; it would be brought to a standstill by a moderate acquisition in alkali. A given addition of carbonic acid to the blood only produces a quarter of the change in reaction which it would produce in a corresponding quantity of physiological saline solution. Thus, if 100 c.cm. of blood be taken and the same quantity of normal salt solution, 1.3 c.cm. of carbonic acid dissolved in the saline would change its reaction to the same extent as 5 c.cm. would change that of the blood. The reason of this is that the blood contains such substances as sodium bicarbonate, monacid and diacid sodium phosphates, and

protein, which tend partly to fix the acid so that in a sense it loses its chemical freedom. For the sake of example the attention may be confined to the two phosphates, Na_2HPO_4 and NaH_2PO_4. If a little carbonic acid is added to a solution containing these two salts, a little sodium bicarbonate is formed, which is alkaline. The sodium is acquired by the CO_2, at the expense of the phosphates, so that there is less of the alkaline Na_2HPO_4, and more of the acid NaH_2PO_4 than before. The net result is a slight increase in the acid reaction. The blood forms a more complicated system of this type. The salts to which we have alluded are therefore called "buffer" salts, because they ease the shock to the reaction of the fluid caused by the addition of acid or alkali.

The bearing of these general observations on the cases of breathlessness which we have studied is perhaps best explained by recounting the history of our investigation of a single case—that of A. The case was referred to us by Lieutenant Drury, R.A.M.C.,* with the request that we should test it for acidosis. We found:

1. That when all the CO_2 was shaken out of the blood it was somewhat more alkaline than normal blood.
2. That with the amount of CO_2 normally present in the body it was just on the acid side of normal; and
3. That any further addition of acid increased the acidity to an abnormal degree.

We therefore tested other cases which presented a similar clinical picture in the same way, and we found that out of six cases tested and compared with four normal men of similar age the changes in reaction of the blood were as follows:

Change† in Blood Reaction for the Addition of 5 Volumes of CO_2 per 100 of Blood under the Conditions Prevalent in the Body.

Normal Persons.		Dyspnoeic Patients showing Typical Symptoms of "Irritable Heart."	
R. ...	0.045 units	Z.	0.155 units
C. ...	0.068 ,,	A.	0.102 ,,
C'L. ...	0.050 ,,	J.	0.119 ,,
P. ...	0.051 ,,	R. R. ...	0.102 ,,
		G.	0.086 ,,
		T.†	0.064 ,,

Of these T.† proved to be a case in which the reaction of the blood was less alkaline throughout than normal. His dyspnoea was therefore explicable on other grounds than those of insufficient buffers.

The units used in the above table are those familiar to chemists as to the alteration in the logarithm of the concentration of hydrogen ions in the blood. We prefer to state the case in the following way:

If the average change in the acidity of the blood when five volumes of carbonic acid are added be called 100 the changes observed in the case of the five patients whose cases are not otherwise accounted for are:

Change in Relative Acidity expressed as a Percentage of that of Normal Men.

Z.	A.	J.	R. R.	G.
320	200	240	200	150

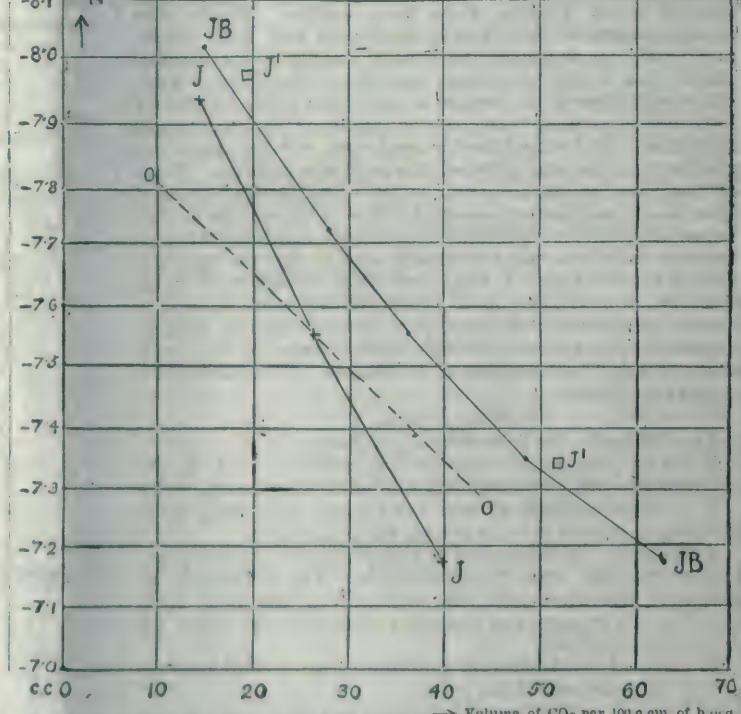
These results were all obtained by an indirect method of determining the blood reaction based on the affinity of the blood for oxygen; but as it was clearly unsatisfactory that a result so important should depend on data obtained by a single method, the direct determination of the concentration of hydrogen ions by the electrometric method was made on one of these cases, Z., and compared with that of two normal cases.

Change in Reaction produced by addition of 5 Volumes of CO_2 per 100 of Blood measured by Electrometric Method.

Normal.		Dyspnoeic.	
R.	0.045 units	Z.	0.160 units
P.	0.05 ,,		

Expressed as a percentage of the normal, therefore, the change in acidity of Z.'s blood would be about 320 per cent. of the normal.

The measurement of the quantities involved is near the experimental error of whatever method may be employed for the purpose, yet we consider that the agreement in the figures is striking enough to warrant our conclusions. Nevertheless, we have obtained additional confirmation of our argument from the fact that we were actually able to impose the properties of normal blood upon that of one irritable heart patient by the addition of "buffer" salts. The blood of J. before we did this had a change of reaction of 0.119 as compared with the normal 0.045 to 0.06.



The vertical figures denote the logarithms of the concentration of hydrogen ions in the blood (P_H).

It was compared with the blood of J. B., a much older person, normal in the sense that he is not unduly dyspnoeic for his age on taking exercise, though he possesses a history of functional cardiac trouble. The comparison is shown graphically in the figure in which the reaction of the blood is plotted vertically in units corresponding to P_H.

The line indicated by the letters JB–JB shows the changing reaction of J. B.'s blood when it contains the quantities of carbonic acid shown successively by the abscissae. The line J–J shows that of a case of irritable heart. Note that the line, especially at the lower end, which represents the usual carbonic acid conditions in the body, is much steeper in the case of J. than in that of J. B. When disodium hydrogen phosphate (Na_2HPO_4) is added to the blood of J. to the extent of 0.003 gram per c.cm. the inclination of the line is changed, as shown in the dotted line O–O, whilst if 0.003 gram of sodium phosphate per c.cm. and 0.0008 gram of sodium bicarbonate be added, the points marked J' J' are obtained, which are nearly on the curve of the person (J. B.) with normal respiratory phenomena.

* The present research arose from one conducted by Lieutenant Drury, R.A.M.C., on the percentage of carbonic acid in the alveolar air and the effect of breathing small quantities of that gas. As he was shortly afterwards demanded for service abroad, we lost his very valuable assistance.

† Variations in the "buffer" value of human blood have been found by Levi and Mowntree.—*Archives of Internal Medicine*, vol. xvii, p. 535.

These observations seem to us to be important, first of all because they demonstrate an altered state of the blood which goes far to explain the otherwise inexplicable breathlessness in certain patients who suffer from the condition described as irritable heart. They are important from another standpoint. The temptation to cover our ignorance of the pathology of the malady as a whole by referring many of its symptoms to instability or to irritability of the central nervous system was a powerful one, so long as clear deviations from normality could not be found. Our observations carry us from the abstract to the concrete, and tell us that we deal with an affection in which disordered metabolism plays a conspicuous rôle. If we are inclined hastily to judge the temper of our fellow-men, holding that poorness of spirit and lack of zeal contribute to the histories of physical inefficiency as they are related to us, such findings bid us beware, reminding us that there may be no more potent restraint to the display of spirit than the early conditions of ill health.

THE ESTIMATION OF MYOCARDIAL EFFICIENCY.

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This article is based on 2,000 observations made on healthy and diseased hearts during the past five years.

The majority of those made on the "healthy" heart, and the reactions worked out in connexion with them, were carried out on students in the Middlesex Hospital, and to all those gentlemen who so willingly and unselfishly sacrificed their Saturday afternoons in order to climb endless stairs—often to the point of extinction—the writer offers his most grateful and sincere thanks, and assures them that their time was not wasted. In this connexion he would also thank Mr. Dale Richards for his assistance in some of the work. The observations on pathological hearts were carried out partly on my own private patients and partly on cases at the National Hospital for Diseases of the Heart.

The measure of a heart's efficiency is its capacity for doing work, and this is true whether one is dealing with the physiological heart of the healthy young adult, the worn-out heart of the old man, the "super" heart of the well-trained athlete, or the pathological heart, the seat of definite valvular disease, myocardial atonia, inflammation, or degeneration. Furthermore, it must be clearly borne in mind that many hearts work perfectly, exhibiting no defects at all, when the person is at rest, but exhibit serious derangements and reveal definite evidence of myocardial impairment when called upon to do extra work under load. Such defects are usually revealed by the development of irregularities—murmurs, pulsations, etc.—which did not previously exist.

Work Reactions.

(a) *The Healthy Heart.*

The physiological heart of the healthy young adult responds to increased work by increased contraction—the rate increases, the blood pressure rises, and the respirations increase. The increase in the heart-rate, in the blood pressure and respirations, is gradual, while a definite relationship is still maintained between the pulse-rate and respirations. The rise in the pulse rate, in the blood pressure, and respirations is proportional to the amount of work done, but it is rare in healthy people to be able to raise the heart beat beyond 180 a minute excepting by the most violent forms of exertion.

The height to which the blood pressure rises is, apart from training, etc., largely influenced by age, but for a healthy young adult 220 mm. of mercury may be taken as the limit. On ceasing exercise the heart-rate, blood pressure, and respirations, fall rapidly; the blood pressure usually reaches normal (that is, starting point) before the heart-rate. The respirations being the first to return to normal.

(b) *The Athlete's Heart.**

The slow "super heart" of the well-trained athlete also responds to increased work by increased contraction and a raised blood pressure, but whereas the heart of the "ordinarily" trained individual gradually increases in frequency, that of the athlete suddenly "practically" doubles its rate.

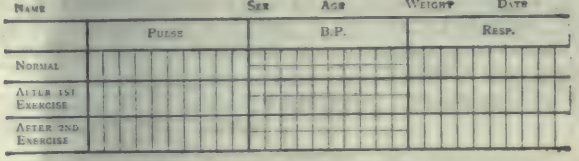
(c) *The Diseased Heart.*

The pathological or diseased heart in which the myocardium is at all impaired responds to increased work, not by increased contraction, but by dilatation, so that, although the frequency is increased (often out of all proportion to the amount of exercise taken), the blood pressure either fails to rise or actually falls, according to the amount of myocardial damage present and the amount of work done. Furthermore, the dyspnœa and general distress are often marked, while the normal pulse-respiration ratio is frequently disturbed. Finally, irregularities of various kinds (such as extrasystoles,† auricular fibrillation, and alternation, etc.), murmurs, or pulsations, not previously present, may make their appearance.

As regards the practical application of the above principles, the methods usually adopted by the writer and found to be quite satisfactory are briefly as follows:

1. *The Simple Stair Test.*

The patient is weighed and his weight recorded in pounds. He is next made to lie down on a couch, and his pulse-rate, systolic blood pressure (brachial), and respirations recorded as below:



He is next made to do a definite amount of work in a given time, his pulse, blood pressure, and respirations again being recorded immediately after his return to the couch. As it is most important to get the readings as quickly as possible, two observers are employed, one standing on either side of the couch; one observer takes the blood pressure (the armlet being left in position during the exercise and the manometer being a fixture on the wall), while the other takes the respirations, and whichever completes his observation first takes the pulse. These are recorded on the card as before. These observations are then repeated periodically—for example, every minute—until pulse, blood pressure, and respirations are normal.

For ordinary purposes a very convenient test is to make the patient raise his body weight 20 ft. in not longer than 30 seconds. This is easily done by making him run up a flight of stairs of the required number. His pulse, blood pressure, and respirations should be normal at the end of three minutes after the exercise, if his myocardium is in good condition. The work done (in foot pounds) is easily obtained by multiplying the body weight (in pounds) by the distance through which it was raised (in feet). For purposes of diagnosis it is not necessary to calculate the actual work done, but if the reaction is to be used for remedial purposes, this is essential. In examining the results obtained, the most important points to pay attention to is whether the blood pressure rises or not immediately after the exercise. For practical purposes the results can be classified as follows:

1. *Good reactions*, when pulse, blood pressure, and respiration all increase on exercise and are normal again at the end of three minutes.

	Pulse.	Blood Pressure.	Respiration.
Normal	116	152	22
After exercise	124	180	24
Three minutes after exercise...	116	152	22

W. = 2,580 ft. lb. in 30 seconds.

* The writer is of opinion that different effects are produced on the heart by different kinds of exercise—for example, long distance cycle racing produces quite a different heart from rowing.

† Much difference of opinion exists as to the nature and significance of extrasystoles. The writer definitely holds the view that any heart which shows no extrasystoles when at rest, *but systematically develops them on exertion*, has a damaged myocardium.

2. *Fair reactions.* These include all cases in which pulse, blood pressure, and respiration go up on exercise, but have not returned to the normal at the end of three minutes. Their general return is, however, along normal lines. It may be noted that the pulse-rate is the one that most usually persists raised, and considerable importance attaches to time for which the increased frequency is maintained.

	Pulse.	Blood Pressure.	Respiration.
Normal	72	120	18
After exercise	88	130	24
Three minutes after exercise ...	80	124	20

W. = 2,560 ft. lb. in 30 seconds.

3. "*Bad*" *reaction*, when the blood pressure fails to rise although the pulse and respiration go up.

	Pulse.	Blood Pressure.	Respiration.
Normal	72	150	20
After exercise	88	150	24
Three minutes after exercise ...	80	150	26

W. = 3,080 ft. lb. in 30 seconds.

4. "*Very bad*" *reaction*, in which the pulse and respiration increase but the blood pressure actually falls. This is almost comparable to the condition known as Weber's paradox in muscle.

	Pulse.	Blood Pressure.	Respiration.
Normal	72	150	20
After exercise	98	130	30
Three minutes after exercise ...	100	156	28

W. = 1,980 ft. lb. in 30 seconds.

"Good" reactions are characteristic of well-trained "healthy" hearts, such as occur in those who are physically "fit" and take plenty of outdoor exercise. "Fair" reactions are met with in physiological but poorly trained, atonic, toxaemic, or "out of condition," hearts, such as are met with in persons of sedentary occupations who take little exercise; while "Bad" and "Very bad" reactions are typical of hearts in which the myocardium is damaged either by inflammation, strain, or definite degeneration.

The reaction described above (that is, "the 20 ft. 3 min. stair test") is of the greatest value for the average case, but it must be borne in mind that it is a comparatively mild test, and that a more severe test may be necessary to bring out some of the minor defects which may develop in an otherwise well trained heart; for example, slight local heart strain in a previously well trained and otherwise healthy heart may give a fair reaction to this test, but develop a bad or even a very bad reaction if the exercise be doubled or trebled. The progressive work test, if properly applied will never fail to reveal any myocardial deficiency that may exist.

2. *The "Exercator" Test.*

In cases for which the stair test seems likely to be rather severe, the patient is made to raise weights through a definite number of feet at a definite rate per minute. The number of weights and the distance can be easily varied. Weights from 1 to 10 lb. are used, and they are usually raised through a height of 2 ft. The effects are recorded as in the previous tests.

3. *The "Inclined Plane" Test.*

For most serious cases the patient is simply made to walk up an inclined plane (1 in 8) of a definite length in a certain time, and the effects recorded.

In the institution where the writer treats his own cases the height of the staircases, length of the passages, gradients, etc., are all calculated, and a series of tables have been prepared, by means of which the amount of work done in any case can be read without any calculations at all being necessary.

4. *The Progressive Exercise Reaction.*

This test is carried out in exactly the same way as the simple stair test, only the work is continued until the blood pressure ceases to rise. This is the point at which the heart is just about to dilate, and gives an accurate idea of the reserve force of the heart muscle and the extent of the cardiac field. In the healthy "young" heart this point is extremely difficult to obtain, but for practical purposes any heart that will stand its owner repeatedly doing 30,000 ft. lb. of work in nine minutes and be normal again within fifteen minutes may be taken as having a thoroughly sound myocardium.

Although I have succeeded in a young healthy heart in producing transient reduplication of the pulmonary second sound, a pulmonary systolic murmur, epigastric pulsation, a tricuspid murmur, or even displacement of the apex and increase in the cardiac dullness by very violent exercise, I have never yet succeeded in causing a definite fall in blood pressure, and I am exceedingly doubtful if it is possible to damage a young healthy heart by exercise alone. If, however, there is fever, anaemia, toxaemia, inflammation, or other form of damage, however slight, violent exercise may produce very serious effects—for example, strain or dilatation. The above remarks apply only to "young" hearts—that is, up to 30, for, save in exceptional cases, one has to be cautious in subjecting persons above that age to such violent tests. In persons with myocardial damage or inefficiency this point is comparatively easy to obtain. This reaction is not only of value for estimating the efficiency of the myocardium at any particular time, and for comparing its efficiency at different times, thus being of the greatest value in estimating the progress of a lesion, but is also of inestimable value in rational treatment.

The method employed for this purpose is briefly as follows: The patient is exercised till the blood pressure fails to rise, and the work done estimated in foot pounds; 1,000 ft. lb. less than the number obtained is then taken, and the patient made to do this amount (that is, 1,000 ft. lb. less than the work necessary to dilate his heart) of work once or more daily for one week; at the end of this time his field of cardiac response is again estimated; all being well it will have improved. 1,000 ft. lb. less than the number now obtained is taken, and the patient made to do this amount of work for another seven days, and the field again estimated, and so on; this is continued each week until either no further improvement is obtained or the limit, 30,000 ft. lb. in nine minutes, is reached.

In carrying out this method of treatment it is essential (1) that the increase shall be gradual, the prescribed work being done once, twice, or three times daily; (2) that it shall be systematic; and (3) that plenty of rest shall be ensured between the exercise.

I have carried out this line of treatment for many years, and in conclusion would urge no one to adopt it who is not thoroughly familiar with the principles on which it is based, and who has not the time and patience to carry it out in all its tedious details. If carried out properly in suitable cases it is doubtful if there is any more successful kind of treatment. It is not possible at present to "cure heart disease," to dilate stenosed orifices, or repair leaky valves, but it may be possible to get the best out of a defective heart by putting that heart to work under the best possible physiological conditions, and the key to this should be a knowledge of what a normal heart can do, and how it does it.

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England will be held at the College, Lincoln's Inn Fields, on Thursday, November 16th, at 3 p.m.

MESSRS. CASSELL will shortly publish the *Life and Letters of Sir Charles Tupper*. He died towards the end of 1915 at the age of 94, and the book is the record of a long career full of manifold activities. Beginning life as a doctor, Tupper took up politics and became one of the makers of modern Canada. He was at one time Prime Minister of Canada, and the present premier, Sir Robert Borden, appropriately contributes an introduction to the biography.

BOCK'S STETHOSCOPE AS AN AID TO DETERMINING THE EFFICIENCY OF THE MYOCARDIUM.

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EVERY physician is agreed as to the occasional difficulty in estimating the efficiency or otherwise of the heart muscle, which is a factor of paramount importance in prognosis. Cases occur from time to time which present some of the symptoms, such as dizziness or breathlessness on exertion, which are common both to actual flagging of the myocardial power and to vasomotor instability.

In spite of careful inquiry into the history of the case, and in spite of the many accurate methods of investigation which are nowadays at our command, we cannot invariably form a perfectly definite opinion as to the cause of the patient's symptoms.

Any new instrument, therefore, which can help us in our decisions should be of real use to the profession.

During a discussion on the soldier's heart, reported in the *Proceedings* of the Royal Society of Medicine,[1] Dr. O. Leyton called attention to the value of Bock's stethoscope in helping to decide the point in question—namely, whether certain symptoms are arising from disease of the heart or from disease of the vasomotor system. Dr. Leyton also referred to this instrument in the *Lancet* of February 5th, 1916.

As a thorough trial of Bock's stethoscope has convinced me of its undoubted value, a short account of its use in a military hospital may be of interest.

The principle of this stethoscope depends upon the fact that the normal ratio of intensities of the first sound at the apex to the second sound at the base is approximately 2 : 1. It has now been established that this ratio is frequently altered when the myocardium is affected, and that it may become 1 : 1.

It occurs to the critic at the outset that some heart sounds are very difficult to hear on account of emphysema or of a stout chest wall. But it must be remembered that this stethoscope is for estimating intensities of sound at the apex and base in the same individual, and that any such difficulty is almost certainly present at both apex and base. That is to say, the stethoscope is a differential one, and it is so made that intensities of sound can be estimated with great accuracy in each case. This is arranged by means of a hole through which the heart sounds pass to the observer's ears. The hole can be increased in size, or entirely obliterated, by turning a screw (attached to the top of the chest-piece) in one or other direction.

To the screw is fixed a small pointer which works round a scale on which, at equal intervals, are the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100. When the pointer is at 100, the hole in the interior of the chest-piece is entirely closed, and no sound reaches the ear of the observer.

To use the stethoscope, the hole is first closed by bringing the pointer to the 100 mark. The chest-piece is then placed over the apex, and the pointer is turned counter-clockwise till it reaches the figure 10. At this mark the heart sounds will be heard with a clearness almost, if not quite, equal to that conveyed by an ordinary chest-piece.

The pointer is again moved round, this time clockwise, until the first sound is indistinguishable; this usually occurs in a normal heart when the pointer is near to the 80 mark.

The pointer is then moved back to 10, and the chest-piece is placed over the aortic base. The pointer is once more moved in a clockwise direction, and the observer's attention is focussed on the second sound, which in a normal heart becomes inaudible when the pointer is in the neighbourhood of mark 45. These figures are those given in the maker's circular which accompanies the stethoscope.

The ratio of intensity, therefore, of first sound at apex and second sound at base may be represented by 80 : 45.

In order to test the accuracy of the above statement, observations were first made on the hearts of fifty men of the R.A.M.C. They were all young and healthy, their average age being 24. None of them had as yet been on active service overseas, but they had undergone several months' training at home, so that one was justified in supposing that they represented a series of normal hearts.

As a result of this examination it was found that the average point at which the first sound at the apex disappeared was 77.7. The highest point was 85, and no case gave a reading below 70. The age of the man did not influence the reading—that is to say, a man of 20 gave a reading of 70, and a man of 31 a reading of 80, while the converse was also shown.

The average point for the second reading at the aortic base was 53—a slightly higher reading than that given in the maker's circular. The lowest reading in the series of cases was 45, and the highest 65. Here, again, age was not an influencing factor. In no case was any valvular disease present. In fact, if such is found, the instrument cannot be used, as the bruit obscures the sounds of the myocardium.

The following illustrate the use of Bock's stethoscope in cases presenting symptoms of illness:

CASE I.

Pte. C. H., aged 21; service one year and five months. Stated that after nine months' service in the army he fell into a trench and had concussion of the brain, followed by two "fits." After his recovery he began to have fainting attacks when marching with pack. He was discharged from the army on the grounds of ill health on February 11th, 1916. He re-enlisted on June 15th, 1916, and after a fortnight's service fainted while he was carrying a small load of ammunition. He was sent into hospital. On admission he was found to be 6 ft. in height and very thin. Examination of the various systems showed nothing abnormal. Reading with the Bock stethoscope, 85 : 45. Tracings with the polygraph at apex, wrist, and neck showed his heart's action to be regular and efficient.

This was evidently a case of vasomotor disturbance giving rise to a feeling of faintness. The following is a somewhat similar case:

CASE II.

Lance-Cpl. H. S., aged 27; service one year and six months. Came to hospital complaining of breathlessness, faintness, and palpitation. He stated that the symptoms began one month after he joined the army, and were liable to be produced by standing at attention on parade for more than a few moments. If the symptoms occurred when he was off duty, he was able, at first, to overcome them by a strong effort of will, but latterly he had been unable to do so.

When examined at this hospital he was in a highly nervous condition. He was kept under observation for twenty-four hours. As might be expected from his history, a thorough examination led one to the definite conclusion that his symptoms were vasomotor in origin. Reading with the Bock stethoscope, 80 : 40. He was reassured as to the condition of his heart, about which he was anxious, and was sent back to his unit with a note to his medical officer.

One of our difficulties in the army is to convince a man, after careful examination, that his heart is not at fault when he has become deeply imbued with the opposite opinion. The rather injudicious use of the letters D.A.H. (disorderly action of the heart) and V.D.H. (valvular disease of the heart) has hindered the convalescence of many a soldier. It is much better to make use of the corresponding number in the Army List of Diseases. Similarly, in civilian work, if a patient has once been told that his heart is "weak," he carries with him, not unnaturally, an unshakable conviction that he is doomed to an early grave. Unfortunately, he does not get rid of the impression when he joins the army, as the following case will show:

CASE III.

Pte. G. K., aged 23, service five months, complained, on admission, of pain in the legs. He stated that his "nerves were upset" and that he got palpitation easily. He was told by his doctor before joining the army that his heart was weak. He is a non-smoker. There is nothing to record regarding his system generally, and polygraph tracings show nothing abnormal. Reading with a Bock stethoscope, 85 : 65.

Cases similar to those quoted above could be given in large numbers if space allowed.

The two following cases illustrate findings with the Bock stethoscope in which the ratio is altered to 1 : 1 and in which there is evidently an involvement of the myocardium:

CASE IV.

Pte. J. W., aged 19, had served since the beginning of the war. On admission he complained of abdominal pain and shortness of breath. He gave a history of enteric in Gallipoli, July, 1915; he was in bed for six weeks and had done no full

duty since. He gave no history of any illness previous to the attack of enteric.

His face was slightly cyanosed and pupils dilated. Breathing quiet; pulse 84; tongue furred; teeth good. Slight "lagging" of upper lid when following the movements of the observer's finger, but no enlargement of thyroid, and no fine tremor. Heart: Apex beat diffuse and feeble; area of cardiac dullness not increased. Reading with Bock stethoscope, 50 : 50. The impulses were so weak, both at the apex and at the wrist, that tracings with the polygraph were feeble.

CASE V.

Pte. W. G., aged 36, service three months, stated that while drilling six days before he had an attack of palpitation and pain over his heart. In civilian life he was a part-time postman; he said that he had been subject to similar attacks during the past six or seven years. He gave a history of frequent attacks of rheumatism.

The circulatory system was the only system found to be at fault. The apex beat was feeble, and was in the nipple line in the fifth interspace. No valvular lesion was discoverable; pulse 72, regular, but small in volume. Reading with Bock stethoscope, 55 : 55. Systolic blood pressure 100, diastolic 80, measured with a Tycos sphygmomanometer by the method of auscultation.

Tracings with the polygraph were very feeble. Both the apex beat and the radial pulse merely gave minute periodic elevations on an otherwise straight line. No satisfactory jugular tracing could be obtained.

There is one point in connexion with the Bock stethoscope which I have had no opportunity of testing satisfactorily in a military hospital—namely, whether, when the systolic blood pressure is much raised, there is an alteration in ratio of intensities, although there may not be any symptoms of myocardial weakness.

In one case which was examined the soldier was suffering from arterio-sclerosis and glycosuria, and his systolic blood pressure was 220 mm. Reading with a Bock stethoscope, 80 : 75.

CONCLUSION.

In the Bock stethoscope we have an instrument which is helpful in estimating the functional efficiency of the heart muscle. When used in routine examination it may discover latent myocardial weakness, and so lead to further and fuller examination of the heart. This is a particularly useful point in dealing with soldiers' hearts at the present time.

Conversely, when other signs of myocardial weakness are present these may be confirmed by Bock's stethoscope.

REFERENCE.

1 *Proc. Roy. Soc. Med.*, vol. ix., No. 4, p. 49.

EPIDEMIC CEREBRO-SPINAL FEVER:

THE PLACE OF THE MENINGOCOCCUS IN ITS ETIOLOGY.

(FOURTH COMMUNICATION.)

BY

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[illegible] OF THE BACTERIOLOGICAL LABORATORY, ADDINGTON PARK WAR HOSPITAL, AND HONORARY PHYSICIAN TO THE ADDINGTON PARK HOSPITAL;

AND

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It has recently been shown by Hort that the cerebro-spinal fluid in acute cases of cerebro-spinal fever in man sometimes contains a filter-passing virus which is not the meningococcus, but which is nevertheless capable of producing continued fever or death when injected into monkeys.

The filters employed were Chamberland bougies, and the injections were given by the peritoneal route.

Although the number of animals thus injected was small, the results obtained were sufficiently striking to justify further experiment, in view of the unconvincing nature of the available evidence that the meningococcus of Weichselbaum is itself the primary infective agent in the disease in question.

It was therefore decided to pursue the investigation on a larger scale than had hitherto been possible, and the following summary presents the chief results obtained.

Experimental Observations.

The following general observations apply to the subjoined groups:

1. In all the human cases providing material for injection the meningococcus was isolated from the cerebro-spinal fluid at some time during the course of the disease—though not necessarily from the sample injected—and in each case the classical biochemical and serological tests were fully satisfied. In all these cases the fluid injected was obtained during the life of the patient.

2. It was found that cultural tests, such as the inability to grow at room temperature and on non-albuminous solid media, were quite unreliable in the case of many strains the identity of which was biochemically and serologically indisputable.

3. The action of chloroform vapour for four hours, as well as preservation at cold-room temperature for from one to three days, did not prevent the ultimate isolation of the meningococcus from the cerebro-spinal fluid of acute cases so treated.

4. Serum agar and serum broth were the media mainly used, the horse serum being in all instances thoroughly tested by control cultivation experiments for sterility with regard to both visible and invisible organisms. The serum was delivered from a graduated distributor, so that known volumes could conveniently be used for each culture.

5. Control single intraperitoneal and subcutaneous injections of monkeys with serum broth and saline respectively had been shown by one of us (Hort) in 1915 not to produce continued fever, or death. In addition to this, during the course of the present work two monkeys receiving each an injection of serum broth containing approximately 10 to 12 c.cm. of serum, the highest dose of serum given throughout, remained unaffected.

6. Whenever the supply of animals permitted, the internal body temperature was taken twice daily for some weeks before injection.

7. The upper normal limit of the daily range of the temperature of the three species of monkeys obtained for experiment had been found by one of us not to exceed about 102.4° F. in, approximately, 150 monkeys.

8. All the filters used in these experiments were prepared, tested, and assembled in the manner elsewhere described by the same observer.

9. In all cases control samples of the cerebro-spinal fluid examined for the presence of the meningococcus were incubated both before and after inoculation of solid media and of serum broth. In no instance, when the solid media so inoculated remained without growth, was the sample declared sterile *quâ* the meningococcus until repeated negative results had been obtained on solid media from the incubated cerebro-spinal fluid, or from the primarily inoculated serum broth. In several instances it was shown that the incubated cerebro-spinal fluid gave positive results when the solid media inoculated from the fresh fluid remained sterile.

10. This control was also applied to the isolation of organisms other than the meningococcus from the cerebro-spinal fluid, organisms which, because of their character and of the frequency of their occurrence in fluid collected under good conditions, cannot reasonably be looked upon as contaminations in the ordinary acceptation of that term. The Gram-variable diplococcus of Jaeger, the meningo-bacillus, and, more rarely, the chromogenic Gram-negative diplococci, are cases in point.

11. In the majority of cases providing cerebro-spinal fluid the fluid was collected within the first few hours of the appearance of symptoms, before the inception of specific treatment. These cases are marked with the figure 1 occurring after the number or letter used to designate the individual from which they were obtained.

12. The administration of antiserum or of vaccine was in certain of the cases followed by failure to cultivate the meningococcus from the cerebro-spinal fluid, although the organism had been cultivated and identified from specimens obtained before injection. These cases are differentiated from the former by the figure 2 occurring after the number or letter used to designate the individual from which they were obtained.

Note.—In the following tables the filter-passing virus referred to is described, for brevity, by the letter X.

Group I a.

Five animals were injected with fresh unfiltered cerebro-spinal fluid containing no visible meningococci at the time of injection. Average volume of cerebro-spinal fluid injected, 13.50 c.cm.

Result:

Continued fever rate	40 per cent.
Death rate	60 ,,
Total pathogenic rate	80 ,,

Group I b.

Seven animals were injected with filtered cerebro-spinal fluid in which no meningococci could be demonstrated by laboratory cultivation. Average volume of cerebro-spinal fluid injected, 7.0 c.cm.

Result:

Continued fever rate	57.2 per cent.
Death rate...	72.9 ,,
Total pathogenic rate	85.8 ,,

Note.—The unfiltered cerebro-spinal fluid contained visible meningococci in the case of four of the animals in this group, but not in the case of the other three.

Group I c.

Four animals were injected, after 24 to 48 hours' incubation, with undiluted unfiltered cerebro-spinal fluid in which visible meningococci were present in large numbers and from which meningococci were cultivated. Average volume of cerebro-spinal fluid injected, 11.7 c.cm.

Result:

Continued fever rate	25 per cent.
Death rate	Nil
Total pathogenic rate	25 per cent.

Group I d. [H.]

Six animals were injected with filtered cerebro-spinal fluid, meningococci being subsequently cultivated from the filtrate. Average volume of cerebro-spinal fluid injected, 5.6 c.cm.

Result:

Continued fever rate	16.7 per cent.
Death rate	Nil
Total pathogenic rate	16.7 per cent.

Note.—Two animals were injected with unincubated filtrates from fresh cerebro-spinal fluid, the remaining animals in this group being injected with incubated filtrates from incubated cerebro-spinal fluid. In the case of two animals Berkefeld filters were employed, Chamberland F filters being employed in the case of the remaining animals in this group.

Group II.

(*a*) *Unfiltered.*—Three animals were injected with unfiltered human cerebro-spinal fluid, incubated for several weeks, from which no meningococci could be cultivated at the time of injection, though they were cultivated from the fresh fluid. Average volume of cerebro-spinal fluid injected, 1.9 c.cm.

Result:

Continued fever rate	33 per cent.
Death rate...	66 ,,
Total pathogenic rate	66 ,,

(*b*) *Filtered.*—Two animals were injected with the same cerebro-spinal fluid, filtered. The filters employed were new Chamberland F bougies. Average volume of cerebro-spinal fluid injected, 0.75 c.cm.

Result:

Continued fever rate	50 per cent.
Death rate	50 ,,
Total pathogenic rate	100 ,,

Group III.

Seven animals were injected with cultures of X in serum broth, from human cerebro-spinal fluid, from the cerebro-spinal fluid of monkeys injected intraperitoneally with human cerebro-spinal fluid, and from the cerebro-spinal fluid of a third passage monkey, no visible organisms having been cultivated from the cultures of X injected.

Result:

Continued fever rate	57.2 per cent.
Death rate	42.8 ,,
Total pathogenic rate	71.6 ,,

Group IV.

(*a*) *Unfiltered.*—Seven animals were injected with unfiltered subcultures on agar, or on serum-agar, or in serum broth, of meningococci isolated from the cerebro-spinal fluid of acute human cases.

Result:

Continued fever rate	100 per cent.
Death rate	57.2 ,,
Total pathogenic rate	100 ,,

Note.—Four of these seven animals were subsequently found to be suffering from extensive tuberculous disease.

(*b*) *Filtered.*—There were two animals in this subgroup, the subcultures injected being filtered.

Result:

Continued fever rate	50 per cent.
Death rate	50 ,,
Total pathogenic rate	100 ,,

Post-mortem examination of these two animals revealed no tuberculous disease.

Group V.

Cultural Results of Bacteriological Examination of the Blood and Cerebro-spinal Fluid of Injected Monkeys.

No. of Animal supplying Material for Examination.	No. of Case supplying Material for Injection of Animal.	Visible Organisms Cultivated from		Fate of Animal Injected.	Gross *Post-mortem* Changes.
		C. S. F.	Blood.		
53 (giving X)	5 (1)	*Nil*	*Nil*	Death	*Nil.*
43	6 (2)	Strepto-coccus	Strepto-coccus	Death	*Nil.*
73 (giving X)	8 (2)	*Nil*	Not examined	Fever	Still living.
68 (giving X) passage	5 (1 & 2)	*Nil*	*Nil*	Fever and death	See below.
55	6 (1)	Visible organisms	Not examined	Fever and death	*Nil.*
60	5 (2)	*Nil*	*Nil*	Fever and death	See below.
79 (giving X)	10 (2)	*Nil*	*Nil*	Fever and death	*Nil.*
66	5 (2)	*Nil*	Not examined	Fever and death	See below.
88	8 (2)	*Nil*	Not examined	Fever and death	See below.
62	6 (1)	*Nil*	*Nil*	Fever and death	*Nil.*
76	8 (1)	*Nil*	Not examined	Fever and death	Slight general oedema.
1 (giving X)	10 (1)	*Nil*	*Nil*	Death	*Nil.*
(63 giving X)	8 (2)	*Nil*	Not examined	Fever and death	*Nil.*
67	7 (1 & 2)	*Nil*	Not examined	Fever and death	*Nil.*
D. passage...	5 (1 & 2)	Not done	See below	Fever and death	*Nil.*

NOTE.—Animals 60, 66, and 88 were found after death to be infected with tuberculosis, 60 suffering from generalized disease, 66 and 88 showing tuberculous nodules in the spleen.

Discussion.

In discussing the issues raised by the experimental results here recorded, it is necessary to keep in mind the following facts which the experiments appear to have established:

1. The cerebro-spinal fluid of acute human cases of the disease often contains a filter-passing virus which, whatever its nature, is not the meningococcus as such.

2. When injected into monkeys by the peritoneal or subcutaneous route the demonstrable pathogenic effects following injection of filtered or unfiltered cerebro-spinal fluid, of X in pure culture, and of cultures of the meningococcus, always included continued fever or death.

3. In no case did injection of any of the inocula mentioned produce *the* cardinal feature of the disease as it occurs in man, namely, demonstrable involvement of the cerebro-spinal system.

With these facts in view it is difficult to resist the conclusion that the apparent pathogenicity of the meningococcus when injected viâ the skin or peritoneum is due to the hitherto unsuspected presence of X, which must therefore be taken into account, as we shall now show, when the results obtained by Flexner after intraspinal injection are considered.

The various meningococcal emulsions used by Flexner were, as already stated, introduced into the spinal canal of monkeys, injection being frequently followed by collapse and death within a very few hours. In addition to the local pathological tissue changes found after death it is to be noted that recovery of the meningococcus even so short a time after inoculation was by no means invariable. In those cases in which death took place later than twenty hours the meningococcus was only isolated in one instance. In this animal (Monkey 18) positive growths were obtained in some of the cultures sixty hours after the inoculation, although a sample of cerebro-spinal fluid obtained during the first twenty-four hours did not yield the meningococcus. In this connexion Flexner admits that the "amount of multiplication of the diplococcus in monkeys, excepting possibly in the focal abscesses, is, under the most favourable circumstances, small." He expresses

himself, in fact, as "disinclined to believe that in many of the experiments any multiplication whatever took place." He also says: "As compared with the doses which probably determine infection in man, those used to produce the experimental disease in monkeys are colossal." The mere fact of the injections being given by the meningeal route excludes his results as proof of direct etiological relationship of the meningococcus to the disease on account of the readiness with which meningitis can be produced in monkeys by intraspinal injection of other organisms. Another point brought out by Flexner which is highly significant in the light of our results was that after apparent recovery some of his animals died suddenly from causes unexplained by *post-mortem* examination. Moreover, as our experiments show, there is not sufficient evidence that the pathogenicity of Flexner's inocula was due to the action of the meningococcus as such, because this organism was the only pathogenic agent he recognized in, or attempted to isolate from, the emulsions injected, and, as already noted, recovery of the meningococcus was inconstant, even when death occurred a few hours after injection. To sum up, therefore, in the absence of better evidence than that adduced by Flexner in favour of the meningococcus as the direct cause of the disease, his results strongly suggest either that death was due to the action of meningococcal toxin present in the colossal doses of culture he employed or to the unsuspected presence of the agent we have referred to as X.

It is now necessary briefly to discuss the probable nature of X as shown by our own experiments.

At first sight it would appear that X acts as a preformed toxin, and is itself, in fact, a toxin. In so far as the production of continued fever is concerned this explanation cannot be accepted, because, as we have already pointed out, there is no known toxin a single injection of which is directly capable of producing continued fever in healthy man, or in healthy animals. The fever produced in healthy subjects by single injections of a pre-formed toxin is practically immediate, and is always fugitive, as was shown by Hort and Penfold in the case of the commoner Gram-negative organisms. In no case were these observers able to produce continued fever in healthy animals by single injection of preformed toxins. On the other hand, they also found that they were unable to produce continued fever in animals, comparable to that which occurs in disease, unless the organisms injected produced demonstrable disease, and in all cases there was an appreciable latent period, strongly contrasting with the absence of the latent period after injection of preformed pyrogen. The continued fever noted, therefore, in the animals injected, in which a definite latent period of twenty-four to forty-eight hours was the rule, cannot reasonably be explained by the assumption that X is a preformed toxin.

It is, however, theoretically possible to produce continued fever in animals affected, for example, by latent tuberculosis, by the injection of a toxin itself unable directly to produce continued fever. In such case there is perhaps a mobilization of fever-producing organisms induced by the action of a resistance-depressing toxin, such action being only secondary in nature. The continued fever thus produced must be sharply distinguished from the immediate fugitive fever induced in healthy subjects by the injection of a preformed pyrogen, the resultant fever being a purely primary effect. A good example of the secondary effect of a toxic substance, itself incapable of directly producing continued fever, is the following: A monkey which appeared to be healthy, observation for several weeks revealing no rise of temperature above the normal range, was injected intraperitoneally with two slopes of a serum-agar living culture of meningococcus from an acute human case of cerebro-spinal fever. For eighteen days after injection no disturbance of the internal body temperature showed itself, observations being taken twice daily. On the nineteenth day an acute fever set in which lasted till the animal's death a few weeks later. *Post-mortem* examination revealed very extensive acute tuberculosis of the lungs and pleura, with deposits in the spleen and liver. Control injections of non-tuberculous monkeys with serum-agar cultures of meningococci from acute human cases of cerebro-spinal fever showed that the continued fever which may follow injection begins within a day or two of injection, provided that the reaction is not masked by too massive a dose. Hence it is clearly a matter of importance in attempting to determine the nature of X to be certain that only healthy animals are injected therewith. Suspicion, however, would be raised that unsuspected disease existed in the animal under observation if continued fever, as in the case noted, only made its appearance after an unusually long latent period.

In the cases in which death occurred not preceded by continued fever it is theoretically possible that the action of a preformed toxin was responsible. But as these results were obtained by the same type of inoculum causing continued fever not directly due to the action of preformed toxin, it does not seem illogical to conclude that death without fever may also not have been due to preformed toxin. This argument applies more particularly to those cases in which a fall of temperature followed injection with recovery to the normal before death, such fall being as significant of the action of a toxin as a rise, whether the toxin be preformed or the result of a genuine infection in the host.

The primary action, therefore, of a preformed toxin in the production of death, or of continued fever, appears to be discounted, if not entirely excluded.

It is, however, conceivable that the injection of an inanimate toxin might secondarily give rise to continued fever by so depressing the resistance of an animal to infection that parasitic organisms might invade it, or that, quite apart from pre-existing disease, saprophytic organisms (intestinal for example) already present might take on a parasitic phase, and thus produce a systemic infection. To avoid such source of fallacy, in attempting to interpret the sequence of events after injection of a filtrate, or of cultures therefrom, even when containing no visible organisms capable of cultivation in the laboratory, it is, of course, necessary to submit to searching cultural observations the body-fluids of the animal receiving the injection, in the event of continued fever or death resulting. If in such case no visible organisms can be cultivated from the body-fluids it can reasonably be assumed, provided that reliance is not exclusively placed on the results following inoculation of solid media with the unincubated body-fluids, that the continued fever at least is the result of the pathogenic action of a living virus, introduced from without, and is not the result, direct or indirect, of the action of a preformed toxin.

As will be seen by reference to the bacteriological data given in Group V of this communication this test was successfully passed in the case of several animals injected with X, animals in which pronounced pathogenic effects were observed. We feel justified therefore in concluding that the filter-passing agent under discussion is a living virus, and that it was directly responsible for the pathogenic results obtained irrespective of the type of inoculum.

Additional evidence that X is a living virus capable of propagation is afforded by the successful passage experiments cited.

This deduction is, of course, based on the assumption that the conventional criterion of the presence of an invisible living virus is soundly based.

Conclusions.

(Based on intraperitoneal and subcutaneous injection.)

1. The pathogenicity to monkeys of cerebro-spinal fluid from acute cases of cerebro-spinal fever appears to tend to vary inversely as its meningococcal content.

2. The cerebro-spinal fluid in this disease sometimes contains a filter-passing agent which is not the meningococcus, but which is nevertheless capable of producing in monkeys continued fever or death.

3. This filter-passing agent appears to be a living virus capable of cultivation in the laboratory, and of passage through monkeys.

4. None of the pathogenic results here recorded can be reasonably attributed to the action of living meningococci as such, or to the direct or indirect action of a meningococcal toxin.

5. The pathogenicity of cultures of the meningococcus appears to be due to the concomitant presence of the filter-passing virus described.

6. The pathogenic effects observed in the monkeys injected, whether with cultures of meningococci, with filtered or unfiltered cerebro-spinal fluid, or with cultures of X, did not include gross pathological changes in the cerebro-spinal system.

ON THE LIFE-HISTORY OF THE MENINGOCOCCUS AND OF OTHER BACTERIA.

BY

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There are in every science certain admitted facts which do not fit in with current teaching. The tendency of the ordinary worker is tacitly to ignore them; the current teaching satisfies his own particular needs, why therefore worry? But, as a matter of experience, it is by a study of these real or apparent exceptions to the rule that advance is most surely accomplished. This is true of bacteriology as of other sciences.

I cannot give a better instance than that of enteric fever. If in this year of grace there is any bacillus that has firmly established itself as a pathogenic agent it is the *Bacillus typhosus*. The specific reaction between the blood serum of the enteric patient and the bacillus is a commonplace of medical practice: take a culture of the bacillus that has been grown for years in the laboratory, kill it and make a vaccine, and by that vaccine our army in its hundreds of thousands has been immunized against the disease, and yet, although that stock culture, when killed, will cause immunity, when living it will not cause the disease. At least, no one so far has been successful in reproducing the symptoms and specific lesions of enteric fever in man or in any animal by the employment of a stock culture of the typhoid bacillus.

Or take another organism that has played an important part in connexion with "immunology," the bacillus of hog cholera. That is a disease which in swine sets up lesions of the bowel not unlike those of enteric in man. Constantly, in swine affected by the disease, cultures are to be obtained of the *Bacillus suipestifer*, and the blood serum of the affected animals agglutinates the bacillus. By analogy with human typhoid this bacillus ought to be regarded as the causative agent of the disease. But similarly inoculation of pure cultures of the bacillus will not reproduce the disease in pigs. What is more, when the disease is rife the bacillus may be isolated from the stools of unaffected animals. It might be argued that we deal with "carriers," though here there is the additional difficulty that vaccines do not surely confer immunity. To crown all, after the long and honourable career of the *Bacillus suipestifer*, in 1905 Dorset, Bolton, and McBryde proved beyond possibility of doubt that the suggestion of de Schweinitz in 1903 was correct, and that hog cholera is set up by a filterable virus, that if the blood serum of an affected hog be filtered through a "B" or even an "F" Chamberland filter, the filtrate will set up the disease in swine not previously affected by the disease. Note the paradox: The bacillus is constantly found in the intestines and in connexion with the intestinal lesions; it will not reproduce the disease, but this can be reproduced by an agent which will pass through filters which are impervious to forms as large as are bacilli.

This is not an isolated case; Petrie and O'Brien[1] have described an epizootic among guinea-pigs "complicated" by an intestinal bacillus which they cannot distinguish from the *B. suipestifer;* nevertheless they prove that the disease is caused by a "filter passer"; and Wolbach,[2] in his valuable review of the filterable viruses, notes two other diseases—namely, distemper in dogs and scarlet fever in man—in which there is a similar constant presence of definite bacteria, with satisfactory evidence of filterable viruses as the essential causative agents. The observations of the last two or three years appear to add typhus fever to this category.

How is it possible to harmonize these apparently contradictory observations? Here the paper now published by Hort and Caulfeild upon cerebro-spinal fever and the meningococcus* is not merely suggestive, but, I am inclined to think, is the beginning of a revolution in our conception of the life-history of pathogenic bacteria; nay, it may in years to come be regarded as one of the classics of bacteriological literature. This I know is a bold statement.

They adduce strong evidence in support of the view that cerebro-spinal fever belongs to this paradoxical group. That Weichselbaum's meningococcus is intimately associated with this disease is as well established as that *Bacillus typhosus* is pathognomonic of enteric fever. No one with any practical experience of the disease can reach any other conclusion; lumbar puncture followed by detection of the meningococci in the spinal fluid has become the one accepted means of diagnosis. It is true that the number of the meningococci found are not in direct ratio to the severity of the symptoms—that in very malignant cases they may be so sparse as not to be visible in smears, and only to afford rare cultures; nay, I am prepared to admit that cases may occur in which, neither under the microscope nor by our present cultural methods, can the meningococci be discovered. But, admitting this, it must also be admitted that in 99 per cent. of cases clinically recognized as cerebro-spinal fever sooner or later meningococci are demonstrable. And as further evidence of the relationship is the specific curative action of the serum of animals immunized against the disease. If during the first phase of the war the serums employed had little efficacy, those now in use in England and, I may add, in Ontario (by Colonel Connell) are reducing the mortality in a most striking manner.

But as Hort and Caulfeild emphasize, and I think rightly, we cannot by injecting laboratory cultures of the meningococcus reproduce the disease. Even in monkeys they failed to obtain results. We have been content to believe that Flexner has settled this point and by inoculating monkeys had fulfilled Koch's postulates, but, subjecting Flexner's statements to a careful analysis, Hort and Caulfeild show that he only obtained his results by using enormous doses, that after a relatively very short time he was unable to obtain cultures from the cerebro-spinal fluid, and that his results can only be interpreted as demonstrating, not the establishment of a true infection with continued growth and multiplication of the pathogenic organisms, but that large quantities of meningococci, introduced locally, by undergoing lysis with liberation of their toxins, can set up an irritation of the meninges—an intoxication.

To this extent, therefore, the meningococcus comes into the same category as the *B. typhosus* and the *B. suipestifer*.

But these observers make now a notable advance; they show (1) that while cultures of meningococci obtained from the cerebro-spinal fluid of patients do not reproduce the disease, that same fluid contains a filterable virus, a virus capable of passing through so fine a biscuit porcelain filter as the "Chamberland F"; (2) that unlike the meningococcus this virus inoculated into monkeys sets up an infectious process—namely, where it does not cause death within a few days it induces a fever which may continue for five weeks and more—a general disorder without localized inflammation of the meninges; and (3) they are able to cultivate this virus, obtaining, as did Rout and Nocard with the "ultra-microscopic" organism of pleuro-pneumonia of cattle, an evident clouding of fluid media, and after a series of passages outside the body they have been able to inoculate monkeys, induce the characteristic prolonged fever, and from animals so inoculated have regained the filterable virus.

These are very remarkable results. They open, it appears to me, a new field for research into the bacteriology of disease. It is true that these observers have not reproduced cerebro-spinal fever in the inoculated animals; they have, however, set up a definitely infectious disorder with fever, accomplishing more than is obtainable with pure cultures of the meningococcus.

Assuming these observations to be correct—and I have carefully studied the technique employed, the cultures and preparations obtained, and can detect no flaw †—the question arises, What is the meaning of this association of meningococcus and filterable virus? Previous workers with diseases belonging to this group have at most suggested a symbiosis; that the one, the filterable virus,

* A fuller report, with ampler details of the experiments, will be found in the *Journal of the Royal Army Medical Corps* for September, 1916.

† Save, perhaps, that a more sensitive medium of growth might have converted some of their negative results with the cerebro-spinal fluid of patients into positive; this, however, does not vitiate the main argument.

prepares the way for the growth of the bacterial species. Hort suggests, and believes that he has evidence supporting the suggestion, that filterable virus and coccus are two phases in the life-history of one organism.

Have we all these decades been wrong in our faith that bacteria are the simplest of all living forms of life, possessed of asexual multiplication by fission only? (Sporulation as exhibited by some species is, it may be noted, not a mode of multiplication, but of tiding the race over evil days.) May there not be intercalated other phases in the life-history of the schizomycetes? I remember that a quarter of a century ago Emile Roux pointed out to me that, employing every care, not a single tubercle bacillus might be detectable in the sections made from a caseous tubercle, and yet inoculate some of the caseous material into a guinea-pig, and disseminated tuberculosis results. Here is no question of spores, as generally understood. Heat the material to 80° C. for an hour, and it is rendered innocuous. If we dealt with heat-resisting spores this would not be the case. As a matter of fact, small Gram-positive granules can be seen in such caseous material, very similar to Much's granules in Hodgkin's disease, sometimes isolated, sometimes in short chains.

In 1901, if my memory serves me aright (I am away from my books), Abbott, Nicholson, and I published a paper in the *Journal of Experimental Medicine* that bears upon this point. We found in the liver and gall bladder in cases of hepatic cirrhosis minute granules, generally in pairs, sometimes in rows of three, so small that they could only be defined by the $\frac{1}{12}$ in. immersion lens. In the bile we found larger (but still small) diplococcoid bodies, and making cultures of these we obtained in case after case the development of *Bacillus coli*. We entitled our paper "On the diplococcoid form of the colon bacillus." Some few years later Wolff-Eisner to a large extent confirmed our findings. Looking at preparations of Hort and Caulfeild's cultures of their filterable virus the appearances reminded me vividly of my elusive minute bodies. I admit that I regarded my bodies as degenerative and due to the action of the cells and body fluids upon the organisms. But it is within the bounds of possibility that, as with many of the protozoa, some bacteria, at least, may afford an encystment stage, followed by the liberation of minute elements which in turn may grow into larger forms which now undergo asexual multiplication. This possibility must now be tested, and these, or other observers, must study other diseases and pathogenic organisms, repeating Hort's method and keeping this possibility constantly in view.

I say this knowing full well that the academic bacteriologist is apt to look with suspicion upon Dr. Hort's work, because Hort is not of his class, but a Harley Street consultant, whose heterodox but most suggestive papers of the last few years have been the outcome of laborious hours in his own laboratory, snatched from his other work. I admit that I have had the same suspicions. Just as to become an expert violinist it is proper to begin to play the fiddle in early youth, so it is almost impossible for a man who begins to be interested in bacteriology in his maturity to master the technique. He may have ideas, may devise admirable apparatus and modes of approaching his problems, but he lacks and must lack manipulative dexterity. The course which seemed to me best calculated to remove this danger and to determine the truth was for Dr. Hort to associate with himself an independent technician of proved ability. This Dr. Hort did when he asked the D.M.S. Canadians to attach Captain Caulfeild to Addington Park for this special investigation, under the auspices of the surgeon-generals of both navy and army, Captain Caulfeild having been Demonstrator in Pathology of Toronto University, later Assistant in Experimental Medicine under the Chair of Medicine in the same university, and having published valuable work upon immunity and the tuberculin reaction in tuberculosis. The work thus demands and must receive consideration. After all it is the peculiar glory of British science that so many of its greatest triumphs have been achieved outside the schools by Priestleys, Daltons, and Darwins, and other educated amateurs.

REFERENCES.

[1] *Journal of Hygiene*, 1910, vol. x. [2] *Boston Med. and Surg. Journal*, 27, 1912, p. 412.

Reviews.

THE UMBILICUS.

DR. CULLEN has added one more standard volume, the *Embryology, Anatomy, and Diseases of the Umbilicus*,[1] to the series of publications issued by the Johns Hopkins School of Medicine. It contains full quotations of the records of other observers and reports of cases occurring in the experience of the author and his colleagues. The illustrations are of high merit. Mr. Horn, whose brilliant work is so familiar to all who study the works of Drs. Kelly and Cullen, unfortunately died before he could prepare some of the earliest drawings, but Dr. Cullen has secured the services of Mr. Max Brödel, Director of the Department of Arts as Applied to Medicine in the Johns Hopkins Medical School, and rightly awards to that artist the credit of playing the principal part in investigations throwing light on the development of the umbilicus in the embryo, and on its variations in the adult, demonstrated by sixty sketches taken from patients in the wards of the Johns Hopkins Hospital. Attention may be particularly directed to an excellent drawing, representing a dissection of the umbilical region of the adult viewed from within, and to others of umbilical hernia associated with pendulous abdomen, and the stages of the radical operation for its cure. Dr. Cullen's chapters on umbilical hernia, umbilical infections, and Meckel's diverticulum and the complications to which it may give rise, will be studied with interest by surgeons. The author informs us in his preface that his book is founded on researches commenced twelve years ago in association with a case of cancer of the navel under his personal observation, and the part of the book dealing with tumours is very good. He followed up numerous after-histories, corresponding in some cases with observers in this country. He also communicated freely with English writers when engaged on his numerous chapters on the urachus, a subject about which much has been written during the past thirty years by British gynaecologists. Dr. Cullen has quite rightly saved from oblivion Wutz's monograph on urachal cysts, published in *Virchow's Archiv* in 1883, and he has shown much discretion as to the acceptance of reports of large non-infected urachal cysts. The pathology and treatment of patent urachus is discussed at length, and Dr. Cullen has very prudently quoted Dr. Edward Ill's warning, which is most important for the general surgeon to remember whenever he chances to come across this condition. Should the lower part of the urachus be uninvolved at the time of the operation, being reduced to an apparently impervious cord, it is not safe to treat it by ligature, as there is often a minute canal lined with epithelium in the cord; the ligature may not destroy the epithelium, and so the canal may open up from below after a time and a bad urinary fistula will be the result, an accident already recorded in the history of surgery.

NOTES ON BOOKS.

DR. GANT'S book on the various diseases of the gastro-intestinal tract[2] is a highly meritorious compilation, based on the extensive literature of the subject and the author's own experience. There is very little in it about diseases of the stomach; the title-page refers to the gastro-intestinal tract, the title on the book's back mentions intestinal diseases only, and the text is concerned almost entirely with the one subject of diarrhoea. The author goes in strongly for classification and subdivision, far more strongly than practical experience would justify; thus his "etiologic classification of diarrheas" on pp. 22 and 23 contains something like 150 classes and varieties of diarrhoea. Many of the illustrations are excellent, though not a few have suffered from too enthusiastic retouching. There is a great deal of useful information in the book, but it is often presented in unattractive forms and buried beneath a mass of verbiage. Compressed to half its

[1] *Embryology, Anatomy, and Diseases of the Umbilicus, together with Diseases of the Urachus.* By Thomas Stephen Cullen, Associate Professor of Gynaecology in the Johns Hopkins University. Philadelphia and London: W. B. Saunders Company. 1916. (Sup. roy. 8vo, pp. 690; 7 plates, and 269 figures. 35s. net.)

[2] *Diarrhoeal, Inflammatory, Obstructive, and Parasitic Diseases of the Gastro-Intestinal Tract.* By S. G. Gant, M.D., LL.D. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 604; 181 figures. 20s. net.)

present length, rewritten with more light and shade and less emphasis on negligible detail, and rearranged, Dr. Gant's book would be a good and serviceable contribution to the study of diarrhoea.

The third edition of Messrs. Moor and Partridge's *Aids to Bacteriology*[8] contains a great deal of information in a small compass, and has been brought up to date by the inclusion of much that bacteriologists have learnt from experience in the trenches and battlefields of the war. The volume may be regarded as a favourable specimen of the class it represents.

[8] *Aids to Bacteriology.* By C. G. Moor, M.A.Cantab., F.I.C., Captain 1st London Sanitary Company, and W. Partridge, F.I.C. Third edition; Students' Aid Series. (Fcap 8vo, pp. 286. Cloth, 3s. 6d. net; paper, 3s. net.)

MEDICAL AND SURGICAL APPLIANCES.

Wristlet Ligature Holder.

Mr. Percival P. Cole (London) writes under date September 27th: My wristlet ligature holder was exhibited at the Congress of American Surgeons in July, 1914. I had never seen Mr. Victor Bonney's device (British Medical Journal, September 16th, p. 393) until a fortnight ago. The single-handed knot is such an elementary point in technique that mention of it seemed to me unnecessary.

THE ARMY MEDICAL SERVICE.

BY

A MEDICAL OFFICER IN CHARGE OF AN INFANTRY BATTALION.

In view of the very general discussion on the present position of medical men, some views from one of its members on the subject of the corps which claims their services may be of interest to those about to join it.

Those who regard them as superfluous may conjecture that they are written in an interval of spare time and may comment on the subject of spare time in the R.A.M.C., ridiculing the "demands for medical men in the army," perhaps even offering generous sympathy with some "unfortunates" who are compelled to waste their valuable time and intelligence in ministering to the crude ailments of a footsore regiment.

A medical man on taking a commission must be prepared to become a specialist in a subject which is entirely new to him, having a wide scope, and as remote from the nature of his ordinary routine of work as the subjects of public health, medical jurisprudence, etc., are from that of a newly qualified medical practitioner. The comment that is here sometimes made is that it is a waste of a medical man to employ him in a capacity which could equally be fulfilled by a man not so qualified. Yet no one criticizes the regulations which, in civilian life, require that before one may specialize in, for example, public health, he must have a medical qualification as a necessary preliminary. It is equally true of the duties of an army medical officer that, remote as they are from the subject of pure medicine, they could only be efficiently fulfilled by an officer who possessed a preliminary medical qualification. A field ambulance, for example, in modern warfare, where the paramount question is the proper transport of wounded away from the sphere of action, of which the familiar examples of rapidity are an outstanding testimony to the efficiency of organization, could no more be efficiently run by "combatant" officers than an infantry battalion could be led to fame and glory by the staff and residents of a general hospital!

The medical officer, new to his work, must be prepared to learn, in a comparatively short time, an entirely new and wide subject, and if he comments that his skill and previous experience are thrown away, he might bear in mind that his case is not isolated; he is not the only person who has had to adapt himself to new and unforeseen requirements. If a man who, not long ago, gave five or six years to the study of law, has had to abandon his practice to render service as a combatant officer, he does not necessarily demand in return that he shall be employed in the army only in the capacity of prosecutor or prisoner's friend on courts-martial! The circumstances are not so very dissimilar, with the difference that the medical officer has considerably better pay, and as a rule (not of his own choosing, but of necessity) a much more comfortable "billet."

I do not propose to enter here into details regarding the duties of a medical officer, but if, before consenting to become one, the officer will accept that he must, for the time being, put aside his technical knowledge of medicine (for the very simple reason that military exigencies cannot, in the nature of things, provide scope for its employment) and be prepared to adapt himself to the new demands made on him, he will probably find his way smoother and will evolve into a more efficient officer. It would be hard to set a strict limit to these possible demands. At one time he may be in a general or stationary hospital, when he will find that his duties do involve what is commonly implied by the practice of medicine and surgery (though even here with inevitable limitations), but the number so employed is relatively not large, and the younger man will find that he does not remain here long. He will soon find himself probably in a field ambulance; he will one day—probably soon—be halting a section of his men in a new locality, when a brigade of artillery may come at full pace round the bend of the road; he will have to pretty sharply move his men, by word of command, out of the way, and if he has ignored to acquire some elementary knowledge of drill when the opportunity was provided him in an officers' class, he will only succeed in putting his men in a position of chaos (if even that) and himself into one of ridicule.

He may be given a map indicating the firing line, with instructions to advance for collection of wounded, and to take also his ambulances along a given road to a point as far as is safe, in his judgement, for them to be brought; if he has acquired the elements of map reading, he will probably halt his wagons in time at a suitable point; if he has not, some hostile shells (we are speaking of modern warfare) may be the first reminder that the inconspicuous contour-figures on the map have a significance, and that, had he not omitted previously to interpret the reading of these figures in the area concerned, he might have been less crudely forewarned that he was bringing his ambulances a hundred yards further than he should, on to the top of a hill between which and the enemy's guns nothing intervened to obstruct their view.

After a time with a field ambulance he may be sent up to fill a vacancy as regimental medical officer. It may be that he considers himself an excellent surgeon, but he will be a more efficient R.M.O. if he puts this consideration aside for the time being; and for this you must blame, not the authorities, but the unknown God of War who devised that the results of hostilities between armies should be what they are.

The duties of a regimental medical officer during an action are elementary, and no more than are indicated by the dictates of common sense; but, simple as they are, they could not be efficiently conducted by any one other than an officer with a registered medical qualification. Incidentally, the knowledge that a medical officer is present during an action may lend indirect moral support to troops; it is very common for the soldier to be obsessed with a fear of death from haemorrhage, in spite of the fact that one so seldom sees severe bleeding from gross battle wounds.

When his regiment is not in action the regimental medical officer must be prepared, apart from routine instruction of his stretcher-bearers and the usual supervision of general sanitation, to advise, *in anticipation*, on the course of procedure to be adopted in any matter which directly or indirectly affects the health of the whole unit or its individuals. He may one time be asked what is the water-holding capacity of an ordinary beer barrel; whether a given drain in some billet is efficient or not; what was the possible source of infection in an outbreak of disease, and what steps he would take to counteract its spread—there are many possible demands on his initiative or resource. When he has established his position in a unit, and when he has gained the confidence of experience, his energies may be directed towards enlightening the company officers on their own obligations in this direction. Tactfully used, his position is a strong one, and the work is straightforward. Will any who would criticize this routine suggest who but a medical man should fill this post?

Just occasionally one meets the isolated case of the man who grumbles whatever his lot. But excluding such cases, there remain men who are not of the ordinary—men who can claim to be given scope for special work. It is true that such a man is out of place in the fighting line, not so much from the personal point of view that he is too

superior a being to be subjected to the risks of a bullet (your regimental adjutant was possibly a highly intelligent and capable manager of a large business concern not so long ago, but nevertheless goes over the parapet with his battalion) as that his training and experience would be wasted where there is no scope for its employment.

There are more ways than one in which a "specialist" may claim what he desires. One is to go to those who control things at the head of affairs and, representing what a valuable person he is, demand that he shall receive a commission with the understanding that he shall do this or that particular or specified work, perhaps even a guarantee to provide him a sufficiency of material on which to devote his services! The fact is often overlooked that in army work it is almost impossible to anticipate what unforeseen demands may or may not occur from one day to another, and it is well-nigh impossible to guarantee beforehand that there shall be a sufficiency of certain work always ready to fall into the hands of those who want it.

While he who calls himself a medical officer must be prepared to adapt himself to general duties during intervals when circumstances do not provide scope for the work of his choice, nevertheless if, on joining, he forgets for a short time any claims to superiority, and is willing to go through the rudiments of a preliminary general military training which is provided at various centres, he will generally find that his wishes or his claims in the long run are not overlooked, granted always that military circumstances call for such recognition; when they do, he will be ready at hand. It is on similar lines that if you are to be prepared to meet all possible contingencies there must be times when numbers are in excess of requirements; and because these times occur at varying and spasmodic intervals, when the medical officer finds he has little to do, it is no answer to say that there are too many medical officers.

An infantry battalion finds itself at one time on a "slack" part of the line, or behind it; the cavalryman may never have seen it, or may perforce have to pass an easy time, waiting in anticipation at some quiet part; at times the ordnance and supply services, in one area, though prepared, have less than they might wish to do, while in another, according to the tide of events, their energies are taxed to the utmost of available resource. Military operations cannot slide along with the even smoothness and regularity of a business concern. The man who fails to recognize that such periodical spells of inactivity are inevitable in certain sections takes as narrow a view as the short-sighted gentleman who thinks that every enlisted man should be in the front-line trench. Although I think that the entire interest of active warfare is lost to the man who does not reach the front, I have seen enough of things to realize that the "front" is a relatively small component in the scheme of a campaign; indeed, without the vastly greater factor—the foundations behind—there would be no "front."

This recalls the fallacious assertion of many that the rank and file of the R.A.M.C. should be composed of men medically unfit for general service! It will generally be the case that the advocate of this view would be the very first to make an outcry if, in the stress of a great action, he did not receive all the medical attention which he nevertheless assigns to himself as his due. Even so, this mistake is not uncommon amongst quite intelligent people, and a medical officer will not be long with a unit before he runs up against it. An officer criticized with more candour than grace the men of the R.A.M.C., complaining that there were "numbers of fit men sheltering under its protection," and refused to see reason in any other view. My answer was that if it ever transpired that he met with mishap, and I had charge of the men on whom he was dependent for medical "aid," supposing he was one of ten, I would see (after due consideration of the urgency of his condition) that he should be the tenth to be dealt with, and should have apportioned him for his benefit the least efficient of those men. Whilst he was being carried from an advanced dressing station along a shelled road for some few miles by two or three stretcher-bearers who were "medically unfit," he would doubtless have ample time (and inducement) to reflect as to the sanity of his views. Strangely enough, the same person, a week after this little discussion, being indisposed, raised not the slightest objection to one's sending him back for a period, that he might avail himself of the hospitality of a fully equipped field ambulance. An unfit man is as much of an incumbrance in the R.A.M.C. as he is, say, in the infantry, and I often wonder if this is fully realized by the recruiting medical officer at home, who—more from generosity than ill will—was apt in the earlier stages of the war to dispose of his doubtful recruits as "fit for the R.A.M.C."!

There is, I think, no branch of the service in which recognition is paid to individual wishes by those at the head of affairs to a greater extent than that which obtains in the Medical Service. The R.A.M.C. officer goes to a centre for preliminary training, there to undergo a short elementary course in subjects of which — however irrelevant they may appear at first sight—it is essential he should acquire the rudiments before he can be capable of dealing with the varied situations he may possibly find himself called upon to meet. Not the least interesting of these acquirements will be the rudiments of horse-riding.

Whilst at the training centre he will probably be asked what are his inclinations—to remain in a field ambulance (there are many worse billets in warfare), to go to a regiment, to go to a hospital or to go on a waiting list to proceed independently abroad; if abroad, would he prefer to be sent to the East, or elsewhere—if the former, he should send in his name in readiness for demands.

On arriving abroad, particulars of qualifications are registered and individual wishes with regard to special work are generally complied with, provided there is a vacancy calling for it. It is only natural that the numbers so available are usually in excess of the requirements, so that most commonly the officer passes from the base up to lines of communication, probably to a stationary hospital. Here he remains, at any rate for a time; he may be offered the choice of medical or surgical work; to quote a personal instance, one was given the option of accompanying a senior sanitary officer on his tour of inspection along lines of communication, with a view to acquiring some ideas on a subject which might prove useful when further up the line. After a period spent in this manner, demands may come down for some officers to be sent further up, and in such cases it is not uncommon to find an opportunity thus afforded of taking some choice as to one's destination. So he may pass from lines of communication into one of the armies, in all probability first to a field ambulance. When so stationed, whatever the nature of his medical duties may chance to be, he has an opportunity of getting an insight into the trend of military operations over a considerable area, from a somewhat unique perspective. When he has gained some experience here, he will doubtless have every opportunity of claiming, should he want it, the post of regimental medical officer, and as the ambulance is associated with various regiments, even at this stage there is generally the possibility of selection.

It will thus be seen that when one reaches the front line one has done so only through a series of successive stages, allowing of time to acquire what knowledge may be necessary, and also an opportunity of exercising some choice in the matter of one's destination. Such concession to individual desire, if universal, would be not merely harmful, but impossible, and I am not losing sight of the fact that the routine of medical administration in warfare necessarily permits of this flexibility in a special branch of the service more easily than perhaps would be possible in other branches; but it is not obligatory—the more in times of general service.

I suggest a comparison. A medical officer is, say, six to nine months with a regiment in the trenches; some day an order might come that he will be replaced by another. Should it be rumoured that he had requested a change no one criticises his step or questions his reputation; it is in the nature of things to accept that he was at liberty to take such a step. After a long period there is some monotony in the routine of regimental medical work.

The infantry officer, by contrast, goes through his preliminary training, and as soon as efficient is told to "go there"; there is no question but that he does go. Then it is only a matter of waiting, but it will come—sometime he is wounded. He goes home to recover, and soon enough he is out again, and so it continues. One day the cycle is interrupted—he does not go back.

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SCIENCE AND LITERATURE IN EDUCATION.

The discussion on the relation of science to the State and to education, which has exercised a powerful influence for good on public opinion, seems to be in danger of losing itself in what is really a side issue. A generation ago polemical writers were never tired of discussing the conflict between science and religion, but most people nowadays realize that there is no real conflict because they are concerned with two different aspects of man's nature. Now there is an inclination in some quarters to beat up a conflict between science and literature. Sir Clifford Allbutt, who some years ago wrote an illuminating book on professional education, has now, in some letters to the *Times Educational Supplement*, taken the matter on to different ground. Sir Arthur Evans in his address to the British Association repeated the lament that the British, or at any rate the English, were sunk in intellectual apathy. It is much the same lament as Matthew Arnold uttered nearly two generations ago, but, Sir Clifford Allbutt asks, What, thus stupefied by nature and by education, have Englishmen been doing? His answer is that this stupid or intellectually apathetic race has mastered half the world, has been the tamer of realms of wild or disorganized nations, has led the way in invention and in triumph over brute nature, and, with France, has been the chief maker of modern civilized society. And he adds: "We are beginning to hear that for efficiency, method, elasticity, and initiative the British conduct of this great war is astonishing Europe. That such is the case in the medical service I know." Is there not, then, he argues, some riddle which needs more thinking out? His answer is so interesting an excursion in national psychology, contains so valuable a warning for the future, and has so direct an application to education for the medical and other scientific professions, that we will attempt to state it. He begins with a parable of the skilled workman, who has by his many years of practical experience acquired a sensitiveness of hand, a play of hand and sense, a fineness of touch, a rapidity of adaptation and almost incredible dexterity. He cannot go far in the principles of mechanics, but can tell unerringly what, in his own line of work, a thing is "good for." If a scheme be proposed to him he will not argue about it, but will carry the thing to his bench and try it, and his decision is either "it will not work," or "it will work." The average Englishman seems intellectually apathetic, not because he is not interested in his calling, but because he is possessed, too closely beset, by the question whether or no a thing will work there and then. "In order to think he does, and he does in order to think." He realizes that in every transaction with man and material, contingencies are so many and so complex that main principles are overlaid by them; unwisely, therefore, he is tempted to scout the principles.

Broadly speaking, in the history of the works of man art has preceded science; first, the thing doing or done, then, in the second and following order, the analysis of it. The concrete first, the abstract afterwards, often long afterwards. This is the English boy's instinct: art first, then science. His first stage is to do and to make, and from that he should be led to analysis and the separation principles. In teaching English boys the concrete must come first, the abstract afterwards, a lesson they try to teach their masters; yet in customary classical teaching the boy is started upon remote and subtle abstractions. "The wretched boy, so taught," Sir Clifford Allbutt says, "cannot, after ten years' instruction, say in Latin, 'Get up and open the window.' Yet a few generations ago every grammar school boy, gentle or humble, could make some discourse in Latin." The system, it appears, has been put to the test by Dr. Rouse at the Perse School, Cambridge, where, in the Latin lesson all the text, exposition, correction, and illustration, are carried on in vernacular Latin by masters and boys, and the boys, "finding themselves not passive vessels only, but doing a living thing, are no longer 'apathetic,' but as keen as terriers."

To this as a concrete matter let us add that it is singular for persons who proclaim the intellectual advantages which flow from an education founded on Latin and logic to accuse those who maintain that science should form part of the training of an educated man at school and college of desiring to belittle literature. They are entitled to claim that a classical education is a means to an end—the end being the training of the mind—but they are not entitled to claim that it is the only means of attaining the end, more especially when their methods of teaching classical languages are proved to be so defective and to lack the inspiration which scientific training gives. At any rate, let us continue to claim that literature is the noblest recreation for the mind, and that one of the justifications for retaining Latin and Greek in the ordinary curriculum is that a working knowledge of them opens to us the storehouses of the past.

OVERTIME AND SUNDAY LABOUR.

The Health of Munition Workers Committee, in its fifth memorandum, recommended that the average weekly hours of labour, including overtime, should not exceed sixty-five to sixty-seven for men and sixty for women. The Committee suggested that it might be desirable to distinguish between different kinds of work, but did not make any specific recommendation, owing to lack of data on which definite conclusions could be founded. Since the publication of this memorandum the Committee has secured the services of several investigators who have been engaged in making detailed inquiries into output in relation to hours of labour. It has now issued as an appendix to Memorandum V a report by one of these—Dr. H. M. Vernon, the distinguished Oxford physiologist—but reserves its final opinion until the work of the investigators is completed. We may, however, congratulate Dr. Vernon on a very valuable series of observations, for there can be no better means of studying fatigue than the hourly and daily output of workers engaged as they now are, with their heart and soul in the work, and their earnings unrestricted.

The first object of the Committee is to secure the maximum output so long as the war lasts. This can be obtained only by maintaining the health and physical efficiency of the workers. Questions of extra cost of output, or of optimum hours yielding the maximum enjoyment of life by the worker and the best development of his character, have to be left out of consideration during the war. There were no trade union restrictions upon output in the munition works investigated by Dr. Vernon. A complete series of output data were obtained for one hundred women, used to the work, over a period of twenty-four

weeks engaged in the moderately heavy labour of turning fuse bodies. Standing at capstan lathes all day, the operations require close attention and some delicacy of manipulation, so that no relaxation of effort is permissible during the actual turning.

The actual hours of labour worked were at first 68 to 69; in the four weeks following the Christmas holiday there was a 12 per cent. increase of total output, which Dr. Vernon attributes to the after-effect following the holiday. As might be expected, there was a typical rise in hourly output just before the holiday and a great fall immediately after it. In the last part of the period of observation shorter hours were established, 60 hours being actually worked. The total output nevertheless was 8 per cent. greater than in the period when the hours were 68 to 69. Dr. Vernon puts forward convincing evidence that the increase was not due to greater skill on the part of the operatives, or to any change in the nature of the work. One group of seventeen working 51.8 to 62.6 hours a week had an output 18 per cent. greater than fourteen operatives working the old long hours. When both groups worked the long hours their output was identical. Women given hours too long in relation to the work they had to do instinctively kept worse time, and took occasional half-days off; other women engaged in the same factory on light sedentary work showed only half as much broken time. In the case of nine youths engaged in heavy labour (sizing base plugs) a reduction in the hours from 68.3 to 60.9 was accompanied by an increase of output of 38 per cent., an astonishing difference, which Dr. Vernon attributes to the fact that they were seriously overworked by the longer hours. In the case of twenty-seven men engaged in the heavy labour of sizing fuse bodies the reduction of hours from 61.5 to 55 or 56 was accompanied by a 10 per cent. increase in total output. On the other hand, the output of twenty-three men engaged in the moderately heavy labour of boring the powder chamber of shells was increased by raising the hours of actual work from 47.8 to 59.7. In the case of youths doing the light work of boring top caps the reduction of the hours from 75.6 to 59.4 gave a total output 15 per cent. less, so that in this case the terribly long hours seemed to be necessary to secure the maximum output, but, it cannot be doubted, at the expense of the youth in after-years. The results of Dr. Vernon's investigation together suggest the following maximum hours a week—For men doing very heavy work 56 or less, doing heavy or moderate 60 or more, doing light 67 or more, and doing very light 75. For women the maximum should be: Moderate work 60 or 56 hours, light work 62, very light work 65.

The Health of Munition Workers Committee, in its first memorandum issued last year, stated that the evidence it had then received led it strongly to hold that if the maximum output is to be secured and maintained for any length of time a weekly period of rest must be allowed, and said that it considered that the "discontinuance of Sunday labour should be of universal application, and should extend to all classes of workers except where the work must necessarily be continuous," when special arrangements would be necessary. In a memorandum[1] on "juvenile employment" just issued, the Committee states that the arguments in favour of a weekly period of rest apply with special force in the case of boys and girls, since they are less fitted to resist the strain of unrelieved toil, and are more quickly affected by monotony of work.

[1] H.M. Stationery Office. Cd. 8362, price 1d.

A second interim report by Professor Stanley Kent, of Bristol, on his investigations of industrial fatigue, fully bears out this conclusion. His first report, issued about a year ago,[2] dealt chiefly with methods employed. The new report[3] relates and discusses the results obtained. They confirm his previous conclusion that there is progressive development of fatigue throughout the week, and he advances evidence that the power of recovery is diminished. He found that overtime might lead not to an increase, but, owing apparently to the extra fatigue it produced, to an actual diminution of output—a conclusion identical with one of those reached by Dr. Vernon. Professor Kent points out that a progressive diminution of the power of the worker to resist fatigue or to recover from it if present, afforded a strong argument against Sunday labour. In normal times the lessened efficiency found towards the end of the week is remedied by the rest obtained on Saturday afternoon and Sunday. With Sunday work the rest is inadequate and the condition of fatigue becomes permanent, and is, in fact, aggravated week by week until either the worker breaks down or, as is more probable, equilibrium is brought about. The production of what Professor Kent calls a condition of equilibrium through which the cumulative effects of fatigue are averted depends, he says, upon a number of factors, but the only one which can be varied quickly and often is the degree of application of the worker to his task. The adoption of this means of adjustment may be conscious or unconscious, but Professor Kent appears to hold that if the hours are twelve instead of ten, the closeness of application will be less throughout the whole period. He summarizes his conclusion under this head by stating that if, in a factory where the operators are working as assiduously as possible, overtime be introduced the change will involve extra strain; reaction will take place, application will be relaxed, and the fatigue produced in each hour lessened in consequence. It will develop at a slower rate for a greater number of hours a day, and recovery will be less perfect. The consequences will be that the general efficiency of the worker will be lessened. Where the output is controlled mainly by machinery the loss may be small, but where it depends more especially upon the worker it will be great. The general conclusion is that overtime labour is physiologically and economically extravagant, and frequently fails in achieving its object.

The Ministry of Munitions has profited by the result of these scientific inquiries, for it announced at the end of last week that it had been decided, so far as possible, to prohibit Sunday work in establishments in which munition work is carried on. Accordingly, as a first general step, a general instruction has been issued prohibiting, as far as possible, Sunday labour throughout the north-east coast. Exceptions are made in cases where the work is necessarily of a continuous nature, or where the repair to plant and machinery can only be performed during the week-end.

THE SALE OF A PRACTICE.

There are so many personal and local considerations affecting the sale and purchase of a practice that general questions sometimes receive inadequate attention, and we propose to deal here with one point the importance of which has recently been accentuated. We have reason to believe that it is often not understood, and more frequently still lost sight of, when an agreement for sale is prepared. We refer to the

[2] British Medical Journal, October 2nd, 1915, p. 512.
[3] H.M. Stationery Office. Cd. 8235. Price 1s. 6d.

possibility that, unless due precaution be observed, income tax may be deductible from the payments made for the transfer of the practice.

There appears to be an increased tendency, possibly on account of the capital stringency arising from Government expenditure, for the purchase price of a practice sold in present conditions to be spread over a short term of years. Such an arrangement has much to commend it, especially from the point of view of the purchaser, and provided that it leaves the other liabilities of the contracting parties unaffected, it probably gives the maximum amount of satisfaction to both; but unless the condition be fulfilled the agreement may be found to inflict unexpected hardship on the vendor. The point can be best explained by means of an illustration. Let us take the simplest case first, and suppose that it be agreed that the value of the practice is £2,000, and that this amount is to be paid to the vendor in one sum. It is clear that this is purely a capital transaction, and it would be so treated by the income tax authorities; the purchaser could claim no allowance for his outlay of £2,000, and the vendor would not be liable to account for tax on the amount, or on any part of it. Now let us suppose that the agreement for transfer simply provides that, in consideration of the fact that the vendor enters into the usual undertakings with regard to introducing the purchaser to his clients, etc., the purchaser covenants to pay a sum of £400 in each of the following five years. In such a case, although the facts—apart from loss of interest on outstanding purchase moneys which is immaterial to the argument—are not essentially dissimilar, the purchaser would be entitled to deduct income tax from the payments made to the vendor, on the ground that they are "annual payments" within the meaning of the income tax Acts. At the high rate of tax in force at the present time—and, we may add, apparently contemplated for the future—it is obvious that such a right of deduction would confer a substantial advantage on the purchaser at the expense of the vendor, and would materially affect the price ultimately paid for the practice. The purchaser would, in effect, be obtaining an income tax benefit equivalent to the deduction of the purchase price as a professional expense, and the vendor would be mulcted in tax on what is in essence if not in law a "capital" receipt. The revenue would not appear to be affected, except possibly to some small extent according as the vendor or the purchaser pays tax at a higher rate. Such cases have occurred within our knowledge when neither of the contracting parties had anticipated or desired such a result, and, though the matter is capable of settlement by mutual consent—and, in passing, it may be said that that generally implies a compromise which, in the nature of the case, cannot do full justice to the vendor—it is more satisfactory to avoid the difficulty altogether.

The method by which this can most conveniently be done is to earmark the payments in such a manner that a court of law would, from a perusal of the agreement itself, regard them as constituting payment of capital by instalments. For example, if the contracting parties agreed that the purchase price of the practice should be £2,000, but that the purchaser should have an option of discharging his liability by payment of five annual instalments of £400 each, with or without interest at, say, 5 per cent., or, if desired, alternatively by payment of, say, one-third of the gross or net receipts of the practice until the £2,000 be entirely paid, then the payments would, we are advised, be "earmarked" in the manner required to identify them as capital. Of course, if interest be provided for in the agreement and paid, it would be liable to tax, but that would not affect the main question as to the deduction of tax from the sums representing instalments of the purchase price.

We have treated the matter as referring to the sale of a "sole" practice, but of course the observations apply equally to an agreement for the sale of a share in a partnership practice.

Seeing that the question is one which involves a source of substantial but avoidable difficulty, it is to be hoped that it will be borne in mind by all practitioners who may in future be concerned in the preparation of any agreement for the sale of a practice.

MEDICAL REMUNERATION UNDER THE INSURANCE ACTS.

In the Supplement this week will be found printed in full what must be regarded as the Insurance Commissioners' official explanation of the present system of remuneration of panel practitioners in England and Wales. The document, which will be known as Memo. 229/I.C., is being sent to the secretary of every Panel Committee and to each representative appointed to attend the Conference of Local Medical and Panel Committees in London on October 19th, where it will come up for consideration. For months past the Editor and the Medical Secretary have been almost inundated with letters from practitioners having complaints to make about the payment of remuneration under the Insurance Acts, and though practically all the explanations given in the present document have been in a somewhat disjointed way published before, this is the first official connected account of the elaborate system the Commissioners have found it necessary to set up. It will be seen that the subject is dealt with under three main heads: (*a*) The collection of funds by the Commissioners—that is, the formation of the central medical benefit pool; (*b*) the distribution amongst Insurance Committees of the pool thus formed; and (*c*) the distribution by Insurance Committees to individual doctors. The method adopted under each of these heads is explained, and the modifications which the war has made necessary are described, while a hint is also given that still further modifications may be found necessary as the effects of the war are further developed and made manifest. The importance of the document is obvious, and while it will undoubtedly explain many anomalies which have caused a feeling of dissatisfaction among panel practitioners, it is equally certain to bring out numerous criticisms and suggestions. We suggest that every panel practitioner should regard it as a duty to study the document carefully, and retain it for future reference.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

A conference of representatives of Local Medical and Panel Committees, called by the British Medical Association, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Thursday next, October 19th, at 10 a.m. Dr. J. A. Macdonald will preside. The business of the conference will fall mainly into the following divisions: (1) discussion of the report of the Insurance Acts Committee on the resolutions passed at the last conference, and of the action taken by the Association since that time, on behalf insurance practitioners; (2) discussion of the present method of remuneration for medical attendance under the Insurance Acts; (3) discussion of the new regulations for 1917; and (4) discussion as to future organization for the protection of the interests of the medical profession in relation to the Insurance Acts.

THE RECRUIT'S HEART.

The condition of the recruit's heart and the cardiac affections to which soldiers are liable have recently aroused so much discussion, and so many accusations of

carelessness and insufficient examination have been levelled against the recruiting authorities, that it may be of interest to describe the mechanism provided in London to ensure that the recruits presenting themselves at the various stations are thoroughly examined and accurately classified. In the early days of the war, when all machinery had to be hastily improvised, some men may perhaps have been accepted or rejected on the opinion of a single examiner. This is no longer possible. The London area has been divided into districts, in each of which a carefully constituted board of skilled medical examiners deals with the recruits presenting themselves. No man is passed or rejected upon the judgement of a single individual, but only on the considered opinion of the board as a whole. Some surprise has been expressed that men who have already been examined in the earlier days should be called up for re-examination. The public do not seem to have grasped the fact that the present system has been devised as much in the interest of the individual as of the nation. Of course, in a science so complex as that of medicine, doubtful cases must occur where the skill of the expert is of inestimable value in elucidating difficult points. The War Office, realizing the assistance that specialists could render, have not hesitated to avail themselves of their help in different branches of medicine and surgery, such as ophthalmology and cardiology. For the latter branch, as early as last February, arrangements were made with the National Hospital for Diseases of the Heart to subject those men about whose cardiac condition the recruiting medical boards might be in doubt to an exhaustive and searching examination, taking advantage of all the scientific aids which recent research has placed at the disposal of the profession. Up to the present over 5,000 of these doubtful cases have been examined and reported upon by the hospital. The statistics are now being worked out, and will, no doubt, in the future form the subject matter of various interesting communications. Of 1,000 cases taken as a sample, it has been found that 447 were classified as fit for full military service, either at home or abroad, 291 as fit for garrison duty or labour purposes, and 262 as fit either only for clerical work or totally rejected. It must be remembered that the experts only act as advisers to the recruiting boards, with whom, of course, the final decision necessarily rests. In addition to the ordinary methods of clinical examination, which includes a careful consideration of the patient's subjective symptoms, the importance of which Sir James Mackenzie has recently emphasized, an electro-cardiograph is taken in the case of every recruit, and in most cases his heart is also examined by *x* rays. But perhaps the most interesting feature of the examination, in view of the present trend of medical thought, is the fact that every candidate is made to do a standard piece of work, his pulse-rate, blood pressure, and respiration being taken before, immediately after, and again three minutes after, the exertion. This test has been of the greatest service in estimating the efficiency of the heart muscle in many doubtful cases. It will be interesting in the future to compare the results reached at the National Hospital for Diseases of the Heart in the case of recruits with those obtained at the Mount Vernon Hospital, where soldiers already in the army are dealt with.

THE RAT AND ACUTE ANTERIOR POLIOMYELITIS.

At a conference of state and territorial health officials held on August 17th and 18th at Washington, in conjunction with the United States Public Health Service, it was reported that the result of the national survey at the time of the meeting showed that in the thirty-eight states and territories represented there had been since January 1st, 1916, a total of 11,717 cases of poliomyelitis. A committee appointed by the meeting has made a number of recommendations based on the assumption that the virus is conveyed directly from one human being to another either by sufferers or carriers. It advised that it was urgently necessary to take measures to prevent contamination by human excreta, or other bodily discharges, to suppress the fly nuisance, to prohibit the use of drinking cups in common, and to institute a general education campaign for cleanliness and sanitation, with particular instructions to parents and children concerning personal hygiene, especially of the mouth and nose. Dr. Mark Richardson, formerly secretary of the Massachusetts State Board of Health, has now advanced a theory that the rat may be responsible for the spread of the disease, either directly by contamination of food, clothing, or furniture, or through its fleas.[1] He began by enumerating facts militating against the belief that the virus is transferred by direct or indirect human contact; he pointed out that the disease is most prevalent during the spring, summer, and autumn, and declined after the onset of winter, though the population then becomes more congested in houses and schools; that the maximum prevalence of the disease is in country districts; that the disease has not been known to spread in general hospitals for children, nor in schools or institutions, nor among laboratory workers; and that it is comparatively rare for more than one case to occur in large families of children even under the markedly congested conditions of tenement life. In 1910 Dr. Charles E. Simpson, State Inspector of Health, called attention to two outbreaks following on the destruction of a refuse dump in the one case and an old barn in the other, and to an instance in which in an infected district of a city in Massachusetts many rats were said to have been found dead. In another city honeycombed by a muddy river and its tributaries the parts in which cases of the disease occurred seemed to have a remarkable relation to the watercourses. The whole experience of Massachusetts, Dr. Richardson stated, seemed to indicate that the disease had been endemic along the rivers, most of which are polluted by sewage to a greater or less extent. He thinks that the greater prevalence of the disease during the last twenty-five years may be due to the greater ease with which rats may now be transported in ships or railways, and gives instances of the animals' habit of spontaneous migration. A period of latency in the development of an epidemic seemed to be indicated by the fact that in a number of instances a single case occurred in the early months of the year, March or April, whereas the epidemic did not begin until May or June, a circumstance hard to account for on the assumption that the disease is communicated directly from child to child. The period between generations of rats being approximately three months, Dr. Richardson suggests either that a new generation of young rats may be necessary for the further propagation of the disease, or that the virus must undergo a cycle of development in the rat flea. He notes that Rosenau, who has been working on the subject in the United States since 1912, had conveyed infection to young rabbits, and suggests that possibly young rats, like young human beings and young rabbits, are more susceptible to the disease than adult rats. As bearing on this it may be noted that a survey of age groups of the cases of poliomyelitis reported since the outbreak of the epidemic, made by the Department of Health of the City of New York, shows that of a total of 7,496 cases 751, or 10 per cent., were among children under 1 year of age; 5,662, or 75.5 per cent., among children between 1 and 5 years; 812, or 10.8 per cent., among children from 6 to 10 years; and 142, or 1.9 per cent., among children between 11 and 15 years; only 129 cases, or 1.7 per cent., occurred among persons of more than 16 years of age. The largest number of victims was among children between 2 and 3, of whom there were 1,714. Dr. Richardson states that Rosenau has recently produced

[1] *Boston Medical and Surgical Journal*, September 21st, 1916.

paralytic phenomena in rats by inoculation of the virus of infantile paralysis. Extended experimental investigations will be necessary to determine the value which should be attached to his theory, but Dr. Richardson is, we think, correct in saying that it is not easy to make the theory that it is conveyed by human contact fit all the facts.

THE ABDOMINAL OPERATION FOR CERVICAL CANCER.

The report by Dr. Comyns Berkeley and Victor Bonney, published in the Journal of September 30th, on the results of operation by the radical abdominal method in 100 cases of carcinoma of the cervix, will have been read with interest both by surgeons and family practitioners, for it is, we believe, the first from a British source based on the view that five years' immunity from recurrence is to be reckoned a true cure. In patients not operated upon the average duration of life from the first symptoms to death is one year and nine months; as in the experience of the writers patients suitable for operation presented themselves to the surgeon for the first time after having had symptoms on an average for six months, the life expectation of these women had they not been operated upon would have been on the average one year and three months. They state that they operated upon every case in which in their opinion there appeared to be any probability of removing the growth, including thirty-five patients in whom the regional glands were involved, and in some which other surgeons had pronounced inoperable. The mortality of the operation itself was 20 per cent., and thirty-two of the patients were known to have died of recurrent growth; while seven were lost sight of. Two patients died each one year after the removal of the uterus, and free from signs of recurrence, from other diseases. In one of these cases, gynaecologists must bear in mind, death was due to acute urinary sepsis after an operation for the closing of a vesical fistula, a complication by no means rare in the experience of many skilled specialists. Drs. Berkeley and Bonney publish the fact that thirty-nine cases remain well five or more years after the operation, while the lives of thirty-two in whom recurrence took place were, for the most part, prolonged, since seven survived hysterectomy for three years or over.

ON THE CHOICE OF A MEDICAL CAREER.

Last week's issue of the British Medical Journal contained, on page 494, a report of the interesting address with which Surgeon-General M. W. Russell, C.B., Deputy Director-General of the Army Medical Service, opened the winter session of the Middlesex Hospital Medical School. The address contained references to various matters of historical and other importance with which we are not now concerned; but one particular point was raised by the speaker to which we gladly call attention, a point of no little practical importance both to the medical student, as larva of the medical man, and to the newly qualified practitioner, who must be regarded as the imago or perfect product of the developmental cycle that has led up to his qualification. Surgeon-General Russell emphasizes the fact that comparatively few men from his old hospital had entered the regular medical services of the army, the navy, and of India in recent years before the war. No doubt the same is true of the medical schools of other hospitals as well. Who is to blame? Surgeon-General Russell is inclined to blame the schools, which, as he shrewdly suggests, should contain "an organization for guiding the students into the professional avenues in which their particular talents will find the fullest play. In my day," he continues, "there was none, and I am unaware that the gap has been filled. Each of us has had to make the decision for himself, with no information other than that he could acquire by his own personal efforts and at a time of life when decision could in many cases only be fortuitous. Many drifted until at last they could find something to cling to, perhaps only to find years later that a mistake had been made. What a waste of talent and skill this means! Is it too much to ask that there should be some official connected with the school whose business it should be to study the men, learn their qualifications and potentialities, give them the information they require to aid them in choosing their career?" The suggestion here made is excellent from every point of view. The duty of studying the temperaments and capacities of the individual medical students is one that comes by nature to some deans of medical schools, and is, indeed, forced by circumstances upon them all. The business of knowing what openings the varieties of medical practice—using the term in its widest sense—present, has to be learnt and kept up to date. The history of the medical services both of the royal navy and of the army affords instances of periods during which it has been proper for the dean of a medical school not to advise young men to enter either. It has even been his duty to advise to the contrary, and there can be no doubt that the attitude then taken up by the medical schools lent a great deal of force to the demands, based on general considerations of policy and justice, for the reforms which have been carried out from time to time. At the present time we know that a great deal of dissatisfaction is felt with regard to the terms and conditions of service in the Indian Medical Service, and this is a matter which deserves the attention of deans of medical schools. Some there are who already interest themselves keenly and effectively in the problem of the choice of a career that in normal times fronts so many newly qualified men. Would it not be possible to have this highly decanal function more clearly defined and its great importance more fully recognized?

"THE BRITISH JOURNAL OF OPHTHALMOLOGY."

The British school of ophthalmology has from the earliest days of the scientific study of the functions and disorders of the eye taken a very high place in international medicine, and its contributions to the literature of the subject have been many and important. Hitherto they have, perhaps, somewhat suffered in the effect they produced owing to diffusion. The files of the *Royal London Ophthalmic Hospital's Reports*, founded in 1857, are a storehouse of observations of the highest importance; the *Ophthalmic Review* has been conducted since its establishment in 1881 with great ability, and its younger contemporary the *Ophthalmoscope*, which first appeared in 1903, has won a distinguished place for itself. The position was, however, not regarded as altogether satisfactory, and some time ago the Council of the Ophthalmological Society started a movement for amalgamation. In consequence a meeting of the leading British ophthalmologists was held in July to discuss the matter. Those present, numbering twenty-eight, constituted themselves a committee and appointed a subcommittee with the president of the Ophthalmological Society, Mr. Walter H. Jessop, as chairman, Mr. Priestley Smith, Mr. Paton, and the editors of the three periodicals, as members, and Mr. Brewerton as secretary. This committee prepared a scheme of amalgamation, and for financing the new periodical. It was submitted to a largely attended general meeting of British ophthalmologists held at the Royal Society of Medicine on September 29th. After a statement by the chairman, Sir Anderson Critchett proposed, and Mr. Priestley Smith seconded, a resolution providing that a British journal of ophthalmology incorporating the three periodicals mentioned should be founded. This was carried with enthusiasm and without discussion. The first number of the new periodical—which will be edited by Mr. Sydney Stephenson, hitherto editor of *The Ophthalmoscope*—will appear in January next, and subsequent numbers will be issued at the beginning of every

month; each will consist of at least 64 pages, and the annual subscription will be £1 11s. 6d. We congratulate British ophthalmologists on having taken this step, for there can be no doubt that the multiplication of periodicals devoted to the same subject is not on the whole to be desired. We know the advantages claimed for competition and rivalry, but when a department of science and practice has reached the stage attained by ophthalmology the need for such stimulus has been removed. It is a source of weakness to have the national work divided among several publications; it adds to the labour of specialists and perplexes general physicians and practitioners who, recognizing the importance of ophthalmology in general medicine, desire to make sure that they do not miss the record of any important advances.

THE LYONS SCHOOLS FOR SOLDIERS.

Lyons, among French cities, was one of the earliest to recognize the need for special institutions to care for men disabled in the war. Guided by its mayor, M. Herriot, and with the help of the eloquent pen of M. Maurice Barrès, it quickly gave practical effect to the national desire for the establishment of schools in which disabled men might be trained. The city had the advantage of the experience of certain organizations established at various times during the last century in France, but when it opened its first school for men who had undergone amputations, on November 30th, 1914, it had almost everything to learn. It began in a small way, but over a year ago this particular school had more than two hundred pupils, and other schools and institutions for disabled men had been established by the city. The military centre for jaw cases, an account of which is given elsewhere in this issue, would seem to have been the earliest of all, for it began work as an independent institution in October, 1914. It has since been greatly extended, and the number of beds set aside for this purpose is some indication of the magnitude of the work which is being done for disabled men by the city of Lyons.

LETTSOM AND THE MEDICAL SOCIETY OF LONDON.

At the conclusion of the annual general meeting of the Medical Society of London, on Monday last, the retiring president, Dr. William Pasteur, made reference to the plaque which has been removed from the society's old house in Bolt Court to the Library in Chandos Street. The sale of the Bolt Court property, he said, marked the close of a period in the history of the society. It was founded by Dr. John Coakley Lettsom in 1773; down to 1776 its meetings were held at Dr. Lettsom's house in the city, and for the next two years at a house in Crane Court, Fleet Street. In 1778 Dr. Lettsom purchased and presented to the society the freehold house, 3, Bolt Court, Fleet Street, where it continued to meet until 1852. When the property was sold recently the Charity Commissioners granted permission to remove the plaque which stood over the entrance door. The plaque, which is of terra cotta, is in a state of excellent preservation, thanks to the many coats of paint it has received. It has been cleaned and restored. The background is occupied by the great pyramid of Egypt, flanked by palm leaves. The principal figure is the Isis of Sais, the revealer of the mysteries of nature and universal benefactress, who presided at the birth of children and rocked the cradle of the Nile. She is also reputed to have created the science of medicine and to have discovered the healing properties of plants. On either side crouches a sphinx, the emblem of mystery, whilst at her feet, encircled by the snake, the emblem of eternity, is a Greek inscription, which may be translated: "I am that which is, has been, and shall be: my veil no one has lifted."

Medical Notes in Parliament.

Disabled Soldiers.—Among the first questions asked in the House of Commons when it reassembled on October 10th after the adjournment were put to the Local Government Board by Mr. Hogge, who asked for information as to the result of the conference between the Statutory War Pensions Committee and municipal authorities, and what steps the Statutory Committee proposed to take to deal with the care, training, and employment of disabled soldiers and sailors. Mr. Hayes Fisher replied as follows:

Two conferences have taken place, and at the second many details were discussed in a very friendly manner. The Statutory Committee are satisfied that they will now be able to make satisfactory arrangements with regard to local funds. The Lord Mayor's Committee had unanimously resolved that no grant made out of any fund raised locally, or by way of voluntary gift, should be taken into account by the local or Statutory Committee, or treated as "other income" as defined by the regulations, provided the same does not form a permanent addition to the income of the recipient. This has been accepted by the Statutory Committee, and words to the above effect have been inserted in the instructions accompanying their regulations.

The methods which the Statutory Committee propose to adopt in dealing with the case of disabled men, including provision for their health, training, and employment, were set out in the circular which was issued to the local committees on July 27th last. Individual cases must necessarily be dealt with locally, and I am glad to say that all the schemes for constituting the local committees in England and Wales and Scotland have now been approved. Meanwhile the Statutory Committee have agreed with the Insurance Commissioners upon a scheme for the medical treatment (including specialist advice) of all disabled sailors and soldiers, whether previously insured or not. With regard to training, in addition to the special schemes, such as those in operation at Roehampton, Brighton, and St. Dunstan's, the Statutory Committee propose to utilize so far as possible the training which is afforded by the local education authorities, and information as to the facilities which can be offered for such training has been obtained from the great majority of technical institutions throughout the country and communicated to the local committees. Further, the assistance of the chambers of commerce has been sought by means of a circular sent to them through their association. The Statutory Committee are approaching the Treasury with the view of obtaining sanction for payment of an adequate maintenance grant for the man during his period of training in addition to the allowance for his wife and family. With reference to employment, the Statutory Committee have made special arrangements with the Board of Trade as to the use of the labour exchanges, and of the department's professional classes register for officers. I may add, however, that the demand for labour is so great, and work is so plentiful, that there has been little difficulty in employment being obtained.

In reply to a supplementary question by Mr. Wardle, Mr. Hayes Fisher said that the scheme sanctioned by the Insurance Commissioners had yet to receive the assent of the Treasury; it covered, as he understood, the whole of the country. In reply to Sir Edward Carson, who asked whether the House would be afforded an opportunity of considering the scheme, Mr. Hayes Fisher said that he thought a bill must shortly be introduced to place the Statutory Committee in possession of the five millions of money the Chancellor of the Exchequer had promised to it, and that then a very adequate debate could take place on the whole question of pensions. In reply to Mr. Brookes, Mr. Bonar Law said that the question of the establishment of one pensions authority for the United Kingdom had received attention, and that it was hoped that a statement would be made shortly as to the intention of the Government.

London Examining Medical Officers.—Captain Bennett-Goldney asked whether examining medical officers in the London area, though occupied for the whole of their time, received only 24s. a day, whereas officers in other commands doing exactly similar work in many cases received 40s. a day for only a portion of the day; and whether, as these examining officers in London, being liable to twenty-four hours' notice, were in no sense more permanently appointed than those elsewhere he would expedite the settlement of the question. Mr. Forster said the difference between the two cases had not been quite correctly stated in the question; a 24s. rate was appropriate to employment which was more or less continuous and permanent. The maximum of 40s. was payable for occasional service only.

THE WAR.

MILITARY CENTRE FOR JAW CASES AT LYONS.

(From an Occasional Correspondent.)

On September 15th, 1914, a hospital section of thirty beds was opened in Lyons for the reception of soldiers with wounds of the face. It was at once found that the accommodation provided was inadequate, and the army medical authorities having come to an understanding with the Lyons Hospital administration, a section to contain one hundred beds was established at the St. Pothin Hospital under the direction of Dr. Pont, and started work on October 1st, 1914. On December 1st, 1914, another hospital with 250 beds was opened on the Quai Jayr, and received generous support from the public. Subsequently auxiliary hospitals were established at Villeurbanne, Fontaine-sur-Saône, and Neuville-sur-Saône to receive men on the road to recovery and requiring special attention not oftener than once a week. The number of beds at the St. Pothin Hospital was raised to 140, and two new auxiliary hospitals were created, one containing 200 beds. In addition beds were reserved at the Desgenettes Hospital and the Hôtel-Dieu, for Mohammedans at No. 21 Auxiliary Hospital, and for German wounded at Villemanzy.

Altogether beds for 800 jaw cases are provided in Lyons or in immediate communication with the centre there, and the whole organization is under the general direction of Professor Delore, at the École du Service de Santé Militaire, where there are now 200 beds. The Lyons Maxillo-facial Centre now comprises three principal departments—(1) stomatology, (2) odontology, and (3) edentulous service. Dr. Pont is the senior member of the staff, which consists of seven mobilized medical men, mobilized surgeon-dentists, non-mobilized professors of the dental schools, and mobilized dental mechanical assistants.

The Jayr centre, which may be taken as typical of the others, is established in a newly built school. It has an operating theatre with a sterilizer for dressings and instruments, and a dressing-room provided with a manometer for the regulation of the pressure of douches. The kitchens are specially fitted, and are well supplied with mincing machines. The worst cases are kept on milk diet, to which soups, purées, meat juice, and egg-flip are added. Every patient is radiographed before treatment to determine the situation of the fracture or presence of foreign bodies, and all seriously mutilated cases are photographed on arrival and during the course of treatment. In addition, casts of the most typical fractures are made.

"*Service de Stomatologie.*"

It appears from a study of Dr. Pont's monthly report that the wounded, who have always previously received an injection of antitetanic serum, are on admission first subjected to careful cleansing of the wounds with a solution of potassium permanganate 1 in 2,000 under pressure, repeated every two hours. The wounds are painted with tincture of iodine (1 in 10) 1 part and tincture of benzoin 8 parts.* Sloughing wounds are touched with hydrochloric acid 1 in 5. Foreign bodies and teeth, or splinters of bone the vitality of which is considered to have been destroyed, are removed, but fragments which it is thought may survive are left in position. Loose teeth are usually allowed to remain for some days, in order not to disturb fragments which are in good position. All operations are done under general anaesthesia; for this purpose ethyl chloride is preferred, as ether and chloroform are more apt to lead to pneumonia by inhalation. Meanwhile, the gums are massaged in order to hasten consolidation of the fragments. Mutilated soft parts are held in place by means of dressings. Dr. Pont recognizes three stages in the treatment of fractures of the jaw—reduction of the fragments, fixation of the jawbones, and restorative prosthesis. To these Dr. Frey would add a fourth stage—that is to say, the re-establishment of the motor function of the mandible. The one great object in view is restoration of a good occlusion.

*The strength of the tincture in the French *Codex* is 1 in 5, or twice the strength of the simple tincture of benzoin of the *British Pharmaceutical Codex*.

Recent Fractures.

In simple fractures of the ascending ramus without displacement nothing more is considered necessary than some form of "four-tailed" bandage. When there is displacement, plating, wiring, and extensive operations are not held justifiable. When there are several fractures of the horizontal ramus the open-mouth position of Cl. Martin is recommended. Some cases of deformity after double fracture have been improved by slow pressure under an anesthetic. In fracture of the horizontal ramus with loss of substance the apparatus employed has in view restoration of occlusion; bony union appears to be a secondary consideration. No new form of apparatus is here described. As fixation splints, some form of interdental splint is most often used—chiefly a simple metal form.

Restorative Prosthesis.

When there is but little loss of bone, "bridges" are used. Where a large part is lost, especially from the chin region, the soft parts of the floor of the mouth must first be stretched. This is effected by using balls of tin, which are kept in place by wires hanging out of the mouth. More tin is added as needed. Eventually the space is filled in by a heavy prosthetic apparatus. A metal gutter fixed to the teeth of each fragment supports this weight. Over this a vulcanite denture is placed.

When opening the mouth is impossible owing to fixation of the joint, slow stretching is effected by use of springs like those used in rat traps, or of laundresses' linen clips. Le Dentu's operation of detaching the masseters and pterygoids from round the angle of the jaw gives good results, but must be followed by the use of separation springs.

Restoration of the Face by Surgery and Prosthesis.

Certain victims of maxillary wounds present cutaneous lesions of the cheek, nose, lips, or ears. The commonest lesion of this kind involves the lips. Cheiloplasty covers the dental arches and ensures buccal occlusion, and so enables the subject to close the mouth and to retain food introduced therein.

It is unnecessary to describe the various methods employed according to circumstances, as they will be found in any textbook of surgery. I will only refer to certain special cases of maxillo-facial restoration. Wounds leaving a scar with considerable depression have been dealt with by means of adipose grafts, which have yielded durable results. Here is one of Dr. Pont's cases:

E., wounded on September 9th, 1915, at Harazée by a bullet that passed through the face, coming out on the left side at the junction of the upper lip and cheek. The left upper jaw was fractured, with loss of part of the alveolar process and falling in of the antero-external wall of the antrum. The left upper lip was divided, and during cicatrization a cutaneous bud formed in the neighbourhood of the commissure. As soon as suppuration had quite subsided I decided to graft a bit of fat in this depression in order to restore the original shape of the cheek. After separating the adhesions of the cheek to the jaw, on December 6th, I took a bit of fat from the buttock and intercalated it in the thickness of the muscle layer of the cheek. I sutured it carefully in two layers and applied a dry dressing.

The results were excellent; no suppuration or other local reaction.

The little cutaneous ridge was removed at the same sitting, and the margins of the wound united by a stitch, so as to reform the red edge of the lip.

The mouth is prepared for bone grafting as follows:

The jaws are placed in good occlusion, an arch is placed on the upper jaw, on the lower jaw four rings are placed, fixed to the molars and premolars. These rings are joined together by very strong piano wires, the intervals between them being bridged with metal wires soldered on. Each arch is provided with tiny hooks intended to receive the ligature wires to be applied the day after the operation. The lower jaw is thus fixed to the upper (blockage). The lower apparatus is sealed on. The surgeon makes an incision along the lower border of the jaw. He freshens the bony fragments and clears all fibrous tissue from the interval between the fragments. The end of each of these is cut V shape for the reception of the graft. The latter is usually taken from the seventh rib, sometimes from the tibia. It must be rather longer than the cavity to be filled so that it exerts some force on the two fragments. It is introduced by the aid of a mallet and the soft parts are sutured. The day following the operation blockage of the

jaws is carried out and the patient is left thus for about forty-five days.

Rhinoplasty has also been performed by various methods. In some instances recourse was had to French and Indian methods, but in war time rhinoplasty necessitates too prolonged a sojourn in hospital. To obviate this drawback and to restore to the wounded man deprived of part or the whole of the nose or ear a normal appearance Dr. Pont makes a cast of the face. On the positive cast thus obtained the absent nose is modelled in wax, care being taken to scoop out the wax opposite the scars. The waxen nose thus obtained is taken off and dipped in plaster and a cast in two or three parts as desired is obtained. The formula for the paste devised by Drs. Pont and Duplant is:

Pure white gelatine	20 parts
Coignet glue	5 ,,
Glycerine	62 ,,
Distilled water	25 ,,

A colour resembling that of the skin is obtained by yellow ochre and vermilion water colours. The seams of the plaster are scraped away and the artificial nose is fitted by painting the posterior part with the following adhesive:

Mastic "en larmes"	15 parts
Canada balsam	2 50 ,,
Sulphuric ether	15 ,,

It is then quickly applied to the skin and the margins smoothed down with a slightly warmed instrument. Should the nose get damaged the patient can recast the paste in his mould and apply it for himself.

Odontological Department.

The odontological department is situated in the dental school, No. 20, Quai de la Guillotière. The operative dental ward comprises fifteen dental chairs, with the tables and instruments required by each operator. The ward for examining patients has three chairs, the operating theatre two. Soldiers, non-commissioned officers, and officers undergoing treatment at some other Lyons hospital, and requiring dental attention, are treated in the operating room. Extractions are made under local anaesthesia, and teeth are stopped with cement or amalgam. Vulcanite apparatus are also made.

The number of officers, non-commissioned officers, and soldiers under treatment in the hospitals between January 24th and February 24th, 1915, was 480, and 585 extractions, 170 stoppings, 600 urgent dressings, and 14 scalings were performed. The wounded in hospitals belonging to the Société des Secours aux Blessés Militaires are visited by a surgeon dentist, and if able to be moved are sent to the school, where they obtain the treatment required.

The Edentulous Wards.

The ministerial circular of July 31st, 1915, created the department of "Assistance to the Edentulous." Many soldiers, especially those coming from the front, have difficulty in taking food owing to the state of their teeth. They were placed under treatment at the various centres created with this purpose. The biggest is at Lyons. The apparatus for dental prosthesis are manufactured at the dental school. Between August 17th and September 25th, 1915, the number of dentures made was 67, with 402 teeth, and 197 hooks were manufactured.

At a recent meeting of specialists, Dr. Villain, of Paris, calculated that throughout France at least a thousand men a month would thus be rendered fit for service.

Dr. Pont has issued a "first aid outfit" to enable surgeons at the front to immobilize fractures of the jaws on the arrival of the wounded at the *poste de secours*. This comprises arches, rings, nuts, and a few indispensable instruments for their fixation. Wounded men have already been received at Lyons from the front with their fractures immobilized by arches.

The number of deaths among close upon 2,000 wounded attended to during the year 1915 was three. The men treated and cured enabling them to return to the fighting line constituted 70 per cent. of the hospital subjects; others were discharged from the army for grave wounds comparable to the loss of a limb, and others were sent into the auxiliary services.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON W. H. EDMUNDS, R.N.

Surgeon William Henry Edmunds, R.N., died at the Western Infirmary, Glasgow, on October 4th. He took the diploma of L.M.S.S.A. in 1913, and joined the navy as a temporary surgeon on December 15th, 1915.

ARMY.

Killed in Action.

CAPTAIN G. P. SELBY, R.A.M.C.

Captain Gerard Prideaux Selby, R.A.M.C., was killed while attending the wounded on September 26th, aged 25. He was born in 1891, the eldest son of Dr. Prideaux George Selby, of Teynham, Kent, and was educated at the Grange, Folkestone, at Winchester, at New College, Oxford, and at St. Bartholomew's Hospital, rowing in his college boat in 1910. He served in a British Red Cross unit in Bulgaria in the Balkan war of 1912. In 1914 he graduated B.A., M.B., and B.Ch. at Oxford, taking also the diplomas of M.R.C.S. and L.R.C.P.Lond. in the same year. After serving as house-surgeon at Bart's, he entered the R.A.M.C. as a lieutenant on July 31st, 1914, and, like all the other lieutenants in the R.A.M.C., was promoted to captain on March 30th, 1915. He went to France with the Argyll and Sutherland Highlanders in December, 1914, was wounded at Ypres in March, 1915, and returned to the front on September 4th last.

CAPTAIN S. CLARK, R.A.M.C.

Captain Sidney Clark, R.A.M.C., was killed in action on October 2nd. He was educated at King's College, London, where he was Warneford scholar, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1896. He was house-surgeon and house-physician at King's College Hospital, anaesthetist at Leeds General Infirmary, and honorary physician to the Leeds South Dispensary. Afterwards he went to the United States, where he took the M.D. of Nevada University in 1905, and was President of the Nye County Medical Society. Returning to England, he was in practice in Fulham Road, London, before the war; he joined the 5th London Field Ambulance as captain on September 25th, 1914.

CAPTAIN W. F. MACALEVEY, R.A.M.C.

Captain William Francis MacAlevey, R.A.M.C., was killed in action on September 26th, aged 26. He was the eldest son of Dr. W. C. MacAlevey, of Leicester, and was educated at Stoneygate Preparatory School, Leicester, at St. Mary's College, Chesterfield, where he was captain of the school, and at St. Mary's Hospital, where he gained a science scholarship. At St. Mary's he was captain of the Association football team, and a member of the Rugby fifteen; he also played frequently for the United Hospitals. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in January, 1915, and had also passed the second examination for the M.B.Lond., intending to take the degree after the war. He took a temporary commission as lieutenant in the R.A.M.C. in February, 1915, went to the front with a field ambulance in July, 1915, and was promoted to captain after a year's service.

Captain F. S. Walcott, R.A.M.C. (temporary).
Captain E. R. Welch, R.A.M.C. (temporary).

Died of Wounds.

CAPTAIN O. G. PARRY-JONES, R.A.M.C.

Captain Owen Guy Parry-Jones, R.A.M.C., who is reported as having died of wounds, was the elder son of Dr. M. Parry-Jones, of Derby. He was educated at Sherborne School, at Oxford, and at Guy's Hospital. He played in the Rugby fifteen both at school and at Guy's. He graduated B.A. at Oxford in 1910, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915. He joined the Special Reserve of the R.A.M.C. as a lieutenant on February 8th, 1915, and became captain six months later. He was attached to the Suffolk Regiment.

Died on Service.

COLONEL B. B. GRAYFOOT, C.B., I.M.S.

Colonel Blenman Buhót Grayfoot, Bombay Medical Service, died in Egypt on September 30th, aged 56. He

was educated at Edinburgh University, and took the Scottish triple qualification in 1885, the M.R.C.S. in 1886, and the M.D. of Durham in 1903. Entering the I.M.S. as surgeon on September 30th, 1886, he became major on September 30th, 1898, lieutenant-colonel on September 30th, 1906, reached the selected list on August 12th, 1909, and was promoted to colonel on August 25th, 1912. Most of his service was spent in civil employment in Bombay, where he was for several years secretary to the surgeon-general, and afterwards civil surgeon of Karachi. On his promotion he was posted as A.D.M.S. to the Derajat and Bannu Brigades, and went to France in September, 1914, as principal medical officer of one of the divisions of the Indian Expeditionary Force. With these troops he went from France to Egypt and to Mesopotamia, whence he was recently invalided. He received the C.B. for his services on January 14th, 1916.

Captain D. T. C. Frew, R.A.M.C.

Captain David Thomas Crichton Frew, R.A.M.C., died at Aldershot after an operation for appendicitis on September 29th. He was educated at Glasgow High School and at Glasgow University, where he graduated M.B. and Ch.B., with honours, in 1911. Subsequently he filled the posts of extra dispensary physician and clinical assistant at the Royal Infirmary, resident medical and surgical assistant at the Western Infirmary, house-surgeon to the outdoor department of the Maternity and Women's Hospital, and lecturer on anatomy in the Western Medical School; he went into practice at Burnbank Terrace, Glasgow. In May, 1915, he took a temporary commission as lieutenant in the R.A.M.C., was wounded in October, but returned to duty shortly after, and was promoted to captain after a year's service. On May 22nd, 1916, he married Marie Louise, daughter of the late Dr. Fernand Lucien Perregaut, Paris, who is thus left a widow a few months after her marriage.

Wounded.

Captain L. Adamson, R.A.M.C. (temporary).
Captain W. B. Allen, R.A.M.C.(T.F.).
Captain N. J. Barton, Canadian A.M.C.
Captain H. W. Bayly, R.A.M.C.(T.F.).
Captain G. D'R. Carr, R.A.M.C. (temporary).
Captain H. Mathewson, R.A.M.C. (temporary).
Captain B. N. Murphy, R.A.M.C. (temporary).
Captain G. H. B. Sebastian, R.A.M.C. (temporary).
Captain P. R. Woodhouse, R.A.M.C. (temporary).
Lieutenant W. A. Cochrane, R.A.M.C. (temporary).
Lieutenant T. M. Crawford, R.A.M.C. (temporary).
Lieutenant J. N. Cruikshank, R.A.M.C. (temporary).
Lieutenant J. Oag, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Cameron, J. H., Lieutenant Black Watch, son of Dr. Cameron, of Dollar, reported as missing at Loos on September 25th, 1915, now assumed killed. He was educated at Dollar Institution, where he was colour-sergeant of the Cadet Corps, got his commission in October, 1914, and was promoted to lieutenant on December 3rd, 1914.

Cunningham, Charles Clephane, Second Lieutenant Royal Engineers (T.F.), youngest son of the late J. D. Cunningham, M.B., killed on September 9th. His commission was dated March 19th, 1915.

Fenner, C. F. N., Second Lieutenant Scots Guards, son of Dr. Robert Fenner, 1, Spanish Place, Manchester Square, London, W., was killed recently. He was born at Cromer in 1888, educated at Felsted School, and was on an estancia at Lautaro, Chile, before the war. He got his commission on August 15th, 1915, was invalided home last summer, but after a short rest returned to the front last August.

Hinings, Frederick W. C., Captain East Yorkshire Regiment, son of Dr. J. W. Hinings, of Leeds, killed recently, aged 28. He was educated at Leeds Grammar School, and at Blundell's School, Tiverton, was captain of Headingley Rugby Football Club, and frequently played for Yorkshire, till he went to a rubber plantation in the Malay Peninsula, from which he returned when the war broke out, and joined the East Yorkshire Regiment, becoming lieutenant on February 2nd, 1915. Soon after reaching the front he was wounded, but returned to duty two months ago.

Kidd, Guy Egerton, Major Royal Field Artillery, eldest son of Percy Kidd, M.D., of 60, Brook Street, London, W., killed September 26th. He was educated at Clifton and at the Royal Military Academy, Woolwich, got his first commission in 1901, and became major last February. He went to the front in March, 1915, and got command of his battery last October.

McDonnell, Charles Edward, Lieutenant Middlesex Regiment, elder son of Fleet Surgeon J. R. McDonnell, R.N., of 3, Gloucester Road, London, N.W., killed September 26th, aged 21.

Rennie, Cyril T., Second Lieutenant Leicestershire Regiment, son of Dr. George Rennie, J.P., of Sydney, New South Wales, killed September 25th, aged 22. He came to England with his brother to join the army last November, and had been at the front since June.

Saunders, George James Rich, Lieutenant South Lancashire Regiment, attached Leicestershire Regiment, son of Dr. E. A. Saunders, of Pembroke Dock, South Wales, killed September 26th, aged 20. He was educated at Epsom College, but left at the beginning of the war, and joined the Leicestershire Regiment, becoming lieutenant in January, 1916. He was afterwards transferred to the South Lancashires, and went to the front in July, 1915.

Scott, Sidney Maurice, Second Lieutenant Coldstream Guards, younger and only surviving son of Mr. J. Harrison Scott, F.R.C.S.I., of Dublin, reported "missing, believed killed," now presumed killed on September 15th, aged 19. He was educated at Winton House School and at Eton, where he was captain of his house, got his commission on September 15th, 1915, and left England last May.

Townsend, Francis E. Stevenson, Lieutenant Durham Territorials, the eldest son of Dr. F. E. Townsend of Normanby, died of wounds received in action on September 18th, aged 23. A few weeks after war broke out he joined the local Territorial unit of the Durham Light Infantry, with which he went to France in April, 1915. At the time of enlistment he was serving his articles as solicitor with his uncle, the Town Clerk of Darlington, and in six months would have taken his final examination. Lieutenant Townsend was popular with all ranks, and was an officer of much promise. The commanding officer, in a letter to his parents, wrote, "Your son had a very severe time before he was struck, owing to seven officers being hit, but we got our final objective and more. This was owing a great deal to your son's work in the early part of the battle."

NOTES.

A Posthumous Victoria Cross.

The King received Mrs. Green on October 7th, and handed to her the Victoria Cross won by her late husband, Captain John Leslie Green, R.A.M.C., under the following circumstances:

For most conspicuous devotion to duty. Although himself wounded, he went to the assistance of an officer who had been wounded and was hung up on the enemy's wire entanglements, and succeeded in dragging him to a shell hole, where he dressed his wounds, notwithstanding that bombs and rifle grenades were thrown at him the whole time. Captain Green then endeavoured to bring the wounded officer into safe cover, and had nearly succeeded in doing so when he was himself killed.

Captain Green, who was killed in France on July 1st, was 27 years of age. He was educated at Felsted, and went up to Downing College, Cambridge. He took honours in Part I of the Natural Science Tripos and stroked his college boat for the three years he was up. He afterwards studied at St. Bartholomew's and took the diplomas of the Conjoint Board in 1913. At the outbreak of the war he first had a commission in the 5th South Staffordshire Regiment, was afterwards transferred to a field ambulance, and was eventually medical officer to the 5th Sherwood Foresters. He was the son of Mr. J. G. Green of Houghton, Huntingdon, and had married only last January Edith Mary Nebitt Moss, M.B., B.S., daughter of the late Mr. Francis J. Moss, of Stainfield Hall, Lincolnshire.

Gratuities to Neurasthenic Soldiers.

A Royal Warrant, issued in Army Orders, makes special provision for soldiers discharged on account of neurasthenia, functional nerve disease, or functional paralysis. By this it is provided that a soldier discharged on account of one of these complaints may be granted a final gratuity in lieu of pension, if the Army Council is satisfied that such a course would be more beneficial to him. The gratuity shall not ordinarily exceed £50, but in special circumstances a sum not exceeding £100 may be given. These provisions extend to soldiers discharged before the date of this warrant who have been specially recommended for a gratuity.

England and Wales.

The Refreshment House Experiment in Carlisle.

At a meeting last week of the Carlisle Local Committee in connexion with the Central Board's scheme of State control of the liquor traffic, some further indication of the lines which the Board's policy would follow was afforded. The "off" sale of spirits in bottle, formerly carried on at 106 places, is to be limited to 17. Grocers' off licences are to be abolished by the end of this month. Plans for the reconstruction of several public-houses have been approved, and in carrying them out "snugs" will be abolished, and large refreshment rooms, with reading and writing rooms, provided. Several licences will probably be extinguished, and a number of licensed houses in Longtown, and between it and Carlisle, purchased by the Board before the Carlisle scheme was launched, will now be placed under the direction of the Carlisle Committee.

There was a slight increase in convictions for drunkenness during September, but the general conditions in this respect are better than they were, and it is maintained locally that the reason for the large number of convictions earlier in the year was that the Government suddenly introduced some 14,000 labourers into the district, many of them not at all of a sober class, who resorted to the city for a week-end debauch. Men of this class are steadily leaving the district, and this may account for much of the improvement. The need for strict regulation is, however, plain when it is learnt that it is the intention to increase the number of women and girl workers in Carlisle and Longtown and between it and Dumfries from 2,000 to 4,000. Big hostels for them are to be erected, but meanwhile special trains are being run daily from Carlisle. It appears that the women work in three shifts of nine hours, each overlapping in the twenty-four hours.

Welsh Hospital for Maimed Soldiers.

The scheme for establishing at Cardiff a hospital for maimed soldiers on the same lines as the Queen Mary Convalescent Hospital at Roehampton, and the hospitals in Scotland, has now been placed upon a firm basis, and the house pronounced suitable for the purpose—the old mansion house in Cardiff—has been purchased. A few donors in Cardiff have given amounts totalling £20,000, which will be sufficient not only to purchase the house but to equip it. Mr. J. P. Cadogan and Mr. Percy Miles each gave £5,000, Messrs. Morgan, Wakley, and Co. £2,500, and an anonymous friend has handed the remaining £7,500 to Lieutenant-Colonel Lynn Thomas, who, with the Lord Mayor of Cardiff (Dr. Smith) have been active in promoting the scheme. In addition to the old mansion house, two adjacent houses and outbuildings, which will probably be utilized as workshops, have been most generously given by the James Howell family. A deputation consisting of the Lord Mayor, Lieutenant-Colonel Lynn Thomas, Mr. Percy Miles, Lieutenant-Colonel Robert Jones, and Mr. Herbert Cory, M.P., had interviews with the heads of the medical departments of the Admiralty and War Office last week, when the scheme, which is to provide fifty beds, received official sanction.

Bradford War Hospital.

The Princess Marie Louise opened the extension of the war hospital at Bradford last week. The Lord Mayor said that when an urgent request was received from the War Office for more hospital accommodation a committee was set up and the large sum of money requisite was raised in three or four weeks. At first it had been proposed to erect a temporary building, but it was eventually thought the buildings should be permanent, so that they might be of use to the citizens of Bradford in the future. The Princess, in declaring the extension hospital open, spoke of the cheerfulness with which the wounded met their ill fortune, and paid a tribute to the work of the nurses and medical staff. The way in which the womanhood and girlhood of England had come forward to do the work and had stuck to it for two years was admirable. The Princess also visited the war hospital supply dépôt, where volunteer lady workers make dressings and other requisites for the hospitals, and the Guardians' Colony, where are accommodated many of those who have been displaced by the extension of the war hospital.

Ireland.

The Carrick-on-Shannon, No. 2, Rural District Council has received a further letter from the Local Government Board dealing with the outbreak of fever and the necessity for providing a proper water supply, but at its meeting last week resolved to take no action.

The Portadown Town Council has decided to include cerebro-spinal meningitis and poliomyelitis in the list of notifiable diseases. Dr. M. E. Costello, Dunmore, has reported to the Glenavaddy Guardians that several cases of poliomyelitis had occurred in a neighbouring district. The guardians are taking steps to make the disease compulsorily notifiable.

Local Government Board and Medical Appointments during the War.

The Local Government Board (Ireland) has addressed the following letter to the boards of guardians throughout Ireland:

Sir,

I am directed by the Local Government Board for Ireland to advert to their circular letter of November 26th last intimating that vacancies occurring after that date in the Poor Law medical service should not be filled permanently until the termination of the war, and that in the interval the best dispensary arrangements for the discharge of the duties of such offices should be made, and I am to state that the doctors appointed by the guardians to act temporarily in these posts are usually newly qualified practitioners who are themselves eligible for medical appointments in the army. Similar conditions obtain in the case of substitutes for the medical officers who, actuated by a higher sense of duty and patriotism, have temporarily relinquished their appointments and volunteered for service in the Royal Army Medical Corps. The demand of the military authorities for more medical men to join the army is most urgent, as they require all the available young men to provide for the care and treatment of the wounded, and the guardians should bear this supreme consideration in mind and avoid giving any inducement to medical men of military age to seek civil appointments when other suitable and satisfactory arrangements can be made. The Board are of opinion that whenever a medical officership becomes vacant, either permanently or temporarily, the guardians should, if possible, assign the post to a doctor holding a permanent local appointment, or the duty should be divided between two or more such medical officers. Only as a last expedient should a separate medical officer be temporarily appointed, and then the selection should, as far as possible, be limited to doctors who are over 45 years of age or otherwise ineligible for military service. The guardians should invite the co-operation of their medical officers in this matter and request their views as to the best means for filling the temporary vacancies for the period of the war. The guardians should also issue instructions that any medical officer who intends volunteering for military service should first apply for leave of absence, so that suitable arrangements could be made for the discharge of his duties in accordance with the regulations and the foregoing suggestions.

The Athlone guardians have already acted on this advice, and have filled the vacancy at Brideswell, Athlone, by appointing temporarily Dr. Sheridan, Kiltoom, to the additional dispensary at a salary of £4 4s. a week added to his existing salary.

National Insurance and Visiting Staffs of Dublin Hospitals.

As the result of negotiations carried on during the last six months by the Standing Committee of the Dublin clinical hospitals, the Insurance Commissioners have issued a new form of agreement to be signed by members of the visiting staffs of the Dublin hospitals, whereby they undertake to sign certificates for insured persons who are for the time being their patients in hospital. This does away with the original difficulty of signing certificates for persons who were the patients of another doctor. Other objectionable features of the original form of agreement have also been omitted, notably the penal clauses, and the doctor is allowed in cases of necessity to arrange that his certificates shall be signed for him by a competent person. Both the consultant doctors of Dublin and the insurance authorities are to be congratulated on having at last arrived at an amicable settlement.

Scotland.

Scottish Health Statistics for 1915.

The Registrar-General's report on the vital statistics for Scotland for the year 1915 states that the marriages numbered 36,272, constituting a rate of 7.58 per 1,000, which was higher than that of all the years since 1855 with the exception of the two years 1873 and 1874; but this high marriage-rate lost much of its value when the ages of the brides and bridegrooms were as they were found to be in 1914. In 1914, when the total number of marriages registered was 35,028, there were 6,730 brides under 21 years of age, and of these 11 were only 15 years of age, 102 were only 16, and 542 were 17. In the same year there were 2,296 bridegrooms under 21, including four boys of 16, fifty of 17, and 209 of 18 years. The number of young brides and bridegrooms in each case constituted a record. Unless there has

been a distinct rise in the age at marriage in 1915 the high rate cannot be regarded with equanimity. The birth-rate in Scotland for 1915 was the lowest since 1855; the total number of births registered was 114,181, which was 12,363 less than the average for the preceding ten years, and gave a rate of 23.86 per 1,000. The number of illegitimate births was 7,875, and that was 1,157 less than the mean for the preceding ten years. The death-rate was 17.06, and was higher than that of all previous years as far back as 1855, with the exception of four years, 1875, 1891, 1895, and 1900; the number of deaths registered was 7,341 more than the mean of those of the previous ten years. The infantile mortality of 1915 was 126.5 per 1,000 births; it was higher than that of any year since 1901, and it was 14.9 more than the mean for the preceding ten years. The figures for unvaccinated children in 1915 are not yet available, but there was an increase in 1914 by reason of the conscientious objection of parents. Nearly all these facts are disquieting.

The Scottish Red Cross Unit in Italy.

Dr. W. E. Thompson, surgeon to the 1st British Red Cross unit sent from Scotland to Italy, gave an address on his year's experiences, at a meeting held in Edinburgh under the auspices of the War Dressings Supply Committee. Professor Bayley Balfour, who presided, said that it was a great tribute to the energy and capacity of Colonel Cathcart that he should have established that large voluntary agency, and that during the past three months no fewer than 150,000 surgical dressings of sphagnum moss had been sent from Edinburgh to various hospitals in this country and abroad. Dr. Thompson said that the sphagnum surgical dressing had given excellent results, and was invaluable to the surgeon, as it possessed all the properties that a surgical dressing should have. The first British hospital unit was sent to the Italian front, he said, in September, 1915; it consisted of about fifty members, and it was at once placed with the Eastern Italian army, the centre of activity on the front. For about three months last winter the motor cars of this unit were almost the only ambulances going up to the important positions at this part of the line, and it was not for nine or ten months that the number of cars was sufficient to do the work properly. Italy, in fact, was not fully prepared for the war; it suffered a shortage of all the equipment necessary for modern warfare. Dr. Thompson paid a warm tribute to the services of the V.A.D.; sixteen of its members had, with the help of four sisters, on a recent occasion dealt with 400 patients who went through the unit in three days. At present there were about six wards which served as a casualty clearing station. The British ambulance unit was the first to enter Gorizia, crossing the one bridge left over the Isonzo under fire. There were now four British units serving in Italy. The total number of patients carried by the cars of the unit was about 45,000.

Welfare of Mothers and Infants in Glasgow.

The interim report of the Board of Trade Committee on the increase of prices of meat, milk, and bacon since the beginning of the war contained, in addition to the recommendations as to the purchase of meat by the Government and the means of effecting economies in the supply of meat to the army and the advice that summer milk should be imported from Ireland for sale under Government control, a paragraph in regard to infants and children which has not attracted much attention. The Committee recommended that in the present emergency all local authorities should be urged to start a sufficient number of maternity centres, baby clinics, and child nurseries, and should be empowered to provide a certain supply of milk to children under the age of 5, and dinners to expectant and nursing mothers; that doctors in charge of maternity centres, crèches, baby clinics, or nursery schools should be authorized to order milk and dinners for expectant or nursing mothers, for babies that cannot be nursed by the mothers, and for children under the age of 5; and that the cost of milk, as well as that of dinners, to expectant and nursing mothers, if incurred at such institutions on the certificates of duly qualified medical men, should be allowed as part of the expenses towards which special grants are made by the Local Government Board and the Board of Education. The *Glasgow Herald* has recalled the fact that work on the lines now recommended was begun in Glasgow about twelve years ago when milk dépôts were opened. Four years later medical consultation centres for infants were established, and there are now such centres in fourteen areas in the city, in connexion with which two women doctors and ten nurses are working. Valuable aid is rendered by the Glasgow Infant Health Visitors' Association, about 400 members of which give their services voluntarily. The Glasgow Day Nursery Association conducts six day nurseries in various working-class localities, and beds for the treatment of certain infectious diseases are provided by the corporation at a reception house. An extension of the scheme is, it is said, contemplated by the municipal authority to include the care of nursing and expectant mothers. A scheme has been prepared by the medical officer of health and conferences with existing institutions have been held. At present in connexion with the infant consultant centres some expectant and nursing mothers are advised, but the new scheme proposes that antenatal dispensaries should be opened in connexion with existing maternity centres and at such of the infant consultation centres as may be found necessary. Lectures are already given by voluntary agencies on the rearing of children, and the municipal scheme proposes to extend this system.

India.

The Effort of India.

Lord Chelmsford, the Viceroy and Governor-General of India, in his speech on September 5th at the opening of the session of the Supreme Legislative Council of India, the first Council over which he has presided, referring to the contribution of India to the war, gave some interesting information which will be new to most people.

On August 1st, 1914, out of 4,958 British officers on the Indian establishment 530 were at home on leave and were detained by the War Office for service in Europe. No fewer than 2,600 combatant officers have been withdrawn from India for service in the war, in addition to those who proceeded on service with their regiments and batteries. The Indian Army Reserve of Officers, which was only forty strong at the beginning of the war, has expanded to over two thousand. The establishment of Indian units has not only been kept up but has been increased by 20 per cent. in the cavalry and 40 per cent. in the infantry. Six new labour corps have been raised and sent to the front. The Royal Indian Marine has contributed 192 British officers and 7,000 Indian seamen and stokers, while 171 vessels have been chartered and fitted up as transports. The Indian Ordnance Department has supplied stores, shells, etc., from the munitions branch to the value of £2,000,000, exclusive of those provided for the different Indian expeditionary forces. Many of the Indian States have contributed troops for service in the war, the Mysore Lancers and the Bikanir Camel Corps in Egypt, the Kashmir Rifles, the Jhind Infantry, and the Faridkot Sappers in East Africa, the Maler Kotla Sappers and the Sirmur Sappers in Mesopotamia, the latter taking part in the defence of Kut. Most of the Indian princes have given very large donations from their private fortunes for war purposes. The Indian railways have contributed 350 officers and 1,500 subordinates to the war. The number of recruits enlisted in the Indian army since the beginning of the war (189,000) is greater than the total strength of that army as it stood in August, 1914, including 39,000 Punjab Muśalmans, 28,000 Gurkhas, and 27,000 Sikhs. Over half of the whole enlisted in the Punjab.

As regards the medical department, India has contributed to the war 40 field ambulances, 6 clearing hospitals, 35 stationary hospitals, 18 general hospitals, 9 *x* ray sections, 8 sanitary sections, 7 advanced dépôts, and 1 general medical store dépôt, all of which are now serving overseas. The personnel provided amounts to 258 officers of the R.A.M.C., 704 I.M.S. officers, 475 assistant surgeons, 854 sub-assistant surgeons, 40 lady nurses, 724 British nursing orderlies, 2,843 Indian ranks, and nearly 20,000 Indian followers. In the I.M.S. 344 officers have been withdrawn from civil employment, and some 200 private practitioners and civil assistant surgeons have been given temporary commissions. In one province, Bihar and

Orissa, only three civil surgeons are left. The strain upon the civil medical department caused by these changes and withdrawals has been very great. In the medical department, indeed, the Indian Government, in responding to the demands made upon it, has gone as far as it was possible to go. In the subordinate branch, 205 civil assistant surgeons and 560 sub-assistant surgeons in various kinds of civil employment have been transferred to military duty.

Correspondence.

THE CAUSE OF EXOPHTHALMOS IN GRAVES'S DISEASE.

SIR,—In a valuable paper on *post-mortem* findings in a case of exophthalmos of long standing originally due to Graves's disease, which appears in the JOURNAL of October 7th, Captain Mackinnon raises the question of the cause of this striking feature of the disease. Of the various views held on this subject, it has for long seemed to me that the correct one is that which attributes the proptosis to excess of retro-orbital fat. This was clearly illustrated by a case with marked exophthalmos and general emaciation which died while under my care in the Newcastle Royal Infirmary. When the orbits were opened from above large masses of retro-orbital fat were seen which were obviously the cause of the exophthalmos. This local excess of fat formed a striking contrast to the almost complete absence of visible fat in other parts of the body. The fat which was removed from one orbit weighed ½ oz. The optic nerve appeared to be elongated, and measured 1 in. from the optic foramen to the eyeball.

Captain Mackinnon reports in his case that "on removing the orbital plates nothing *unusual* was found. Owing to the protrusion of the eyeballs the retro-orbital space was *abnormally* deep. *This space was filled with fat.*" (The italics are mine.) The condition of the orbits was therefore similar to that which was present in my case. Captain Mackinnon, however, regards the excess of fat as the result and not the cause of the protrusion. It appears to me more rational to regard the fat as the mechanical cause of the exophthalmos.

Some years ago I made a few simple experiments with heads of dead animals, and found that when, after removal of the brain, melted paraffin was injected through the optic foramen into the orbit it was easy to produce any degree of exophthalmos at will. On opening the orbit after the paraffin had set, it was found to fill a similar position to that occupied by the fat in the case of Graves's disease. Once this retro-orbital fat has formed in excess it remains for long, so that, as in Captain Mackinnon's case, we occasionally see patients with persistent exophthalmos after the other symptoms of the malady have disappeared.—I am, etc.,

Manchester, Oct. 9th. GEORGE R. MURRAY.

ANTE-PARTUM CLINICS.

SIR,—In the correspondence and articles which have appeared on this subject a reader not conversant with the facts might easily get the impression that the Edinburgh Royal Maternity Hospital was the first, if not the only, maternity hospital which has seriously studied the treatment of diseases in the pregnant woman. Sir Francis Champneys, in your issue of September 23rd, very properly points out that "antenatal care" is not a discovery of the twentieth century, but has been practised for a long time by all careful doctors and midwives.

The study of "antenatal pathology," the pathology of the unborn child, owes a great deal to Dr. Ballantyne, but the study and treatment of "diseases of pregnancy" is of much older origin. Certainly in St. Mary's Hospital, Manchester, this branch has been a special feature of the hospital's work for the last 125 years. No special out-patient department or ward is set aside with a special name, as this would mean a great waste of beds and time. Maternity work is always subject to great fluctuations: at one time every bed is occupied, at another a very large number are empty, and to divide the hospital into two parts would often mean that parturient women were turned away while beds were lying empty in the "pregnancy" wards, and vice versa. There is not the slightest objection to the treatment of a pregnant woman in the same ward with puerperal patients, either to herself or the study of her complaint, provided that each ward has some smaller rooms for the isolation of patients who are acutely ill or require a special temperature.

At St. Mary's Hospital no pregnant woman is given a note for attendance at her confinement, either in the hospital or by the nurses on the district, until she has interviewed the resident obstetrical officer, who is always a man with previous obstetrical experience, and usually holds this post for some years preparatory to commencing practice as a consulting obstetrician and gynaecologist. Every primigravida, and every woman with a history of difficulty in a previous confinement, is examined by him, and each case found to have a contracted pelvis or other abnormality is referred by him to the honorary surgeon on duty, who examines her and decides on appropriate treatment. Moreover, every pregnant and puerperal woman is encouraged to come for treatment of any symptoms she may have, her maternity card having a special blank side for prescriptions.

One of the honorary surgeons attends every morning to see both gynaecological and maternity cases—not only those who have maternity notes for the hospital, but also women who have made their own arrangement for the confinement and cases referred to the hospital for advice by outside doctors. Every morning a large number of these patients are seen, their symptoms investigated and treatment adopted, the cases requiring special institutional treatment being admitted to the wards. A large number of cases with urgent symptoms—haemorrhage, eclampsia, etc.—are admitted direct to the wards, without coming to the out-patient departments, doctors sending them down at any time of the day or night. I find from the report for 1914, the last published, that 170 maternity patients were admitted and discharged before delivery, but this only includes a part of the cases treated ante-partum as a large number of patients are delivered in the hospital after prolonged treatment of some ante-partum complaint. For instance, 65 cases of placenta praevia were delivered in the hospital in this year, and some of these were treated in the hospital for a considerable time before delivery. The same thing applies to albuminuria of pregnancy, of which there were 27, and eclampsia, of which there were 45, and many other conditions.

To obtain the very best results all over the country it is not sufficient to have well-equipped and well-staffed maternity hospitals, the general practitioner must have practical training in the whole department of midwifery. Nothing could be worse than the present system of insisting only upon the attendance of twenty cases of labour by the medical student. What is required is that the student shall attend at least this number, but shall also be in residence in a large maternity hospital for a certain period so that he may see all classes of maternity disease and abnormalities of labour which he cannot hope to include in his twenty cases. Manchester University for some years has required its students to reside in a maternity hospital for a month, and its final examination for the M.B., Ch.B. includes a clinical examination on obstetrical and gynaecological cases.

My object in writing is to emphasize Dr. Ballantyne's plea for the examination and treatment of pregnant women, and also to point out that this opinion is not held, or carried out, only in Edinburgh. In Manchester it has been in full operation for 125 years, and I have no doubt it forms one of the most important departments of every well-conducted maternity hospital in the country, though we do not all label it with a new name.—I am, etc.,

Manchester, October 3rd. WM. FLETCHER SHAW.

PAINLESS MIDWIFERY.

SIR,—I well remember the day when our professor of midwifery began his lecture with a quotation from Genesis iii, 16: "Unto the woman he said, I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children." Because the first woman tempted the first man to eat the forbidden fruit many thought that she and all other women since were condemned to painful childbirth, and it was not for us to interfere in order to relieve it. At one time the majority of doctors held the same view, but great progress has been made since then.

On the question as to how far the accoucheur shall go in rendering the confinement painless, opinion varies greatly in different countries and according to the sensibility of the patients. A woman if she has a small pelvis and a big-headed child can and often does have an absolutely painless delivery by means of a modern Caesarean section, the risk of which is actually less for both mother and child than from a high forceps operation. A woman with a fairly good pelvis can have an almost painless confinement by two or three hypodermic injections of morphine and atropine during the period of dilatation of the os uteri, which diminishes the suffering by two-thirds at least. When the head is near the perineum the woman is put sound asleep with A.C.E. mixture or ether, and delivery then takes place absolutely without pain.

Only the other day an intelligent layman asked me whether it was true that the profession did not look favourably upon painless midwifery. My answer was, Yes and no. We do not look favourably upon its exploitation for purposes of gain by unqualified people, because it requires the very highest degree of skill to make it safe; but a large number of us do believe in it, and have practised it systematically for the last thirty years, the number varying in different countries, but steadily increasing every year in all of them.

Although I have no means of verifying the statement, which is based on observation, conversation, and the study of the literature, I should say that the proportion of women who have anodynes and anaesthetics varies in different countries somewhat as follows: United States 70 per cent., Canada, Australia, and New Zealand 60 per cent., British Isles 50 per cent., France and Belgium 40 per cent., Italy and Spain 30 per cent., Holland, Norway, and Sweden 20 per cent., South America 10 per cent., Russia and Japan 5 per cent.

During the last thirty years I have in every case in which the woman would give her consent used some form of anodyne during a period of twelve to twenty-four hours and anaesthetics during the last half-hour, and I have done my best to induce my pupils and colleagues to adopt this humane course. Some twenty years ago I read a paper before the American Gynecological Society advocating the use of A.C.E. mixture with a scent bottle and sprinkler such as women use for perfuming their handkerchiefs. I pointed out that such a bottle filled with A.C.E. mixture might be safely given to the woman to shake on to her handkerchief during the last hour or two until the os was fully dilated and the head low enough to justify the application of forceps. Hundreds of my former students and many of their friends have adopted the A.C.E. mixture as their one and only anaesthetic for all operations, and especially for the application of forceps, and they offer it freely to all obstetrical cases.

In this direction, at least, I feel that I have done my best for the lessening of human suffering, having lost no opportunity during my professional career of spreading the view that it is one of our greatest privileges to save pain, and that no pain is greater, while it lasts, than the pain of childbirth in a highly educated or highly nervous woman. The need for painless midwifery increases with the degree of cultivation of the nervous system. Experts with the aesthesiometer show that the perception of tactile sense and the impression of pain is very much greater in the highly educated woman than in the female farm labourer.

I have often noticed while on duty at the annual camps of military training that the City regiments, mostly composed of educated men, carried out the orders of the commanding officer in several seconds less time than did the country regiments. For the same reason a much more profound degree of anaesthesia is demanded by the wives of professional men than by women of the uneducated class. But as education extends to all classes, more and more women will feel the necessity for both anodynes and anaesthetics. To carry a baby during nine months under modern conditions is great enough misery to the average woman to satisfy the penalty pronounced upon our first mother without making it more terrible by withholding the means which Providence has given us to produce a painless delivery at the end.

We are constantly asked by the husband whether it is more dangerous for the mother, while the mother asks whether it is more dangerous for the child. To these two questions we can truly answer that the objection is slight, and even trivial, as far as mother and child are concerned.

Of course the forceps will have to be used a little oftener as the highly nervous woman has no abdominal muscles worth speaking of with which to expel the child; while the working-class woman, while having powerful muscles, cannot use them while she is under the influence of hypodermics of morphine. What paralyses the nerves of sensation also unfortunately paralyses the nerves of voluntary movement; and although the involuntary muscle of which the uterus is composed continues like the heart to contract regularly, this of itself is not sufficient in the majority of cases.

As to the kind of anodyne and anaesthetic, for twenty years I gave a hypodermic of morphine gr. ¼ and atropine gr. $\frac{1}{100}$ as soon as I was called, and another four hours later; and sometimes a third four hours after that if the woman complained. Then for a few years I used Dr. Abbot's hypodermic tablets of morphine, hyoscine, and cactine without any bad effects, except that I had a little trouble with the baby's breathing, and also I was unable to judge how long it would take for the os to dilate, so that when I expected it would take six or eight hours more it very often was all over in two. This, however, is an advantage for the mother, although awkward for the doctor. This quickness of dilatation of the os would be a positive advantage for all concerned if a number of patients could be gathered together in a private hospital where there was always a doctor on hand. I have therefore come back to morphine and atropine again without the hyoscine, and am well satisfied.

With regard to the anaesthetic I am greatly in favour of the A.C.E. mixture or pure ether during the last quarter of an hour.—I am, etc.,

London, W., Sept. 25th. A. Lapthorn Smith, M.D.

THE POSITION OF THE PROFESSION AFTER THE WAR.

Sir,—A number of people are blowing off a great deal of hot air about the new regulations. Is it not rather futile? After all, we are asked to do no more by regulation than we do now as a matter of course—that is, if we have any regard for our patients and ourselves. It is childish to cry out before we are hurt. It is remarkably foolish to make laymen think we are concerned more for our "rights" than we are for our duties. The time to make a fuss will have come when we are asked to give unreasonable service. We shall do it much more effectively if we refrain from wasting our energies by throwing things at an Aunt Sally which is not there.—I am, etc.,

Walsall. Frank G. Layton.

Sir,—I regret if I have unconsciously misrepresented Dr. Pochin. I stated he wanted a new committee. It is not a serious "accusation." Dr. Pochin says he wants an "intelligence department." Very good; it may be useful. Now each department of the Association's activities is managed by a committee, such as finance, ethics, insurance, and journal. It therefore was not a great stretch of imagination to assume that the very important "intelligence department" necessitated another committee. "The department would cost a great deal of money, have a staff, and be presided over by a specialist"; and as "our present officials have quite enough to do . . . and are fully occupied," it follows that the Council could not devote time to check literary output. They co-ordinate and supervise the work of the different committees and report to the Annual Representative Meeting.

"Organizer" objects to bowing to a "strong leader." If we could only discover him, I would readily bow in gratitude. The term I used was "leadership," and I expected this, not from one man, but from the Annual Representative Meeting when in session; from the Council at other times; and from the different committees when dealing with the special matters committed to their care. "Organizer" wants "strong local bodies owning no loyalty but to themselves and their professional interests." It is a selfish programme. Freedom without discipline and order means anarchy. It is the road to ruin. We must have union, which is unattainable without loyalty to one another. How the new local bodies "owning no loyalty but to themselves" could be kept in a federation I do

not quite see, but I do see clearly that we could never beat the Insurance Commissioners without cohesion. But if we have strong local bodies why not capture the Association, which can be done at once if men join, then we have our organization analogous to a federation constructed at once and without any extra cost. It is a very simple plan.

The necessity for central leadership was never more apparent than at present. We have the far-reaching 1917 Regulations before us. The Insurance Acts Committee have given their blessing. They have given "provisional assent." They have done more. "They have *no hesitation* in recommending Panel Committees to agree to the new Regulations," which, they say, "impose nothing that the average practitioner has not always done for his patients" (Secretary's letter, SUPPLEMENT, September 30th). This is the extraordinary view of our guardian committee. There is a complete absence of foresight, and I venture to assert it is the very negation of virile leadership. Nothing so disastrous in its appalling weakness has happened since our collapse in 1912. Perhaps a third of our most manly and independent panel practitioners are away in the trenches and hospitals of two Continents, and the Insurance Acts Committee subserviently submit to the forging of shackles for these brave fellows when they return to practice here. Fortunately, however, many of us at home are awake, and thanks, Sir, to your lucid and brilliant analysis of the "1917 Regulations" many more will be awakened. Every thoughtful man will agree with you when you say, "Under the new Regulations there is nothing to prevent patients habitually demanding specialist treatment, as it will cost them nothing; they may thus put the panel doctor to a great deal of extra trouble." And again: "In short, the Regulation is so worded as to give the Commissioners power to pile up duties on panel practitioners." Of course this is so. The new Regulations are an unknown quantity: no one can at present see where their expansion will end. Is it a subtle conspiracy to force on a National Medical Service? If so indeed, so much the worse for the profession. The profession has reason to feel deeply grateful and indebted to you for your very opportune exposure of these Regulations; and I most ardently hope that the meeting of insurance delegates on October 19th will unanimously say, "We will not have the 1917 Regulations."—I am, etc.,

Portsmouth. DENIS A. SHEAHAN.

SIR CHARLES BELL.

SIR,—May I be allowed to correct a printer's error in your report of my address at the Middlesex Hospital? Your report says Sir Charles Bell was appointed surgeon to "Haslar Hospital" in 1812. It should have read "the Middlesex Hospital." Sir Charles Bell was appointed surgeon to the Middlesex Hospital in that year, and it was whilst surgeon to the Middlesex that he went out to Brussels in 1815 to help the wounded from Waterloo.—I am, etc.,

London, S.W., Oct. 7th. M. W. RUSSELL.

THE MODIFIED CIRCULAR AMPUTATION.

SIR,—In the BRITISH MEDICAL JOURNAL for October 7th Colonel J. Lynn Thomas advises the modified circular amputation with lateral incisions. This method was used by the late Sir George H. B. Macleod for forty years, in addition to a rubber tube with gauze, and the results were very satisfactory.—I am, etc.,

Edinburgh, Oct. 9th. J. CRAWFORD RENTON.

Obituary.

W. A. MEREDITH, M.B., C.M., F.R.C.S.,

CONSULTING SURGEON TO THE SAMARITAN FREE HOSPITAL, LONDON.

MR. W. A. MEREDITH has, we deeply regret to say, fallen a victim to his anxiety to carry out the regulations as to lighting. He retired some years ago to Norfolk, and resided at Little Massingham Manor, near King's Lynn. On the night of October 5th he was informed that light was visible at the upper part of his house, and he accordingly went up to inspect a skylight, slipped, and fell twenty feet, being instantaneously killed.

William Appleton Meredith was the son of Mr. Samuel Ogden Meredith of Philadelphia, and was born in New York in 1848. Accompanying his father to Europe, he received his education at Boulogne-sur-Mer and University College, London, and studied medicine at the University of Edinburgh, where he attracted the attention of Lord Lister and of Mr. Knowsley Thornton, then his house-surgeon. Mr. Meredith took the diploma of M.R.C.S.Eng. in 1871 and the degrees of M.B., C.M.Edin., a year later. He held the appointments of house-surgeon and resident medical officer to University College Hospital, and served for a time as resident medical officer to the Royal Infirmary, Edinburgh. After assisting Sir J. E. Erichsen in his private work, he served as anaesthetist to that surgeon and to his colleagues, a duty for which he was well qualified. Meredith was elected to an appointment on the surgical staff of the Samaritan Free Hospital in 1877, and remained an active member of the staff of that institution until his retirement in 1908. Meredith was the last of Sir Spencer Wells's assistants. Undoubtedly a high class abdominal surgeon, he did not rush into authorship, but among a few papers of high merit read before societies we may mention his "Points affecting the mortality of abdominal section" (*Medico-Chirurgical Transactions*, vol. lxxii), and perhaps, better still, his eloquent and instructive introduction to a discussion on abdominal surgery held before the Medical Society of London in the session 1890–1, as writings not merely ephemeral but worthy of study in the present day. His results after ovariotomy and hysterectomy were excellent, and he was chiefly known twenty years ago as a great advocate of Lawson Tait's practice of flushing the peritoneal cavity, while he rejected drainage. He objected to several familiar innovations in abdominal surgery, especially to panhysterectomy for uterine fibromyoma where the supravaginal operation appeared to him, as many gynaecologists still maintain, to be the better surgical procedure. In 1886 Mr. Meredith was naturalized a British subject, and in 1897 was elected a Fellow of the Royal College of Surgeons of England.

He married the daughter of Mr. H. Atkinson Green, of Boston, Mass., and their son went to France with the first British Expeditionary Force in August, 1914, and fought on till January, 1915, when he received a wound and returned home.

Mr. Meredith's death is much regretted by his former colleagues at the Samaritan Hospital, to which he was elected consulting surgeon on his retirement in 1908. He was a man of fine physique, strong nerve, and great force of character. He had many friends among the profession in London to whom he was endeared by his genial manner and many sterling qualities.

ALEXANDER BALLANTYNE, M.D.,
F.R.C.P.EDIN., J.P.,
DALKEITH.

THE medical profession in and around Edinburgh has always had a warm feeling of friendliness for Dr. Alexander Ballantyne of Dalkeith, who passed away on October 3rd. He had the happy knack of making friends both amongst his patients and his brother practitioners, and the still happier power of keeping his friendships well in repair. His interest in the affairs of others, to the quiet but resolute exclusion of his own, was real and spontaneous; his sympathy was forthcoming as often as it found opportunity, and he could rejoice, too, when there was occasion. To sum up all in a phrase, he could play a losing game at golf without a word of grumbling, and with a delightful readiness to admire sincerely his opponent's strokes. At the same time, he was a fine exponent of that game, and won much oftener than he lost.

He was born at Chorley, in South Lancashire, on July 13th, 1838. Some generations previously the branch of the Ballantynes to which he belonged had migrated to England; but, as he used to say, he narrowly missed being born in Scotland, for his parents moved from Chorley to Dalkeith, near Edinburgh, when he was a baby in arms. His father was a nursery and seedsman by trade. Alexander Ballantyne was the younger of two sons, and since his elder brother went into the business he was able to fulfil his earnest desire to become a doctor. He had his schooling in Dalkeith and his medical education in

Edinburgh University, where he graduated M.D. in 1860. There was no Ettles Scholarship in his day to mark out the "best man of the year," but Dr. Ballantyne had offered to him the residentship at Morningside, and that was in the opinion of many the equivalent of the later distinction. He served a strenuous seven years with Dr. Anderson of Selkirk, then one of the best known practitioners in the south of Scotland. In his Presidential Address to the Edinburgh Obstetrical Society in 1896, Dr. Ballantyne threw an illuminating sidelight upon obstetric practice in the country districts then, telling how, when summoned to a case of labour at a great distance from head quarters, he jumped into the saddle provided with a 6 oz. bottle of chloroform, some ergot, a pair of Simpson's forceps, and a catheter, and felt ready for any of the usual varieties of labour. So great a benefit had chloroform brought to the country doctor in the early Sixties of the past century.

From Selkirk Ballantyne went to Vienna, where he spent more than a year in post graduate work, and formed one of a little coterie of Britishers there, with each of whom he maintained in after-years a continuous friendship. One of them was Sir Thomas Lauder Brunton, whose recent death was felt with keen regret by Dr. Ballantyne. Ultimately Ballantyne settled in his own town of Dalkeith, taking over the practice of Dr. Bryce, who was then moving into Edinburgh. There for more than forty years he carried on a practice which was by no means confined to Dalkeith, but extended itself several miles around, and did not even halt at the toll gates of Edinburgh. It was not only the medical needs (in the old sense) of Dalkeith to which Alexander Ballantyne attended, for he was fired by the newer notions of prevention, and as medical officer of health he did much to drive epidemics from their hunting grounds in many of the narrow wynds that branch off the High Street of Dalkeith. He had a keen appreciation of music, and, with his wife, had much to do with the foundation of the Dalkeith Philharmonic Society, and was also a director of the Dalkeith Scientific Association; he was surgeon-lieutenant-colonel to the 6th Battalion of the Royal Scots, which, as an old Volunteer regiment, had its station in the town, and he held numerous other appointments, including that of visiting doctor at the Dalkeith Combination Poorhouse; and he was made a Justice of the Peace for Midlothian in 1898. On two occasions his fellow-townsmen and patients made him a presentation, the first being on his and Mrs. Ballantyne's silver wedding in 1893 and the second in 1911, when he retired from practice.

Medical Edinburgh, also, was not unappreciative of the good work which Dr. Ballantyne was carrying on some six miles to the south of it, and the presidentship of the Obstetrical Society and that of the Harveian were two of the honours which served to emphasize the professional esteem in which he was held. He was elected a Fellow of the Royal College of Physicians of Edinburgh in 1877, and at his death he was far up in seniority on the list. He was also an ex-president of the Edinburgh Branch of the British Medical Association. After his retirement in 1911, Dr. Ballantyne resided at Orfordholme, in Gullane, where he was able until a few weeks ago to enjoy to the full his favourite recreation of golfing. During the past fortnight he suffered from attacks of angina pectoris, and the cardiac affection, which he had had for some years without much inconvenience, proved fatal on October 3rd.

Dr. Ballantyne was not often to be tempted to put pen to paper, his modesty preventing him many times; but his two presidential addresses to the Edinburgh Obstetrical Society and his article on a case of tetanus treated by chloral, published in the *Lancet* early in 1870, are well worth perusal.

Dr. Ballantyne is survived by his widow and by two sons, one of whom, Dr. Harold Ballantyne, is his successor in the practice at Dalkeith. His third son, Commander Ernest Ballantyne, went down with his ship, H.M.S. *Viknor*, in the early months of the war. Dr. J. W. Ballantyne of Edinburgh is the son of Dr. Ballantyne's elder brother. The funeral from Gullane to the New Cemetery at Dalkeith took place on Friday, October 6th, and, although the weather was inclement in the extreme, it was attended by many friends both from Edinburgh and Dalkeith, as well as by the Provost, magistrates, and councillors of Dalkeith.

The Services.

EXCHANGES.

Major R.A.M.C.(T.F.), sixteen months in France, at present serving with a casualty clearing station, desires to exchange with an officer of similar rank at home. Address No. 4100, British Medical Journal Office, 429, Strand, W.C.

Captain R.A.M.C.(T.) attached to Staff of General Hospital, B.E.F., France, offering ample scope for surgical work, desires exchange with Territorial Officer at home, preferably stationed in or near London, or Eastern Command. Please state full particulars as to unit, station, and duties in confidence to No. 4000, British Medical Journal Office, 429, Strand.

M.O. (Territorial), attached infantry battalion now serving in Ireland, wishes to exchange for foreign service. Address No. 4099, British Medical Journal Office, 429, Strand, W.C.

Universities and Colleges.

REVIEW OF EDUCATION COMMITTEE.

The following are the terms of reference to the subcommittee of the Reconstruction Committee, which is to review various aspects of the education problem:

"To consider the system of education as a whole; to review and formulate from that point of view proposals for developing it, particularly in directions indicated as desirable or necessary by experience gained during the war, and with special reference to:

"(*a*) Proposals prepared before the war for the development of the national system of education;

"(*b*) The memoranda already submitted by the Education Departments for the consideration of the Reconstruction Committee;

"(*c*) Any proposals submitted hereafter from the Departments, or from special Committees, or from other responsible organizations;

and to recommend from time to time such action, whether by way of legislation or otherwise, as may be practicable."

The chairman is the Lord President of the Council (the Marquess of Crewe).

UNIVERSITY OF OXFORD.

Science and Education.

In convocation at Oxford on October 7th the Dean of Christ Church in beginning his fourth and final year of office as Vice-Chancellor said that 10,500 members of the university were serving with the navy and army and nearly 500 were in Government employment in other ways. There had been awarded to members of the university 9 Victoria Crosses, 120 D.S.O.'s, 267 Military Crosses, 4 Distinguished Conduct Medals, 2 Distinguished Service Crosses, 48 foreign orders, and 700 had been mentioned in dispatches; 1,230 were reported killed and 103 missing.

He then went on to consider the statute concerning the Honour School of Chemistry, which he described as an attempt on the part of the university to meet one of the educational needs the war had brought to notice. The past neglect of the claims of natural science in education must, he said, in some way be remedied. It was not necessary merely to produce more advanced students of natural science, but to ensure that all students should be brought in some degree to understand the scientific point of view. This would not be easy, for it would mean a great psychological change in the nation, which would have to give up its profound distrust of expert knowledge. At the same time he hoped that there would be no attempt to import German methods and German rigidity of type into British education without serious consideration and deliberate criticism. It had also to be remembered that the majority of the men educated at Oxford would be engaged in the work of the empire—that is to say, administration. For such men the knowledge most necessary of all was the knowledge of men.

UNIVERSITY OF GLASGOW.

The following degrees were conferred on October 9th:

M.B., Ch.B.—J. Stirling, *J. MacA. Mackintosh, *Helen Y. Murdoch, J. E. Bannen, J. Beveridge, A. G. Brand, H. D. Brown, W. M. Cameron, A. La B. Clark, D. Clyde, Ann K. Cormack, J. Crerar, R. Cunningham, W. Donald, G. M. Hetherington, A. R. Hill, T. J. Honeyman, J. N. Jamieson, S. Johnstone, Margaret J. T. Leitch, H. E. M'Coll, D. B. Robertson, J. Steel, H. W. Torrance, R. N. Walker, A. E. Wilson.

* With commendation.

Mr. E. M'M. Dunlop, now on active service, who graduated on July 19th, 1916, gained the Brunton Memorial Prize of £10, awarded to the most distinguished graduate in medicine of the year.

The Lord Mayor has convened a conference of municipal and hospital authorities, and representatives of religious, educational, and social organizations, at the Mansion House, on October 24th, to consider the steps which should be taken in London to provide facilities for the treatment of venereal diseases in accordance with the recommendations of the Royal Commission.

Medical News.

AT the meeting of the Royal Microscopical Society at 20, Hanover Square, on Wednesday next, at 8 p.m., Mr. H. Pixell Goodrich, D.Sc., and Mr. H. Moseley will read a paper on certain parasites of the mouth in cases of pyorrhœa.

WE greatly regret to have to announce the unexpected and almost sudden death of Dr. J. R. Hamilton of Hawick, chairman of the Scottish Committee of the British Medical Association, and until recently a member of the Central Council. We hope to publish a biographical notice in an early issue.

SIR VICTOR HORSLEY by his will left property of the value of £35,595, the net personalty being £30,214. He gave his professional furniture, books, and instruments to such of his children as may enter the medical profession, and, if none, then to the Pathological Department of University College. He directed that a *post-mortem* examination of his body should be made by the pathologist of the National Hospital for the Paralysed and Epileptic, Queen Square, and that his brain and skull should be given and preserved by the Neurological Society of London, and gave the remainder of his body to the museum of University College for the preparation of such specimens as the curator might think fit. The pathologist who made the *post-mortem* examination was to be paid 10 guineas.

A SERIES of demonstrations open to medical students and practitioners and to first-aid and ambulance students, will be given at the Royal College of Surgeons of England, Lincoln's Inn Fields, during October. At 5 p.m. on Mondays, October 16th and 23rd, Mr. Shattock will give demonstrations on wounds and their repair, and on Monday, October 30th, at the same hour, on injuries of arteries. Mr. Colyer will demonstrate fractures of the jaw on Wednesdays, October 18th and 25th, at 5.30 p.m., and dental students are specially invited to attend his demonstrations. A first series of a course of lectures on the anatomy of the human body for first-aid and ambulance students will be given by Professor Arthur Keith, F.R.S., conservator of the museum, at 5 p.m. on Mondays, Wednesdays, and Fridays during November, beginning on Wednesday, November 1st. The preparations and specimens used for purposes of illustration will be on exhibition from 3 to 5 p.m. on the day of each lecture, and from 10 to 5 p.m. on the following day.

The members of the National Commission on the Birth-rate, whose report was published last June, had an interview on October 6th at the Deanery of St. Paul's with representatives of the English Plaster Makers' Association on the question of the restriction of the sale of certain forms of lead plaster. It may be remembered that after the collection of a good deal of evidence on the use of diachylon plaster for the production of abortion, the British Medical Association, on March 27th, 1906, addressed a letter to the Lord President of the Privy Council urging that one of the most effective measures for preventing the spread of this evil would be to schedule diachylon as a poison under the Pharmacy Act. The Association submitted the evidence on which it had based this opinion and at the same time issued a letter to the press asking it to publish the fact that the use of diachylon internally resulted in paralysis, blindness, insanity, and death. The Association has now addressed a letter to the Marquess of Crewe expressing the pleasure with which it had noticed the interest shown in this matter by the National Council for Public Morals and other bodies as well as the National Commission on the Birth-rate. In view of the importance of the subject the Association urges that its suggestion to schedule diachylon as a poison should be taken into consideration by the Privy Council at an early date, with a view to the substance being included in the schedule of the Pharmacy Act.

OCTOBER 12TH was the anniversary of the execution of Nurse Edith Cavell by the Germans in Brussels. A scheme to perpetuate her memory by establishing a home of rest for nurses—a plan which she had herself hoped to carry out—has been matured with the approval of her family, and a freehold house, standing in about three and a half acres of ground in a suitable locality, which will deal with the needs of about a hundred nurses yearly, has been offered to her sister as a gift. A committee has been formed to raise a fund sufficient for its permanent endowment. The chairmen of the committee are Sir Richard Temple and Prince Alexander of Teck, and among the members are Sir Havelock Charles, Sir Dyce Duckworth, Sir Douglas Powell, Sir Henry Morris, Sir Frederick Treves, Sir Seymour Sharkey, Sir Cooper Perry, and Sir William Bennett. Contributions, which may be sent to the honorary treasurer, Mr. Charles Campbell McLeod, 10, Lime Street, London, E.C., are invited. A hospital to Nurse Cavell's memory was opened in Paris on October 12th; it contains 100 beds, placed at the disposal of the army. The chief surgeon is Professor Hartmann, and Madame Curie is in charge of the radiographic department. Associated with the hospital is an institution for the training of hospital nurses. On the same day a memorial to Nurse Cavell was unveiled by the Mayor of Shoreditch and the Right Hon. Christopher Addison, M.P., in the nurses' dining-room at Shoreditch Infirmary, where she was at one time assistant matron.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

INCOME TAX.

1598 is interested in the dissolution and reconstitution of a partnership, and inquires how the tax charged should be divided between the past and present members of the firm.

*** Inasmuch as the persons concerned may be entitled to different allowances and may be liable to tax at different rates, it is unsafe to divide the duty for the year proportionately. The only satisfactory method is to divide the "gross" assessment in that manner, and for the partners to pay their shares on those proportions as reduced by their appropriate allowances. Taking the assessment to be £1,000 and the date of change in the constitution of the partnership to be August 5th, 1916, this division would work out as follows:

A.—⅝ of £1,000	£625
B.—⅜ of ⅖ of £1,000	£125
C.—⅜ of ⅗ of £1,000	£250

The surveyor of taxes will probably insist that the assessment itself cannot be divided, but he may be able to assist in the calculation of the respective amounts into which the duty so charged should be divided, a point which is worth bearing in mind, as one partner is not in a position to know whether the allowances have been correctly made for the other persons affected.

NAEVI OF THE FACE.

L. G. N. asks for advice as to the treatment of capillary naevi on an infant's face.

*** The treatment depends upon the size, the shape, and the part attacked. If the naevi are very small, electrolysis or the galvano-cautery are proper methods. If they cover a large area, radium is the best treatment. Ionization is useless.

LETTERS, NOTES, ETC.

IMPORTATION OF SALICYLATES.

THE President of the Board of Trade has given the following statistics for 1913, the only year for which they were available, of the actual declarations of importers showing the amount of salicylates imported in that year:

	Total Imports.	Imports from Germany.
Salicylic acid	£10,703	£10,375
Sodium salicylate	£16,147	£15,264
Acetyl salicylate	£3,518	£3,376
Aspirin	£20,096	£19,974

Quantities could only be given in the case of sodium salicylate, of which 2,385 cwt. were declared, including 2,305 cwt. from Germany. Salicylates are not separately recorded in the import statistics; they are entered under the head of "chemicals and drugs unenumerated."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE HIGHLY STRUNG NERVOUS SYSTEM.

By GUTHRIE RANKIN, M.D., F.R.C.P.,
PHYSICIAN TO THE DREADNOUGHT AND ROYAL WATERLOO HOSPITALS.

"There can be nothing more sure in physiology than this: that as we go upwards in the scale of creation, so the nervous system becomes more highly strung. But if, on the one hand, it becomes more intense in the enjoyment of pleasure, it must also, on the other hand, be more sensitive to pain and to disturbing sensations of all sorts."

Thus wrote the late Sir James Goodhart so long ago as 1891, and the truth of his statement becomes more firmly established in clinical experience as time goes on. As habits of life become gradually altered, so of necessity do the disorders which interfere with the regular fulfilment of these habits slowly assume new features and fresh significance. Of all the tissues of the human body there are none so sensitive to the influence of changing conditions as those that go to the make-up of the nervous system. Hence it is that we are confronted with an apparent increase of nerve disturbances and diseases out of proportion to those associated with other organs or systems. But, while this is true of disorders that have earned a title to a name because by ascertainable signs and symptoms they have acquired an individuality by which they can be recognized, the same cannot be said of the functional departures from normal stability. These confront us at every turn and are bewildering in the multiplicity of their manifestations and often also in the perversity with which they mimic true disease dependent upon actual tissue change. How far functional disturbance is a harbinger of organic mischief is a question at present impossible to answer, but in the case, for instance, of such a disorder as disseminated sclerosis there is reason to suspect that an inherited poor quality of nervous structure may pass through the trials of functional poverty and end in the bankruptcy of established disease.

The term "neurosis" is now used as descriptive of nerve disturbance for which no corresponding pathological changes in the nervous system can be found. Many neurotic conditions are essentially of central origin, and are concerned with every variety of subjective sensation. They are more common in women than in men, and are liable to declare themselves under the influence of grief, excitement, anger, jealousy, and other passions by which emotional centres are aroused to unwonted, and often uncontrolled, activity. The storm soon blows itself out, but it leaves behind a wreckage of shattered nerves, which with each succeeding ebullition find increasing difficulty in settling down to a well-balanced placidity.

The central neuroses, infinite in number and variety, do not fall within the compass of this communication, which is intended to deal only with those that manifest themselves, in all their most prominent symptoms, through one or other of the great organic systems. If we turn our attention, in the first place, to the cerebro-spinal system, we have no difficulty in finding examples which, to distinguish them from those that are properly regarded as central or mental, may be conveniently differentiated as neuroses of peripheral type. How many of the headaches, for instance, with which we are called upon to deal, are simple neurosal manifestations!—the occipital discomfort that, coming after an unusually arduous day, cries out for rest to a wearied head against a high-backed arm-chair with a roll-cushion collar, and creates an earnest desire for an early retirement to bed because of the sure knowledge that a good night's rest will chase all the aching headache away; or the piercing distress of the unilateral pain that after some unusual worry or excitement suddenly conveys a feeling as of a spike being driven into the temple; or even the ordinary migraine, presaged on first waking in the morning by premonitory warnings which come to be recognized as the unfailing intimation of a hemicranial headache that before middle day will have made work impossible and compelled a retirement to bed in a darkened room where active sickness and subsequent sleep are prayed for as the blissful termination of a wretchedness that finds relief through no other channel. Are not all these headaches varieties of neurosal disturbance which circumstance directs along one channel or other according to the idiosyncratic or inherited tendencies of the individual? Rest is the one essential to their cure, and a toxaemic invasion of tired-out and unstable centres the most probable explanation of their incidence. But in a certain proportion of cases this much-needed rest eventually fails to come to the rescue. The martyr to one or other form of functional headache has treated his disorder with scant courtesy. He feels so well between whiles that his headache becomes forgotten in the rush of life until a successor arrives to remind him that his physiological sins must again pay the penalty. He becomes subject to noises in the ears, and uncomfortable sensations of giddiness; to waves of heat and cold; to numbness, "pins and needles" and various other paraesthesias; and, finally, to insomnia, all of which are merely so many additional neuroses—finger-posts on the road to the terminal goal of a generalized tiredness and inertia pathognomonic of the condition which we nowadays call neurasthenia.

If, again, we consider the spine as a centre for highly strung manifestations, how many varieties of backache bear close resemblance to headache! The difference is merely one of distribution, and putting on one side the great group of diseases which result from organic change either in the cord itself or in the structures of the spinal canal which contains it, a whole volume might be written on the vagaries of functional disturbance which group themselves round the spine as their seat of origin. The essential symptom is pain, referred to one or more of the spinal vertebrae, most frequently in the lower dorsal or lumbar regions, which is always aggravated by movement or pressure. Tenderness, it will be remembered, is never a prominent symptom in cases of myelitis or other organic lesions of the spinal cord. This backache, like the functional headache, has no organic explanation; it comes to those who are run down from anxiety or overwork, and mostly is associated with a hereditary predisposition to nervous disorders. The complaint is almost to be recognized by the dejected appearance, shuffling gait, rigid attitude, and deliberate movements of the patient when he enters the room. There is a long recital of broken health, impaired appetite, disturbed sleep, and malaise, with, generally as a terminal event, some unimportant injury to the back caused either by a casual blow, a slight fall, or an accidental twist. From that moment the spine becomes painful, and when it is examined one or two vertebral processes somewhere below the middle of the column are found to be exquisitely tender to touch. There is no interference with the competency of the sphincters, and there are no disturbances of common sensation. The deep reflexes are exaggerated, but none of the usual symptoms of organic cord lesion are present. The patient is only comfortable in bed, and his persistent sense of tiredness almost reconciles him to the additional misery of backache because it provides an excuse for a temporary withdrawal from every attempt at effort. It is a remarkable feature of this form of neurosis that when it occurs in a man it is very frequently accompanied by a profound conviction that it is somehow connected with a failure of power or a fault somewhere in his sexual mechanism. The act of coitus or the occurrence of a nocturnal seminal emission induces an alarming sense of prostration, and at once brings about a disturbing increase of his spinal tenderness. Unfortunately it is just in persons of this unstable type that the sexual centres are most readily activated, and a physiological process comes to be regarded as a pathological fact whose early termination will surely be a complete loss of virility. It is to this unlucky type of man that all the pernicious literature of the quack appeals. Long before the pain in his back has become so acute as to lay him up, he has indulged in one variety of secret remedy after another in a vain endeavour to "preserve his manhood." Whatever that may mean, it adorns the pamphlets of every rogue who knows how to make money by an appeal to the groundless fears of this class of neurasthenic.

In women functional spinal tenderness is most apt to locate itself either over the prominent seventh cervical vertebra, or at the other end of the spine over the coccyx. In either situation severe pain may be caused by inflammatory changes, but where no such explanation of the suffering exists the solution is to be found in a highly strung nervous system with, for some reason or other, a localized incidence of subjective pain in one or other of

these situations. The match to the gunpowder is often provided by a slight and wholly inadequate traumatism, but as often as not the closest inquiry fails to elicit any sufficient exciting cause.

Intercostal neuralgia is another example of spinal distress. The frequency of its occurrence in women in the fourth or fifth left intercostal space is one of the problems of functional disturbance which no one yet has been able to explain. We are all familiar with it as a clinical fact which creates in the mind of many a sufferer the fear of heart disease, cancer of the breast, or pleurisy.

The spinal manifestations which sometimes follow on the shock of a serious accident have come to be recognized as a disease-entity under the name of "railway spine," but the fact that the same train of symptoms may result equally from a profound mental impression as from a physical shock or concussion, suffices to prove that in certain persons the functional balance of the nervous system can be seriously deranged by a wide variety of exciting causes. Most cases ultimately recover completely, but where litigation is pending as a result of an accident, the symptoms tend to increase rather than diminish. A settlement of claim often starts the patient on the road to complete and perfect recovery.

In the circulatory system we find another large variety of manifestations dependent upon a highly strung nervous system. To tell a neurasthenic patient that he has a "weak heart," as is not infrequently done, means supplying him with a peg on which to hang all his miseries, and one which it does not take much to convince him is insecurely fixed and liable at any moment to "peg out." It may confidently be asserted that, except as part of a general debility, there is no such thing as a "weak heart." The subjective consciousness of the heart's action is, in the large majority of cases, no evidence of heart disease, and, more often than not, means nothing worse than a disturbed digestion. Irregularity or rapidity of rhythm, a feeble first sound, a small and soft pulse, are among the indefinite and untrustworthy phenomena upon which this pernicious diagnosis of "weak heart" is founded. In the absence of physical evidence of disease at the valvular orifices or of changes in the walls of the heart itself, such a diagnosis is vague and worthless to those who know, but precise enough to be alarming to those concerning whom it is pronounced.

The significance of the feelings of faintness experienced by those who suffer from so called "weak heart" is another of the problems which may be readily misunderstood. They occur mostly in feeble women, and the usual story is that the person experiences sensations which make her believe she is about to faint but that she never actually loses consciousness. She feels cold all over and looks pale, but immediately after flushes, has palpitations, and breaks out in a perspiration. Apart from the possibility of such attacks being epileptic in character (and such an interpretation must never be lost sight of), it is safe to assert that faint feelings of this description originate in some form of reflex disturbance in the vasomotor nerve centres, and are not a result of any radical fault either in the heart or circulatory system.

True syncope is met with in cases where there is dilatation of the heart, or valvular disease, or myocardial degenerative changes, but in each of these instances, if search be made, ample evidence will be found in physical signs to guide the diagnosis aright; the condition, moreover, is generally one of actual fainting with temporary loss of consciousness, and not one of mere faint feeling with all its apprehensive accompaniments.

In this connexion there is a long string of neuro-vascular manifestations which are in close relationship: Chilblains, dead fingers, cold feet, urticaria, erythromelalgia, acroparaesthesia, angio-neurotic oedema, imperfectly developed types of Raynaud's disease, or of Graves's disease, and the perplexing symptomatological vagaries of the menopause. All these conditions are met with in people who, either by inheritance or acquisition, are possessed of highly strung nervous systems, however much they may differ in temperamental type. Most of them begin and end as examples of functional disturbance, but experience would seem to suggest that, in some, the perversion of function proves the prelude to determinate organic lesions. This would seem to be exemplified in cases in which intermittent arterial spasm or claudication may be accepted as a reasonable explanation of the symptoms presented. Urticaria, erythromelalgia, and Raynaud's disease, are familiar instances to which such an explanation may be applicable. But there are others—migraine, epilepsy, asthma, and angina pectoris, being among the most notable—in which, where there is no obvious organic change to account for them, it may be legitimate to regard arterial spasm as a possible contributory element. Arterial claudication is known to be responsible for a variety of cramp in the muscles of the legs which may be so severe as to make ordinary walking temporarily impossible, but it is not so fully recognized that apparently the same cause affecting the central vessels may be responsible for a train of symptoms closely analogous to those associated with thrombosis, embolism, or haemorrhage. This was illustrated in the following case:

A lady of 64 years of age, who had over a period of many years been the subject of successive illnesses, all conditional upon a highly strung nervous system, had recently become liable to unaccountable and distressing attacks of vertigo. She was of the neurasthenic type, but the only forthcoming evidences of structural change were found in the vascular system. The arteries were moderately thickened and tortuous, the second aortic sound was distinctly accentuated, and the urine contained a faint haze of albumin. Suddenly one morning, on rising from bed, she experienced a more than usually severe attack of giddiness, which was immediately followed by inability to speak, partial paralysis of her face, some loss of power in one arm, and numbness, with tingling, in the corresponding leg. The speech defect developed into distinct aphasia which lasted over two days and then entirely disappeared. As the speech returned to normal, both arm and leg regained their usual power and comfort. The same sequence of events was repeated in many subsequent attacks of a precisely similar nature, and it came to be recognized that they usually occurred either after a fit of bad temper, to which she was prone, or after an unwise and over-abundant meal in which she loved to indulge. She was a full blooded, gouty type of woman whom Nature had unkindly endowed with a prodigious appetite and a digestion that could always rise to the occasion. Under a more carefully restricted diet and a better regulated life her health improved, and she had no occurrence of her hemiplegic threatenings.

In such a case as this there would seem to be no more likely explanation of the symptoms than faulty nerve control, causing a spasm of the cerebral vessels analogous to the condition that is regarded as responsible for claudication in the vessels of the lower extremities.

In the respiratory system it is again easy to find examples of disturbance which can be reasonably explained by the hypothesis of a highly strung nervous system. In the overwrought anaemic woman who seeks advice from time to time on account of aphonia the complete loss of voice usually comes on suddenly and causes serious alarm. It may continue over a period of weeks or months, but more frequently it disappears as suddenly as it came and leaves the patient none the worse. Hiccough is a minor ailment, due to spasmodic contraction of the diaphragm, which sometimes proves very rebellious to treatment. It usually comes in paroxysms of longer or shorter duration according to the severity of the exciting cause. In hysterical or neurotic patients it is not a symptom of serious gravity, however long it may continue, nor is it of any consequence when it arises from highly spiced or unduly hot food, but it is often indicative of serious possibilities when met with in advanced conditions of abdominal disease or in the later stages of gout, diabetes, or Bright's disease. Paroxysmal sneezing is another example of nerve-storm affecting the upper air passages. Apart from patients in whom some actual lesion in the naso-pharynx is found to account for the recurrent irritation, cases occur with considerable frequency in which more or less severe attacks of sneezing occur from time to time for no apparent reason. They are often associated with a gouty state. Hay fever is closely allied to this condition, from which it only differs in being more persistent, characterized by difficulty in breathing rather than by persistent sneezing, and associated with states of atmosphere abnormally charged with the pollen of grasses or fine dust of one kind or another. It is a near friend to paroxysmal asthma, which, though sometimes induced by one of several organic causes, is in many instances a true product of a highly strung nervous system.

In addition to these classified types of what may be regarded as respiratory neuroses, there is yet another, not so common, but exceedingly interesting on account of the diagnostic doubts and difficulties which its occurrence raises—namely, simple rapidity of the respiratory act. It

is, like the others, a paroxysmal affection which comes and goes without apparent cause and leaves the respiratory movements between whiles quite normal. There is no true dyspnoea and no symptoms referable to the upper air passages. Any difficulty there may be is concerned with the inspiratory part of the respiration cycle, and even this may not exist as a subjective experience. The breathing is rapid and shallow, often reaching 30 or 40 a minute, and the knowledge of it causes the patient much emotional disturbance and makes him afraid to move about lest he loses his wind altogether. Here is a typical example:

A gentleman, aged 55, who had always suffered, in one way or another, from "nerves," though with perfectly healthy organs, became very much upset on the outbreak of this war with all sorts of fears and fancies. He was convinced the cause of the Allies would not prove victorious, and he magnified every adverse rumour or temporary reverse into certain evidence of the rapid fulfilment of his pessimistic prophecies. In the Zeppelin raids he saw further evidence of the approaching failure of Britain's cause. He lived in constant dread that sooner or later he would be burned out of house and home, or killed by a bomb. Though in a less degree, the financial possibilities of the war possessed his mind, drove him to all sorts of petty and ineffective economies, and at times made him dread the default of all his dividends. Despite this mental state, his general health remained steadfast. His appetite was excellent, his digestion good, and his bowels regular. Though at times very restless, he lost no weight. Two important physical facts, however, became established: he was unable to sleep at night without the help of bromides or medinal, and he developed a most surprising irritability of the respiratory nerve centres. Immediately after any excitement, whether mental or physical, and sometimes without any ascertainable exciting cause, his breathing became laboured and accelerated. Every accessory muscle was brought into play, and, though each respiratory act was short and a great fuss was made over its accomplishment, there was no cyanosis and no cough. He kept restlessly moving about all the time it continued and the pulse did not vary from its normal rate of 68–72. Each attack subsided as speedily as it began, and in the intervals the respiration was quiet and at the normal (18). It seldom troubled him while at meals and entirely disappeared during sleep.

Passing now to the abdominal cavity we come to a region in which the highly strung nervous system plays more frequent and obscure pranks than in any other. The whole length of the gastro-intestinal tract constitutes an immense field, every inch of which is influenced and controlled by the nerve supplies of the great sympathetic as well as of the cerebro spinal systems. It is from this region more than any other that toxaemic conditions mostly emanate, and when we consider the important functions of digestion, assimilation, and elimination with which it is concerned, the marvel is that, apart from disease, the wonderful adaptability of its intricate nervous mechanism provides for such a beneficent maintenance of balance that, in perfect health, its physiological problems are solved for us every hour of the day without any subjective knowledge of the ceaseless chemical, biological, and physical processes by which we are kept alive and well. There is no local departure from the normal that does not involve the nervous supply by which the whole is regulated, and, in many instances, it is open to question whether some of the more common disturbances which we recognize by name—constipation, diarrhoea, indigestion, gastric catarrh, colitis, for example—should not be, with greater accuracy, grouped under the heading of diseases of the nervous system. Admittedly the fault, whatever it be, originates somewhere in the alimentary tract, but it only obtrudes itself on our attention by symptoms that ensue in consequence of sequential disturbance of its innervation. What, for instance, does constipation or diarrhoea convey to the minds of most of us? Not a disease entity at all, but a mere disturbance, in one direction or the other, of a normal function, brought about in large measure by a faulty supply of the driving power. Closely allied to both of these conditions, and sometimes associated with one or other, is vomiting. This occurs as an accompaniment of many disorders both of the stomach and of the general health. But there is a well-recognized form of active and sustained vomiting which has no apparent dependence upon any departure from health, local or general, and which by common consent we recognize as hysterical, functional, or neurotic, according as we choose the qualifying adjective that most correctly expresses our view of its etiology. There is no organic fault to account for it, and it often disappears suddenly and completely, even after long duration.

Then, again, how much of every variety of dyspepsia is dependent upon interference with the normal rhythmic current of nerve supply! In one variety of dyspepsia to which I have recently referred in this Journal the primary cause is undoubtedly fatigue of the nervous centres with a consequent dyspepsia of which the leading characteristics so closely resemble the symptoms we associate with duodenal ulcer as to make the differential diagnosis, at least in the early stages, a matter of no small difficulty. It may in this connexion be surmised that the ileal and duodenal kinks, the sagging transverse colon, and all the other physical evidences of atony that go to make up the general picture of intestinal stasis, of which we hear so much at the present time, are dependent, in their earlier beginnings, on imperfections in the nerve supply. It is at any rate a significant fact that, in the majority of such cases, the patient presents other symptoms that unmistakably declare the existence of neurasthenic tendencies.

Mucous colitis is yet another intestinal derangement which seems to be more truly symptomatic of a leakage of nerve energy than of any established change in the colon itself. The pallor of the stools frequently associated with mucous colitis is probably neither more nor less than a neurosis manifesting itself incidentally through the bile ducts. No organ in the body is so universally blamed for health upset of one kind and another as the liver, and apart from the lesions caused by organic disease, by various blood dyscrasias, or by the toxaemic consequences of over-indulgence in food and drink, there remains a group of cases in which the exciting cause is best explained by faulty nerve supply. We gain some corroboration of such a theory from the fact that sudden shock may have as one of its immediate consequences an attack of jaundice, and every now and again we meet with cases in which recurrent attacks of mild icterus are obviously the expression of a hepatic nerve storm.

Our knowledge of pancreatic disorders is still limited, and the exact part which the pancreas plays in diabetes—the disease with which it is most commonly associated—is still a question round which there surges a wide variety of opinion. One of the latest theories suggests a depraved nervous spleen as the starting point from which, in the majority of cases, the changes in the inter-relationship of its secretions pave the way for an ultimate failure in carbohydrate metabolism. We cannot forget that glycosuria has been produced in animals by puncture of the floor of the fourth ventricle, nor can we lightly set aside the fact that it occurs in its greatest incidence after middle life, not only in those who are gouty or who have lived too well, but also with conspicuous frequency in men of intellectual type who have been brain-workers and have borne the burden of the day under conditions of more than average demand on their nervous energies. Experience, moreover, is declaring with more and more certainty that alimentary restrictions on the old lines of severity are no longer desirable or necessary, and that most cases do best when the diet is allowed to include as large an amount of carbohydrate as the toleration of the individual will permit. Further, it is clearly proved that the capacity for assimilating carbohydrates without seriously increasing the glycosuria is almost mathematically commensurate with the amount of leisure in life that can be enjoyed. The mere existence of a moderate amount of sugar in the urine after middle life is of little consequence if the nutrition otherwise is maintained. It is not in itself a disease, any more than the presence of urates; both are evidences of a disturbed metabolism, and nothing more; but the former is more indicative of a neurosal ancestry whose influence tends to accentuate and perpetuate an established hyperglycaemia unless care as to food is combined with a decisive curtailment of wear and tear.

The kidneys, and the urinary tract generally, offer endless opportunities for manifestations of the highly strung nervous system. The polyuria of mental anticipation, the incontinence of fear, the precipitancy of anxiety, are all everyday instances of disturbed nerve control. Is not the condition we recognize as diabetes insipidus merely an accentuated phase of simple polyuria? It almost seems to form a link between it and glycosuria, a link with very special etiological significance for those who perceive in all degrees of glycosuric disturbance a nervous element of weighty importance. Many cases presenting all the

symptoms of calculus either in the kidney or ureter surprise us by the negative results obtained from an *x*-ray examination. The disturbance of innervation may cause what is most easily explained on the theory of ureteric spasm, but whatever the mechanism be, it is pretty certain that the symptoms produced by a renal calculus can be very faithfully mimicked by a disturbance of nerve function.

In people who are neurasthenic and thin, and particularly in women who are of this type, the right kidney is apt to become more or less loose. Whenever such a woman has the misfortune to fall into the hands of some one who, having discovered it, solemnly pronounces a verdict of floating kidney, she is at once launched on a sea of countless troubles, and frequently, having sought relief from one form of treatment after another, at last ends in a nursing home, where she is promised a permanent cure by having her wandering kidney firmly stitched to her side. Though such operations are in some instances desirable and successful, in the majority the subsequent relief is small, and in not a few the net result, so far as the nervous system is concerned, is to make bad decidedly worse. The one event in such cases which ought to remove all opposition to operative treatment is the occurrence or threatening of a hydro-nephrosis.

The evidences of a highly strung nervous system furnished by the uterus and ovaries are too numerous to admit of discussion here. They are responsible for much personal misery and domestic discord. The frequency with which elaborate local treatment of one kind and another has become fashionable raises doubts in the minds of many as to its wisdom—even as to its justification. The removal of an ovary, often for a problematical reason; uterine douchings and curettings; vaginal packings; and all the rest of it, may succeed in relieving the local "congestion" which is supposed to be responsible for the dragging pains, the excessive menstruation, and the failure to conceive. But what about the effect upon the nervous steadiness and general tone of the patient? The question in this wider aspect is probably not always seriously enough considered, but if greater attention were given sufficiently early to the maintenance of the central nervous system in a condition of robust and self-reliant integrity, and to the regulation of daily habits of life on lines of greater simplicity and homely regularity, the need for most of such treatment would vanish, and it would be found again, as in the days of our grandmothers, that the pelvic organs, in the absence of actual organic disease, might with advantage be left in most cases to look after themselves.

PRACTICAL HINTS ON FUNCTIONAL DISORDERS.

BY

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EIGHTEEN months' service has convinced me that much harm is done by failure to recognize psychical disabilities which, though sometimes so extraordinary as to deceive the most wary, should generally be diagnosed by any one who is awake to their possibilities.

Tests of sensation should be applied where there are not enough signs fully to account for all disability present. I have formed the habit of testing every case I see and have thereby often arrived at an unsuspected diagnosis.

Such a test is that for hysterical anaesthesia: every man with a weak or paralysed limb should be tested with light pin-prick. If there is numbness or the prick is not felt as a painful sensation, the area of anaesthesia should, if organic lesion be present, follow the anatomical distribution of a nerve or nerves; if the anaesthesia ends at one level, like a sleeve or stocking, it is almost certainly hysterical. To confirm this, the upper limit should be marked with a pen, then the observer starts again at the periphery of the limb and works upwards in a zigzag; this time the limit will probably have shifted downwards for an inch or two and repeated tests will bring it still lower. Moreover, tests with pin, cotton wool, and pressure will, especially if the patient is allowed to watch them, all show anaesthesia ending at the same level. This never occurs in nerve lesions, and with the zigzag test should serve to eliminate those rare cases in which—so neurologists tell me—a root lesion of the brachial plexus gives an anaesthesia of the sleeve type. The patchy alterations in spinal cord disease should not cause doubt, though one meets hysterical anaesthesia of a proximal part of a limb—for example, from the elbow to the shoulder.

The principle of the zigzag test should be understood; localization of a peripheral stimulus is not perfect, and by the zigzag approach the patient is led to feel that a greater distance in a straight line has been covered, hence he thinks the original spot has been reached when the pin is perhaps two inches or more distal to it.

If the altered sensation depends upon a genuine lesion, the sense of localization is not called into use and therefore cannot be deceived; but one must remember that with a true slight alteration of sensibility the answers of a patient may not always be consistent. With a complete loss of sensation in a peripheral nerve the boundary, if the patient is intelligent, is constant.

If a total loss of sensation is claimed the Yes–No test is available. The patient is made to look at the ceiling and answer quickly, saying "Yes" when he feels a touch, and "No" when he does not. When touched on the anaesthetic area he may say "No," thus demonstrating that he really does feel; a smart man will say "No" once or twice only, or may shape his lips for the word and then arrest it when he realizes the trap, but one of duller understanding will answer "No" at repeated examinations without seeing his foolishness.

Hemianaesthesia of the body and limbs is frequent; a patient treated for rheumatism of the left arm and leg, with a trip to Droitwich thrown in, had hemianaesthesia involving the tongue and palate, with concentric diminution of the visual fields. For eight months the treatment had been carried on, whereas a pin would have settled the diagnosis in so many seconds. Similarly a patient with chorea of two months' standing, and regarded as seriously ill, with one side paralysed, fell to the Yes–No trap, and after a strong suggestion was able to get up and make his own bed.

Unless there is some special reason to the contrary, pain produced by pressure is not accompanied by hyperaesthesia of the skin over the same area. Thus a gonorrhoeal knee, a tuberculous elbow, or a joint inflamed by rheumatic fever may be exquisitely tender to pressure with the finger, but to light pin-prick it may be even slightly anaesthetic owing to subcutaneous effusion. Exceptions to this occur in appendicitis and other abdominal conditions, where areas of referred pain coincide with those of deep tenderness; in basal pneumonia with referred pain in the abdomen; in dental conditions, where the jaw is tender and superficial hyperaesthesia is felt along the fifth nerve; in scars involving a nerve; and probably in many conditions which I know not, but which should always be capable of explanation in anatomical terms. Therefore a sprain of the back, where pressure with the thumb and light pin-prick cause pain over the same area, may be regarded as psychical. A "rheumatism" in the calf with pin-prick pain needs explanation, and a sprained ankle which reacts similarly should be exercised at once.

The zigzag test may be applied to these conditions, especially "sprained backs," where the limit may be shifted by as much as six inches.

A fallacy must be guarded against; the man with a painful joint will expect a pin-prick to be painful, and his apprehension must not mislead. The existence of deep pain and superficial pain over different areas may be diagnostic of true disease.

A man who claimed to have hurt his neck was suspected of malingering. His neck was rigid, and he declared that movement was difficult and painful; there was pain to pressure in the side of the neck, with no superficial tenderness; the distribution of the great occipital nerve was mapped out by pin-prick hyperaesthesia, though pressure on that area was painless. Such a combination would never be imagined by the lay mind; in fact, the man was surprised when his symptoms were demonstrated; a diagnosis of a fractured articular process was made.

To differentiate between conscious and unconscious simulation is necessary but often difficult; sometimes the hysteric is a good fellow who deserves more sympathy than is consistent with cure; sometimes he resists all treatment and I may openly say that he has no wish to be well, but, as

Sir John Collie points out, it is hard to distinguish between "Not able to be willing" and "Not willing to be able."

"Paralysis," "paresis," "neuritis," "nerve concussion," are terms which often hide the truth. The last was introduced by Sir George Makins to describe a definite lesion of a peripheral nerve, generally caused by a rifle bullet; I have heard it misused often—for example, in neurosis of the leg with stocking anaesthesia, following a kick on the shin.

It is in connexion with wounds that what may be called surgical hysterias most often occur, and are most often overlooked. There are present nervous strain, maybe a suppressed emotion (of fear?), a wound, and then well-deserved but ill-directed and harmful sympathy. If we add to this a false diagnosis of organic disease, even the best and bravest may develop a hysterical condition. It is striking to meet a patient who presents the classical signs of such a state, whose illness has dragged on for months, and who recovers before one's eyes when he is told the truth. Such cases are rare; intelligence, desire for cure, and a belief in the surgeon are requisite. Here is an example:

An officer was wounded in the right arm; the musculo-spiral nerve was sutured, and he was treated by massage and electricity for seven months (for this I was partly responsible). His hand and forearm were then as if carved from wood, without movement, and anaesthetic. He was to appear before a medical board in a fortnight, and feared being invalided out of the service. His condition was at last recognized, a straight talk followed, and the board passed him as fit for general service, even his musculo-spiral nerve being found to function perfectly. The faithful carrying out of massage and electrical treatment had helped to keep his muscles in order, but I believe such treatment may be harmful if not accompanied by mental therapeutics. One sees cases like this where treatment has only confirmed an obsession.

A psychical is often added to an organic disability.

A man received a wound involving the metatarsal bones, and after five months he walked on crutches with the knee flexed and the foot dropped. There was contraction of the calf muscles, causing equinus deformity, and the anterior tibial group was apparently paralysed. When the faradic current showed the patient that his extensor muscles could contract, he was soon persuaded to use the foot and discard his crutches, but a true lameness persisted, due to the metatarsal injury.

In another case a hysterically "wooden" hand and forearm recovered under mental treatment till a median paralysis revealed itself; an electrical examination would have shown the hidden lesion.

1. *Talipes Varus.*—Among types which occur with sufficient frequency to be worth special mention is talipes varus.

One man appeared before a medical board using crutches and wearing an elaborate and expensive orthopaedic apparatus on his right leg. His papers gave a diagnosis of "talipes varus following osteo-arthritis," and he was recommended for discharge as permanently unfit. He had been in hospital three months. His foot was in a position of extreme varus and hyperaesthetic to half-way up the calf. His crutches and instrument were taken away and strong suggestion was applied. Cure was difficult owing to the fixity of his obsession and the previous treatment, but he was sent out in two months with a plantigrade foot and walking perfectly.

A similar case was treated by tenotomies with a bad result.

A third case opposed all treatment and was invalided out with a correct diagnosis, of which his friends were informed. He was cured somehow, perhaps helped by the absence of a pension and of family sympathy, and re-enlisted.

2. *Tilted Pelvis with Scoliosis and Apparent Shortening of a Leg.*—This deformity can be produced at will.

One man who had worn a surgical boot for a year and been regarded as permanently disabled was cured by five minutes' talk.

Another case was reported, with illustrations, in a daily paper as the marvellous cure of a short leg by a German method of crawling exercises. The man was shown triumphantly holding up his boot, but still wearing a surgical jacket for his scoliosis. His cure seemed to be a fortunate accident.

To this group will be added some of those men in blue one sees near convalescent homes, walking with a stick and swaying the body at every step.

3. *Paraplegia after Shell-shock.*—This may occur in a genuine form, but the following presents little room for doubt:

The patient had been invalided for a year; he now walks bowed and with two sticks; puts his weight on his toes; the feet are swollen from disuse. No other physical signs, but plantar reflexes and knee-jerks are feeble; other reflexes normal. Anaesthesia of Yes–No type up to the groins.

4. *Frostbite.*—Although the possibility of organic anaesthesia of stocking type must be admitted on account of the nature of the trauma, yet the writer believes that this case is typical of many and is truly hysterical:

Frostbite contracted in 1914. On examination in June, 1916, the toes were kept dorsiflexed, though they could be bent down against the resistance of the muscles. The feet were blue—a common condition in psychosis—and anaesthesia shifting four inches to the zigzag test was present half-way up the calves.

5. *Rheumatism* is nearly always a conscious simulation:

A man had been disabled for a year and walked stiffly with a stick, but looked fit. His leg muscles were well developed, and he had recently "barked his shins." There was pain to pressure on his thighs and also to pin-prick; joints healthy. He was reported on as a malingerer.

6. *Aphonia*, with whispering voice. There is often hyperaesthesia or anaesthesia in the front of the neck. Accounts in lay papers of these men being cured at picture shows are to be understood when a "pachydermia of the larynx" is cured by one dose of the faradic current.

7. *Abdominal psychoses*, often with vomiting and hyperaesthesia over all the belly wall. If such cases are treated as serious disease they become very difficult to handle.

Conclusion.

I would urge that a careful watch should be kept for these cases when they begin. I have only seen one at its origin and succeeded in checking the symptoms at once, but if I were to give an estimate of the number of developed and unrecognized cases I have met the reader would be incredulous. There is no mystery in the diagnosis; ordinary methods of examination supplemented by sensory tests detect the majority of them.

In every injury the extent of possible movements should be early ascertained, and if there are no contraindications those movements should be strongly encouraged. That is good surgery and sound psychology; the lack of such treatment is shown in the case of a man sent to hospital as "old fracture of clavicle, pressure on brachial plexus." He made no attempt to use the arm or hand whilst undressing; all movements could be performed feebly but equally well, and there were no sensory changes. The fracture, which had been plated, was 5 months old, and he had apparently never been made to use the arm.

The number of cases I have seen within a small area indicates how serious is the subject. A man whose functional disorder is diagnosed as organic will probably be a cripple for the rest of his life; the longer he remains under the shadow of a wrong diagnosis the harder will be the cure when, and if, his true condition is recognized. Thus a useful man is lost to the nation and a useless man has to be fed.

A Swiss military medical mission, comprising eight officers, is now in this country, and will visit the military prisoners' camps in order to make a selection of sick German prisoners to be interned in Switzerland.

The Royal Mail Steam Packet Company has found it possible to resume its fortnightly service between New York, West Indies, and Colon, commencing on December 2nd. The ports of call will be Santiago (Cuba), Kingston (Jamaica), Colon (for Panama Canal and Pacific ports). The round voyage will occupy twenty-three days.

Official Italian reports state that the sanitary condition of the concentration camps in Italy where the Austro-Hungarian prisoners are interned are most satisfactory. Owing to the bad health conditions of the Austro-Hungarian armies, all the men taken by the Italians in recent engagements are subjected to rigorous hygienic supervision before being sent to the camps.

It was reported at the meeting of the London County Council on October 17th that the number of cases then being dealt with under the Mental Deficiency Act at the expense of the local authority for London was 1,049 (497 males and 552 females). Since the Act came into operation notice has been received of 726 other cases in which defect was alleged. The greater number of these are still under consideration, or have been definitely ascertained as not defective, or not subject to be dealt with by the local authority.

PRELIMINARY NOTE ON THE INTRAVENOUS INJECTION OF GYNOCARDATE OF SODA IN LEPROSY,

WITH FURTHER EXPERIENCE OF ITS SUBCUTANEOUS USE.

By SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.S., I.M.S.,
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In a recent paper[1] I recorded a long experience of gynocardates by the mouth, and six months' use of solutions injected subcutaneously in the treatment of leprosy, and stated that this line of treatment had given greater improvement in my hands than any other. I find from my correspondence that as early as July, 1912, I inquired from a leading firm of manufacturing chemists if they could supply me with a soluble form of gynocardic acid or magnesium gynocardate suitable for hypodermic injection, but received a reply in the negative. In my recent paper I regarded gynocardic acid and chaulmoogric acid as synonymous on the strength of the following statement in the last (1915) edition of Martindale and Westcott's *Extra Pharmacopoeia*:

> Chaulmoogra oil contains a quantity of palmitic acid, with three other fatty acids; of these the so-called gynocardic acid (chaulmoogric acid) is supposed to be the active ingredient.

Dr. Pyman has kindly informed me that this view is erroneous, as the work of Moss, and subsequently of Power and Gornall, showed that, on fractionizating the total fatty acids of chaulmoogra oil, those with the higher melting points, including palmitic and chaulmoogric acids, the sodium salts of which are very sparingly soluble in water, first separate, while Moss gave the name of gynocardic acid to the residual acids with low melting point of about 29°C., the sodium salts of which are freely soluble in water. According to Power and Gornall, Moss's gynocardic acid is not an individual substance, but is comprised of a number of fatty acids with different melting points.

What I have used, then, for hypodermic injection in leprosy are the soluble soaps of lower melting point fatty acids of chaulmoogra oil, which, following Moss, are rightly designated gynocardic acid, and which give the characteristic reddish-brown colour, changing to olive green, with strong sulphuric acid. By further fractionization, several acids with different melting points can be separated, which may conveniently be called fractions B, C., etc. During the present year I have been isolating and investigating these with the help of Dr. Sudhamoy Ghose, D.Sc.Edin., working in the laboratory of Professor Rai Chuni Lal Bose Bahadur, and aided by a grant from the Indian Medical Research Fund, obtained through the kindness of Sir Pardey Lukis, Director-General Indian Medical Service, to each of whom I desire to express my thanks.

I have now discovered that the sodium salts of the lower melting point fatty acids can be safely given intravenously in animals in relatively very large doses, and I have already used them intravenously in some twenty well-marked leprosy cases during the last six weeks, with results which clearly show the intravenous route to present important advantages over the subcutaneous one. I therefore propose in the present paper to place on record briefly my methods so as to allow others to test them in this distressing and widely prevalent disease. I should mention that M. Vahram[2] has recently recorded cases of leprosy treated by subcutaneous and intravenous injections of a suspension of a dried and pulverized mixture of chaulmoogra oil and gum arabic, the dose of the oil having been only from $\frac{1}{120}$ to $\frac{1}{60}$ of a grain; yet two cases were reported as improved after some thirty injections. I find the sodium gynocardate I have been using is two hundred times less toxic for rabbits than his insoluble dried chaulmoogra oil, while my preparations have the immense advantages of being freely soluble in water, being, indeed, just the form of substance in which fats are normally absorbed from the digestive canal through the blood vessels, so the soluble gynocardates appear to possess manifest advantages over Vahram's insoluble suspension of dried chaulmoogra oil, which was fatal to rabbits in the small dose of 0·0004 grain per kilo.

*Method of Preparation of Sodium Gynocardates.**

These substances may be prepared either from the cold-drawn chaulmoogra oil, or, as I pointed out in my former paper, from the buttery substance obtained by further compression of the seed of *Taraktogenos kurzii* (products of which alone are dealt with in this paper, although hydnocarpus oils are also being investigated, but the soluble sodium soaps of which have been found to be more irritating when injected subcutaneously than those of *Taraktogenos kurzii*) with the aid of heat obtained by steam circulating around the compression chamber. Hitherto this product has been regarded as a waste product, although I have found it to contain a large proportion of the active substances of the oil. Briefly, the method of preparation is to saponify the oil or butter with caustic potash and absolute alcohol, the soaps thus obtained being converted into fatty acids by means of sulphuric acid. These fatty acids are dissolved in hot alcohol and separated into fractions with varying melting points by gradual cooling and removal of the acids, which solidify at differing degrees. The fractions thus obtained may be further purified by dissolving in ether and recovering again by evaporating off the solvent, by which means they are rendered somewhat less irritating when the sodium salts are injected subcutaneously, for which purpose they must be neutralized accurately with the aid of phenolphthalein. When about two-thirds of the fatty acids have thus been separated the residual third, which is liquid at room temperature in Calcutta (about 28° C.), is obtained by distilling off the alcohol, and may be provisionally termed gynocardic acid C. Of the first separated two-thirds those with the higher melting points of from 43° to 40.8° C. form sodium soaps which are insoluble, or only slightly soluble, in water, and may be termed fraction A. They include palmitic and chaulmoogric acids, and are unsuited for either hypodermic or intravenous use, while it is very doubtful if they are of any value internally. They constitute about half of the total fatty acids. The remaining acids of this two-thirds have melting points from 37° to 40° C. and form sodium soaps which are freely soluble in water and may be termed gynocardic acid B. A still larger number of fractions may be separated out if desired, as we have recently done. The best product for clinical use which we have yet obtained was got by extracting finely divided and dried Taraktogenos seeds with ether and subsequent fractionization as above. The sodium soaps of fractions B and C mixed together caused very little local irritation when injected subcutaneously, while the observations on intravenous injections recorded later in this paper are mainly based on the use of this product, which clearly contains all the lower melting point acids of both the cold compressed oil and the butter obtained by further compression of the seeds with heat. It will be referred to as fractions B and C of the whole seed.

Further Results of Subcutaneous Injections of Gynocardate of Soda.

First, with regard to the further progress of the three cases described in my first paper. Case I has not been seen again, but I have received reports that the satisfactory condition recorded previously is maintained. Case II wrote to me several months after his return to Europe that a leading British authority had declared him to be free from all active signs of the disease, so he may be regarded as apparently cured, although a longer period must elapse before it will be evident if the recovery will be permanent. Case III is still under observation, although she has only been able to attend very irregularly for the injections. After a month's absence she returned with slight recrudescence of the macular patches, but improved again with further treatment, but is still not clear of the disease, having given the method no fair trial.

I have now just completed a year's experience of the subcutaneous method, but, owing to my cases having been, with one exception, entirely out-patients or very advanced cases in a leper asylum, and to the earlier preparations in particular having given rise to considerable local pain and induration, only one patient has been under observation

* Messrs. Smith, Stanistreet and Co. of Calcutta (London agents, Messrs. Evans, Sons, Lescher, and Webb, Ltd., 60, St. Bartholomew's Close) can supply gynocardate of soda made in accordance with my directions either in powder form or in solution in sterile capsules ready for intravenous injection.

for the full period of a year, and eight more have been under regular treatment for six months and over. Five of the cases were of the anaesthetic type and four tubercular. The former includes the patient who has been under observation for a full year, and at the end of eight months all the light patches had disappeared and sensation had returned in them, which was complete except in the largest patch, where there is still slight loss of response to a light touch. An ulcer early healed, and he has regained power in one foot which previously showed foot-drop. During the last four months he has only received occasional injections, so as to keep him under observation, and he continues free from symptoms and appears to be practically cured. Two other cases in which the hands were affected have nearly regained the lost anaesthesia and some power, and continue to improve steadily. The fourth case showed typical claw hands, with great loss of sensation and power, and also foot-drop, as well as anaesthetic patches on the face and neck. After six months' treatment he has regained nearly all the lost sensation, except in one hand, where it is partially restored, and much of the power, being able to shave himself with a razor, and his case is most promising. The fifth anaesthetic patient improved so much that after eight months he considered himself cured and went to his country against advice. He returned after four months with some return of anaesthesia and is improving again under the intravenous treatment. The results, then, in the anaesthetic cases may be regarded as very promising.

Of the four tubercular cases one advanced case in a boy has been under treatment for ten months, during which greatly thickened and nodular ears have become smooth, and his face is now normal. Very few broken down bacilli could be found at the last microscopical examination, and he appears to be nearly free from the disease, the improvement having been most remarkable. The second case showed a number of tubercles on the chin and nose, up to half an inch in diameter, being the most advanced case I have ever seen. Here again the improvement after eight months has been great, although numerous bacilli can still be found, and progress is slow. It has been more rapid since intravenous injections have been given. Two other cases with well marked facial affection have also greatly improved after seven and eight months' treatment respectively, but are still not well. In addition, an earlier case with affection of the face, and hard nodes on the arms containing numerous bacilli at first, after treatment for four months has lost nearly all his lesions, and no leprosy bacilli could be found in the remains of a node recently examined, so in this case the outlook is very hopeful. On the whole the tubercular cases have responded rather more slowly to the treatment than the anaesthetic ones, while I have noticed that there is greater local pain and induration at the sites of the injections in the former class. It is not improbable that intramuscular injections of sodium gynocardate would be more rapidly absorbed and more effective than subcutaneous ones, but I have not yet tested this point. Dr. Victor G. Heiser,[8] obtained his very favourable results in leprosy by intramuscular injections of chaulmoogra oil combined with camphorated oil and resorcin.

The Toxicity for Animals of Gynocardates of Soda given Intravenously.

In the case of pigeons the minimal lethal dose of a 2 or 3 per cent. solution of fractions B and C was 0.045 gram per kilo. Of fraction B it was 0.04 and of fraction C 0.06 per kilo, so the sodium soaps of the lower melting point acids are less toxic for pigeons than the higher melting point ones; 4 and 5 per cent. solutions are more toxic for pigeons than 2 and 3 per cent. ones containing the same amount of the drug. In the case of rabbits, 0.1 gram per kilo in a 3 per cent. solution proved fatal, but 0.075 produced no effect, although it is equivalent to 78 grains in a man of 70 kilos, showing the very slight toxicity of the drug even intravenously. Lieutenant-Colonel W. D. Sutherland, I.M.S., Imperial Serologist, has very kindly tested the haemolytic action of sodium gynocardate, and he informs me that it produces a slight and interesting type of haemolysis, but one which is negligible from the practical point of view. When death takes place in pigeons it occurs within one to four minutes with convulsions. If this period is survived vomiting often occurs, but is followed by recovery. When over 1 grain had been given without any harm in rabbits of 1,500 grams, equivalent to over 50 grains in a man of 70 kilos, I felt justified in trying the drug intravenously in leprosy cases, beginning with one-tenth of a grain, and increasing by one-tenth at each successive dose, using a 2 per cent. solution, and have already given up to four-fifths of a grain with no immediate effect, or any sign of toxic influence, apart from the local reactions and fever to be described later, and rarely some headache.

Technique and Advantages of Intravenous Injections of Sodium Gynocardates.

A 2 or 3 per cent. solution may be made in distilled water (or normal saline), and after sterilization in an autoclave ½ per cent. carbolic acid is added. For intravenous use the solution should be quite clear, and if any precipitate forms it should be filtered and resterilized. The veins in the forearm are distended by stretching a stout piece of rubber tubing around the upper arm, one end being put through in a loop under the other, so that it can be rapidly loosened by pulling out the loop. If the veins are very small the air bag of a sphygmomanometer may be used and pumped as tight as necessary to fully distend the veins. The selected vein is punctured through the skin of the forearm or hand with a fine sharp needle, and, if there is any doubt about the vessel having been entered, a drop of blood may be drawn up into the syringe, and the whole quickly injected before clotting can take place. The pressure band may now be released, the needle withdrawn, and collodion applied on cotton-wool. Little or no irritation results if some of a 2 per cent. solution escapes into the tissues around the vein, so the same vessel may be used repeatedly.

The two great advantages of the intravenous over the subcutaneous method are its painlessness and greater efficiency. As nearly all my cases are Indian out-patients, over whom there is no control, some of them ceased to attend long before any material result could be expected from the subcutaneous injection on account of the pain and induration at the seat of injection. Since the intravenous route has been used no such disappointments have been experienced. Of much greater importance is the more rapid improvement which has been observed to follow the intravenous injections, which is already clearly evident. Several months are required to produce any decided improvement by the subcutaneous method, while, especially in tubercular cases, the progress is apt to be disappointingly slow even after it has started. It is far too early to say what will be the ultimate results of the intravenous medication, but my present experience is decidedly encouraging.

Local Reactions in the Affected Parts.

The most striking result is the occurrence of definite local reactions in the diseased tissues, sometimes accompanied by fever, which has been seen in several cases after from two-fifths to three-fifths of a grain of sodium gynocardate intravenously, of a degree that I have not seen occur after subcutaneous injections, although Dr. Heiser[8] has recorded some local reaction after intramuscular injections of chaulmoogra oil, and I have seen more rapid improvement of lesions in whose neighbourhood the subcutaneous injections of gynocardates have been made. The most decided reaction was in the greatly thickened ears of a tubercular case, in whom fever occurred for three days with redness and swelling of the helix, accompanied by some serous discharge containing broken down leprosy bacilli. After the subsidence of the reaction at the end of ten days the diseased tissues were decidedly softer and less indurated than before, while nodules on the face, not showing the local reaction, were also diminished in size. In another case with very large tubercles on the face, a similar but less acute reaction was also followed by distinct improvement. In two anaesthetic cases, with greatly thickened ulnar nerves, tenderness and slight swelling appeared in the affected portions after intravenous injections, which has been followed by some return of sensation in previously anaesthetic areas of the hand. One of these patients also had fever, but had been previously subject to it. It is thus clear that intravenous injections of the drug have produced selective local reactions in the diseased tissues, which have been most evident in those patients

with the greatest amount of infiltration of the tissues with leprosy bacilli, so they are most interesting and suggestive. It is too early to say whether the drug should be pushed to the extent of producing such reactions, but I am inclined at present to think they are decidedly beneficial when moderate in degree, while I have as yet seen no ill effect to follow them, although the possibility of dissemination of the bacilli in the body must not be lost sight of.

Conclusions.

I have now given about two hundred intravenous injections of gynocardate, and my experience has led me to substitute it almost entirely for the subcutaneous method. Further experience is required to ascertain how far it is advisable to push the doses, but there can be little room for doubt that even half a grain intravenously is likely to have a greater effect than four grains slowly absorbed from a subcutaneous injection. My present impression is that the intravenous method is likely to prove as great an advance on the subcutaneous one as the latter has in my hands on the oral administration of gynocardates or chaulmoogra oil. I desire, however, once more to clearly state that I make no claim to be able to cure leprosy, although I now have hopes that in time even this may eventually result from continued researches on the lines indicated in this and my previous paper on gynocardates, which are largely an extension of Dr. Heiser's important work on the treatment of leprosy by injections of chaulmoogra oil.

In conclusion, I may point out that the reactions produced by gynocardates in leprous tissues, and the apparent destruction of Hansen's bacillus, raises the very important question as to whether some such similar reaction may not be obtained in the case of another human acid-fast bacillus—namely, that of tuberculous disease. Fortunately, this hypothesis can be tested by animal experiment, and I have already commenced a research on the subject.

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THE TREATMENT OF CERTAIN DISEASES OF PROTOZOAL ORIGIN BY TARTAR EMETIC, ALONE AND IN COMBINATION.

BY

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THE great efficacy of tartar emetic in some diseases of protozoal origin has generally been recognized since Plimmer and Thompson introduced it in trypanosomiasis, and since Vianna some years later used it in espundia and ulcerating granuloma, while I myself in the tropics, and Carona and Cristina in Europe, first used it in kala-azar. The credit of having first suggested antimonial salts as likely to be of use in certain diseases of protozoal origin (trypanosomiasis) belongs, however, to Mesnil.

I propose in this paper to give briefly my further results in the use of tartar emetic alone or in combination with the other drugs in yaws (framboesia), kala-azar, Oriental sore, and relapsing fever.

YAWS.

The efficacy of tartar emetic and other antimonial preparations in yaws has been proved by the researches of Brault, Rankon, and myself. Brault and Rankon used always intravenous injections. I have given tartar emetic intravenously, by intramuscular injections, by the mouth, by rectum, by inunction, and I have compared the results obtained by giving tartar emetic alone with those obtained by giving it combined with various other drugs. In practice one must keep in mind the following two points: (1) The mode of administration of the drug must be easy, as in certain yaws districts there are thousands of patients to be treated, and very often the only medically trained persons available are Singalese or Tamil apothecaries who could not be entrusted to perform intravenous injections. The oral administration is of course the simplest of all, but the emetic effects of tartar emetic given in that way are well known. (2) Tartar emetic, in my experience, though efficacious in yaws, is far from being speedily curative, and gives much better results when combined with other drugs of which potassium iodide is most beneficial; mercury has practically no action.

Bearing in mind the above two points I devised, after a certain number of experiments, as a routine treatment the mixture which is generally known after my name in the tropics. The original formula is as follows:

Tartar emetic	gr. j
Sod. salicyl.	gr. x
Potass. iodid.	3 j
Sod. bicarb.	gr. xv
Aquae	ad ℥ j

This dose is given diluted in three or four ounces of water three times daily to adults and young persons above 16 years; half doses are given to children from 8 to 14 years of age, and one-third or less to younger children. To European patients I generally give half the doses I have mentioned, as they seem to be more affected by the various drugs contained in the mixture. The results of the treatment are generally speedy and very satisfactory; in fact, in many recent cases strikingly so, as confirmed by Spaar and others. The active drugs in the mixture are the tartar emetic and the potassium iodide, while the sodium salicylate, though not having any specific effect on the malady, seems to hasten the disappearance of the thick yellow crusts capping the framboeting nodules. The presence of a large amount of sodium bicarbonate, though making the mixture very inelegant, decreases its emetic properties and prevents to a certain extent symptoms of iodism, thereby rendering possible the administration of very large doses of both drugs.

Recent Modifications in the Preparation of the Mixture.

In one of my papers on the subject (*Journal Ceylon Branch* British Medical Association, 1914) I stated that the mixture is pharmacologically a very inelegant one, owing to the incompatibility of potassium iodide and tartar emetic with alkalis. It is cloudy and has a sediment. At the time of administering it, however, a dose is diluted with three or four times the same amount of water, and then becomes fairly clear. Several observers, though generally confirming the efficacy of the mixture, have noted its pharmacologically erroneous composition. Some communications on the subject were received by the Editor of the BRITISH MEDICAL JOURNAL, who, thinking that the matter of getting a permanent "tartar emetic potassium iodide mixture for yaws" was important, had various experiments made on the best way to prepare it. The following is the report received by the Editor, a copy of which he has kindly forwarded to me for remarks.

The precipitation of the antimony, which occurs on keeping the mixture, can quite easily be prevented by the addition of small quantities of tartarated soda, glycerine, or syrup, the quantities tried being as follows:

(1) Tartar emetic	gr. j
Sod. salicyl.	gr. x
Potass. iodid.	3 j
Sod. bicarb.	gr. xv
Sod. tartarat.	gr. x
Aquae	1 fl. oz.
(2) As (No. 1), but, in place of the sod. tartarat., glycerine	2 fl. drm.
(3) As (No. 1), but, in place of the sod. tartarat., syrup	1 fl. drm.

All the above mixtures showed no appreciable insoluble antimony after standing twelve days, No. 1 being perhaps slightly the best, although for practical purposes the differences were of no account. A control experiment, in which the liquid was made up according to the original formula, resulted in a large proportion of the antimony being precipitated.

With the kind assistance of Dr. Baines, chemist to the Sotoriotissa Military Hospital, I have made up the various formulae, and have come to the same conclusion. The addition of glycerine, however, seemed to give the clearest mixture.

The modified formula of the mixture is therefore as follows:

Tartar emetic	gr. j
Sod. bicarb.	gr. xv
Sod. salicyl.	gr. x
Potass. iodid.	3 j
Glycerine	3 ij
Or syrup	3 j
Or sod. tartarat.	gr. x
Aquae	ad ℥ j

It is given in the same doses as the original formula, and, as is the case with the original mixture, only half doses should be given to European patients. It should always be given diluted with water. I wish to express my indebtedness to the Editor for the interest he has taken in the subject, and the successful modification of the mixture he has been instrumental in bringing about.

Kala-azar.

Tartar emetic was first used in the treatment of kala-azar in 1914 by myself in the tropics and Carona and Cristina in Europe. In Corfu, where I have been recently stationed for several months, infantile leishmaniasis is fairly common, as shown by Gabbi and others, and I have had the opportunity of treating four cases there; all were children between 2 and 4 years of age. Two were sent to me by Dr. Battinos, whom I desire to thank for his kindness. One of the children was in a dying condition when the treatment was started, and died five days after beginning it. The other three cases all recovered, and in them tartar emetic was given solely by intravenous injections in one; in another by intravenous injections, intramuscular injections, and by oral administration; in the third one the drug was given by intramuscular injections and by the mouth.

Intravenous Injections.

The usual 1 per cent. tartar emetic solution in sterilized normal saline answers well: 2 to 10 c.cm. of this solution are given daily for five to ten days, then every other day or twice a week. At times, especially in cases of relapsing fever, as I will mention later, I have used the following formula:

Tartar emetic	... 4 grams.
Sol. acid. carbolici (2 per cent.) ...	... 100 c.cm.

Half to 2 c.cm. is diluted at the time of injection with sufficient sterile saline to bring it to 5 c.cm., and the whole injected into a vein, taking the usual precautions. It is, of course, necessary to make sure that the needle is actually in the vein, and that none of the fluid escapes in the surrounding tissues.

Intramuscular Injections.

These are extremely convenient, and especially useful in children in whom the superficial veins are often small. Unfortunately, as well known, the usual solutions of tartar emetic and other antimonial salts are very painful when given in this way, and may induce the formation of an abscess. The following formulae, however, will be found fairly satisfactory:

Formula No. 1.

Tartar emetic	... gr. viij
Ac. carbol.	... ♏ x
Glycerin.	... ʒ iij
Aq. dest.	ad ʒ j

Half to 1 c.cm. every other day in the gluteal regions by intramuscular injection.

At the time of the injection the patient as a rule feels absolutely no pain, but a few hours later in most cases there is a certain amount of inflammation accompanied by a modicum of pain, which is quite bearable, and followed by a slight amount of localized infiltration, comparable to what one sees after intramuscular injections of quinine hydrochloride or mercury perchloride salt solution (1 in 1,000), though generally very much less severe. If the pain and infiltration should be severe, hot fomentations will be found very useful. The presence of carbolic acid decreases the pain induced by tartar emetic and makes the solution sterile. The solution is prepared in bulk in a sterile bottle, and tested for sterility forty-eight hours after preparation; it may then be put up in small 1 c.cm. ampoules, which it is advisable to keep in a cool dark place.

Formula No. 2.

Tartar emetic	... gr. viij
Ac. carbol.	... ♏ x
Glycerin.	... ʒ iij
Sod. bicarb.	... gr. ½
Aq. dest.	ad ʒ j

The only difference from No. 1 formula is the presence of sodium bicarbonate, which makes it slightly alkaline, while No. 1 is slightly acid. The results seem to be the same, and the pain induced by it appears to be about the same as with formula No. 1.

Formula No. 3 (Martindale).

Antimonii oxidi	... gr. ⅓₀
Glycerin. } Aq. dest. }	āā ♏ xv

(One ampoule.)

This preparation is good and its use practically painless, but I have the impression that the curative action of antimonium oxide is inferior to tartar emetic.

Oral Administration.

The oral administration of the drug is often useful in conjunction with the intravenous or intramuscular injections. The following is the formula of the mixture I use at the present time:

Tartar emetic	... gr. v
Sod. bicarb.	... gr. xxx
Glycerin.	... ʒ j
Aq. chlorof.	... ʒ j
Aquae	ad ʒ iij

(ʒ j to ʒ ij in water t.d.)

In adults the dose can be doubled. It may be noted that in the very first case of kala azar treated with tartar emetic, besides giving it intravenously I gave it also by the mouth in the form of my yaws mixture.

Oriental Sore.

The curative effect of tartar emetic in dermal leishmaniasis has been noted by many observers. I have treated recently a case in Corfu, a boy, aged 16 years, with a typical oriental sore on the left cheek; microscopical examination was positive. He received twelve intramuscular injections (formula No. 1) and took 2 teaspoonfuls of the tartar emetic mixture three times a day. A complete cure was obtained very rapidly. In this case the signs of improvement appeared so quickly that I did not use any local treatment, though the local application of antimonial ointment, as advised by G. C. Low, is often successful, even when it is the only treatment carried out.

Relapsing Fever.

I used tartar emetic in 14 cases of relapsing fever in Macedonia last year and 3 cases in Corfu this year. As I propose to give my observations on the treatment of the disease as well as the results of the clinical and etiological investigation of the malady, the etiological spirochaete of which I am inclined to believe to be a slightly different variety from *S. recurrentis*, in a separate paper, I will limit myself here to the statement that tartar emetic appears to be beneficial in relapsing fever, but far less so than salvarsan, neo-salvarsan, and similar preparations. It seldom cuts short the first attack of fever, but in a large percentage of cases it has apparently prevented the relapses. I have generally given it once or twice daily by intravenous injections, using the usual 1 per cent. tartar emetic saline solution (2 to 10 c.cm. at a time), or oftener, and I think with better results, the tartar emetic carbolic solution the formula of which I have already given.

In a few cases I have given also intramuscular injections (formulas Nos. 1 and 2) and by the mouth. For oral administration I have generally used the tartar emetic, glycerine, bicarbonate mixture I have already mentioned. At times I have used the yaws mixture (one-third doses), in which I have incorporated liquor arsenicalis 3 to 5 minims in each dose. The intravenous injections give the best results.

Conclusion.

Tartar emetic is of great efficacy in various protozoal diseases. Its powerful action in trypanosomiasis has been well proved, and it can be considered a specific in espundia, granuloma inguinale, kala-azar, and oriental sore. It is efficacious in yaws, especially if combined with other drugs, and seems to have a beneficial action also in relapsing fever.

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HYDROTHERAPY AS AN AGENT IN THE TREATMENT OF CONVALESCENTS.

BY FRANK RADCLIFFE, M.B., CH.B.EDIN.,

MEDICAL OFFICER IN CHARGE OF HYDROTHERAPEUTIC DEPARTMENT, COMMAND DÉPÔT, HEATON PARK, MANCHESTER; LATE LIEUTENANT R.A.M.C., AND CHIEF ASSISTANT TO MAJOR R. TAIT MCKENZIE, R.A.M.C.

THE hydrotherapeutic installation at the Command Dépôt, Heaton Park, Manchester, was the first of its kind to be established by the War Office, and although the department has only been in existence since the end of June, it may be of interest to those who are about to commence this form of treatment, and to those in charge of hospitals, if some mention is made of the results obtained up to the present time.

The experience gained while resident at the Devonshire Hospital, Buxton, made me familiar with ordinary spa treatment. Two types of bath, however, which are in existence at the present time, are quite new to this country, and physicians of hydrotherapeutic practice have to learn their actions and the results of treatment.

The department at Heaton Park consists of three huts which originally were officers' quarters. These have been connected by a covered way, and a boiler house has been built, in which heating apparatus and a water storage tank has been installed. These huts have been internally reconstructed, two are adjacent and are converted into a dressing-room and office, a douche, needle and shower bath room, a slipper bath room, a pool bath room, and *eau courante* and massage departments; lavatories and store room are placed in the subway, and the third hut is partly a massage department, and partly consists of rest rooms for the after-treatment of cases.

Out of an average of 4,000 troops, 170 men are treated daily.

The staff includes four blind masseurs who deal with cases requiring general massage, and two masseuses, who administer massage manipulation and exercises in the *eau courante* department.

It is not necessary to discuss all the forms of treatment as many of them are quite familiar, being the same as those used in the spa institutions of this country. The pool bath and *eau courante* bath in their present form originated in France, but modifications have recently been made in this country.

In treating large numbers of men it is essential from a point of view of economy in water, attendance, and supervision, to have apparatus which is capable of treating a number of men at one time. For this reason a pool bath, which is a large square bath, 3½ to 4 ft. deep, is installed for treating at least twelve men at one time. The water is running, and is kept at a temperature of 92° F. by means of a thermostatic valve in the boiler house. The room in which the bath is situated is kept as quiet as possible, and it is not too well lighted, for it is essential that it should possess an atmosphere of quiescence. The time for which the men are immersed may be as long as one hour. They pass from the bath to the rest room, where they go to bed for an hour or more. Their daily life is kept as free from excitement as possible, but at the same time their surroundings are made cheerful.

Many men have been invalided from the various theatres of war suffering from shock and disordered actions of the heart. These men have been subjected to strain and stress of an exceptional nature. Their nervous systems have been tried to the full. The pool bath was designed for the treatment of these cases, the idea being that immersion in a large volume of water kept at a temperature below body heat would have, along with the after-treatment above mentioned, a marked sedative effect. Up to the present the results with regard to shock cases have not come up to expectation. The men say "their nerves are steadier." Invariably they sleep when lying in bed after the bath, and certainly for the time being the sedative effect is marked, but, so far, it is not continuous. Some of the men feel "better" for hours after. Others say they "feel weak and cannot eat." Others say they feel all right for so many hours and then get exhausted. However, whatever their complaint or otherwise may be, the tremors, which may be marked in these cases, persist, and other physical signs do not disappear excepting the associated tachycardia and shortness of breath on exertion.

But from the point of view of curing the men, or rendering them fit for military service they are not satisfactory.

The results in cases of "disordered action of the heart" have, up to the present, been very satisfactory. The pulse-rate is taken before, during, and after the bath, in the lying position. The slowing of the pulse is most marked after treatment. I have discharged several of these cases after an average of one month's treatment, and they are now able to undertake without discomfort "light physical training," which consists of slow movements without violent running or jumping, and light route marching, which consists of a march of two to three miles at their own pace. The shortness of breath, which is so common a symptom in these cases, is greatly relieved, and I hope that after one or two months' treatment by "light physical drill" they will be able to stand the full "physical training," which consists of quick movements with violent running and jumping.

While this type of bath is not a complete cure, it is a preparation for graduated physical training, which undoubtedly is the best form of treatment for such heart affections. The bath definitely quietens the circulation and enables training to be undertaken in a way which is impossible without previous hydrotherapeutic treatment.

Still more satisfactory is the *eau courante* department. Definite results have been obtained in a large number of cases, and at least 90 per cent. of the discharges have been so satisfactory that physical training could be undertaken at once. The cases treated in this department include frost-bitten feet and trench feet, contracted and painful scars, painful amputation stumps, and localized neuritis following wounds.

The foot that has been frost-bitten presents signs of defective circulation, cyanosis, sometimes giving way to pallor, with a constant feeling of cold and aching. The running-water bath improves the circulation, and after a few immersions the symptoms entirely disappear. Old sprains which present a sodden appearance become, under this treatment, engorged with blood, and a reparative process is begun. The scar, which is painful to the touch and blue in appearance, becomes soft, red, and pliable. The painful amputation stump responds to treatment very rapidly. The course of treatment usually lasts from fourteen to twenty-eight days, and at the end of that time the combination of the running-water bath with massage has invariably rendered voluntary movements possible. This effect is not obtained by the ordinary bath, because the temperature is not kept constant, the congestion is not so deep, and the circulation is not hastened to the same degree.

There are two patterns of baths—one for the arm and one for the leg. The water, which is running, is kept at a temperature of 105° to 115° F., according as to whether the patient can or cannot stand the high temperature. The leg, or arm, or foot, is immersed in this bath for thirty-five minutes, the patient then passes to the massage department, where massage and exercises are given.

When this department opened several cases had been previously treated by dry massage for several weeks without definite relief. After fourteen days' treatment by the running water bath and massage the pain had entirely gone, and the feet in cases of frost-bite were ready for hardening. The men were able to undertake physical training and route marching, and up to the present no patients have returned for treatment. On the other hand, many have left the dépôt and returned to their units in Class "A" (active service).

It would greatly strengthen the equipment of the civil hospitals of this country if they installed a hydrotherapeutic establishment in connexion with their electrical departments as a means of the treatment of convalescents. Both the medical and surgical sides of the hospitals would find plenty of opportunities for using the shower and needle baths as tonic agents in the treatment of debility, the slipper and douche in the treatment of rheumatism, the pool bath for the treatment of heart cases, and the cases which could be found in the surgical department of any hospital would keep the running water bath fully occupied.

At present the baths are used mainly for the arm and leg cases, but there are in existence body baths and probably these will in time become as widely used as the former.

NOTES ON BLOOD CULTURE TECHNIQUE.

BY

R. L. THORNLEY, M.D.Lond., D.P.H.,

Temporary Lieutenant R.A.M.C.

A fairly extensive experience of blood cultivation during the past few months, while in charge of a mobile laboratory in France, has shown that, although the method usually employed of drawing blood from a vein direct into ox bile, and thence plating on to special media, is excellent for the typhoid-coli group, it does not detect the numerous other organisms which may be found in the blood in cases of pyrexia of unknown origin. The special media, or the ox bile, appear to have an inhibitory effect on these. For this reason I have for some time used, in addition to ox bile, two other fluid media, one similar in chemical composition to ox bile, and the other a broth prepared from trypsinized bullock's heart. Instead of plating out on to Drigalski-Conradi and MacConkey media only I use also Conradi's brilliant green, Fawcus's brilliant green, and a modification of the pea extract trypsin agar used at the Royal Army Medical College, Millbank.

In every case of vein puncture it is absolutely necessary first thoroughly to cleanse the skin in the vicinity with alcohol before painting with tincture of iodine. A piece of rubber tubing, which is so fastened round the arm that it can be instantly released, is used to constrict the blood flow, and a wide-bore 20 c.cm. needle passed into any suitable vein at the bend of the elbow or its vicinity. Not less than 5 c.cm. of blood should be drawn direct into each of the three liquid media, and an additional 2 c.cm. into a test tube for a Widal reaction for typhoid, paratyphoid A and B by Dreyer's method.

The tubes are incubated, and next morning plated out in the following manner: The five plates are each marked with a grease pencil into three sectors, and the names of the three fluid media marked on the sectors, one on each. The fluid media are then in turn taken up and a loopful of fluid transferred to the corresponding marked sector of each plate. The plates are then returned to the incubator for examination the following day. If no growth has occurred, the process must be repeated, if necessary, for three successive days.

The extra time taken up in transferring in all fifteen loopfuls of fluid from the three media as compared with one or two only when using ox bile, is well repaid by the increased number of positive results obtained. It happens not infrequently in the case of the delicate organisms like pneumococci and the feebly virulent streptococci that growths may only appear on one or two of the whole fifteen sectors, although in these cases growths may usually be seen in the broth medium.

Already a large number of cases of pyrexia of undefined origin, a term which includes cases of so-called "trench fever," have been shown by this extended method of blood culture to be due to bacterial infections of the blood, but it is essential to examine the blood when the fever is at its height.

For the composition of the two liquid media which I use with the ox bile when collecting the blood, and for perfectly prepared media generally, I am indebted to Sergeant H. A. H. Howard, B.Sc.Lond., R.A.M.C., my laboratory attendant.

My analysis of the cultivation of the blood of the last 100 cases of fever of unknown origin examined by me gives the following results:

Negative	42	*Micrococcus tetragenus* ...	23
Typhoid	3	Pneumococcus	9
Paratyphoid B	7	Staphylococcus	2
Flexner	2	Streptococcus...	5
Shiga	1	Gram-negative coccus ...	2
Coli communis	4		100

Dr. Charles John Gibb of Newcastle-on-Tyne, the oldest medical practitioner in the district, for many years lecturer at the Newcastle College of Medicine, who died on May 13th, aged 89, left estate of the gross value of £143,022, of which £120,384 is net personalty.

Through gifts of Dr. Howard Kelly and Mr. Blanchard Randall, the Johns Hopkins Hospital, Baltimore, has now one of the finest medical portrait galleries in the world. The collection, which is valued at £20,000, consists of forty-eight portraits, some of which go back to the early part of the sixteenth century.

DIGESTED AND DILUTED SERUM AS A SUBSTITUTE FOR BROTH FOR BACTERIOLOGICAL PURPOSES.

By A. DISTASO, D.Sc.,

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(From University College, Cardiff.)

The nourishment of microbes is a passive one, at any rate at the beginning of their life. It depends upon such substances as can pass through the walls of the microbes and be absorbed by the protoplasm. The best example of this principle is the growth of microbes in media made with sugar. A small quantity of sugar makes the growth quicker and richer; if the percentage of sugar is increased the growth is arrested. I have made experiments to ascertain whether serum, which in normal conditions is a bad pabulum for the majority of microbes, becomes a suitable medium for them when diluted or digested—when, in other words, the molecule of the albumin is broken down and becomes smaller.

The medium is prepared as follows:

(*a*) One volume of sheep or ox serum is mixed with one volume of tap water, and boiled till it becomes milky.

(*b*) A pancreas of a pig is minced and extracted with 400 c.cm. of distilled water in the presence of chloroform for twenty-four hours. (The first experiments were performed with 1 per cent. trypsin, but for the sake of economy I used afterwards pancreatic extract, which is equally suitable for the purpose); and

(*c*) A piece of the upper part of the small intestine is extracted in the same way in order to activate the pancreatic extract.

(*d*) To one litre of (*a*) is added 100 c.cm. of (*b*) and 10 c.cm. of (*c*), and digested at 60° C. for the night. Next morning the flask contains an amber-coloured liquid with fine flocculi floating in it. Filtered through Chardin paper, the amber-coloured liquid passes through, and the flocculi remain in the filter. The liquid is collected and sterilized at 120° C. for fifteen minutes, then tubed and resterilized.

In this medium the growth of the *B. coli* group, the streptococci, the staphylococci, *B. subtilis*, *B. proteus*, and *fluorescens*, is so luxuriant that in comparison normal broth may be said to yield a scanty growth. Meningococcus shows little or no growth.

Indol Formation.—Theoretically it is to be expected that with this medium indol should be detected, because the tryptic digestion gives rise to tryptophane, from which indol is formed by the microbes. As a control tryptophane medium was employed. The Böhme-Ehrlich reaction has always given similar results with the two media in twenty-four hours.

The Sugar Test.—When to this medium is added 1 per cent. of various sugars generally used for the identification of microbes, the same reactions are observed as with the control broth. But a better and more useful medium for sugar test is described later on.

Solid Media.—The utility of this medium is shown specially in the making of agar.

Three grams of thread agar are added to 100 c.cm. of tap water and sterilized at 120° C. for fifteen minutes, then 100 c.cm. of the digested serum above described is added, mixed thoroughly, tubed, and sterilized at 120° C. for fifteen minutes.

A beautiful transparent medium is obtained in which microbes of the *B. coli* group, *B. proteus*, *fluorescens*, *pyocyaneus*, staphylococcus, streptococcus, Nabarro's butter bacillus 5, Grassberger bacillus 1, *B. tuberculosis*, grow very heavily. The meningococcus again does not grow in this medium. Anaërobic bacilli, like *B. perfringens* and *B. sporogenes*, grow very well. Thus the *B. pyocyaneus* and *fluorescens*, at 37° C., give pigmentation in twenty four hours. The *B. proteus* shows in this agar also a pigmentation of oak-like colour.

This medium, employed for isolation of the microbe, I found to yield at least the same results as ordinary agar.

Diluted Serum for Sugar Test.

This is prepared as follows:

(*a*) To one volume of sheep or ox serum three volumes of tap water is added, and sterilized at 120° C. for fifteen minutes. A milky-coloured liquid is obtained.

(*b*) Solutions of various sugars are prepared and filtered through a Berkefeld filter. These solutions are diluted in (*a*) to 1 per cent.; litmus solution is added and sterilized at 100° C. for ten minutes.

This medium planted with various strains gives clotting

of the serum if a certain amount of acidity is formed. Should gas be present, then the clot shows bubbles. It is specially suitable for *B. coli*, and can be substituted for the Barsikow, which is certainly more expensive and more difficult to prepare.

I publish these observations as the only expense incurred in making a litre of an efficient medium is that for the gas used. This medium is easy to prepare, and serves all the purposes served by ordinary broth and ordinary agar.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

BILIARY REGURGITATION AFTER GASTRO-ENTEROSTOMY.

In his recent interesting and suggestive Hunterian Lecture on the surgical treatment of duodenal ulcer,[1] Sir John Bland-Sutton touched on a number of questions not yet definitely answered—amongst others that of the closure or leaving open of the pylorus. The advisability of closing the pylorus (by excision or otherwise) is a point on which surgical opinion is at present sharply divided, and its consideration involves that of other and inter-related questions, one of which is the occurrence of post-operative biliary regurgitation. While not nearly so common as formerly it is still far from unknown. Its prevention and recent comparative rarity have been variously attributed by different workers to (1) judicious choice of cases (the exclusion from the operable list of cases of gastric atony); (2) the avoidance of the flattening and obstruction of the lumen of the jejunum at the anastomotic stoma formerly produced by the use of a triple line of suture or by the practice of cutting out a window in place of making a slit incision in the jejunal or gastric wall; (3) the adoption of the "no-loop" method; (4) the closure of the pylorus. The employment of the *x* rays with opaque meals frequently fails to determine in a given case of regurgitation either the cause of the regurgitation or the route (pylorus or anastomotic stoma) by which it occurs.

In view of the existing differences of opinion as to both the cause and the route of biliary regurgitation, it is important that cases in which either cause or route is clearly ascertained should be recorded. The following case has recently been under my care:

Mrs. B., sent to me in November, 1915, had the symptoms of duodenal ulcer, and at the operation on December 3rd, 1915, the ulcer was demonstrated, and a posterior "no loop" gastro-jejunostomy performed. Within six weeks copious and constantly recurring biliary vomiting set in and continued till May 25th, 1916, when, assisted by Dr. Charles Bennett, I re-opened the abdomen. We found the duodenum and pylorus very greatly dilated. On displacing the transverse colon so as to expose the anastomotic stoma and then compressing the duodenum we found that nothing would pass along the afferent jejunal loop. The duodenal contents regurgitated into the stomach through the pylorus and not through the stoma. And further, the cause of the regurgitation was evident. The afferent jejunal loop was firmly fixed, flattened out and kinked, by adhesions to the under surface of the transverse mesocolon. The efferent loop was quite free from adhesions.

The explanation of the obstruction of the afferent loop by adhesions while the efferent loop remained free appears in this case to be clear. Adopting the "no loop" form of operation, I have for some time been in the habit of following the suggestion of various surgeons in dividing the ligament of Treitz in cases in which the jejunum on being pulled taut to the stomach remained more or less kinked, and had done so in Mrs. B.'s case. Division of the ligament is necessarily done close to the intestine, and is therefore practically a detachment of the ligament from the intestinal wall, which is left raw, and liable to adhere to surrounding structures, such as the mesocolon. Momentary consideration will show that the raw and subsequently adherent portion will, when the anastomosis is complete, be on the afferent loop.

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[1] British Medical Journal, February 19th, 1916.

Reports of Societies.

ACCIDENTAL HAEMORRHAGE.

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on October 5th, when the President, Dr. G. F. Blacker, was in the chair, Dr. A. J. McNair reported a case of concealed accidental haemorrhage with intraperitoneal bleeding. A woman, aged 34, died three and a half hours after delivery, under anaesthesia, of her seventh child in the thirty fourth week; the placenta was found to be completely detached, and about three pints of recent clot came away when the uterus was emptied. After death 24 oz. of recently shed blood were emptied out of the peritoneum, and a number of superficial lacerations were detected on the anterior surface of the uterus, with small haemorrhages among its muscle bundles, which were histologically normal.

Mr. Charles Oldfield and Dr. Reginald Hann reported a case of acute toxaemia of pregnancy with accidental haemorrhage treated by Caesarean hysterectomy. In this instance the patient was a primipara aged 38, and it appeared that the accidental haemorrhage was a symptom of pregnancy toxaemia. As the bleeding was severe and the cervix closed, Caesarean section was undertaken in the eighth month. The placenta was entirely detached. The uterine cavity held much blood clot, and the walls were so disorganized by haemorrhages that the uterus was removed. All the toxaemic symptoms—albuminuria, headache, and blindness — disappeared, and the patient recovered.

Dr. Fletcher Shaw read a paper on Caesarean section and hysterectomy for accidental haemorrhage. Six cases were described; in all Caesarean section alone was undertaken, except in one in which hysterectomy was performed a few hours after delivery of the child by uterine section, because haemorrhage continued. All the patients were multiparae with a high degree of albuminuria. In the three who recovered that symptom disappeared within a few days, so that the bleeding was probably due to toxaemia. In cases of accidental haemorrhage it was only in very rare instances, when uterine contraction could not be induced, as in all these six subjects, that this radical method of treatment was required.

A number of pathological specimens were also exhibited.

West London Medico-Chirurgical Society. — An ordinary meeting of the society was held on October 6th, when there was a large attendance of members and visitors. The retiring president, Dr. Leonard Dobson, inducted his successor, Dr. Arthur Saunders, who presented the Keightley Medal to Dr. Dobson and congratulated him on the success of his year of office. Dr. Saunders then delivered his presidential address on some aspects of the throat and nasopharynx in their relation to general medicine. After recapitulating the chief varieties of nasopharyngeal infections, he dwelt particularly on modern bacteriological developments as aids to diagnosis, and discussed the treatment of tonsils and adenoids and their bearing when diseased on other organs and on the general condition. On the motion of Dr. Rice-Oxley, seconded by Dr. Shuter, a vote of thanks was accorded to the President for his address.

A society has been founded at Zürich for the laying out of gardens in the city to be cultivated by school children.

The county medical officer of health for Carlisle has prepared a pamphlet which has been issued by the county council with the title *All About Baby*. It contains an address to mothers, in the course of which it is said that out of every eight children born in Cumberland one has died before it has reached the age of one year. It states that the county council has appointed a staff of health visitors, whose services are at the disposal of those who require and wish skilled advice, and that the medical staff of the health department will always be glad to advise mothers. The bulk of the pamphlet consists of a series of notes on the health of expectant mothers and the care and management of infants and young children, which seem to be very much to the point.

Reviews.

MAN'S ARBOREAL ANCESTRY.

During the last four or five years the British public has renewed its interest in all that relates to man's evolution. Authors and publishers have not been slow to meet the revived demand for literature dealing with the complex problem of man's origin. The books which have appeared are of two kinds—first-hand books and second-hand books. The contribution which Professor Wood Jones has just made to this literature in the book which he has named—not very happily—*Arboreal Man*,[1] is not only first-hand, it is first-rate. Those who are familiar with current anatomical literature recognize that he has earned for himself a place in the very front rank of British anatomists. His new book, be it ill or well named, will enhance that reputation and secure for itself a permanent place on the select bookshelf of all who seek to unravel the problem of how man has come by his present estate in body and in mind.

It must be confessed that our author is an image breaker. Up to Darwin's time anatomists and theologists had placed man's body on a pedestal; to them it was the "crown of creation." When Darwin's influence became dominant, the high estimate of man's estate was not lowered; he was still pedestalled and regarded as the "highest and latest product of evolution." From that pedestal, whereon he had been placed by Archdeacon Paley, Sir Charles Bell, Professor Goodsir, and a host of others, Professor Wood Jones takes Man down and again places his feet on firm ground. The human hand, the complex wrist, the forearm, with its facile powers of supination and pronation, and the shoulder girdle are not new features. They are the opposite; they are primitive and old. Man and his brother primates have retained the ancestral mammalian characters, so far as the upper extremity is concerned, to a greater degree than any of the other mammalian orders. To find the counterparts of the primate arm—which man has retained in all its parts—the anatomist has to descend to the lowest and most ancient reptilian forms. Somehow in man's ancestry the identical elements of the ancient reptilian arm have been retained. To account for that fact Professor Wood Jones propounds the theory, that the stock to which man belongs—the Primates—must have become differentiated at an early geological epoch—probably the Triassic—an epoch at which the early mammals still retained their reptilian limb characters. The arboreal methods of life proved favourable to the retention of all the elements found in the primitive reptilian limb. He passes in review the parts and features of the human body, analysing in detail their functional nature, and comes to the conclusion that the upright posture, and all its adaptational features, which are usually regarded as man's prerogatives, are not peculiar to him, but a possession which he shares with all the higher primates, owing them to the prolonged arboreal pilgrimage of his ancestors. Most of man's bodily characters were acquired during the tree-living stage of his ancestry. His foot, certain minor features of his lower limb and spine, were acquired in his post-arboreal phase.

The section of Professor Wood Jones's book which will make the most vivid appeal to readers is that dealing with the human brain. He has been profoundly and profitably influenced by the researches and teaching of Professor Elliot Smith, but he also adds much of his own. His inquiries and methods differ from those of his anatomical predecessors in that he does not confine himself to dead structures; he is a keen, accurate, and cunning observer of man and beast, alive as well as dead; his observations on the dead and living go hand in hand, and it is because of that combination that he has managed to obtain a better and truer insight to many difficult problems than his predecessors. He has other advantages: he is a most facile draughtsman and the possessor of a clear, nervous, vivacious, and fascinating pen.

[1] *Arboreal Man.* By F. Wood Jones, M.B., D.Sc. London: E. Arnold. 1916. (Med. 8vo, pp. 238; 81 figures. 8s. 6d. net.)

NOTES ON BOOKS.

The third edition of the admirable little book on *Medical Electricity*[2] by Drs. Morton and Cumberbatch has been brought thoroughly up to date, and contains much that is new about important methods of treatment and the action of electricity—always a most obscure subject—in the treatment of disease. The chapter on the physics of electricity has been placed at the end of the volume instead of at the beginning; here the word "Leclanche" should be "Leclanché." The bulk of the volume is occupied by chapters on ionic medication and ionization, galvanization, faradization, diathermy, the use of static electricity, and similar subjects. The authors write in the most practical style, and it is clear that they have a vast amount of experience in electrical treatments of all sorts. Throughout the text they spell the word cathode "kathode," though "cataphoresis" is spelt with a "c." The book should be in the hands of all who want a sound and sensible account of a branch of medical treatment that, in injudicious hands, lends itself to quackery with the utmost facility.

For those who live in India, or who may chance to find themselves engaged in elementary surgical and medical work in that country, three little books recently published contain a great deal of useful information. Colonel R. J. Blackham's *Indian Manual of First Aid*,[3] now in its fifteenth edition, and the same author's *Primer of Tropical Hygiene*,[4] now in its third edition, are short and serviceable little books, filled with practical hints and useful information for the layman, and not too deep for average readers. Colonel Blackham has also written a book on *Indian Ambulance Training*[5] for the benefit of local voluntary aid detachments, now appearing for the first time, that seems excellent for the purpose for which it is intended. Books such as these have appeared in great numbers during the last two years; it is clear that the war will have excellent results in the propagation of knowledge of the rudiments of hygiene and medical and surgical science throughout all classes of society in our own country as in others.

It must always be difficult for a reviewer to form a just estimate of poems written in a dialect with which he is unacquainted, even when, as is the case with *The Sentimental Bloke*,[6] the dialect resembles one with which he is familiar. Often for several lines together the phrases might be spoken by a cockney, and then comes some word which sends the reader to the glossary the author has considerately provided. Not a few of the words and turns of speech explained in the glossary are, however, as well known in London as in Melbourne. The verses seem to us to be genuine poetry, and draw a vivid picture of a type in which faults and virtues are more strongly contrasted than in more sophisticated persons, but in which native force of character enables the better qualities to triumph.

The twenty-fifth edition of *The Annual Charities Register and Digest*[7] is a book invaluable to those who wish to know how best to help cases of distress, and how to prevent their occurrence. It has a most valuable introduction by Mr. C. S. Loch; and, with its elaborate indexes, it is a volume that is easy to consult, in spite of its size and the great amount of varied information it contains. To all those engaged in organized charitable work it is so well known as to need no further recommendation here. It should be carefully studied by those who are inclined to shower indiscriminate charity on all who ask for alms.

[2] *Essentials of Medical Electricity.* By E. R. Morton, M.D., Trin. Tor., F.R.C.S.Edin. Third edition, revised and rewritten, with addition of new matter by E. P. Cumberbatch, M.A., M.B., B.Ch. Oxon. Kimpton's Essential Series. London: H. Kimpton. 1916. (Cr. 8vo, pp. 317; 72 figures. 6s. net.)

[3] *The Indian Manual of First Aid.* By Colonel R. J. Blackham, C.I.E., R.A.M.C. Fifteenth edition. Bombay: C. Claridge and Co. 1916. (5 by 3⅜; pp 207, 70 figures. 1 rupee.)

[4] *A Primer of Tropical Hygiene.* By Colonel R. J. Blackham. Introduction by W. E. Jardine, Esq., C.I.E., I.C.S. Third edition. Bombay: C. Claridge and Co. 1916. (4⅜ by 3½; illustrated. 12 annas.)

[5] *Indian Ambulance Training.* By Colonel R. J. Blackham. Bombay: C. Claridge and Co. 1915. (4 by 5½; pp. 151, 19 figures. 12 annas.)

[6] *The Songs of a Sentimental Bloke.* By C. J. Dennis. Third edition, with cover and design by Hal Gye, and foreword by H. Lawson. Sydney: Angus and Robertson, Ltd.; London: The Oxford University Press. 1915. (Pott 4to, pp. 134; illustrated. Price 3s. 6d.)

[7] *The Annual Charities Register and Digest.* With an Introduction by C. S. Loch. Twenty-fifth edition. London: Longmans, Green, and Co., and the Charity Organization Society. 1916. (Demy 8vo. pp. 1066. 5s. net.)

Low's *Handbook to the Charities of London*,[8] now in its eighty-first year of publication, has a preface devoted to the new King's College Hospital at Denmark Hill, and gives a brief account of over 1,200 charitable institutions in and about the metropolis. It contains a great deal of the information required by almoners, secretaries, and charitable workers generally, and will often be useful to medical practitioners. The information it contains appears to be well up to date, and it has a good index.

Italy is a country that produces a great deal of excellent original work in medicine year by year, and supports a number of excellent medical periodicals containing well-documented original papers composed somewhat in the German style. It is to be feared, however, that Italian medical and scientific periodicals have but few British readers, familiarity with the Italian tongue being sadly rare among the inhabitants of Great Britain. Yet Italian is not a difficult language to learn to read, owing to its kinship with Latin and French. We would recommend to the attention of any one anxious to learn Italian Mr. Panagulli's *Italian Grammar Self-taught*[9]—a simple and unassuming little book providing a practical and concise elementary course in the Italian language as it is now spoken and written.

[8] *Low's Handbook to the Charities of London, 1916* (81st year of publication). London: Sampson Low, Marston and Co., Ltd. 1916. (Cr. 8vo, pp 261. 1s. net.)

[9] *Italian Grammar Self-taught*. By A. C. Panagulli, Principal of the London School of Italian. London: E. Marlborough and Co. 1916. (Cr. 8vo, pp. 104. 1s. net: cloth, 1s. 6d. net.) *Key to Italian Grammar Self-taught*. (Pp. 29. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

The Ipswich Leg.

Messrs. Griss and Smith, of Ipswich, make an artificial leg which seems to possess certain advantages. With some minor exceptions to be mentioned, it is made entirely of stout oak-bark-tanned leather. It is provided with artificial knee, ankle, and metatarso-phalangeal joints. The upper part or bucket, cut from one piece of leather, is moulded on to the stump. The leg piece is also of leather, and the upper bucket, supported by steel side irons, works inside the top of the lower. The advantage claimed for the use of leather is that the leg, when complete, is lighter than patterns in which wood is extensively used. The Ipswich leg for an amputation above the knee does not weigh more than 6 to 7½ lb., as compared with



Fig. 1.

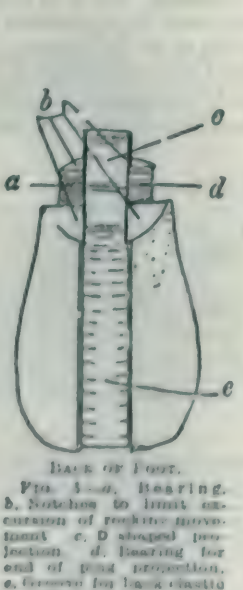


Fig. 1.—*a*, Bearing. *b*, Notches to limit excursion of rocking movement. *c*, D shaped projection. *d*, Bearing for end of pass projection. *e*, Groove for back elastic or spring.



Fig. 2.

12 lb. or over, which is a common weight for an artificial leg. The upper bucket being closely applied to the stump, the weight of the body is distributed, and, if necessary, a pneumatic cushion can be placed within it, upon which the end of the stump bears. This cushion can be altered by the wearer so as to adapt it to the length of the stump. The leg is suspended by means of shoulder braces, which, when properly adjusted, divide the weight equally between the two shoulders. The upper bucket, as has been said, is moulded to the stump, and it is fixed, and can be adjusted from time to time by the lacing provided. The side supports, starting from the upper bucket, are continued below the knee joint inside the lower leg, and the knee is further controlled by an elastic webbing band in front, the tension of which can be adjusted by the wearer. The ankle-joint is of simple design, but appears to meet the conditions satisfactorily. Into the lower part of the leg is fitted a wooden plug, and the heel and hinder part of the foot are also of wood. From the foot part there is a D-shaped projection which fits into a slot formed by two projections from the plug. The ends of these projections rest and work on bearings on either side of the foot below the pin-hole to which they all register. The two parts are connected by a metal pin or spindle made with a square head at the one end and a nut at the other; if desired they can be made to work in ball bearings. The excursion is limited at the back of the heel by elastic or a spring. The front part of the foot is of leather, and works at the level of the metatarso-phalangeal joints on the posterior wooden part of the foot. The whole is so adjusted that when the wearer lifts the foot from the ground and swings it forward the toe is raised, and in this way it is possible to mount a kerb or go upstairs, or, we are told, to cycle, even with amputation above the knee. When the amputation has been made below the knee the stump can be introduced into the lower part of the artificial leg. The apparatus is light and strong, but the construction is simple, and any small repairs could, we imagine, easily be executed by a saddler—a matter of some little importance when the wearer resides far from an instrument maker.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on October 10th, thirty-one cases were considered, and £300 granted to thirty of the applicants. The following is a summary of some of the cases relieved:

L.R.C.P.Eng., aged 71, a widower who practised at Great Torrington and West Africa, and latterly has acted as a ship's surgeon. Suffers from ague contracted in Africa. On his last sea trip the ship was torpedoed, and so he has not risked another voyage. Only income the old age pension. Voted £6 in six instalments.

Daughter, aged 60, of L.R.C.S.Edin. who practised at Liverpool. For many years worked as a governess but had to give it up after a long illness. Only income derived from letting a furnished room in her cottage, but of late has not been successful, and, owing to high prices, unable to manage. Voted £5.

Daughter, aged 49, of M.D.Glasg. who practised in Ireland and died in 1888. Applicant is a teacher of music, but since the war has not been able to get pupils. Has aged mother, a pensioner of the Fund, who is helpless and requires her daughter's attendance, which prevents applicant from undertaking work away from home. Voted £5.

Daughter, aged 43, of M.R.C.S.Eng. who practised at Notting Hill and died in 1885. Mother, who for many years was helped by the Fund, has died recently from cancer. Applicant and sister have tried to earn by letting lodgings, but, owing to living on the Kent Coast, have been unsuccessful lately. Propose giving up house and trying to obtain other work, but want some immediate help. Voted £10.

Widow, aged 30, of L.R.C.P. and S.Edin., who held an official appointment and died in April, 1916. Applicant left with five children, aged 1 to 9½ years, and the only money an insurance of £200. Has removed to Scotland, and hopes to be able to make a little by letting furnished rooms. Highly recommended. Voted £10 in two instalments.

Widow, aged 65, of R.A.M.C. doctor who died in June of this year. Only income a pension of £34 per annum. Has two children married and unable to help. Long illness of husband, who had to live on his pension for many years. Applicant too old to obtain work but she is willing to do what she can. Voted £10.

Daughter, aged 48, of M.D.Lond. who practised at Newcastle-on-Tyne. Applicant was left quite unprovided for, and, owing to indifferent health of herself and sister, unable to work. A friend who used to help unable to do so now owing to depleted income in consequence of the war. Relieved twice (some years ago), £17. Helped by the Guild. Voted £12 in twelve instalments.

Daughter, aged 56, of M.R.C.S.Eng. who practised at Newport, Mon., and died in 1892. Since father's death has endeavoured to make a living by keeping a small school, but owing to the increased cost of living unable to make it pay. Relieved once, £12 in twelve instalments. Voted £12 in twelve instalments.

Daughter, aged 60, of M.R.C.S.Eng. who practised at Dorking and died in 1873. Applicant left unprovided for, and is a permanent invalid. Income 5s. per week from another charity, and a friend allows her £25 a year. Relieved four times, £40. Voted £10 in two instalments.

(To be continued.)

British Medical Journal.

SATURDAY, OCTOBER 21st, 1916.

CEREBRO-SPINAL FEVER AND FILTRABLE VIRUS.

The discovery of the meningococcus in the cerebro-spinal fluid of cases of cerebro-spinal meningitis in 1897 by Weichselbaum has been confirmed in all subsequent outbreaks in which bacteriological investigations have been made, so that the constant association of this micro-organism with cerebro-spinal fever, and its absence in other forms of meningitis, is now well established. The successful results that have been obtained in the treatment of cases by specific antimeningococcus serum support the view of the part played by the meningococcus in the etiology of this disease. Before such specific serum was available the mortality ranged from 60 to 80 per cent. By submitting patients at a sufficiently early stage to intraspinal injections of specific antimeningococcus serum this mortality has been reduced by Flexner to 36 per cent., by Dopter to 8.2 per cent., and by Netter to 7.14 per cent. We understand that striking success has also been obtained recently in this country by similar treatment.

The mode of spread of cerebro-spinal fever was at first extremely puzzling to the epidemiologist because of the rarity of instances of direct infection, and of the comparative frequency with which cases spring up in different parts of an infected area with no apparent connexion between them. An explanation of the sporadic nature of such outbreaks appeared to be supplied by the discovery by Albrecht and Ghon in 1901 of the meningococcus in the nasopharyngeal secretion of cases, and by the subsequent demonstration of this micro-organism in the nasopharynx of a number of persons in the environment of such cases. These carriers, it was concluded, conveyed the germ to others until it was received by a person who developed meningitis.

In order to fulfil all the requirements of an etiological agent, it had to be shown that the meningococcus was capable of reproducing the disease in a susceptible animal. At the time when Weichselbaum discovered the meningococcus he demonstrated that it produced suppurative meningitis in the dog on intradural administration; Flexner succeeded in monkeys by the same means; experiments on a large number of animals by v. Lingelsheim and Leuchs, showed that dog-faced baboons were very susceptible to the meningococcus. By intrathecal injection of a culture of the meningococcus into an animal they produced the clinical picture of cerebro-spinal fever as well as the essential pathological lesion.

In 1898 Loeffler and Frosch, during an experimental investigation of foot and mouth disease, discovered that lymph taken from the vesicles after dilution and passage through a filter composed of diatomic earth of density sufficient to hold up ordinary bacteria reproduced that disease in susceptible animals. This experiment proved that the virus of foot and mouth disease was either a soluble toxin or a living organism of extreme minuteness. Owing to the high degree of dilution to which the infective material could be submitted without losing its power to reproduce the disease, Loeffler and Frosch formed the opinion that the virus of foot and mouth disease was an extremely minute living organism, and suggested that the virus of other diseases, such as small-pox, measles, and typhus, the etiology of which was still unsolved, might also belong to this category. These suggestions have since been confirmed by others in respect of measles, yellow fever, dengue, poliomyelitis, and mumps, and of certain diseases of a more localized nature affecting human beings, as well as in rinderpest, horse-sickness, and numerous other diseases affecting animals.

A good deal of experimental work has been done on the subject of filtrable virus of one or another kind, though the difficulty and expense of working with material the chief or only reagent for which is provided by a susceptible animal is obvious. Considerable progress has, however, been made. I 1913 Lipschutz[1] classified diseases due to this class of organism into two main groups: First, acute general infections such as measles, typhus, and dengue; and, secondly, diseases showing special localization in certain organs and tissues. The latter are subdivided according as the viruses show a special predilection for (*a*) epidermal or epithelial tissue, such as the viruses of molluscum contagiosum, warts, and trachoma; (*b*) dermotropic viruses such as vaccine-variola, foot and mouth disease, and chicken-pox; (*c*) neurotropic viruses such as those of rabies and poliomyelitis; (*d*) haemotropic viruses such as those producing the leukaemia of the fowl and the pernicious anaemia of the horse, and (*e*) organotropic viruses such as those of peripneumonia and mumps. Some of these filtrable viruses have been grown outside the body and studied microscopically, notably that of peripneumonia of cattle, and, more recently, those of rabies and of poliomyelitis; the majority, however, have not yet been so cultivated. Certain facts have also been ascertained with regard to the biological characters of filtrable viruses in general. They are unaffected by cold, and those associated with disease of the human subject are inactivated or destroyed by exposing them to a temperature between 55° and 60° C. Filtrable virus may be destroyed also by certain chemical agents, such as acids or alkalis or potassium permanganate, but they preserve their vitality for a considerable time in the presence of others, such, for instance, as solutions of carbolic acid. Different filtrable viruses vary in their susceptibility to the same chemical reagent. A point of importance is that they live for a long time in the presence of glycerine. When dried in the body secretions in which they occur and kept in a dark, cool place in capillary tubes, filtrable viruses continue to maintain their vitality for a considerable period, but if putrefactive bacteria develop, the virus is apt to be destroyed.

As regards immunity, the use of killed virus as a prophylactic vaccine has proved disappointing, the most successful results having been obtained by using the virus either after attenuation or after admixture with immune serum. Susceptible animals that recover from an attack with such modified virus become immune.

While much, therefore, remains to be determined, the principal features of a filtrable virus seem to be that it reproduces in a susceptible animal the specific disease from which it has been derived; that it is destroyed, as a rule, by exposure to a temperature of 55° to 60° C., and also by certain chemical reagents and that animals recovering after infection with such filtrable virus acquire specific immunity thereto.

[1] *Handbuch der pathogenen Mikroorganismen.* Kolle und Wassermann, Jena, 1913. Bd. 8, SS. 345-425.

In some diseases which have been found to be due to filtrable virus certain bacteria occur with great constancy, and, prior to the discovery of the fact that a filtrate from such a source could reproduce the disease, and in the absence of evidence to the contrary, these bacteria had been looked upon by some as playing an etiological part. This was notably the case in swine fever, where a certain non-lactose-fermenting bacillus, *B. suipestifer*, had been found to occur with much frequency. The fact established in 1903 by de Schweinitz and Dorset that swine fever could be reproduced by a filtrate from an affected pig proved that *B. suipestifer* was merely a secondary infecting agent. The well-known tendency of the *Streptococcus pyogenes* to occur as a secondary infecting agent is perhaps a further instance of similar association between filtrable virus and a bacterium in the case of measles, and possibly in that of scarlet fever as well.

During the present outbreak of cerebro-spinal fever Dr. E. C. Hort and his colleagues have made a special study of cerebro-spinal fever from the standpoint of filtrable virus. In a paper published in this JOURNAL for October 14th Hort and Caulfeild gave an account of the observations which have led them to infer the presence of a virus of this kind in the cerebro-spinal fluid of cases of the disease. Monkeys injected subcutaneously or intraperitoneally with cerebro spinal fluid from patients suffering from cerebro-spinal fever have been found to develop continued fever, and a similar result has been observed to follow injection in the same way of filtrate from a culture of the meningococcus itself. By cultivation of material taken from the affected monkeys in serum broth, they claim to have again produced fever in further monkeys. In a paper commenting upon the results published in the same issue of the JOURNAL Professor Adami emphasized the importance of the findings and quoted several analogies and instances for the purpose of illustrating their significance. It is, of course, important when drawing conclusions from results of this kind to be certain that they will bear the closest scrutiny from the point of view of technique. The result obtained with cerebro-spinal fluid from cases of cerebro-spinal fever, or from a culture of an organism such as the meningococcus which by reason of its autolysin is continually contributing dissolved endotoxin to the medium in which it is placed, makes it particularly necessary to exclude the possible action of such toxin in the present case. With every care, monkeys in captivity in this country are prone to develop pyrexia, the source of which is not always revealed by *post-mortem* examination and bacteriological examination. The action of such toxin derived from the meningococcus could be excluded by a control experiment with the same material as used by these investigators after submitting it to a temperature of 55° to 60° C.—a procedure which should inactivate filtrable virus, but leave toxin, if present, unaffected. This control test does not seem to have been carried out in the present instance. The analogy Professor Adami draws with swine fever does not seem quite sound, because the filtrate in that case actually gives rise to swine fever; whereas here the essential lesion of cerebro-spinal fever—namely, meningitis—was not reproduced, but merely pyrexia. The possibility of filtrable virus occurring as a secondary infecting agent in cerebro-spinal fever must also be borne in mind, for our knowledge of these agents is at present in its infancy. We hope that these experiments will be continued and repeated by others, for the etiology of cerebro-spinal fever is not yet by any means solved, and the prevalence and distribution of filtrable virus of all sorts is a subject upon which information will be awaited with interest by those who have at heart the progress of bacteriological and medical knowledge.

MEDICAL REMUNERATION.

THE Memo. 229/I.C., explanatory of the system of remunerating medical practitioners under the Insurance Acts, which was published in full in the SUPPLEMENT of last week, has the merit of being perhaps the most lucid of all the documents issued by the Commissioners. There can be no doubt that it well explains the difficulties with which they and Insurance Committees are faced in collecting and distributing the medical benefit funds, and goes a long way towards explaining many of the anomalies and apparent injustices of which so many panel practitioners have complained. Its importance makes it unnecessary to apologize for an attempt to summarize its main features, but no summary can properly take the place of a careful study of the original, a duty which every panel practitioner owes to himself.

The Memorandum begins by pointing out the exact nature of the bargain made between the Government and the profession at the commencement of the insurance scheme, when the Government undertook that for each insured person entitled for a full year to medical benefit the sum of 8s. 6d. should be provided to pay for medical treatment and drugs. It is important to note that the full sum of 8s. 6d. is only payable for a full year's risk; for persons entitled to medical benefit for only a part of a year the amount is reduced proportionately. Thus, for a person entitled to benefit for only one day in the year, only $\frac{1}{365}$th of 8s. 6d. would be payable to a central pool. This applies equally to the 6d. for domiciliary treatment of tuberculosis, but that is not here in question, as it does not enter into the central pool, being provided separately by each Insurance Committee out of the sanatorium benefit funds. This statement of the bargain between the Government and the profession is strictly correct, but the Commissioners at once found themselves in a difficulty when they tried to determine what exact fraction of a year each insured person is entitled to medical benefit—that is to say, whether the whole 8s. 6d., or, if not, what fraction of it is to be credited to the central pool for each insured person. It is clearly shown that in actual practice, owing to removals, deaths, persons coming into benefit or becoming disentitled to it, etc., it is absolutely impossible to obtain the data for such an exact calculation; a nightly census of the whole insured population would be needed, which is of course out of the question. Some formula had therefore to be framed which would give the nearest practical approximation to the theoretical exact amount which should be credited to the pool in order to carry out the national bargain. Accordingly, at the beginning of 1914 the Commissioners introduced what they call the "normal system," under which the full yearly sum is debited against each society for every contribution card surrendered by the society in respect of the first half of the year, and for every member who was at the commencement of the year aged 70 years or upwards. This fixes the amount which every society has to pay to the central pool, and the Treasury grant follows this. The same is done in the case of deposit contributors, exempt persons, and members of the Army and Navy Fund entitled to medical benefit whose accounts are kept by the Commissioners. It is evident from this that the central pool really receives more than it is entitled to in the case of (1) persons

who enter into insurance during the first half of the year, but not at the beginning of it—for example, the full 8s. 6d. is credited to the pool for a person who only enters into insurance on the 25th of June—and (2) persons who lapse from insurance through death or any other cause at any time during the year after paying one or more contributions in the first half-year—thus the full 8s. 6d. is paid for a person who pays only a single contribution in January and then dies.

As a set-off against the above cases, where the medical pool receives more than the amount to which it is entitled, in the following cases the pool suffers loss: (1) Persons entering into insurance in the second half of the year, (2) persons who are permanently incapacitated, and (3) persons who through illness or other cause are unemployed throughout the first half of the year. In these three classes no contribution cards are surrendered for the first half of the year, and the medical pool receives nothing in respect of these persons, though they are entitled to medical treatment. The Memorandum then makes the important statement that the Government actuary calculates that the sums the pool receives in excess of its due are at least the equivalent of the sums which the pool loses in the last-named classes which surrender no contribution cards for the first half-year. *Prima facie* it seems a most remarkable thing that these two contra accounts should in normal times so nearly balance as is stated, but as no figures are available to the profession to enable any check to be applied, the fact must be accepted in faith. It is further explained that carelessness on the part of societies in forwarding the cards, though it might delay a final settlement, can make no difference eventually; and as the money which the societies themselves receive depends on the number of cards which they transmit, it is to the direct interest of every society to forward all the cards, the interests of societies and doctors being in this respect identical.

But however fair this system may be in times of peace, it was seen soon after the outbreak of the war in August, 1914, that some modification was necessary owing to the large number of insured persons joining the forces and thus ceasing to be entitled to medical benefit. By obtaining figures from the Admiralty and War Office, the Commissioners made what they considered a proper adjustment for 1914, and state that the adjustment resulted in a full payment being made as required by the bargain between the Government and the profession. A further adjustment was also made in 1915, and to prevent a long delay in the settlement of that year, the figures for 1914 were taken as the basis, adjustments being made for the abnormal influx of workers into insurance, and in respect of the number of enlistments and discharges as ascertained confidentially from the Government. The fact was also taken into account that the medical benefit year 1914 was eleven days short of a full calendar year, while 1915 was a full year of 365 days.

On comparing the figures given in the Memorandum for 1913 with those for 1915, it will be seen that in England alone the amount distributed from the central pool amongst Insurance Committees for medical benefit (of course not including the "domiciliary" sixpence) was £437,597 less in 1915 than it was in 1913, though 1913 was three days short of a full year. This represents a decrease in the insured population of 1,117,386 persons. We are not told whether the whole of the central pool was distributed for 1915, but in any case it is understood that a proper adjustment will be made in the settlement for 1916 when the necessary data become available. The Commissioners admit that their system may require alteration as conditions change, and they make the following very important statement: "For instance, it may prove that the number of permanently incapacitated persons entitled to medical benefit will have so increased owing to the war that the excess charges paid by societies in certain cases will no longer compensate for the absence of charges where a card is not surrendered," and the Commissioners accept full responsibility for determining "as accurately as is humanly possible the sum of money which is due from societies to the doctors." It should be clearly understood what this means. It simply implies that the Commissioners will do what lies in their power to see that the national bargain between the Government and the profession is kept. That may be all that the Commissioners are empowered to do, but it does not touch the further question whether that bargain will continue, or even now continues, to be fair in view of the much higher sickness incidence resulting among the insured owing to the war, as soldiers, either disabled or with damaged health, are returned to the panel lists. The present Memorandum may be read with a certain amount of satisfaction, but the profession should not lose sight of the fact that there is nothing in it—possibly nothing could be put into it—to assure adequate remuneration for the increased work which will be imposed on the panel doctors owing to the raising by the war of the sickness incidence among the insured.

Turning next to the distribution of the central pool among Insurance Committees, while deploring the undoubted inflation of the index registers, the Memorandum states that it is probable that there is about the same degree of inflation throughout the country and that it hardly lies in the power of any one Insurance Committee to get its register into any appreciably better condition than the average, as the causes of inflation are so widely spread over the kingdom. That being so, the central pool may with fairness be divided among the committees in proportion to the numbers on their index registers, and this is what is done under the present system. In 1913 the central pool for England was credited with the proper sum on 10,654,854 insured persons, and the total pool was £4,491,021. But the total index registers showed 10,951,483 names, which according to the above figure is too many by 296,629. If, then, the register of a particular committee contains 500,000 names, it is assumed to be inflated in the same proportion as the total inflation, and the committee will receive $\frac{500,000}{10,951,483}$ of the total pool—that is, it gets £205,041. Delay on the part of societies in notifying new entrants does not, it is contended, affect the central pool, as, according to the system, the pool is credited on the basis of the stamped contribution cards returned for the first half of the year. But some doubt may still be felt whether the Commissioners have satisfactorily shown that particular Insurance Committees are not often prejudiced by delay on the part of local officials of societies resulting in their index register being less than it ought to be, so that such a committee obtains a smaller proportion of the central pool than it ought to receive.

The Memorandum deals finally with the distribution by Insurance Committees to individual doctors. The financial provisions of the doctors' agreement are quoted, and it is stated that the doctors' lists are inflated owing in the main to the same causes as lead to the inflation of the index registers. Especially is the inflation of the doctors' lists increased since the war began, as so many enlistments have not been notified to Insurance Committees or even to societies.

"A doctor cannot, therefore, arrive at his remuneration merely by multiplying the number of insured persons nominally on his list by 7s." Theoretically exact payments, taking account of the exact number of days per annum each doctor is at risk for each insured person on his list, cannot be expected so long as it is impossible to take an elaborate nightly census of the whole insured population. It is admitted that insured persons suspended from medical benefit may, owing to the omission by approved societies to notify Insurance Committees, have received treatment after the date of their suspension, but the Commissioners believe that such cases must be rare and cannot be avoided by any tightening up of machinery, and state that steps are being considered to deal with this difficulty, and that no effort will be spared to secure that societies duly observe their obligations in this respect.

The above outline of the Memorandum by no means does justice to it as many details of interest are here omitted, but it will probably be felt on reading the original that the final section dealing with the distribution by Insurance Committees to individual doctors leaves many points unexplained, and might well have been amplified.

THE KUT FAILURE.

It would not be easy to mention any British military operation on so large a scale, since Walcheren, which failed so completely, and at so heavy a cost in casualties, medical and surgical, as the attempt to relieve General Townshend's Anglo-Indian force besieged in Kut. An analysis published elsewhere in this issue (p. 567) of Sir Percy Lake's dispatch describing the operations from January 19th to April 30th, is somewhat fuller than those given of previous dispatches from other fronts because serious accusations have been made with regard to the failure to safeguard the health of the troops, and to make proper provision for the wounded and sick. These accusations have not spared the medical service, and early in the year there seemed to be a disposition in some quarters to make it the scapegoat. A commission of inquiry was appointed by the Commander-in-Chief in India, consisting of Sir William Vincent (an Indian judge) and the Quartermaster-General in India; to them Mr. Ridsdale, commissioner of the British Red Cross Society, was subsequently added. According to a statement made to us by Sir Victor Horsley in a letter written from Amara shortly before his lamented death, the Commander-in-Chief referred to this commission as a "medical commission"; but as it contained no medical member and having regard to all the circumstances some apprehension was naturally felt that it would not be very competent to express a sound opinion upon the cause of the defects alleged with regard to the medical arrangements. Sir Victor Horsley stated in his letter that as the result of his experience in Mesopotamia and his conversation with the Commander-in-Chief in India, he feared that the case of the medical officers in Mesopotamia might be prejudiced through the report of the Vincent Commission, and he added that the immediate cause of the appalling failures in the medical arrangements was the utterly defective transport. As the Quartermaster-General's department is that responsible for transport, it may without prejudice to anybody be admitted that the fear expressed was not unfounded.

It appears from statements made by the Secretary of State for India that the Vincent Commission in its report criticized the conduct of individual officers, but had not an opportunity of examining them. Subsequently a commission of inquiry, with Lord George Hamilton as chairman, was appointed by Act of Parliament, and is now sitting in private to inquire into the whole matter; it will have the opportunity of examining officers, and of calling for documents; among other documents it will have before it the report of the Vincent Commission, which meanwhile is not to be published. The matter being thus *sub judice* the Government has taken the course, in response to public demand, of publishing the dispatch of Sir Percy Lake, commanding the Indian Expeditionary Force in Mesopotamia, on the attempt to relieve Kut, and the tribute he pays to the energy and devotion to duty shown by the personnel of the medical service in contending with difficulties against which they had been rendered powerless to provide in advance, will be read with satisfaction by their comrades in the R.A.M.C., and by the whole profession.

Speaking of the first phase of the operations directed by him, Sir Percy Lake says that after the attack on the Hannah post all the wounded were "as far as possible" brought in during the withdrawal, "but their sufferings and hardships were acute under the existing climatic conditions when vehicles and stretcher-bearers could scarcely move in the deep mud." Things had somewhat improved at the date of the attack on the Es Sinn position at the beginning of March; the officers and subordinates of the Medical Service and Army Bearer Corps, Sir Percy Lake states, "collected and attended to the wounded under heavy fire in a manner which called forth the admiration of the whole force." In his general summary he says that the medical services in Mesopotamia were overworked and undermanned. During the advance in January divisions arrived without their field ambulances, and the first river hospital ship did not come up until February. Subsequently there was a steady increase in personnel, and that the power of the medical service to deal with the situation was considerably improved was shown by the prompt action after the attack on March 8th.

Sir Percy Lake's dispatch leaves a great deal unsaid, but the picture he gives of the difficulties of the ground, aggravated by the break in the weather, is sufficient to prove that the deficiency in transport not only on the ground over which fighting took place, but down the river, must have rendered it wholly impossible to evacuate the wounded to Basra in the manner the medical services would have desired, and to which the men were entitled. During the actual operations the level water-logged ground, the absence of cover, the heavy rain, and the constant threat of inundation from the flooding river, combined to produce a state of things in which the troops carrying only their kit were unable to advance—this fact alone gives a vivid picture of difficulties with which the medical service and its stretcher-bearers had to contend. Improvements were slow to come; matters were still very bad in July and August, but the country has recent assurances of responsible ministers that they are now, if not wholly satisfactory, at least very much better.

BRITISH MANUFACTURE OF ORGANIC CHEMICALS.

Much has been said and written on the very backward state of the manufacture of organic chemicals in Great Britain as compared with Germany, and many reasons have been assigned for our relative inferiority, such as insufficient appreciation of research by manufacturers absence of co-ordination between the work of differen

firms, and neglect by the Government. No doubt there is a good deal of truth in the various allegations that are made to account for the facts, and there is reason to hope that means are being taken, and will be continued, to remove all the contributory causes. The recent formation of an Association of British Chemical Manufacturers appears to be an important step in this direction. It is, of course, true of a very large number of manufacturing processes that they can be more economically carried out on a very large scale, and that combinations of manufacturers can therefore hold their own in most markets against smaller firms working individually; but this is true in a particular sense of chemical industry, especially the manufacture of coal-tar derivatives of which dyes and synthetic drugs are perhaps the most important branches. In this kind of work the by-products in the manufacture of one article or class of articles are the starting point for the manufacture of other classes; as an example may be mentioned the close association which has existed in Germany between the production of dye stuffs and that of such drugs as phenacetin, antipyrin, acetyl-salicylic acid, etc. In many cases also very different products are obtained from the same intermediate substances, and the manufacture of "intermediates," as they are called, is in itself a huge industry. It may be taken, therefore, that a condition necessary for successful competition with German manufacture of organic chemicals of all sorts is a much higher degree of co-operation among manufacturing firms than has hitherto prevailed among British concerns. First among the objects of the new association is "to promote co-operation between British chemical manufacturers." Other objects of scarcely less importance are the development and financing of research, the improvement of methods of education in chemistry, the foundation of scholarships and lectureships, and the task of placing before the Government the views of manufacturers on matters affecting the industry. The association aims at being British in the wider, imperial sense, a British individual being defined as a British subject who is habitually resident within the limits of the British dominions, including protectorates and British spheres of influence. It is, of course, important that an association of this kind should in actual fact include all the principal firms, and should be in a strong financial position. We understand that the firms already included in the new association have an aggregate capital of some twelve or fourteen millions, and as the minimum subscription is 25 guineas a year and increases *pro rata* with the capital of the subscribing firm up to a maximum of 250 guineas, it appears to be assured of an income sufficiently substantial to enable it to do much useful work. At a recent meeting of the Textile Institute held at Leeds University, Professor Perkin is reported to have said, "With real energy and determination, but not otherwise, we shall be able to succeed in about ten years." Many other prominent organic chemists are associated with Professor Perkin in assisting the development of the dye industry in this country, and if the work is carried on in the spirit indicated by the remark just quoted, there is good ground for hope that success will be obtained. The manufacture of synthetic drugs will, no doubt, progress hand in hand with that of dyes, and in due course we may hope that not only will the more important products of this kind be manufactured in this country on a scale adequate to our needs, but that new drugs of value will be the outcome of increased research. British medical men have been more than sufficiently pestered in the past by appeals on behalf of a host of new German synthetics, only a small proportion of which have finally proved to have real therapeutic value, and there is room for a considerable suspicion that many of them have been placed on the market and artificially boomed in order to create an outlet for what would otherwise have been waste products. We hope and believe that in the development of British manufacturing organic chemistry there will be no attempts to put products on the market until they have really been thoroughly tested and proved of value, and this will not be one of the least of the subsidiary advantages of the development of the industry in this country.

THE PUBLIC HEALTH IN WAR TIME.

In the annual report of the Local Government Board for 1915–16[1] a notable example of economy is afforded. The report itself is contained in a few pages instead of occupying a bulky volume, but its value is not diminished by the necessary condensation. The incidence and treatment of tuberculosis continue to occupy attention, and accommodation has been steadily increased. Already there are 11,227 beds available in 288 institutions. More than half of these have been provided by voluntary bodies. Tuberculosis dispensaries, on the other hand, have been mainly established by local authorities, and would appear also to be steadily on the increase. It is eminently satisfactory to find that due provision is being made for the treatment of soldiers of all ranks who have been invalided on account of tuberculous disease, and in a later part of the report it is stated that special means are now being adopted to detect the presence of the disease at the outset of the military career, and to prevent, by means of notification, the enlistment of men deemed liable to develop any form of tuberculosis under the stress of military service. The cost of treatment has usually been divided between the local authority and the Board, where soldiers have been concerned, but for the general service of local dispensaries and the provision of beds it has been found advisable to make payments in accordance with estimates rather than to regard the actual amount expended, but this method of payment will cease when more accurate returns of expenditure have been received. Agreements with local authorities have been only for short terms, for the most part, as it is obvious that the whole system will have to be moulded in accordance with acquired experience as time goes on. Liberal grants were made for capital expenditure up to July, 1915, but have ceased as from that date. Of infectious diseases other than tuberculosis, measles has assumed a prominent place. Local outbreaks interfered very seriously with military training about a year ago, and led to the order for compulsory notification. Much has been done by the agency of properly trained health visitors employed by local authorities to secure all possible measures of isolation and effective nursing, and the matter has been energetically taken up by the Central Council for District Nursing in London. Its methods and the rules it has laid down will doubtless be found useful in the guidance of similar effort elsewhere. In another direction the system of home visitation has been found to be most efficacious. Skilled and sensible advice given to young mothers before and after confinement must have an influence for good in preventing infant sickness and mortality, and the vast importance of safeguarding the first years of life at the present time has led to the extension of the visiting system to children up to school age. It is most satisfactory to learn that the number of untrained midwives is steadily diminishing, and that, by the increasing ministrations of educated and sympathetic women, knowledge and common sense are taking the place of ignorance and superstition.

THE FRENCH CHILD AND ITS EDUCATION.

At a meeting of the Child Study Society on October 12th, presided over by Sir James Yoxall, M.P., a lecture was delivered by Mr. Cloudesley Brereton, divisional inspector under the London Education Authority, on the subject of the French child. In spite of Rousseau, he said, the child was a very late discovery in France, and there was a

[1] Forty-fifth Annual Report of the Local Government Board, 1915–16. Part III: Public Health, Local Administration, Local Taxation and Valuation. Price 2d.

surprising lack of child literature of the Kipling or Molesworth type, and of poetry of the Stevenson type. The French child, the lecturer said, was extremely precocious in the good sense; he ascribed this maturity of mind to the fact that in so many families there was but one child, who was consequently more dependent on his parents for society than was the child who had brothers and sisters. If Peter Pan was a child who never grew up, the French child was one who was never young, and from a very early age it had an archness and artfulness, again in the good sense, which were not observed generally in English children. He did not believe that French children or French people were ultimately cleverer than English, but the English took longer to develop. The French boy of eighteen had the same maturity as the English young man of twenty-five, but in physique the French lad was often inferior to his comrade of the same age on the other side of the Channel; this the lecturer ascribed largely to the cutting down of school games and sports since 1870 in order that what were thought to be more useful branches of education might be developed under pressure, and thus the French people get intellectually square with the Germans. English education the lecturer thought to be over-analytical, tending to the worship of isolated facts and details, whereas the French considered things as a whole, synthesizing first and analysing afterwards. The defects of French education were insufficient accuracy as regards facts, a tendency to become superficial, and some disposition to lay undue stress on tradition. If France could only double the number of its children, at least in those cases where there was only one child in the family, it would mean a recovery for the nation of that imaginative adventure which at present, for various reasons, was discouraged. It will not be without interest to add that in the *Morning Post* of October 14th M. Henry Bérenger, secretary to the Senatorial Army Committee, gave an interesting account of the foundation and growth of the boys' clubs for preliminary military training. They were first established in France in 1880, but it was not until fifteen years later that they were put on a satisfactory footing. By 1900 there were about eight hundred clubs with 32,000 members. The boys were instructed in gymnastics, jumping, running, putting the weight, Swedish drill, and, later, elementary boxing and fencing. They were also trained in the use of the rifle and in shooting. A few of the clubs (about eighty) were riding clubs and trained for the cavalry, and there were a few air clubs. When the war broke out over half a million men had passed through these clubs. They have done very well, and have furnished many non-commissioned officers. All the clubs were broken up by the war, but the principle was revived by General Gallièni: the preliminary training of the classes of 1915, 1916, 1917, and 1918 has been entirely carried out by the clubs, and artillery clubs have now been added. The Senate has passed a bill to make preliminary military training obligatory for French boys, but it has not yet come before the Chamber of Deputies. At first most of the boys were drawn from the working classes, but since the war began middle class boys have also joined clubs which have undertaken military training in clubs and colleges.

NELSON'S EGERIA AND THE "TEMPLE OF HEALTH."

October 21st, the anniversary of Trafalgar, reminds us of the death of Nelson, and the name of Nelson inevitably recalls that of his Egeria, Lady Hamilton. The career of this extraordinary woman who, born in the gutter, became the wife of a British Ambassador, the friend and confidante of a queen, a leader of society in Naples, and the mistress of our great naval hero, does not concern us here. What interests us is her association with James Graham, one of the vilest impostors in the history of quackery. In her early life she is said to have been the High Priestess of the Temple of Health on the Royal Terrace, Adelphi, where Graham lectured on generation and sold "aetherial" and "balsamic" nostrums. Emma Lyon, as she then called herself, may not have actually played the part of "the rosy athletic and truly gigantic Goddess of Health and Hymen" who posed on the "celestial throne" in that shrine of indecency, but it is pretty certain that she was employed in some doubtful capacity by its hierophant. James Graham was born at Edinburgh in 1745, and studied medicine there under Monro *primus*, Cullen and Black, but it is uncertain whether he took a degree. He practised for some time in Philadelphia, where he learnt enough about Franklin's discoveries in electricity to put them to profitable use on his return to Europe. In his temple he used every device to excite the faith of his devotees. The entrance hall was adorned with crutches and other discarded adjuncts of past invalidism. Seekers after health were welcomed by sweet airs from a concealed band which were wafted to their ears through small openings in the steps of the stairs, while heady perfumes breathed around them. The lectures were delivered in the "Great Apollo apartment," which was decorated with festoons, gilt and silver ornaments and mirrors reflecting innumerable lights. They were always introduced by music, and at the end those present received electric shocks from conductors hidden underneath the covers of the seats. When they were thus worked up to the highest pitch of credulity, a gigantic spectre rose through the floor and handed them bottles containing the "aetherial balsam." The "service," as it might be called, was brought to a close with song by a beautiful woman representing the Goddess of Music. Finally, sufferers from various affections were treated by electricity. One of the greatest attractions of the Temple of Health was a "celestial or magnetico-electrical bed," in which couples desirous of offspring were, for the "compliment of a £50 banknote, permitted to partake of the heavenly joys it affords by causing immediate conception, accompanied with soft music." Graham's lecture "On the generation, increase, and improvement of the human species" is a mixture of quackery and obscenity, naked and unashamed, seasoned with blasphemy. It is only fair to him, however, to say that at a time when personal cleanliness was much neglected he insisted on this as a condition of health. He also anticipated modern teaching as to fresh air, and urged people to sleep with their bedroom windows wide open. "This," he says, "is my own invariable custom, summer and winter, even in the wettest, coldest, and stormiest weather; and I never, never have a cold, low spirits, or any indisposition whatever." He preached temperance at a time when heavy feeding and drunkenness were almost universal, even in what was called polite society. His career in London came to an inglorious end in 1782. Towards the end of his life he turned to religion, passing through that phase to insanity. He died suddenly at Edinburgh in 1794, at an age more than a century short of the "hundred and fifty stout, healthy, and happy years" which, with the help of his "rejuvenating medicine," he expected to live.

JEREMY BENTHAM'S "AUTO-ICON."

The wishes expressed by Sir Victor Horsley in regard to the disposal of his remains will recall to many old University College men the will of the utilitarian philosopher, Jeremy Bentham, by which he directed that his body should be used for dissection. He entrusted to Dr. Southwood Smith, in conjunction with two other friends, the execution of this disposition. It was the fulfilment of a long cherished intention, for in 1769 he had made a will leaving his body to his friend Fordyce for the same purpose. In that document he explained the reason for his action as follows: "This my will and special request I make not out of affectation of singularity, but to the

intent and with the desire that mankind may reap some small benefit by my decease, having hitherto had small opportunities to contribute thereto while living."[1] He died in 1832, at the age of 85, and by a memorandum affixed to the document two months before his death he deliberately confirmed the wish expressed when he was 21. In making this disposal of his body Bentham was inspired by the philanthropic wish to lessen the popular prejudice against dissection. At the time of his death the Anatomy Act had not yet been passed, and the crimes of Burke and Hare were fresh in the memory of the public. Dr. Southwood Smith delivered an oration over the body in the Webb Street School of Anatomy on the evening of June 9th, 1832. One who was present thus described the occasion: "None who were present can ever forget that impressive scene. The room is small and circular, with no windows but a central skylight, and was filled, with the exception of a class of medical students and some eminent members of that profession, by friends, disciples, and admirers of the deceased philosopher, comprising many men celebrated for literary talent, scientific research, and political activity. The corpse was on the table in the centre of the room, directly under the light, clothed in a nightdress, with only the head and hands exposed. There was no rigidity in the features, but an expression of placid dignity and benevolence. This was at times rendered almost vital by the reflection of the lightning playing over them; for a storm arose just as the lecturer commenced, and the profound silence in which he was listened to was broken, and only broken by loud peals of thunder which continued to roll at intervals throughout the delivery of his most appropriate and often affecting address." Among Bentham's unpublished works is a fragment, now in the British Museum, entitled *Auto-Icon or the Uses of the Dead to the Living;* the materials were arranged in December, 1831, but he added passages as late as May, 1832. The object of this curious essay is to show how, if embalmed, every man might be his own statue. Bentham says: "If a country gentleman have rows of trees leading to his dwelling, the auto-icons of his family might alternate with the trees; copal varnish would protect the face from the effects of rain—caoutchouc the habiliments." We do not know whether those who had charge of Bentham's remains found inspiration in this suggestion. At any rate his auto-icon in the form of his skeleton dressed in his habit as he lived is preserved in the Museum of University College.

THE DELINEATION OF INTERNAL ORGANS.

Much general interest has been manifested in the account already published in the British Medical Journal (September 30th, p. 459) of Dr., now Captain, J. Shearer's work in connexion with the delineation, by electrical methods, of certain organs of the human body. The medical profession will, we are sure, warmly appreciate the statement which we are authorized to make that Captain Shearer has been afforded by the military authorities greatly increased facilities for the prosecution of his work, and that a physicist of high repute, as well as certain clinical medical officers, are now definitely associated with him in his investigations. We hope to publish next week, or in an early issue, a full account of the results which have been obtained up to date.

The Acting Registrar of the General Medical Council is informed that an Order of the Privy Council, postponing the elections of Direct Representatives, which would otherwise fall to be held before the end of the year, may be expected in a few days.

[1] *Dr. Southwood Smith: A Retrospect.* By his granddaughter, Mrs. C. L. Lewes. Edinburgh and London: William Blackwood and Sons. MDCCCXCVIII.

Medical Notes in Parliament.

War.

Pensions and Allowances: Discharged Disabled Soldiers.

The Prime Minister stated on October 17th that the Committee of the Cabinet recently appointed to consider all questions of pensions and allowances had reported and he hoped to make an early statement.

On the same day Lord H. Cavendish-Bentinck asked a question, of which he had given private notice, as to the present practice of discharging soldiers before everything had been done that medical and surgical science could do for them, a practice which entailed great hardship on the discharged soldier; whether the army authorities would assume responsibility in future for the duty of restoring the soldier to health as far as possible; and whether, in the event of the army authorities being unable to undertake this duty, the Statutory Pensions Committee, or some other body, would be equipped with an adequate and competent staff for the purpose. Mr. Forster said that he was not prepared to make any detailed reply, but could say that the matter had received, and was receiving, sympathetic attention. In reply to a question by Mr. Percy Harris (Paddington) on the same day, Mr. Hayes Fisher said: "The agreement with reference to the treatment of disabled men after they are discharged from the service is, of course, subject to the necessary funds being provided, and in the supplementary answer that I gave to the hon. member for Stockport on October 10th I stated that the scheme had yet to receive the assent of the Treasury. The scheme covers England, Scotland, and Wales. Other arrangements are in progress with regard to Ireland. Before the scope of the scheme can be settled or its operation commenced the decision of the War Office as to the extent of the use of military hospitals must be ascertained and the full co-operation of the department and of the Admiralty must be secured."

The Financial Secretary to the War Office has stated that men supplied with artificial limbs had not to pay anything towards their improvement, and that the repair of limbs, damaged through no fault of the soldier, was paid for by the State. It was true that some men paid for a limb of higher finish than that supplied by the department, but a more expensive limb was not necessarily better. There was no substantial improvement for the extra expense. The department had endeavoured to get more expensive limbs supplied at lower prices. The limbs supplied to officers were superior only in the matter of finish.

The Financial Secretary to the War Office has stated that he will consider the question whether hospital authorities should be required to notify local pension committees as to soldiers discharged, so that their addresses can be known, but is reluctant to throw any additional work on the hospital authorities.

British Prisoners of War.

In reply to questions addressed to the Under Secretary of State for Foreign Affairs on October 11th, Mr. J. Hope, Treasurer of the Household, said that complete information as to the whereabouts of all British prisoners captured in Mesopotamia had not yet been received. The United States Embassy had been requested to press the Turkish Government to supply the full list of the British prisoners of war in Turkey at the earliest possible date. In reply to another question, the Financial Secretary to the War Office said that 537 British officers and 11,641 of other ranks were now estimated to be prisoners in the hands of the Turks; 439 Turkish officers and 9,751 of other ranks had been captured by British forces. Negotiations were in progress for the exchange of those incapacitated for further service.

The German Government, Mr. Hope stated, had not yet permitted the inspection of camps containing British prisoners of war working in Russian territory; the only report in the possession of the British Government was one by Captain Draudt, of the Prussian Ministry of War. It was not in accordance with the information received privately, and the British Government could not be satisfied except by an independent neutral report for which it gave facilities in the case of British camps. The latest

reports from the United States Embassy at Berlin showed some improvement in the treatment of British prisoners of war in Germany. Mr. Forster stated on October 17th that the number of German prisoner camps in Great Britain and Ireland was 42, including working camps. The number of camps for British prisoners of war in Germany could not be stated, as it was constantly varying, and no camp was exclusively reserved for British prisoners. Mr. Hope stated on October 12th that no definite reply had been received to the last proposal, dated September 19th, for the exchange of prisoners over 45 years of age either from the German or Austro-Hungarian Government. [It has since been announced that 600 British prisoners over 45 years of age interned at Ruhleben are to be sent home.] The Danish Government, as announced in the House on August 10th, had offered to receive invalid British prisoners of war, and had been thanked for its generous offer; it was understood, however, that ample accommodation was still available in Switzerland, the only difficulty encountered in the arrangements in force being that of inducing the German Government to transfer all the British officers and men entitled to the privilege. In these circumstances it was felt that it would be premature to extend the arrangement to other neutral countries, but should the accommodation in Switzerland prove insufficient the kind offer of the Danish Government would be reconsidered. An agreement had been arrived at with the Bulgarian Government for the exchange of incapacitated prisoners of war. The Under Secretary of State for Foreign Affairs said that as any question affecting the release from detention of any belligerent subject had a bearing on our military position and must be determined by military conditions, questions dealing with the exchange and repatriation or internment in neutral countries of prisoners of war, civilian or military, would in future be answered by the Secretary of State for War.

Mr. Forster stated that the number of German prisoners of war in British hands was, according to the latest return:

Military officers	729
Other ranks	36,165
Naval officers	150
Other ranks	1,976

The approximate net number of British prisoners of war now interned in Germany was:

Military officers	923
Other ranks	28,770
Naval officers	47
Other ranks	361

Mesopotamia.—The Secretary of State for War stated on October 17th that the force in Mesopotamia had been supplied with all the dentists and dental mechanics for which it had asked, and the Army Council had been quite recently informed by cable that no more were required. The Financial Secretary to the War Office has stated that the total number of prisoners at Kut who had been accounted for was about 2,850 of all ranks; this total included natives of India, and also those reported as exchanged or dead. Those traced were distributed over some sixteen places. Though information was scanty, it was believed that those in the camps were fairly well treated. In reply to a question on October 17th, Major Astor was informed that the deficiencies in the equipment of certain military hospitals in Madras had been of a temporary character, and had now been repaired.

Milk, Meat, and Bread.

On October 17th a debate on food prices was raised in the House of Commons on the second reading of the Consolidated Fund (No. 5) Bill. Special attention was directed to the question of the supply and price of milk by Mr. Barnes and Mr. Anderson (Labour members), and by Captain Bathurst and Mr. G. Lambert (representatives of agricultural districts).

In his reply, the President of the Board of Trade said that the chief reasons for the price of food going up were the restriction of production, the narrowing of markets, the difficulties of carriage, the inflation of the currency, and an increase in the consuming capacity of the people, which in a great many districts had been large. The Departmental Committee had realized, as the Board of Trade had realized, that it was exceedingly difficult to regulate the price of food. The accusation against farmers of turning milk into cheese was not altogether well founded; the percentage increase in the price of milk since the outbreak of the war was 39, and in the case of cheese 52. If it were shown that any farmer was withholding cheese from the market the Board of Trade would not hesitate to order a prosecution, but it might be that Cheshire farmers in transferring some of their milk to make cheese were really doing good for the community. The production of milk must be made remunerative to the farmer. When cows ran dry farmers might decide to sell them for beef, and he regretted that it was true that some dairy farmers had already reduced their milking herds. This was a grave danger for the children of the country, but in following this course the motive of the farmers was not only the desire for profit, but the difficulty of getting milkers. The War Office had made arrangements which, it was hoped, would ensure to the farmers the men necessary for the production of milk. He agreed that it ought to be made an offence wilfully to destroy milk, but he was not prepared to accept at once the proposal to fix a price for milk; persons engaged in the milk trade should realize, however, that the Government had its eye on them. With regard to meat, a great deal had been done to prevent undue slaughtering, and there were more live animals in the country to-day than at the beginning of the war. The question of providing more refrigerating tonnage had been under consideration for the last twelve months, and some of the difficulties attending the financial adjustments had already been overcome. It was obvious that where there was much less meat to be sold the working charges per lb. must be higher, and that was one of the main explanations of the increase in the retail price of meat. The total purchases of meat made by the Government amounted to sixty million pounds sterling, and this country was supplying not only its own forces, but the Italian and French armies also. The profits of the merchants were strictly limited and the unnecessary middleman had been eliminated, so that the meat was handed over to the merchant under very rigid conditions and should go out to the retail traders without further profits being made. Sugar was cheaper in this country than in America. With regard to wheat, the Government had begun secret purchase in October, 1914, and before the secret leaked out three million quarters of wheat and large quantities of flour had been handled, so that the margin was kept up right through 1915. The whole of the firms engaged in the Indian wheat trade were turned into Government agents and paid a commission; in this way two and a half million quarters of wheat were brought from India. He hoped that the efficiency of the Wheat Commission would go on increasing as it gained experience. It was a mistake to ascribe the great rise of foodstuffs to the increase in freights. The increase in the price of meat was from 4d. to 5d., of which three-eighths of a penny represented the increase in freights; American bacon was 8d. to 9d. a lb. higher, but the freight was only ½d. higher; Canadian cheese was 4d. to 5d. a lb. higher, but the freight was only ½d. higher. It had to be remembered that the actual loss by enemy action and by marine risks since the war began came to pretty nearly three million tons dead weight, and the Allies had suffered in the same way. The rationing of Germany and Austria had been a vast undertaking and had led to an enormous number of evils, and if applied in this country those who would suffer first were persons with fixed incomes, fixed occupations, and fixed residences. The policy of the Government was to provide plenty of food and to see that it was brought here under conditions which would allow no one to exploit it or become unduly rich at the expense of the consumer.

On October 12th, in reply to Mr. Barnes, Mr. Runciman said that with a view to enabling dairy farmers to meet the strain of work during the winter, the further calling up of their men for military service had been deferred, and it was expected that they would respond by offering their milk on terms which would not involve any further rise in retail prices. Subsequently Mr. Acland stated that no more men from among those now employed in agriculture would be called to the colours until January 1st, 1917, and no more men whose whole-time employment on a holding was necessary for maintaining milk production until April 1st, 1917. The military authorities had, however, strongly impressed on the Board that army requirements necessitated the power of revision during January next as regards ordinary farming and during April as regards dairy farmers.

The Vote of Credit.—In the debate which followed the great speech by the Prime Minister on October 11th in moving the fourth vote of credit for the service of the financial year—a vote for £300,000,000, raising the total for the year to £1,350,000,000—an attack was made upon the Quartermaster-General's department, with special reference to the purchase of supplies and the army clothing department. In his reply the War Minister said that he hoped within a very short time to tell the House that the army clothing department had been placed upon a footing which would be satisfactory to every business man. [It was announced on October 7th, that Lord Rothermere, formerly Sir Harold Harmsworth, had been appointed Director-General of the Royal Army Clothing Department, and had assumed control under the Quartermaster-General.] The department of the Quartermaster-General had had to improvise, Mr. Lloyd George said, largely upon a very narrow foundation, a huge enterprise. Any department under such conditions would be liable to make some mistakes; at the same time he thought it would be admitted that never in any war had the army been better fed, better clothed, or better looked after. Since the Quartermaster-General had taken over the administration of affairs in Mesopotamia there had been considerable improvement, largely due to the energy and impetus which he had given to the organization there. Later in the debate Mr Lloyd George said the War Office was considering very carefully the best method of reorganizing the Volunteer Training Corps. The scheme, which would be completed very shortly, would not only redress all the obvious grievances, but would give the whole country a sense of satisfaction, strength, and confidence.

Petrol Supply.—Sir J. Spear asked whether there was any prospect that the Board of Trade would shortly be able to secure a larger supply of petrol for public use. Mr. Runciman said that he was advised by the Petrol Control Committee that if the present rate of importation of motor spirit into this country was maintained, the supply would probably be sufficient to meet requirements for the war and other essential needs. In reply to other questions, he said that the number of communications received by the Petrol Control Committee up to date was approximately three-quarters of a million. The committee had issued 292,250 licences for the quarter ending October 30th. The amount of licence duty received was £116,900. As the staff became accustomed to the work the task of responding to all communications was being more expeditiously discharged.

Cocaine.—In reply to questions by Mr. Hogge on October 11th, the Home Secretary said that the exemption which allowed unregistered dental practitioners to purchase solutions containing 0.1 per cent. or more of cocaine had been extended to October 31st, but he was satisfied that there was no need to extend the exemption beyond that date, as other efficient local anaesthetics would be available in sufficient quantities. He was advised that it was in no way necessary to apply the restriction to registered dentists, because all of them were known from the very fact of registration, but any person could call himself an unregistered dentist and could obtain a supply of cocaine if the restriction were not in force. Mr. Hogge asked whether a large number of the 1,600 registered dentists were not qualified, but got on the *Register* when legislative provisions were made with regard to registration. Mr. Samuel replied, "they have a recognized status."

Chlorine Gas.—Mr. Chancellor is exercised because he thinks that the expenditure on certain experiments on chlorine gas made for the Medical Research Committee should be investigated by the Auditor-General. Mr. Roberts pointed out that the expenditure of the committee was made from moneys provided by Parliament under Subsection (2) (*b*) of Section 16 of the National Insurance Act, and that the accounts came before the Controller and Auditor-General, who would make such observations as he thought fit upon them to the Public Accounts Committee in due course.

AT the monthly meeting of the Central Midwives Board, on October 5th, a letter was read from Lord Knutsford respecting the desire of the London Hospital to be allowed to modify Rule C 1 (1) (*c*). The request was that, instead of the obstetric physician delivering the prescribed twenty lectures, the rule should be held to be complied with if he gave fifteen and the senior resident accoucheur thirteen. The Board, last July, declined to accede to the suggestion and now decided to inform Lord Knutsford that it was unable to alter its decision. Five applications were granted under Rule B 1 (*a*), whereby candidates wishing to enter for examination may furnish a statutory declaration in lieu of a baptismal or birth certificate. The Sassoon Maternity Hospital, Poona, was approved as a training school.

THE WAR.

MESOPOTAMIA DISPATCH.

JANUARY 19TH TO APRIL 30TH, 1916.

THE dispatch of Lieutenant-General Sir Percy Lake, commanding the Indian Expeditionary Force in Mesopotamia, from the time when he assumed command on January 19th, 1916, to April 30th, was issued as a supplement to the *London Gazette* on October 10th. It relates the unsuccessful attempts to relieve Kut.

The period is divided into three phases: the first, from January 19th to 23rd, concerns the unsuccessful attempt to force the Hannah defile by the force under the command of Lieutenant-General Sir F. Aylmer; the second, from January 24th to March 10th, a period of rest and reorganization, followed by an unsuccessful attempt to outflank the enemy's right in the vicinity of the Dujailah Redoubt, commander Sir F. Aylmer; the third, from March 11th to April 30th, including a brief period of preparation, followed by the attack and capture of the Hannah and Falahiyah positions; failure to force the Sannaiyat position, and the fall of Kut; the commander of these operations was Lieutenant-General Sir G. F. Gorringe.

The Turkish position at Sheikh Hassan had been carried after severe fighting on January 6th, 7th, and 8th, and after an action on January 13th and 14th on the Wadi river the enemy had retreated to the Hannah position. The general position on the Tigris front on January 19th was that the bulk of General Aylmer's force was encamped on the left bank of the Tigris above the Wadi river, and the advanced troops were in touch with the Turks entrenched at the Hannah position. General Aylmer was actively engaged in reorganizing his force for a further advance with the least possible delay.

Sir Percy Lake makes the following general observations on the condition of things at that time:

"The difficulty experienced in pushing up reinforcements, supplies and munitions of war to the front seriously affected the operations.

"The number of steamers available in January, 1916, for river transport purposes was practically the same as when in June, 1915, the first advance up the Tigris took place. Additional river craft had from time to time been demanded, as augmentations to the force in Mesopotamia were decided upon, but owing to the peculiar conditions which vessels intended for the intricate navigation of the Tigris have to satisfy, the provision of these vessels was a difficult problem, necessarily entailing long delays, and the supply was never able to keep pace with the requirements of the force.

"In consequence of this it was never possible during the period now under report either to concentrate at the Tigris front the whole of the forces available in the country or to equip such forces as could be concentrated there with sufficient transport to make them mobile and enable them to operate freely at any distance from the river.

"It was always necessary, therefore, for General Head Quarters to balance most carefully the flow of reinforcements and supplies, so that the former should not outrun the latter."

Phase 1.

During the first phase, from January 19th to January 23rd, the weather was extraordinarily unfavourable. Heavy rains from the river in flood converted the ground on every side into a bog; the bridge across the Wadi was washed away several times, and the boisterous winds greatly interfered with the construction of a bridge across the Tigris, here some 400 yards wide. It was necessary to ferry artillery to the right bank. On January 20th the enemy's position at Hannah, on the left bank, was bombarded, and during that day and the following night the infantry pushed forward to within 200 yards of the enemy trenches. The attack next morning failed, though it got within 100 yards of the enemy's lines. Heavy rain began to fall, and continued throughout the day, so that when the attack was renewed at 1 p.m. the ground was a sea of mud, rendering rapid movement impossible. This attack also failed under the heavy and effective fire of the enemy, which inflicted severe losses. The troops maintained their position until

dark, and then withdrew to the main trenches which they previously occupied, 1,300 yards from those of the enemy.

"As far as possible all the wounded were brought in during the withdrawal, but their sufferings and hardships were acute under the existing climatic conditions, when vehicles and stretcher-bearers could scarcely move in the deep mud."

The losses on this day were heavy, the ground was a quagmire, and the troops exhausted. On January 22nd an armistice of six hours was arranged in order to bury the dead and remove the wounded to shelter. Sir Percy Lake expresses his admiration of the courage and dogged determination of the force, which for days bivouacked in driving rain on soaked and sodden ground. "Three times they were called upon to advance over perfectly flat country, deep in mud, absolutely devoid of cover upon well-constructed and well-planned trenches, manned by a brave and stubborn enemy approximately equal in numbers. They showed a spirit of endurance and self-sacrifice of which their country may well be proud." General Townshend reported from Kut on January 25th that as regards food supplies he could hold out for another eighty-four days, that is to say, until April 21st.

Phase 2.

The remainder of January and the whole of February were occupied in preparations for resuming the offensive. The force had been obliged to commence its advance with temporary brigades, divisions, etc., for divisions and brigades, the units of which knew each other, had been broken up to meet the difficulties of transport on the long sea voyage, and there had been no time after arrival in Mesopotamia to await belated units, and in many cases field ambulances arrived after the combatant units. Formations were reconstructed and reinforcements were pushed up from the base by steamer and route march, and organization and training were carried on at the front. On the left bank, at the end of February, the enemy, who had been reinforced, held the Hannah position. It was decided to attack on the right bank as a first step towards the relief of Kut before the flood season, expected about the middle of March, when it was feared the Turks would cut the bunds and so flood the country, the whole area of which was so flat that there was hardly any portion which could safely be said to be above flood level. It was decided not to wait for further reinforcements, but to advance with the maximum force for which land transport could be made available, with two days' food and water, against the Es Sinn position, which rested on the Dujailah Redoubt. Adverse weather conditions at the beginning of March arrested any movement until March 7th. Two columns under Generals Kemball and Keary were formed and by a night march reached a position on the enemy's right flank, apparently undiscovered. Keary's column was in position at daybreak on March 8th to support Kemball's attack, but the latter did not reach the selected point until more than an hour late, and three hours' delay then occurred. When the advance was made it was held up by concealed trenches 500 yards from the Redoubt; at this time the engineer officers reported that the water supply contained in rainwater pools was insufficient and could not be increased by digging. A further assault was then made on the Redoubt, but failed. The troops had now been under arms for some thirty hours, and the enemy's position next morning being unchanged General Aylmer, finding himself faced with a deficiency of water, decided upon the immediate withdrawal of his forces to Wadi, which was reached the same night.

Of the manner in which the wounded were evacuated Sir Percy Lake writes: "The evacuation of our wounded had preceded our retirement. The first parties of wounded reached Wadi at 4 p.m. on March 9th, and the last wounded man was attended to in hospital at that place at 2 a.m., March 10th. The Corps Commander speaks in high terms of the gallantry and devotion displayed by officers and subordinates of the Medical Service and Army Bearer Corps during the fighting. They collected and attended to the wounded under heavy fire in a manner which called forth the admiration of the whole force."

Phase 3.

On March 15th the Tigris came down in heavy flood, and for the remainder of the month there was a strenuous struggle with the inundations to prevent the whole country being flooded. As it was ascertained that the Turks were in a position to flood the right bank, it was resolved to make an attempt to advance up the left bank and to attack the Hannah, Falahiyah, and Sannaiyat positions. The attack on the Hannah position on April 5th by the 13th Division was successful, as was also an attack on the Abu Roman mounds on the right bank by the 3rd Division. During the evening the Falahiyah position was carried by the 13th Division, which suffered some 1,300 casualties during the day. An attack by the 7th Division on the Sannaiyat position on the morning of April 6th failed. During the night of April 5th and throughout the 6th the river rose steadily, the wind changed to the north, and the positions were flooded. An attack made by the 13th Division on the Sannaiyat position on the night of April 8th failed. It was then decided, having in view the urgency of reaching Kut if possible, to attempt to force the enemy's right. This involved establishing communications across flooded areas, where there was no such thing as a road and no material for making a road. In spite of the most difficult conditions, and often with a shortage of rations which the transport was heavily strained to bring forward, the troops under the command of Major-General Keary made steady and consistent progress until checked by a counter attack, in which the enemy suffered heavy losses. Another attack on April 20th and 21st on the Sannaiyat position after a preliminary success was driven back. "By mutual consent parties went out, under the Red Cross and Red Crescent flags, to collect their respective wounded. The Turkish casualties appear to have been very heavy, as they were evacuating wounded until nightfall. Our casualties amounted to about 1,300."

Persistent and repeated attempts on both banks had thus failed, and it was known that at the outside not more than six days' supply remained to the Kut garrison. The troops were nearly worn out, and had "for eighteen consecutive days done all that man could do to overcome, not only the enemy, but also exceptional climatic and physical obstacles—and this on a scale of rations which was far from being sufficient in view of the exertions they had undergone, but which a shortage of river transport had made it impossible to augment. The need for rest was imperative."

The dispatch, after relating the failure of the gallant attempt of the *Julnar* to get up to Kut with supplies on the night of April 24th, states that "with the failure of the *Julnar* there was no further hope of extending the food limit of the garrison of Kut. Everything that was possible with the means to hand had been attempted. The troops only desisted from their efforts when, through battle losses, sickness, and exhaustion, the limit of human endurance had been reached. On April 29th Kut surrendered."

On April 30th and following days, by arrangement with the Turkish Commander-in-Chief, all the more serious among sick and wounded of the garrison of Kut were handed over in exchange for an equivalent number of Turkish prisoners.

The concluding paragraphs of the dispatch contain the following tribute to the work of the medical service:

"The energy and devotion to duty shown by the personnel of the medical services deserve commendation. Overworked and undermanned as they were during the advance in January—for the greater portion of the medical organizations then in the country had been shut up in Kut, and the medical units of the 3rd and 7th Divisions had only begun to arrive—they did their utmost with the means at their disposal to alleviate the sufferings of the sick and wounded. With the arrival in February of the first river hospital ship *Sikkim*, and a steady increase in personnel, their power of dealing with the situation was considerably improved, as the action on March 8th showed.

"No report on the medical services would be complete without reference to the splendid services rendered by Mr. T. A. Chalmers, of Assam, who brought out, and himself drove, his specially designed motor boat *Ariel*. He spent his whole time, frequently under fire, in conveying sick and wounded between collecting stations, field ambulances, and river hospital craft in a manner which no other boat in our possession could have imitated."

The Financial Secretary to the War Office stated in the House of Commons on October 11th that since the end of July,

when the War Office took over control, there had been a large increase in the river transport available in Mesopotamia. The increase was already 64 per cent. and would shortly be 100 per cent. The whole system had been reorganized, and there was ample transport available to take up promptly all the medical stores required.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Captain T. L. Ingram, R.A.M.C.

Captain Thomas Lewis Ingram, R.A.M.C., attached to the Shropshire Light Infantry, who was returned as missing about a month ago (British Medical Journal, September 30th), was killed on or about the night of September 16th while searching for wounded in front of the enemy wires. He was born in 1875, the eldest son of Mr. Thomas Lewis Ingram, barrister, of the Middle Temple, and educated at Cambridge, where he graduated M.A., and at the London Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1903. After filling the posts of house-physician and assistant house-surgeon at the Poplar Hospital, and senior house-surgeon at the Westminster Hospital, he went into practice at Welford, near Rugby, where he was medical officer of the fifth district of the Lutterworth Union, and of the Welford district of the Market Harborough Union. He served with the Middlesex Yeomanry in the South African war, gaining the medal with three clasps. He took a temporary commission as lieutenant in the R.A.M.C. on September 14th, 1914, was promoted to captain on completion of one year's service, received the Military Cross on September 6th, 1915, and the D.S.O. on May 31st, 1916.

Captain A. W. Venables, R.A.M.C.

Captain Aubrey William Venables, R.A.M.C., has been reported as killed in action early in October. He was educated at St. Mary's Hospital, London, and, after taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1913, filled the posts of house-surgeon and house-physician at that hospital. He took a temporary commission as lieutenant in the R.A.M.C. on September 1st, 1914, and was promoted to captain on completion of a year's service.

Died of Wounds.

Lieutenant W. S. Lacey, R.A.M.C.

Lieutenant William Stocks Lacey, R.A.M.C., died of wounds on October 11th. He was the only son of Mr. William J. M. Lacey, L.D.S.R.C.S., of Hertford, and was educated at Guy's Hospital. He took the L.D.S. R.C.S. in 1908, the M.R.C.S. and L.R.C.P.Lond. in 1912, and the dental degree D.M.D., of Harvard University in 1913. He was in practice with his father at Hertford, and received his commission as temporary lieutenant on January 3rd, 1916.

Wounded.

Captain A. A. Atkinson, R.A.M.C.(S.R.)
Captain F. L. P. G. Bennett, R.A.M.C.(S.R.).
Captain H. B. German, R.A.M.C. (temporary).
Captain W. L. Hutton, Canadian A.M.C.
Captain W. R. Pagan, R.A.M.C. (temporary).
Captain P. Poisson, Canadian A.M.C.
Captain J. C. Pyper, R.A.M.C.(S.R.).
Captain R. J. Rogers, R.A.M.C. (temporary).
Captain L. B. Stott, R.A.M.C.(T.F.).
Lieutenant R. N. Craig, R.A.M.C. (temporary).
Lieutenant H. F. Johns, R.A.M.C. (temporary).
Lieutenant G. J. McGorty, R.A.M.C. (temporary).
Lieutenant E. E. T. Nuthall, R.A.M.C. (temporary).
Lieutenant A. J. R. Taylor, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Addison, Geoffrey, Canadian Expeditionary Force, elder son of Dr. W. B. Addison, Isles of Scilly, killed September 26th, aged 22.

Bell, David Hunter, Lieutenant (acting Captain) Canadian Scottish, second son of Dr. John William Bell of Edinburgh, was killed in action on October 8th. He was educated at George Watson's College, Edinburgh, and before the war was engaged in the Vancouver branch of the Canadian Bank of Commerce.

Browning-Paterson, N. A., Captain R.F.C. (erroneously ranked as lieutenant in the official announcement), younger son of Dr. A. Browning Paterson, of Uxbridge Road, W., aged 22, who was reported missing on July 21st last, is now officially reported as killed in aerial action while leading a patrol well over the German lines. He accompanied the first Expeditionary Force in August, 1914, as second lieutenant, R.A., taking part in the retreat from Mons and subsequent battles, and was mentioned in dispatches by Viscount French. He was transferred in France to the R.F.C. as observer in September, 1915, and was gazetted flight commander on July 3rd.

Davison, Robert, Lieutenant King's Liverpool Regiment, only son of Dr. J. H. Davison of Belfast, killed recently, aged 20. He was educated at Coleraine Academy, enlisted in the Royal Irish Rifles at the beginning of the war, got a commission on November 27th, 1914, and had been at the front for sixteen months.

Hair, Donald Campbell, Second Lieutenant King's Own Shropshire Light Infantry, son of Dr. Hair of Leamington, killed October 3rd.

Hall, Norman de Havilland, Second Lieutenant Suffolk Regiment, younger son of Dr. de Havilland Hall of Wimpole Street, died on October 7th of wounds received on October 3rd, aged 28.

Hardwick, Gerald Leslie, Trooper Canadian Cavalry, third son of Dr. Hardwick of Charing, Kent, killed on September 26th, aged 28.

Speer, Alfred Henry Templeman Loraine, Lieutenant Royal Field Artillery, attached Royal Flying Corps, elder son of Dr. Speer, of The Priory, Great Malvern, and of Powyscourt, Belcombe, Sussex, reported missing on July 9th, now known to have been killed on that date, aged 22. He was educated at Malvern, where he was in the O.T.C., and at Trinity College, Cambridge; enlisted in the Public Schools Battalion at the beginning of the war, got a commission in a London Territorial battalion of the R.F.A. on September 24th, 1914, and joined the Royal Flying Corps in January, 1916. He was at the front from March last till July, when his aeroplane was shot down by the enemy and he and his observer were killed. His commanding officer reported that "he was a gallant soldier, a fine flyer, and a most fearless fighter."

Spreat, Leicester Hulke, Second Lieutenant Royal Horse Artillery, youngest son of Mr. F. A. Spreat, F.R.C.S., of Oakleigh Park, Whetstone, Middlesex, died in the London Casualty Clearing Station on October 8th of wounds received on the previous day, aged 19.

Stewart, James Aitchison, Lieutenant Royal Flying Corps, who died in hospital at Havre of wounds received on October 7th, aged 26, was the elder son of Dr. Robert Stewart of Edinburgh. He was educated at Edinburgh Academy and Edinburgh University. For three years he held a commission in the 7th Royal Scots, which he resigned in May, 1914. On the outbreak of war he received a commission in the King's Own Scottish Borderers, but was subsequently invalided home from the front with rheumatism; later he was transferred to the Royal Flying Corps.

Medical Student.

Brew, Cyril Huleatt, Lieutenant Irish Guards, aged 22, the youngest son of Dr. Brew, of Chew Magna, died at Rouen on October 12th from wounds received on September 15th. He was educated at St. Winifred's, Kenley, and Bradfield College, Berks. When the war broke out he was a third-year medical student at University College and had passed the second M.B. examination at the University of London. He joined the Public Schools Corps in September, 1914, and received a commission in the 14th battalion of the Sherwood Foresters in the following November, being transferred to the Irish Guards in May, 1915, and served with the second battalion. He went to France in September, 1915, and was promoted to lieutenant in November, 1915.

England and Wales.

War Work at the Manchester University.

Announcements of the work of the coming session at the Manchester University show that a considerable amount of work is being undertaken specially with a view to war conditions. A special staff under Professor Dixon is to be engaged in the testing of high explosives made in the Manchester area, and another special staff under Professor Lapworth will be engaged in testing coal-tar products. Evening classes, too, are contemplated for workpeople in metallurgy, and public lectures are to be given on Monday evenings on war problems. The laboratory of the Physics Department will give a large space to the Admiralty branch of investigation and research, while the workshops and laboratory of the Engineering Department will be mainly taken up with Government work, especially with aeronautical research and experiments, and the testing of various inventions. It is expected that there will be further increase in the number of woman medical students. During the past year the war work of the women students has included service in hospitals, while in the vacation over forty were engaged on farms, and the volunteer ambulance detachments have met several hundred hospital trains. The Officers Training Corps

is also very active, and the cadets are now required to give ten hours weekly to military training. Considering the great depletion of teaching staff and students, the university is showing most commendable activity in its war service.

LIVERPOOL MEDICAL INSTITUTION.

At the opening of the session of the Medical Institution on October 12th the new President (Dr. Charles J. Macalister) delivered an inaugural address, but before doing so mentioned the names of Dr. Francis W. Bailey and Dr. M. J. Mahony, who have received the D.S.O., and Dr. S. W. McLellan and Dr. G. Macleod, to whom the M.C. has been awarded. These medical men are members of the Medical Institution, and those present warmly approved of the congratulations the President, in their name, bestowed upon the recipients. The subject of the address was "The welfare of the child." At the outset Dr. Macalister pointed out that, from a national point of view, it was a most important problem, and one which would require, not only the energies of the medical profession but of all those kindred associations of philanthropic endeavour for many years to come, owing to the losses entailed by the war. He passed in survey all that had been done in pre-war days by various agencies, which Liverpool was one of the first communities to call into existence. But much more, especially in the way of prevention and of raising the standard of health, was necessary —nay, imperative. He laid great stress on the improvement of the hygienic conditions under which the apparently healthy offspring of the masses were brought up, and pointed out that the physical condition of many children, not necessarily requiring medical treatment *in sensu stricto*, could be and ought to be ameliorated by paying greater attention to the surroundings in which they live, move, and have their being. Dr. Macalister considered that the campaign against venereal diseases would fructify and materially influence the mortality of children, not to mention the number of children that never become viable. He adumbrated a scheme with a central bureau having for its object child welfare. Children would be brought to this centre, the various defects and ailments carefully sifted, and the parents advised upon the course they should pursue. He foresaw that increased hospital accommodation would be necessary, and also various rest homes, preferably in the country. He cited the excellent results that had been achieved in the Country Hospital for Children at Heswall, and the Leasowe Hospital for Crippled Children. Institutions were needed where the health of children who had suffered by town life and unhygienic environment could be restored, and by better surroundings be maintained when they returned to urban life. The address was punctuated by applause, and the hearty vote of thanks proposed by Dr. T. R. Glynn and seconded by Dr. E. W. Hope, and acclaimed by his audience, showed how much it had been appreciated. Afterwards Dr. Macalister entertained the members at a conversazione with refreshments.

WELSH HOSPITAL FOR MAIMED SOLDIERS.

Lord Tredegar has expressed his intention of presenting to the committee of the hospital for maimed soldiers at Cardiff the freehold of the houses the leases of which were recently purchased. He has also given £1,000 to the comforts fund. At a conference with the Cardiff technical instruction committee last week Lieutenant-Colonel Lynn Thomas expressed the hope that the committee would co-operate in the work of training wounded men. Excellent work of that nature was being done at Rouen, and there would be room on the site for the erection of the necessary workshops. The chairman said that Principal Coles was investigating the matter, and Dr. G. N. W. Thomas and Mr. F. W. Blower said that the existence of such a hospital would be of great advantage in the future to South Wales colliers who were unfortunate enough to lose a limb. A letter has been received from Major-General Sir Francis Lloyd, chairman of the Queen Mary's Convalescent Auxiliary Hospital at Roehampton, expressing the pleasure with which his committee had learnt of the progress of the plan to establish a hospital in Cardiff for limbless sailors and soldiers in connexion with the Queen Mary's Hospital at Roehampton.

Scotland.

AT a meeting of the Edinburgh Botanical Society on October 12th it was resolved to print the list of members and to expunge from it the names of all alien enemies.

The new educational block added to the Edinburgh Royal Institution for the Education of Deaf and Dumb Children was opened by the principal of the university on October 13th. To it all educational work has been transferred. This has rendered it possible to add to the dormitories and to provide a commodious dining hall and cookery demonstration room. By the use of folding glass panels six of the twelve rooms in the new building can be transformed into what are practically open air classrooms, a plan upon which Sir J. A. Ewing congratulated the directors.

WOMEN MEDICAL STUDENTS AND EDINBURGH UNIVERSITY.

On October 10th the great change, it might almost be called revolution, in the teaching of the women medical students in Edinburgh took place quietly and apparently without a hitch. The arrangements were in the main carried out along the lines indicated in the JOURNAL (July 8th, p. 58, August 5th, p. 196, and September 9th, p. 370), and considering the shortness of the time and the difficulty of obtaining labour the university authorities are to be congratulated on the success which has attended their efforts to provide suitable accommodation within the walls. A sitting-room has been found, and an office for the women students, where Miss. Garden Blaikie, M.B., Ch.B., acts as assistant to the Dean of the Medical Faculty. In most of the systematic classes the women students are taught alongside of the men, but in all the practical classes the tuition is given separately. The clinical classes are, for this session, being carried on as before. In two of the systematic classes, however, materia medica and midwifery and gynaecology, the women are being lectured to apart from the men students. The teaching in materia medica is being given by Dr. John Orr, M.D., F.R.C.P.E., who has been teaching for some years in the extramural school; for the present session he is acting as lecturer in the department of materia medica to women students in the university. Dr. J. W. Ballantyne, who has lectured each session for many years to the women students in a separate class outside the university, has been appointed for the present winter to act as lecturer in the department of midwifery to women students within the walls. Dr. Freeland Barbour, the university lecturer on gynaecology, will duplicate his course of lectures on that subject, teaching the men students in the morning and the women in the afternoon. By these arrangements the dislocation of class hours has been reduced to a minimum, and the smooth working of the new system has been almost if not entirely secured.

It is impossible as yet to give completed figures of the women students who have thus been added to the university roll. The number attending the Edinburgh School of Medicine for Women in the past summer session was roughly 170. This number was, of course, reduced by the number of women who took degrees or diplomas in July. Further, it included a few women who were studying not for the university degree, but for the triple qualification of the Royal Colleges, and it is understood that some, or perhaps all, of them, are continuing their work in the extramural school. The number 170 is therefore subject to these two deductions. On the other hand, at least 57 new students have joined the classes this winter, making, with the new comers of last summer (23), a total of 80 women for the first year. The total number at present studying in the university medical classes is 201, and to this total a few additions may be made when the enrolment is complete. It would seem, therefore, that the change into the university has certainly not checked the numbers coming forward, although it cannot be affirmed that an equally large number would not have joined if the teaching had been continued outside the walls. If the teaching had been continued in the extramural school, it is quite certain that additions would have had to be made to some of the premises in which it was being carried on.

Whilst, therefore, the university is to be congratulated on the accession to its strength in students and to the

facility with which a large change has been carried through, it must also, in fairness, be pointed out that the Extramural School has suffered to the extent of the deductions which have in the meantime been made from the numbers of students attending its classes. Possibly, as time passes, a readjustment will tend to take place, and the women students, like the men, may find it useful or advantageous to take some of their classes outside the university. It may be well for both the university and the Extramural School if this happens, for one of the strongest features in the Edinburgh teaching has always been the choice of lecturers which the existence of the two (and sometimes more) institutions permitted and provided. For the present session, at least, the extramural classes will probably be seriously depleted. The extramural lecturers who gave the teaching in the Edinburgh School of Medicine for Women have suffered in connexion with their commitments for the winter, including the rents for their classrooms, the salaries for their assistants, etc. It is understood that the University Court in view of the change in its procedure respecting the teaching of the women medical students, with the consequent disturbance of the lecturers who formerly carried on the teaching, have set aside a sum of money which may to some extent recoup them for the financial losses they may have sustained and help to meet any commitments which they may have for the present session. It was doubtless the university's action which led the lecturers of the women's school to withdraw their application (in July) for a continuance of university recognition as such.

MINERS AND DOCTORS' FEES.

A report of the results of a conference of the Colliery and Public Works Surgeons' Committee for Scotland and the executive of the National Union of Scottish Mine Workers, held in Edinburgh on August 25th, was published in the JOURNAL of September 2nd. At a meeting held in Glasgow on October 10th between the Surgeons' Committee and the executive of the Scottish Colliery Engine and Boilermen's Association, the following agreement was arrived at:

That it is agreed between these bodies that the rate for medical attendance upon the dependants of the members of the Scottish Engine and Boilermen's Association should be at the rate of 3d. per week, inclusive of medicine, and 2½d. per week per worker, exclusive of medicine. That the medicine be supplied in accordance with the custom prevailing in the counties of Lanark, Renfrew, Dumbarton, Stirling, West and East Lothian, where the rate shall be 3d.; and that in the counties of Fife, Clackmannan, Kinross, and Mid-Lothian, where it is not the custom to supply medicine, the rate shall be 2½d. It was further agreed that the arrangement be terminable on a month's written notice on either side, that the agreement be intimated to the collieries, and should if and when possible be made to extend to Ayrshire. It was also agreed that if mechanics employed at collieries wish to have the benefit of the arrangement they should be included. The method of collecting the deductions will, as formerly, be through the colliery offices.

Ireland.

THE Gorey Guardians have rescinded, by eight votes to seven, their previous order authorizing prosecutions against twenty defaulters in each dispensary district, notwithstanding the Local Government Board's letter warning them that any members voting against vaccination would be made special defendants in a High Court proceeding.

The Sanitary Committee has recommended the Kingstown Urban Council to adopt a scheme for maternity and child welfare. It is proposed to appoint a nurse at a commencing salary of £65 a year, increasing by annual increments of £2 until a maximum of £105 is reached. They also advise the appointment of a medical officer at a salary of £25 a year, increasing by annual increments of £1 until the maximum of £45 is reached. The Local Government Board will contribute half the magnificent salaries.

At the last meeting of the Public Health Committee of the Dublin Corporation Sir Charles Cameron reported that during August and September a number of cases of typhoid fever had been notified, and it had been ascertained that some of the patients had partaken of cockles and shellfish. Posters had been displayed in the streets warning people not to eat cockles uncooked.

Another hospital ship reached Dublin on October 7th from Havre, carrying 397 wounded soldiers; 137 were admitted to Dublin hospitals, and special hospital trains took 120 to the Curragh, and 140 to Belfast.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

At the annual meeting of the Royal Academy of Medicine in Ireland the following were elected to fill the various offices for the ensuing year:

President, R. D. Purefoy; General Secretary, J. Alfred Scott; Secretary for Foreign Correspondence, Sir John Moore.

Medical Section: President, H. C. Drury. Surgical Section: President, W. Taylor, P.R.C.S. Obstetrical Section: President, Gibbon FitzGibbon. Pathological Section: President, E. J. McWeeney. Section of Anatomy and Physiology: President, D. T. Barry. Section of State Medicine: President, W. A. Winter.

ACUTE ANTERIOR POLIOMYELITIS.

At the last meeting of the Castlerea Board of Guardians Dr. P. Donnellan, M.O.H. Ballinlough Dispensary District, reported that he had at present under treatment eight or ten cases of poliomyelitis, and that there had been one death. An order was made on Dr. Donnellan's application, calling on the people of the district to have their houses lime-washed. Owing to the occurrence of cases of the disease in the Glenamaddy District, the Rural Council intends to enforce compulsory notification.

BALLINASLOE ASYLUM.

The Committee of Management of Ballinasloe Asylum has voted an annuity of £104 a year to the widow of the late Dr. Kirwan, medical superintendent, and has appointed Dr. John Mills, who had been for twenty-three years assistant medical officer, to the vacant post. On emerging from the board room he was seized by the patients, who carried him shoulder high through the corridors amid great cheering. Dr. Mills was Honorary Secretary to the Irish Committee of the British Medical Association for some years before the Irish Office was opened; he also acted as secretary of the co. Galway Local Medical Committee until the outbreak of the war, when he joined the Royal Army Medical Corps. The unanimous election of Dr. Mills has caused much satisfaction to his Irish colleagues, with whom he is very popular, and at whose disposal he has always placed his very able services in their struggles for fair treatment. Dr. Ada English, second assistant, was elected assistant medical officer at a salary of £260 per annum with allowances.

Correspondence.

THE SOLDIER'S HEART.

SIR,—With reference to recent correspondence in the BRITISH MEDICAL JOURNAL on "the soldier's heart" or "disordered action of the heart," a perusal of the following figures taken from the Annual Report of the Sanitary Commissioner with the Government of India for 1913 may be of interest:

	Strength for 1913 in India.	Admissions to Hospital, Disordered Action of Heart.
British army	70,755	226
Indian army	131,512	38
Civil prisoners	108,286	21

I am unable to quote figures for other years as more reports are not easily available to me, but these figures are sufficient to show that the disability is much less common amongst the natives of India than amongst Europeans living under better sanitary conditions in the same climate and doing the same amount of physical work. As goitre and diseases of the thyroid are very common in the Indian hills, I think it very probable, if hyperthyroidism was a cause of this disorder, that the population of the Indian and frontier hills would soon cease to exist, as the conditions of life are so hard in the hills that no man could suffer from "soldier's heart" and live. The Government of India think so little of goitre that recently an order was published directing that public

follower recruits were not to be rejected for small goitres alone. I have sent several men with small goitres to Mesopotamia; so far, none have been invalided with disordered action of the heart. The mouths of the majority of Indians are septic; by septic I mean that, with little trouble, pus can be expressed from between the gums and teeth of the lower jaw without taking into consideration any other part of the mouth. My experience is that if men suffering from goitre and septic mouth are placed under good sanitary conditions and given good food and plenty of work, their disabilities will clear up in a very short time. One cannot help thinking that the answer to the question, What is the cause of soldier's heart? is to be found in the diet. In India there are roughly two populations, Indian and European; the European eats from two to five meals each day, whether hungry or not; the two meal people eat meat at each meal, the other people eat meat or animal food at least thrice, often five times, a day; the Indian eats once or twice, or when appetite demands, daily. Their staple diet is whole grain stone-milled flour with a little curry, etc., for flavour. Practically one can say that the whole of native India is vegetarian. It is true that some castes eat meat, but they rarely do so more than once or twice a week.

There are two points I would emphasize: (1) The Indian eats when his appetite demands; (2) Indian food is absolutely natural—that is, no edible part of the grain, fruit, vegetable, or sugar is removed when prepared for food.—I am, etc.,

F. W. COTTON,
Major R.A.M.C.

Lahore Cantonment, Sept. 12th.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

Instruction of the Young.

SIR,—I was intentionally "unconvincing" on percentages for this reason: I believe that educated public opinion revolutionizes tone. I judge by various tests, among which are complexion, physique, and bearing; what is said to me by boys, old boys, and parents; and many instances in which boys, sometimes quite young, sometimes themselves with "pasts," have taken on their own initiative strong action against imported infection. Hence my plea for the extension of educated public opinion, and for the wider co-operation of the medical profession. But in a matter like this I know that belief is not knowledge, and I do not venture to dogmatize.

It would not be possible here to answer in detail the inquiry of "Daddy M.R.C.S."; I would do so privately if he cared to write to me through your office.

I think there is a risk in giving instruction in sex physiology to very young boys; I have known cases where a mother's well meant efforts led to disaster. I think that 15 or 16 is generally young enough for that, unless through the keeping of animals or otherwise a boy's curiosity is stimulated and he wants to know; few things are more dangerous than unsatisfied curiosity. Earlier I endeavour to impress on him that the subject is very important, that he has the right to understand it when he likes, that the boy who will talk about it is a person to avoid, and that present safety for him lies in "don't talk and don't touch."

Incidentally, especially if a boy has reached 13 or 14 without instruction, it will often come out in conversation that he has gone wrong; these cases are included in the 24 per cent. I believe, though again I cannot be sure, that to know, as he often does not, the harm involved helps him to recover. I do not think there is much, if any, risk involved in talking on these lines; I am certain, and do not hesitate to say so, that if there is any it is infinitesimal compared to the danger of the ostrich policy.—I am, etc.,

A PUBLIC SCHOOL MASTER.

October 1st.

MEDICAL TRADE UNIONS.

SIR,—In the year 1913 the National Medical Guild sought and obtained registration under the Trade Union Acts. In the year 1914 the Panel Medico-Political Union did likewise. Both of these had been anticipated by the Leicester Union of Medical Practitioners.

In the year 1916 two bodies of medical men, one in Yorkshire and the other in Kent, similarly sought registration. To their intense surprise these were informed that registration must be delayed pending the approval of the General Medical Council, who considered that trade union organization as applied to medical men was "derogatory."

Does the Council realize that trade union organization is the only form of organization recognized by the State for bodies of men combined to protect their interests against exploitation? Does the Council realize that funds used for such purposes can be protected in no other way? And, finally, what, if any, right has the Council to influence the Registrar of Friendly Societies in the carrying out of his duties, and why is this right suddenly assumed when we are threatened with changes in our terms of service which, as usual, are to increase our work while our remuneration still grows more and more uncertain?—I am, etc.,

GORDON WARD.

Sevenoaks, Sept. 29th.

THE POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—The main point at issue in this correspondence appears to be the Insurance Act, as to how it will be worked after the war.

It is to be expected that the country will be flooded with members of the profession seeking employment, and this opportunity will be grasped by those who are in power to bring about a whole-time service in some form or other. The Insurance Act brings to me only a small fraction of my professional income; it therefore does not much concern me what happens as far as personal gain is concerned; but this is a side issue.

The present is the time, then, for action to secure entire unity. How is this to be brought about? The British Medical Association, unfortunately, represents only a portion of the profession, and many practitioners shrink from membership in order to avoid being tied down.

Until there is complete unity the British Medical Association cannot assist the profession as a whole in the manner it would wish to do. The General Medical Council is the supreme body, possessing great powers, and governs every registered medical practitioner, and to its decision every one is obliged to bow. Registration is compulsory by the General Medical Council, and membership of the British Medical Association should be the same and subject to its influence. Then, and then only, will the much desired state of complete unity be obtained.

I can see no reason why this should not be brought about through the medium of the General Medical Council in the following way. The Council, being a statutory body restricted by the provisions of Acts of Parliament, is at the present moment unable to do as suggested, but all local representatives of the British Medical Association can through their Divisions petition the members of Parliament for their respective districts to endeavour to obtain an additional Act to grant this power to the General Medical Council.—I am, etc.,

ARTHUR M. BARFORD.

Chichester, Oct. 11th.

SIR,—Your leader on Article 3 of the new agreement sounds a much-needed warning. Here, as you ably point out, is the thin edge of the wedge, and if anything can be done to protect the profession it is now or never. Once the precedent has been established of adding special duties without extra fees we will never be able to undo it.

In so short a time it seems hopeless, in the present state of our organization, that any large amendment could be made in the new agreement; but surely a short clause providing that extra fees should be paid for all special services would be universally accepted, and, especially if backed by the British Medical Association, would be unanimously adopted by the profession as a condition of signing the new agreement. The addition to Article 3 of such a clause as the following might serve to prevent the exploitation of our profession:

Provided always that where special services are thus required, such as attendance at a consultation, making special reports, or carrying out any special treatment suggested, extra fees shall be paid for such services on a prearranged scale. The amount of such fees shall in no case be deducted from the Practitioners' Fund.

—I am, etc.,

MEMBER.

October 9th.

SIR,—Dr. Denis A. Sheahan has either misread or misunderstood my letter of September 30th, for I in no way advocated incohesion in the profession, but wished to

emphasize the necessity for local control. Conditions of medical practice vary so much that terms which may be acceptable, say, in Walsall, may be anathema in Portsmouth, and for both places to be bound by a majority rule framed in London must be against the interests of one or the other body of medical men. Freedom without order may mean anarchy, though what this has to do with my letter I do not see. How Dr. Sheahan imagines that "professional interests" does not include a strong cohesion amongst us I know not; and, by the way, he omits these vital words when quoting me the second time. Disunion is as fatal to us as it is undesirable in quotation or in anything else benefited by cohesion. What I did say was, "Strong local bodies owning loyalty to none but themselves and their professional interests." This may sound selfish, but is no more so than trade-unionism or the struggle for existence. I would see our central body—the Association, I hope—the mouth rather than the brain of the medical profession corporate; but what is to be desired more than anything at present is that the profession should descend from that pedestal of altruism on which it has rested for so long, and become a live business organization.—I am, etc.,

October 16th. ORGANIZER.

Obituary.

JOHN ROGERSON HAMILTON, M.D.Edin.,

HAWICK.

Death has laid a heavy hand upon the medical profession in the present year, not only among those engaged on active service but also among those seniors at home who at the present time have been called upon to undertake additional duties and responsibilities owing to so many of the younger generation having responded to their country's call. As briefly intimated in the Journal last week, we have now to mourn the death of Dr. J. R. Hamilton, a well-known practitioner in the south-east of Scotland. On October 7th he seemed in fair health and was out and about much as usual, but in the evening he was suddenly seized by a severe attack of angina, which terminated fatally before midnight. Thus ended a useful and active life, without the added distress of a prolonged and painful illness. Some of his friends knew that he had an aortic lesion, and early in the year he had a severe attack of influenza, with chest complications, but in May he was able to go to North Berwick to recruit. Shortly after this he returned to his home, and, though not looking well, he seemed able to resume all the threads of his accustomed active life with his usual energy. He died, however, as he probably would have wished, in full harness.

Dr. Hamilton graduated M.D. at Edinburgh University in 1878, and in the following year became a licentiate of the Royal College of Surgeons of Edinburgh. As a practitioner he was much sought after in Hawick, and in a wide country area beyond it. He held many appointments, parochial and other, in the district, and acted as medical referee for the railway company over a section of the line which entailed for him much travelling. He was greatly respected by his patients and fellow citizens, and was held in high repute by his fellow practitioners, few of whom but have benefited by his sound advice or kindly assistance at one time or another. He took a deep interest in the local cottage hospital, the Jubilee Nursing Association, and in many kindred institutions, and for several years was a much appreciated member of the Hawick Town Council.

Apart from his immediate professional duties, he devoted most of his time to active work for the British Medical Association. He had been a member of many committees, and had filled many of its offices, including the presidency of the Border Counties Branch, and, later on, also of the Edinburgh Branch. He was constantly in Edinburgh, in Perth, in London, or elsewhere on Association business, and it can only have been by working early and late that he was able to overtake the calls of a large practice. In 1910 he succeeded Dr. McKenzie Johnston as representative of the Edinburgh Branch on the Central Council in London, and he only completed his term of office in July of the present year. This entailed a great strain upon him, for in addition to the Council meetings there were many committees to attend all of which involved a long journey to London, and frequent absences from home.

For several years Hamilton acted as Chairman of the Scottish Committee, British Medical Association, and it was during the time he served thus that increased duties and activities devolved upon the Committee. He was secretary of the Section of Obstetrics and Gynaecology at the annual meeting of the Association in Carlisle in 1896.

During his term on the Central Council many important matters came up for consideration, and not the least of these were the organization of the profession and the knotty problem of the Insurance Act. While at first Hamilton was opposed to the medical details of the Bill, and was one of the Scottish Medical Council formed to combat these, he early came to the conclusion that the forces against us were too strong to contest, and he accepted what seemed to him to be the inevitable.

It is only right we should recognize that we owe to Hamilton the inception of the Scottish Emergency War Committee, and that its formation resulted from his action. At the commencement of the war he invited the Scottish members of the General Medical Council, and prominent members of other bodies, to meet him along with the Scottish Committee of the British Medical Association, with a view to promoting a committee to safeguard the interests of Territorial officers suddenly called up, and, where necessary, to provide locumtenents to conduct their practices for them. This was carried into effect, and it was only considerably later on that the functions of the committee developed, and it took on the much wider scope and activities which it now has. It is understood that his active mind had recently been engaged on a plan to provide legal assistance to look after the interests of the families of medical men killed in action.

Dr. Hamilton was a man of high ideals. In the widest sense of the term he was a straight and honest man. He was kind-hearted, genial, and helpful to every one, but specially to those of his own profession. If all his ideas did not materialize as he would have wished, yet it can be said that no man gave more willingly of his time, his strength and his energy for the benefit of his profession and of his professional brethren. His ambition was to improve the status of his profession and there is little doubt that his days were shortened by the work he undertook with this object in view.

With honour and respect, in the presence of many friends and relatives, Hamilton was laid to rest on October 10th in the Wellogate Cemetery, Hawick, at the age of 63. He worked hard, but his day's work was done!

Sympathy goes out freely to the widow and to his son, Captain J. O. Hamilton, R.A.M.C., at present on service in France. His elder son, Captain Hamilton, K.O.S.B., died gallantly last year in the trenches of Gallipoli.

OLIVE CLAYDON, M.D.Lond.,

OLDHAM.

We regret to have to record the death, on October 5th, of Dr. Olive Claydon, at the age of 40, at the residence of her father in Oldham. She was educated at the Girls' High School, Manchester, and the London School of Medicine for Women. She graduated M.B.Lond. with honours in obstetric medicine in 1901, B.S. in 1902, and M.D. in 1905. After holding appointments as resident medical officer of the maternity department of the New Hospital for Women, house-surgeon to the Chorlton-on-Medlock Dispensary, Manchester, and resident medical officer of the Edinburgh Hospital for Women and Children, she engaged in practice in Oldham, and took a large part in public work. We are indebted to Dr. F. L. Pochin, the Representative of the Oldham Division of the British Medical Association, for the following tribute to her memory:

It is impossible to touch upon all the various activities of a personality so many-sided as that of the late Dr. Olive Claydon in a short notice. But it may be possible to give some slight idea of a few of the directions in which she so generously spent her energies. When a medical student she first discovered that she was suffering from mitral stenosis, but she chose a strenuous career of

service for others rather than the sheltered life of ease which was quite within her reach. She therefore built up a very exacting and scattered practice among the women and children in her native town, and identified herself with every movement for the public welfare, and especially for that of women and children. The extent of her many charities was known only to herself, and it would certainly be her wish that no further reference should be made to them here.

Possibly one of her chief outstanding characteristics was her great love of fair play, and it was one which led up to her fearless championship of the cause of women and to the part she played in medical politics. Believing, as she did, that women could do much to ameliorate social conditions if they had the parliamentary suffrage, and that it was only fair that they should have it, she spared no effort to do her full share of work in this direction, and on one occasion she met a prominent opponent of women's suffrage in public debate in one of the largest halls in Oldham, and before a crowded audience ably countered all his arguments. At the same time she was neither militant nor smoke-dried suffragette, but was possessed of her full share of feminine gentleness and charm. It was the same sense of fair play which led her into medical politics. She saw that her profession was being forced into a bargain which it was very reluctant to accept, and she entered into the fray with characteristic enthusiasm. She represented the Society of Medical Women on the Insurance Acts Committee of the British Medical Association, and was secretary to the Oldham Panel Committee to the day of her death. She was also a member of the Oldham Insurance Committee, Medical Benefits Subcommittee, Medical Service Subcommittee, and of the Lancashire Insurance Committee. Her sound judgement, sanity, and keen interest in all the various questions under discussion will be very greatly missed by all these bodies, and especially by the Panel Committee. Indeed, her keenness was sometimes amusing. When we were about to bring some important matter before the Insurance Committee she would often beg to be allowed to "have first go," and we knew we could not do better than consent. When she was asked to give evidence before the Commission on Excessive Sickness Claims she was quite indefatigable in collecting facts on which to base her argument, and for some time before she went to London sat up until three or four in the morning sifting and classifying these facts. Her examination lasted for the greater part of two days, and she answered about 1,500 questions. She went through this ordeal with flying colours, for she had a keen sense of humour and a pretty wit, though none of her retorts ever left any sting behind them.

To her colleagues her love of the exact and literal truth was well known, and we thought she sometimes carried it to an extreme, if such a thing be possible. She was absolutely loyal to those associated with her, and whenever she was sent to represent her profession was always very eager to know when she returned whether we were quite satisfied that she had expressed our opinions rather than any she might have formed herself.

The great work of her life, however, was undertaken near its close. She felt that many sufferers from venereal disease were innocent victims, and that, in any case, it was in the interests of society that those who suffered should not be deterred from placing themselves under medical supervision through fear of losing sick benefit. She therefore did everything she could to convert the approved societies and others to this view, and it is to be feared that her exertions in this direction shortened her life. Though her last illness commenced as far back as early in last March, she very often spent twelve hours a day for days at a time in writing to urge her views on those concerned, and it was a very great joy to her to feel that her object was practically accomplished before she died. A prominent public official and personal friend of hers, in sending her some lines of George Eliot's, said: "A great sense of happiness and peace to you just now should be the feeling that you have fulfilled the lines, you have most assuredly stirred the pulse of many to greater generosity, and with persistence urged our search to vaster issues. You do not know how much you have been doing this, but you have been doing it. I shall never forget and shall never forego the new light, the new uplift, the new idealism, that you showed to me."

Those only are dead whose work and words are dead, and in this sense Olive Claydon is assured of immortality.

The memorial service, held in Oldham on October 9th, was attended by a large number of members of the medical profession and by representatives of the Oldham Insurance Committee and Charity Organization Society. Her body had been cremated at the Manchester Crematorium on October 7th.

CHAUNCY PUZEY, F.R.C.S.,

CONSULTING SURGEON, NORTHERN HOSPITAL, LIVERPOOL.

IT is with regret we have to record the death of Mr. Chauncy Puzey, which took place somewhat suddenly on October 10th at West Kirby, where he had been residing during the few months since his retirement from practice.

As surgeon to the Liverpool Northern Hospital from 1875 down to his retirement from the staff a few years ago, he attained considerable eminence in surgery. He was born in London. His father was head cashier of the Bank of England, and the name Puzey appeared on the banknotes of that period. He received his general education at the Merchant Taylors School in London, and studied medicine at Guy's Hospital. He took the diploma of M.R.C.S. in 1863, and those of L.R.C.P.Lond. and L.S.A. in the following year. Thirty years later, for his acknowledged reputation as a surgeon, and while he filled the office of president of the Liverpool Medical Institution, he was elected a Fellow of the Royal College of Surgeons of England, an honour which all his surgical friends regarded as most worthily bestowed. In 1865 he was appointed house-surgeon to the Liverpool Royal Infirmary, and during his occupancy of that office was in a position to watch the development of and to carry into practice the Listerian method. Mr. Puzey in the two addresses he delivered as president of the Liverpool Medical Institution gave his hearers an admirable and lucid survey of the earlier period of the Listerian method. He foretold in 1894 that the aseptic animal ligature would hold its ground the longest of the various improvements in the details of surgical practice immemorably associated with Lister. At the time of Mr. Puzey's house-surgeoncy secondary haemorrhage was the dread of surgeons, and he was able to see this dread abolished by the introduction of the "animal ligature." These addresses of Mr. Chauncy Puzey revealed not only his judgement as a sound surgeon but also displayed his ability to record impartially the struggles through which the new method advocated by Lister had to go before acceptance by surgeons. As a Guy's man he had been taught to rely upon torsion as the most effective measure for arresting haemorrhage, and realized in his own practice the superiority of the "antiseptic animal ligature" introduced by Lister in 1869.

Mr. Puzey made several contributions to the medical journals, and especially to the *Liverpool Medico-Chirurgical Journal*, dealing with various surgical diseases. These were all of a practical nature and typical of the author's trend of mind. He was not, nor would he have laid claim to be so regarded, a brilliant surgeon. Mr. Puzey's surgical opinion was sound, well weighed, and only determined after mature consideration. For many years he held the post of medical referee to the London and North-Western Railway, and not infrequently appeared as medical witness in cases of railway injury. It was in such circumstances that Mr. Chauncy Puzey showed his surgical judgement and testified with singular clarity of vision and precision of statement.

As a man he was of a retiring disposition and made no use of the little graces that assist men in practice. He was a staunch colleague, considerate, and deeply interested in the hospital where his life's work was done. On retiring from the active staff he was made honorary consulting surgeon and a member of the committee of the hospital. This latter appointment was evidence of the high estimate placed upon his judgement by the hospital authorities and of their anxiety to retain his services.

The funeral at West Kirby parish church was attended by many of his colleagues and friends and representatives of public institutions. His old schoolfellow and lifelong friend, the Rev. J. Bell-Cox, of Liverpool, took part in the service. Mr. Chauncy Puzey never married, but he leaves behind many sorrowing friends and a fragrant memory of a man who nobly and unostentatiously did his work, and in this it can truly be said he had his reward.

THE LATE MAJOR A. A. MARTIN, N.Z.M.C.

Surgeon-General R. Porter, C.B., whose letter is dated "In the Field, 10th October, 1916," writes:

I hope you will be able to grant me a small space to pay a slight tribute to the memory of the late Major A. A. Martin, N.Z.M.C., of whose death from wounds in action I have learnt with the deepest regret.

I first met Major Martin in September, 1914, during the battle of the Marne. He had been sent up to the corps with which I was then serving, and I posted him to the 15th Field Ambulance. It was not long before he proved his worth. Those who had the opportunity of seeing the work done by Martin in the shrapnel-swept village of Missy on the Aisne, and later in an hôpital civil et militaire behind the lines will never forget the fine qualities he displayed; whether removing wounded from under heavy shell fire to a place of safety, or performing some of the most difficult operations known to surgery under the most trying conditions, his fearless courage and fine judgement were abundantly proved.

Personally I shall never forget his surgical work in the hospital in question. The operation work which he did amongst the apparently helpless cases was magnificent, and stamped him as a skilful operator of the highest order.

Arthur Martin was one of the most sympathetic and tender hearted of men I have ever met, and still he did not know what fear was in the midst of danger. During the time he was with us a sentence in his very readable book, *A Surgeon in Khaki*, sums up his life: "The surgeon sees the seamy side of war. He comes close to the men struck down in the field—helpless, and bleeding, and in pain. He stands by them in the dark hours in hospital, and by their bedsteads when they die."

Many who worked with us in these days have "crossed the bar": none of them will be remembered more affectionately for qualities of heart and head than poor Arthur Martin.

The late Dr. Arthur Nimmo Walker.—Mr. Thomas H. Bickerton (Liverpool) writes: Sir James Barr, in his admirable appreciation of the work of the late Lieutenant-Colonel Arthur Nimmo Walker (p. 508), has instanced its progressive character. Another instance worthy of special notice was the action he took in connexion with the hospital—St. Paul's Eye and Ear Hospital—founded by his father, the late Mr. George Walker. By choosing to confine the work at St. Paul's to the exclusive treatment of the eye, Mr. Nimmo Walker brought Liverpool into line with London, Manchester, Birmingham, Bristol, Edinburgh, and Glasgow. Medical students desirous of specializing in ophthalmology can now study the subject in an eye hospital devoted to eye work in Liverpool.

Medico-Legal.

PROPERTY IN PRESCRIPTIONS.

We learn from the *Western Morning News* that at the Honiton County Court on October 9th, before his Honour Judge Lindley, Henry Le Brasseur, of Woolmer, Stow Park, Newport, sued Hinton Lake and Sons, Limited, Fore Street, Sidmouth, for failing to return a prescription by Dr. Grant Wilson, of Sidmouth, given on August 16th, 1916, or to pay for the prescription, valued at 15s. Plaintiff said his wife received a prescription from Dr. Grant Wilson, which they took to the defendant to be made up. The prescription was not returned, and the assistant said that in the case of Dr. Grant Wilson's prescriptions they had orders to keep them, unless told otherwise by the doctor. Eventually the doctor sent a copy of the prescription with his receipt. Mr. McGahey said that on August 22nd, when Mr. Le Brasseur asked for the prescription, he was informed that they would give it up if Dr. Grant Wilson would agree. The doctor, however, declined. The prescription was of no value whatever to Messrs. Hinton Lake, and they were fighting the action on a question of principle, in order to keep faith with the medical profession and Dr. Grant Wilson. Dr. Grant Wilson said he had instructed the chemists when a patient asked for a prescription to let him know, and he then gave one. He did this to protect the public, because in many cases prescriptions intended for adults were given to infants. Whenever he gave a prescription which chemists could return to the patient he also wrote on it "return to patient." His Honour held that there was no property in the document given by Dr. Grant Wilson, as it was only given to Mrs. Le Brasseur to take to the chemists to save himself the trouble. Mr. Le Brasseur therefore had no claim to the document, and the action failed, with costs.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

Autumn Graduation Ceremony.

At the autumn graduation ceremony on October 13th there was a comparatively small list of graduates; two-thirds of those in arts were women. The Vice-Chancellor said that all the male graduates in medicine were proceeding to accept service in the navy or army. It behoved all those who remained, whether as students or as staff, to have a sense of quickened responsibility for keeping alive the enfeebled and attenuated life of university education.

Degree in Education.

The ordinance establishing a new degree—that of Bachelor of Education—has been sanctioned. The degree is to be regarded as an honours one, and candidates must be graduates in arts or science of a Scottish or approved university. The course will extend over two academic years and the examination will be divided into two parts. The arrangements for the degree will not come into operation until next year.

Conferment of Degrees.

The following degrees were conferred:

M.B., B.Ch.—J. J. Ackermann, A. G. Anderson, Ahmed Aziz, A. H. de Wet Budler, E. Chapellie, J. S. Galvin, *G. W. Grant, Balkrishna Rupkrishna Handoo, T. L. P. Harries, F. J. C. Johnstone, A. C. Kirton, J. L. Lamond, C. M'Donald, Margaret M'N. M'Garrity, F. H. van der Merwe, Isabella Morison, G. A. Paris, *J. E. Phillips, J. Ratcliffe, Gokal Chand Sahgal, Satyendra Nath Seal, J. Sellar, B. H. Simon.

*With second class honours.

UNIVERSITY OF ABERDEEN.

The winter session in science and medicine opened on October 12th. Professor Ashley W. Mackintosh in addressing his class in medicine said that of the 101 graduates, students, and alumni of the university who had given up their lives in the war, 24 had been in the faculty of medicine. Those he was addressing, men and women alike, were at home because they were preparing themselves to offer the highest service to their country as fully qualified practitioners of medicine. No nobler call had ever been made on medical students. There was no room for slackers or chronics, and if any one thought that this was the time for "getting through" easily he had better at once change his supposed vocation in life.

Professor Mackintosh paid a warm tribute to Dr. Arthur Hugh Lister, who had died as truly in the roll of honour as if he had been struck down by an enemy's bullet. Lister was a physician of the first rank; he was a teacher of whom any medical school might justly be proud; he took a keen interest in all that concerned the welfare of the community and the State; and he was, as a man, loyal to the core. His colleagues, the students of Aberdeen University, and the whole north-east of Scotland, were the poorer for his loss. He had gone, but his memory and example would and must remain.

UNIVERSITY OF LONDON.

Guy's Hospital Medical School.

The following entrance scholarships have been awarded: Senior Science Scholarships for University Students: £75, William Gover, Balliol College; £35, R. B. P. Lansdown, B.A., Pembroke College, Cambridge. Junior Science Scholarships. £120, A. McKenzie, Preliminary Science Class, Guy's Hospital: Scholarships in Arts: £100, A. Y. Cantin (private study); £50, J. A. Currie, Diocesan College, Rondebosch, Cape Colony.

University College Hospital Medical School.

The two Goldsmid Entrance Exhibitions, offered annually for competition in September, were awarded this year to Mr. G. V. W. Anderson of University College, London, and Mr. A. W. Holgate of Alleyn's School and University College, London.

NATIONAL UNIVERSITY OF IRELAND.

The *Calendar* for the year 1916 contains all the academical information about the three constituent colleges of the university—namely, those at Dublin, Cork, and Galway, and the recognized college of the university at Maynooth—that such publications commonly comprise.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A quarterly Council was held on October 12th, when Sir Watson Cheyne, President, was in the chair.

Donation to the Museum.

The thanks of the Council were given to Sir John Bland-Sutton for a presentation of four skeletons of the gorilla, the skeleton of a chimpanzee, and some skulls.

Earlier Closing of the Library.

From October 16th until the end of the month the library will be closed at 5.30 p.m., and after November 1st at 5 p.m.

Annual Report of the Council.

The Council approved the annual report of the committee appointed to draw it up. The report will be presented to the

Fellows and Members at the annual meeting on Thursday, November 16th, at 3 p.m.

The report contains a list of Fellows, Members, and Licentiates in Dental Surgery who have been killed in action, or have lost their lives from wounds or disease contracted whilst on active service with H.M. Forces; they comprise 10 Fellows, 98 Members, and 3 Licentiates in Dental Surgery, and are divided among the services as follows: Royal Navy, 17; Army Medical Service, 3; Royal Army Medical Corps, 75; Indian Medical Service, 5; Overseas Contingents, 5; combatants, 6.

Jenks Scholarship.

Mr. John Sinclair Shadwell, formerly a student at Epsom College, and now at Guy's Hospital, was nominated Jenks Scholar.

Issue of Voting Papers to Fellows Resident Abroad.

A letter, dated September 16th, was read from Lieutenant-Colonel James W. Barrett, R.A.M.C., F.R.C.S., calling the attention of the Council to the disabilities under which Fellows of the College, when resident abroad, labour as regards taking part in the election of members of the Council, and inquiring whether it would be possible to arrange that nominations should be completed three months before the day of the election with a view to making possible the issue of voting papers to Fellows resident in all parts of the empire in sufficient time to permit their return before the day of the election. A committee was appointed to consider these suggestions.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C.(T.C.), in field ambulance temporarily attached to casualty clearing station, would like to exchange with officer at home, stationed in or near London. Please state particulars as to unit, station, and duties, in confidence, to No. 4200, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C., over eighteen months' foreign service, now in charge of corps troops, desires exchange with M.O. on home station, London or home county hospital preferred. Address No. 4199, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE first scientific meeting of the Zoological Society of London for the session will be held at the house of the society, Regent's Park, at 5.30 p.m. on Tuesday next.

FIFTEEN motor ambulances have been presented by a group of Americans to the field hospital service of Russia, and have gone out under the command of Dr. Philip Newton.

A COURSE of four lectures on the influence of solar, α, and radium rays on health will be given by Dr. Harry Campbell, deputy Gresham professor of physic, at Gresham College, Basinghall Street, on Tuesday, Wednesday, Thursday, and Friday next, at 6 p.m. on each day.

AT the meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Friday next at 8.30 p.m., Captain C. G. Moor, R.A.M.C., will read a paper on the work of a sanitary section at a base. Officers of the Navy or Army Medical Services and of the Indian and Colonial Services are invited to attend.

AT the end of last week two inquests were held with regard to the deaths of two women who died from poisoning from tri-nitro-toluene. The one was an examiner at a munitions factory and the other was a shell filler. Death appears to have been due in both cases to the effect of the substance on the liver. We hope to publish clinical reports on these cases.

AT the request of the National Council for Combating Venereal Disease, the Lord Mayor of London has called a meeting at the Mansion House on Tuesday next at 3 p.m. to focus attention on the need for providing adequate facilities for the treatment of venereal diseases with the least possible delay throughout Greater London. Among the speakers will be the President of the Local Government Board, the Home Secretary, and the Chairman of the London County Council.

THE Local Government Board has given notice, under the powers conferred upon it by the Parliament and Local Elections Act, which received the Royal assent on August 31st, that the next statutory elections of county and borough councillors, district councillors, guardians, and parish councillors are to be postponed for a year. In the event of there being a vacancy on the body at the date at which the election would have taken place the vacancy may be filled by co-option.

ON October 18th, at the Philharmonic Hall, a press presentation was given of Mr. Ponting's exceedingly interesting kinematograph lecture, entitled, "With Captain Scott in the Antarctic." Some of the pictures give a most vivid representation of the hardships and difficulties encountered by explorers in the Antarctic regions. Among the figures that frequently appeared was that of Dr. E. A. Wilson, the chief of the scientific staff, who died with Scott on the return journey. The pictures are excellent and often most beautiful, and their effect is reinforced by the realistic account given by Mr. Ponting, who accompanied the expedition as camera artist. In many of his pictures an element of farce is introduced by the attitudes and ways of life of that unconsciously amusing, as well as amazing, bird, the penguin.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

I. asks for suggestions for some treatment (by way of serum-therapy or drugs or otherwise) which would offer some hope of arresting the progress of internal cancerous growths considered inoperable.

THE Director, Medical Research Institute, Lagos, Nigeria, is anxious to obtain No. 24, December 30th, 1910, tome viii, *Bulletin de l'Institut Pasteur*. He will gladly give in exchange any desired number from other journals, whose titles can be had on request, or, if preferred, he will send the money.

ANSWERS.

INTOLERABLE ITCHING.

DR. LEONARD J. KIDD (London, N.W.) writes: Let "Amberley" try every night at bedtime $\frac{1}{10}$ grain of calcium sulphide well triturated with 5 grains of sugar of milk. Oil of cinnamon disguises the taste to some extent. But let him also make certain that tabes is absent, for pruritus, both general or localized in various situations, is not a very rare early symptom of tabes, and tabetic pruritus is seldom thought of, even by those clinicians who know of it existence.

LETTERS, NOTES, ETC.

"A CASE OF INTRAUTERINE SCARLET FEVER."

DR. JOHN CRAWFORD (Dundee) writes: On October 17th, 1915, Mrs. D., aged 30 (about to be confined), presented all the symptoms of a moderately severe attack of scarlet fever. On October 18th, in the evening, she was confined, with the temperature still up, and the rash general and well marked. The child (full-time) was healthy, but, according to the nurse, "seemed unwell" all that night. Desquamation proceeded *pari passu* in mother and child, and both made a good recovery. This was probably a case of extrauterine infection, though the time for incubation must have been unusually brief. But I mention it in view of the statement of Drs. Liddell and Tangye that their experience (and Osler's) is that sucklings are rarely attacked, and that no infant "so admitted locally" to hospital to be suckled by a scarlet-fevered mother has contracted the disease.

DR. F. HONE MOORE (Somersham, St. Ives, Hunts) writes: Some years ago I attended a woman with her first child. A few days after birth the nurse called my attention to a rash on the baby, followed some days after by desquamation. The mother had scarlet fever shortly afterwards and desquamation followed very profusely. My friend, Dr. Mason, of Boston (Lincolnshire), saw the case with me, and we diagnosed scarlatina. Scarlet fever was not in the place or near it, and there were no more cases after these.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
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An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

The Harveian Oration.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON ON ST. LUKE'S DAY, 1916.

BY

SIR THOMAS BARLOW, Bt., K.C.V.O., M.D., F.R.S.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS.

HARVEY, THE MAN AND THE PHYSICIAN.

Sir Thomas Barlow prefaced his oration by a reference to the chief benefactors of the College: Linacre, the first president, in whose house in Knightrider Street the first meetings were held; Dr. John Caius; Dr. Richard Caldwell, president in 1570, who, jointly with Lord Lumley, endowed the Lumleian lectureship; Dr. William Gilbert, pioneer in the study of magnetism, and president in 1600; Dr. Theodore Goulston, one of Harvey's younger contemporaries, who founded the lectureship which bears his name; Sir Theodore de Mayerne, another of Harvey's contemporaries; Dr. Baldwin Hamey Junior, also a contemporary of Harvey, a munificent benefactor of the College, who presented to it the buildings in Amen Court, and contributed to the rebuilding in Warwick Lane after the fire in 1666; the Marquis of Dorchester, an honorary Fellow, a student of physic and anatomy, who had probably gained Harvey's regard in Oxford; and Dr. Croone, one of the original Fellows of the Royal Society, to whom the College owed many valuable endowments. Finally he announced that the offer of Mrs. Eliza Streatfeild, made last June upon the advice of Sir John Tweedy to the two Royal Colleges of a sum of money for the purpose of endowment of research had been accepted, and that the deed of endowment provided for the transfer of £10,000 2½ per cent. annuities, to be known as the Streatfeild Research Fund, the interest to be applied to the promotion of research in medicine and surgery.

Turning then to the life and work of Harvey himself, Sir Thomas Barlow said: We know that the young Harvey was a pupil at the King's School, Canterbury, from the age of 10 to 15, where we may well assume that he gained the foundations of that classical knowledge which stood him in such good stead throughout his life. It was there probably that he made his first acquaintance with Virgil, whose poetry fascinated him in his later life; is it possible that he may even have begun to read Aristotle, whose influence over him was probably greater than that of any other writer, ancient or modern?

But were there no other studies than the classics which laid hold of young Harvey in his schoolboy days?

Dr. Venn, the learned President of Caius College, Cambridge, has drawn my attention to the regulations of the scholarship which Harvey obtained and which enabled him to go from King's School, Canterbury, to Caius College for six years. It was founded in 1571 by Matthew Parker, Archbishop of Canterbury, who was an intimate friend of Dr. Caius, and it is not unlikely that Caius influenced Parker in framing the conditions under which it was given. The most interesting of these is the enactment that at the university the scholar shall be educated first in subjects that pertain to or are serviceable to medicine and then in subjects which actually constitute medicine itself. Such a regulation for a medical scholarship is very remarkable and Dr. Venn considers unique at that time.

Let us consider for a moment its bearing upon Harvey and his predilections. It is not unreasonable to assume that he had already determined to become a doctor. Are we justified in any further speculations?

We know that throughout his later life Harvey was not only devoted to comparative anatomy, but that he was a keen naturalist. Dr. Norman Moore points out that in Harvey's *Prelectiones* there are references to the anatomy of no less than eighty animals. His book on generation is a mine of observations on natural history. In his Continental travel with the Duke of Lennox he complains bitterly that there was scarcely a dog, crow, kite, raven, or any bird or anything to anatomize; and when he was travelling with Lord Arundel in Germany, on the testimony of Hollar the artist, he made frequent excursions in the woods, making observations on strange trees, plants, earths, and naturals, and caused some anxiety to Lord Arundel lest he should be waylaid or murdered.

This intense lifelong devotion to natural history is usually an inborn quality, and it is by no means unlikely that in Harvey's schoolboy days it was this strong predilection that justified the authorities in nominating him to what was practically a medical scholarship. Harvey's first term at Cambridge began in May, 1593, when we are told he was admitted to the scholars' table at Caius College. Dr. Caius had been gathered to his fathers twenty years before. Dr. Legge, whom he had appointed as his successor, was of Caius' way of thinking in his Roman proclivities, and there was a stormy time in the college for a while. There is no indication that Harvey was drawn into this conflict, and it may have quieted down when he entered the college.

His tutor and surety was George Estey, who seems to have been a worthy parson and was appointed Hebrew lecturer the year after Harvey's entrance; but Harvey never refers to him.

Although Caius College had a medical reputation we find rather meagre evidence of systematic instruction in medical subjects, and this in spite of Dr. Caius having laid down certain definite plans for its maintenance. He had obtained a licence for the dissection of two bodies annually in the winter and for their decent burial. The church registers give evidence that bodies, chiefly of prisoners, were dissected. Demonstrations were given.

Dr. Venn, by reference to the Exiit Book and the Computus Book of the college, which give detailed entries respectively of the students' absences and the charges for their commons, has been so good as to furnish me with some interesting and suggestive information about Harvey's time at Cambridge. As these entries have an important bearing on the question of when Harvey left Cambridge and when he entered Padua I bespeak consideration of them. It is commonly stated that Harvey took his B.A. degree in 1597 and that he left Cambridge in 1598 and entered Padua in that same year. I think you will see that this is incorrect. He entered Padua in 1600.

The Exiit Book, which was made up half-yearly, shows that during the first three years there were no absences. This may mean that Harvey did not leave the college at all during this period or for such brief intervals as did not involve any deduction from the stipend of his scholarship. We have to remember that one month's absence for holiday was allowed by statute, and that could be taken at any time. The Computus or Account Book is consistent, for it shows that Harvey's stipend from his scholarship was very nearly sufficient to pay the cost of his commons.

But from 1596 to 1599 the Exiit Book shows repeated absences. It is clear from the dates that Harvey was away from college not less than sixteen months. Some of his absences were of two months' duration or more, and some of them a few days up to a fortnight, and from his own letter in Michaelmas, 1599, he evidently required at times a long period for convalescence. The accounts show that he only received a stipend for one quarter between Michaelmas, 1599, and Lady Day, 1600—so that his scholarship lapsed at Christmas, 1599.

We know that, like Sydenham, Harvey suffered at various times severely from gout. He complained very little of his ailments, and somewhere speaks of the help which his pathological and anatomical investigations gave him by rousing keen interest and making him forget his pains. I suggest that the absences during the last half of Harvey's time at Cambridge were probably due to attacks of gout.

Harvey took his Arts degree in 1597, but there are no details obtainable concerning it, nor about his work at Cambridge after he had taken his degree. It is significant that there are no references in Harvey's works to his Cambridge life. His poor health and the limited facilities for anatomical study may have left this period as one which he would gladly pass by. There is a categorical statement in Aubrey's *Memoirs* that Harvey bequeathed the house in which he was born in Folkestone to Caius College, Cambridge, in spite of the protest of his brother Eliab. This has been quoted again and again, but, like many of Aubrey's statements, it is untrue. Harvey bequeathed nothing to Caius College.

We may take it, then, that following in the footsteps of Linacre and Caius and of other fellows of this college, Harvey went, in the year 1600, to Padua, and not in 1598. Now it is interesting to mention that an examination of the archives of Padua, made by the university authorities at Mr. D'Arcy Power's request, has failed to reveal any mention of Harvey before 1600. To quote from Mr. Power's admirable life of Harvey, there are entries which show that at the usual time of election—that is to say, on August 1st in the years 1600, 1601, and 1602—he was elected a member of the Council of the English nation in the Jurist University of Padua. This I take to have been a sort of Students' Association.

Those of you who have been to Padua will remember, in the university courtyard, the host of memorial tablets giving the arms and name and the nationality of centuries of alumni. Two in the lower cloister are alleged to pertain to Harvey. One of them is decayed and the inscription erased, but the other is well preserved, is undoubted, and gives 1600 as the date. This agrees with the data which I have given already.

The two most interesting things at the University of Padua are the great cathedra or wooden pulpit from which Galileo addressed his class in Harvey's time, and the anatomical theatre where Fabricius demonstrated his dissections to Harvey and his fellow students. They are not far apart.

There is a capital picture of the anatomical theatre in the charming book on Harvey written by Dr. Curtis of Columbia University and published last year. Dr. Curtis points out that the tiers are really standing places with rails in front to lean upon, which rise at a very steep angle from the central pit. The arrangement now in vogue, in fact, more resembles that in our hospitals, in which students stand and look down at the operations or at *post-mortem* demonstrations, than an ordinary anatomical lecture theatre. Dr. Curtis makes the suggestive remark that "the place looks fit to have been a nursery of object teachers, for it is too small to hold a pompous cathedra, and the veteran to whose Latin the young Englishman listened must have stood directly beside the dead body."

Before we follow Harvey's further career, let us pause for a moment to consider the intellectual atmosphere of Europe when he began his course at Padua.

There had been the great revival of classical learning, followed not only by the Reformation and the consolidation of the Protestant states, but by the counter Reformation in the old Catholic countries. And there was a great ferment of free inquiry on philosophy, on the principles of government, on the polity of nations, the rights of the humbler folk, and the conduct of life. The creation and the dissemination also of our greatest literature was then in progress in our own country.

England, in spite of its insularity, always, I believe, the most tolerant and open-minded of European countries, welcomed to permanent posts many learned men from other lands. Continental travel attracted many of our countrymen, and English scholars sought illumination in those days far more in Italy than in Germany or even in France.

It concerns us most of all to ask what branch of natural science chiefly attracted educated men. I have already referred to our president, William Gilbert, the inspirer of Galileo. Galileo had been lecturing six years at Padua before Harvey went there. But we must bear in mind that, though he had many ardent disciples both in Padua and Florence, yet he had to encounter formidable opposition as well as persecution, and both his discoveries and his doctrines were a long time in gaining acceptance. Harvey himself seems always somewhat timid about the findings of astronomy, and regards them as unprovable. Astrology was still widely accepted.

Robert Boyle was not born till 1627, and the work of Torricelli and of Pascal was yet to come. The Royal Society held a few informal meetings in 1645, but did not receive its charter till 1662.

Thus, although at the end of Harvey's life physics had made great advances, at the time of which we now speak —namely, 1600—it was by no means a popular science. The chemistry of that time was dominated by unverifiable hypotheses, and it is quite what we should have expected that Harvey, according to Aubrey's statement, undervalued its experiments, and spoke against it. It was much too vague and nebulous to suit Harvey.

We have, then, to turn from the physical to the biological sciences. The subject which not only engaged the energies of some of the greatest men of that generation, but also attracted the interest of educated people, was human anatomy. Italy was the Mecca of anatomical students. At Padua itself there was a great tradition, for Vesalius, Falloppius, and Fabricius formed a brilliant succession of teachers. Dr. Caius, as we know, had not only studied with Vesalius, but had lived in the same house with him.

But with regard to human anatomy as a subject of interest amongst educated people, let me quote a sentence or two from Evelyn's *Diary*, though they relate to a time a little later than this particular date. During the troublous years immediately preceding the Commonwealth, Evelyn travelled on the Continent. Whilst at Padua he took out a short course of anatomy and physic. During a month he tells us that he saw a man, a woman and a child dissected by Veslingius, the anatomical professor, with all the manual operations of the chirurgeon on the human body. He also purchased from Veslingius's assistant some rare tables of veins and nerves, and gave orders for a third to be prepared of the lungs, liver, and nervi sexti par, and the gastric veins, which he sent to England and ultimately presented to the Royal Society. But before that presentation was actually made we find that Sir Charles Scarburgh, who succeeded Harvey as Lumleian lecturer, induced Evelyn to lend them for a time to our College for his own lectures. Scarburgh had been unable to induce Evelyn to present them to our College. They were given by the Royal Society to the British Museum and by the British Museum to the Hunterian Collection, and are now in the Royal College of Surgeons Museum. These tables are similar to those six preparations which were given to this College in 1823 by the Earl of Winchelsea. They were said to have been inherited from Harvey, and to have been used by Harvey at his lectures. That, I think, is more than doubtful.*

Thomas Hobbes, the philosopher, dissected in Paris along with his friend the many-sided physician William Petty, and at a later period Robert Boyle also dissected in Ireland under the same friendly guidance.

Descartes studied human anatomy, dissected many brains, and repeated Harvey's experiments on the circulation for himself. The Port Royalists, following Descartes's lead, repeated many vivisection experiments on the circulation. Fra Paolo Sarpi, the ecclesiastical statesman and adviser of the Venetian Republic, seems to have found time and opportunity to study anatomy to considerable purpose and even to make observations on the valves in veins. He was probably in touch with Fabricius, and we know that Padua partly depended on Venice for some of its anatomical material.

Charles I took the greatest interest in anatomy and in the numerous demonstrations, not only on the circulation of the blood but on embryology, which Harvey gave him from time to time.

But it is important to note that although the great Italian anatomists had made enormous strides in the study of structure their knowledge of function was lamentably small—in other words, physiology had not kept pace with anatomy. It has indeed been affirmed that physiology had not advanced since the time of Galen, and doubtless its inadequate progress was partly the consequence of the prevailing ignorance of physics and chemistry. But in the evolution of knowledge and of method the disproportionate study of human anatomy on its structural side must be credited with the development of observation, and so far it was a big step in the long and bitter struggle against the trammels of authority.

That was the beginning of a momentous epoch in the history of human knowledge when, on St. Luke's Day, 1600, a young Englishman, aged 22 years, rather under the average height, with raven hair, dark piercing eyes, rather sallow complexion, and with a keen, restless demeanour and rapid speech, enrolled himself amongst the pupils of the learned, laborious, and generous Fabricius. What was Harvey's exact attainment at this time in the

* I suggest for consideration whether those tables may have come into the Winchelsea family not through Harvey, but possibly through Sir John Finch (the son of Sir Heneage Finch) who was M.D. of Padua, and not only English Consul there, but Syndic of the University. He was admitted an extraordinary fellow of our College in 1652, and seems to have had for an anatomical pupil one Marchetti, who made "tables of veins, nerves, and arteries, five times more exact than are described in any author." *Vide* Dr. Edward Browne's letter to Sir Thomas Browne. *Sir Thomas Browne's Works*, vol. i, p. 91.

details of anatomy and the technique of dissection we have no means of knowing. But we have reason to believe that even then he was by no means ill equipped with ancient learning; we know that he was a keen and accurate observer and an enthusiastic naturalist, and that he had a mind reflective as to the causes and relations of things, fertile in recognizing resemblances, and, above all, ready in making working hypotheses and in devising experiments which would more or less verify those hypotheses. It was in these latter qualities that Harvey's supremacy over his teachers and predecessors ultimately became so manifest. The addition of experiment to observation was vital and far reaching. The exact relationship between teacher and pupil we do not know, but it must have been very intimate, as proved by all Harvey's references to Fabricius, not only in respect to the organs of circulation but also in respect to his observations and speculations on generation. These references are not merely respectful but reverent.

From the time when Vesalius described the valves of the heart the Italian anatomists had been keenly exercised on the valves in various parts of the vascular system, and Fabricius's discovery of the valves of the veins was as far back as 1574. But the scientific use of the imagination seems to have been dormant with these clever observers, and they were singularly inept in explaining the mechanism of the valves. Sir William Osler suggests that it was reflection on the mechanism of the valves of the veins which at this early period of his career set Harvey on the right track in his great discovery, and there is a remark of Harvey's friend Robert Boyle which is not inconsistent with that suggestion. Boyle says that Harvey's observations on "contrivances similar to the valves used in hydraulic engines for preventing counter currents led to his discovery of the circulation of the blood." Whether Boyle's remark refers to the period of study at Padua or not, it is certain from the terms of his diploma in our possession that Harvey enormously impressed his teachers and examiners with his knowledge and ability.

Harvey returned home in 1602, and after his incorporation as Doctor of Medicine at Cambridge he came to our College and submitted himself to examination as a "candidate," which title in those days I take to have been equivalent to our present designation of member.

Dr. Norman Moore has found, by consulting the *Annals*, that Harvey was examined no less than four separate times between May, 1603, and August 4th, 1604, although he satisfied his examiners on each occasion. Moreover, of his contemporary candidates he was the last to be elected to the fellowship—namely, on May 16th, 1607, he being then 29. Whether in that early period of his connexion with this College he had any opponents we have no other means of ascertaining, but he seems to have had the support of the president, Dr. Atkins, when he applied for the post equivalent to what we should now call assistant physician at St. Bartholomew's Hospital, and especially that of Dr. Wilkinson, whom he assisted and after his death succeeded.

In the literature about Harvey there is nothing more interesting than Sir James Paget's records, drawn from the *Annals* of St. Bartholomew's Hospital. The relations between the governors and Harvey are altogether honourable and creditable to both sides. I will only refer to the revised hospital regulations submitted by Harvey in 1633 and adopted. These rules show that in general medical policy Harvey was a strong conservative, and that he stoutly maintained the then existing supremacy of physicians over surgeons. The surgeon was not only obliged to consult the physician in all difficult cases, and whenever inward physic was required, but he was not to be allowed to perform any major operation without the approbation and the direction of the physician. The surgeon was not only forbidden to give inward physic, but was required to declare to the physician what external remedies he applied in any given case. The surgeon had to attend the physician in his weekly consultations in the great hall to which the patients were brought, and where both matron and apothecary attended. In those days the surgeons had to visit their patients in the wards, and the physician as a rule only went to the wards when his patients could not be brought to the hall where most of the medical work was done.

During the thirty-six years, with certain intervals, that Harvey was connected with St. Bartholomew's Hospital he must have seen a great deal of disease amongst the London poor. But his post of Court physician, first to James I and subsequently to Charles I, led to his having a considerable *clientèle* amongst the well-to-do. We know that some of the most eminent men of the time were his patients. Aubrey disparages his "therapeutic way," and maintains that although he was a great anatomist he was not much of a physician, and that after his great discovery was fully announced his practice waned. Aubrey is a very inaccurate person, but this statement may have some truth in it. It is interesting to realize that the philistine is the same in every generation in his estimates of the merits of medical practitioners as in other estimates. If a doctor proves his greatness by some purely scientific discovery which has no immediate practical application, if he distinguishes himself in literature or art, the philistine shrugs his shoulders and says that is all very well, but that such a man should be a good practitioner is impossible. Let us, then, consider some of the evidences derived from Harvey's writings bearing on the subject of his clinical experience.

In his first disquisition to Riolanus, Harvey refers to his unpublished MS. on medical anatomy or anatomy in its relation to medicine. This MS., then in Harvey's possession, has, alas! been lost, but it may yet be found. But his own references to this MS. are very relevant to our inquiry. In alluding to its contents Harvey says he "desires to relate from the many dissections of the bodies of persons diseased, worn out by serious and strange affections, how and in what way the internal organs were changed in their situation, size, structure, figure, consistency, and other sensible qualities from their natural forms and appearances, and in what various and remarkable ways they were affected." I quote this long sentence because it embodies Harvey's ideal of the morbid anatomist and shows that he belonged to the true faith—namely, that the best physicians are first of all good morbid anatomists. In this letter his illustrations are, as might be expected, chiefly drawn from the diseases of the circulatory system; he gives interesting references to aneurysms, apoplexies, and calcified arteries. In more than one place he refers to the small radial pulse on the distal side of an aneurysm of the neck. He recognized that empyema might ulcerate into the lung and discharge through the bronchi.

In his work on generation, which contains many clinical illustrations, there is a careful analytical description of the case of Lord Montgomery's son, who had an exposed heart, left bare after a severe suppurating injury to the chest, and his report of the *post-mortem* examination of Thomas Parr is a sample of the thorough way in which he made his autopsies.

In his second letter to Riolanus he shows how wide was his acquaintance with local disturbances of circulation, which he had discussed at length in the lost Medical Observations. There was one disease common in his contemporaries, and of which he had abundant experience in his own person—namely, gout. Whether he was permanently crippled is, I think, doubtful, but that he suffered severe pain, especially in his lower limbs, is quite certain. Heberden sneers at the methods which Harvey adopted to relieve what we may probably regard as attacks of localized gouty hyperaemia. But Harvey's plan of plunging his feet into a pail of cold water seems to have been justified by the results, and Heberden has the candour to admit that he lived till he was over 80 and does not appear to have died from gout, but from old age. This mode of treatment shows not only Harvey's courage, but his independence of conventional dogmas. In our own times we have learnt that the local application of cold in febrile and hyperaemic states is not the dangerous thing it was once supposed to be.

In Harvey's *Prelectiones* there are many clinical observations introduced by way of illustration. In his valuable introduction Dr. Norman Moore points out that Harvey was "familiar with scarlatinal desquamation; he had noted the enlarged liver in those who died after long suppuration, and the shrunken liver in cirrhosis." "The varying appearances of gall stones and the common shape of large renal calculi were well known to him, and he describes pericarditis and its symptoms from his own observation." It is quite true that Harvey says very little about drugs in any of his memoirs. That is not exceptional in physicians who are distinguished as morbid

anatomists. One would like to believe that when the apothecaries of that time disparaged his "bills" (as prescriptions were then called), they may have been too short and too simple to please the apothecaries. There is a report on the case of Prince Maurice when Harvey was with the King at Oxford, in which it is stated about Harvey and his colleague, Edmund Smith, that the "doctors do resolve to give very little physic, only a regular dyett and cordyall antidotes." It is significantly added that Prince Maurice did well.

But I think I have noticed occasionally that when a morbid anatomist ventures into the realm of therapeutics he may show an immense confidence in some particular preparation, and it is not altogether an exceptional incident that in a letter to his friend Hamey, which we possess, concerning the ailment of a poor woman in whom they were both interested, Harvey extolled the therapeutic value of the heel bone of the deer. Perhaps he had found it a useful way of administering phosphate of lime. But whether he gave many drugs or few, Harvey had confidence in the relief or removal of pain by "the detraction of blood, the application of cupping glasses, or the compression of an artery which leads to a part." He also used cupping glasses for the relief of asthma.

In his work on generation Harvey shows practical acquaintance with both midwifery and gynaecology. He recognized the dangers of retained secretions in the body of the uterus and showed courage and decision in dilating the cervix, and in some cases in the employment of intra-uterine injections. He had carefully studied cancer of the uterus, and I commend to my gynaecological brethren a remark which shows Harvey's shrewdness. Speaking of certain uterine troubles he says: "Women are peculiarly liable to these accidents, especially those among them who lead a luxurious life or whose health is naturally weak and who easily fall into disorders. Countrywomen and those accustomed to a life of labour do not become dangerously ill on such small grounds."

But Harvey was not unacquainted with the surgery of his day. In this same mine of clinical experience—the work on generation—will be found reference to cases of large sarcoceles, the treatment of which he had initiated by tying the afferent artery so as to limit the blood supply. He subsequently removed the tumour by extirpation with the knife or the searing iron.

Perhaps Harvey's conservatism as regards the relative status in his time of physicians and surgeons and his daring to have an independent opinion on surgical cases and even performing some operations (for in his will he left his surgical instruments to his friend Scarburgh) may have roused the antipathy of the Barbers' and Surgeons' Company. At all events, they endeavoured to convict him of ill practice in the case of an alleged fracture of the skull. There was no allegation of operation on his part, but only of erroneous opinion. But I do not gather that the Barbers' and Surgeons' Company supported their condemnation by any *post-mortem* evidence. I think we may rest content that our Harvey, who was universally admitted to be a great anatomist and naturalist, was also an experienced pathologist, a learned physician, and that he had the qualifications of a good all-round practitioner.

Harvey's Court duties were by no means strictly limited to medicine. As physician to the Court he was instructed to take two long and important Continental journeys. The first of these was in 1630, when he accompanied the young Duke of Lennox on a rather prolonged tour in which he was obliged to dodge the plague on several occasions and was greatly impressed with the impoverishment of the countries through which they travelled. The second Continental journey made at the Royal command was in 1636 when Harvey accompanied Thomas Earl of Arundel, the Lord High Marshal, on an embassy to Vienna and Ratisbon which was mainly concerned with efforts to secure the restoration of the King's nephew, the young Prince Palatine, to his proper status. About three years ago I had the good fortune to secure for this College eleven of Harvey's letters referring to a painful episode of this particular journey. Harvey's writing is very hard to read. It is the writing of a man of terse expression and who had no time to waste. The contractions are appalling. These letters are not quite so difficult as the few others which are extant, and they show that when he took pains he could make a tolerable script as well as express himself forcibly. They were written to Harvey's friend, Basil Lord Feilding, the eldest son of Lord Denbigh. Feilding was English Ambassador at Venice, and, it would appear, had invited Harvey to visit him. Harvey looked forward to this visit with great delight. There exist in the Clarendon State Papers fairly complete reports of this embassy on the official side, forwarded by Lord Arundel and his staff. It may interest you to follow Harvey's steps on this journey. Lord Arundel's reports are addressed to Sir Francis Windebank, one of the Secretaries of State for Foreign Affairs. The first is from Utrecht, in which Arundel informs Windebank that he has left his son at Leyden suffering from a stomach attack, but under the care of Dr. Harvey. They soon rejoined the party, and we next hear from Arundel at Cologne, where he says he has been this evening "at the Jesuists' fair new church and college where they used me with all civility. I found in the college little Dr. Harvey who means to convert them."

I think it is more than likely that this polemic related, not to theology, but to Harvey's doctrine on the circulation, for at the next stage, Nuremberg, Harvey writes a very courteous letter to Dr. Hoffmann, in which he tries to disabuse his mind of certain misconceptions, and offers to give him a demonstration of the circulation. This letter is included in Harvey's published works, and shows that along with his scrupulous courtesy he could usefully blend a little elegant sarcasm, for he begs Hoffmann, if he will not come to a demonstration or investigate by his own dissection, that he will not vilipend the industry of others nor charge it to them as a crime; "do not derogate," he says, "from the faith of an honest man not altogether foolish nor insane who has had experience in such matters for a long series of years."

The first and second of Harvey's letters to Lord Feilding relating to this journey were written from Lintz, to which the ambassador's party had gone on leaving Nuremberg. Here the first meeting with the Emperor Ferdinand took place. Harvey says he accompanied the Emperor on some hunting excursions. He speaks of him as a pious, good man, desirous of all love, quietness, peace, and justice! He refers to the impoverishment of the country by the thirty years' war and to the licence and oppression and anarchy which prevailed in Germany. Nevertheless they had joined in a feast given by the Count of Milan, "the chief Major Domo of his Majestie where they drunk hard and had many expressions and many good wishes." There are ominous references to the plague and the fear of it.

The next move is to Vienna, where Harvey sees the Queen of Hungary and praises her two fine little babies. Then they go to Ratisbon, where they have to await the assemblage of the Diet of the German Empire, which somewhat shadowy and dilatory body will have to discuss the questions respecting the young Prince Palatine's claims. From the Clarendon State Papers we learn that everybody in Lord Arundel's mission was excessively tired by the long delay. Harvey seems to have been terribly bored, and to have besought Lord Arundel to let him go to Italy during the vacancy, as he styles the waiting time. In one of the Clarendon dispatches there is a reference to "honest little Harvey, whom the Earl is sending to Italy about some pictures for His Majesty." This opens up a very interesting little bypath upon which other correspondence of Lord Feilding's throws additional light. Lord Arundel, as we know, was one of the great English virtuosos of that day, and was the first to collect objects of art from Italy and elsewhere. His name is chiefly associated with the collection of Greek and Roman marbles which was ultimately secured for the University of Oxford by the mediatory efforts of John Evelyn. But he was a collector of pictures also. In some of the Feilding letters there are references to the pictures which at various times Feilding acquired for the King's collection, and the Marquis of Hamilton writes to Feilding on the same subject, in which he delicately hints that Lord Arundel might take the opportunity of feathering his own nest, and that he might even forestall Feilding in some of his bargains.

At all events, the invitation to Harvey to visit Lord Feilding at Venice may well have led to the extemporized mission which was entrusted to Harvey by Lord Arundel. But poor Harvey little dreamed of what was in store for him. He doubtless left Ratisbon in high spirits at his escape from the weary diplomatic tedium so trying to his active spirit. He was armed with visé to his passport and

commendatory letters, but when, having crossed the boundary of the Venetian territory, he arrived at Treviso, he writes to Lord Feilding that he was unjustly affronted, being stayed and commanded by the podestà to go into the lazaretto without any cause or suspicion alleged. It is clear that they were terribly and perhaps unreasonably afraid of the plague. Harvey produced his viséd passport and recommendations from the King of Great Britain, from the Emperor, and from Lord Arundel, but the podestà would not look at them. Harvey refused to go to the lazaretto for fear of the infected persons who had been sent there before, and elected to stay in the open fields. He scribbles his letter on the grass in the field, and begs Lord Feilding to procure his release with all expedition. He seems to have subsequently arranged to sleep in a poor open garden house and to lie upon straw, but was by force and threatening of muskets compelled to go into the lazaretto, into a very nasty room, where the vetturin and his two servants and saddles lay!

The podestà, probably as the result of Lord Feilding's complaint, in three days' time sent a coach offering to take Harvey back to the poor garden house (where he had been before). Harvey did not conceal his irritation, and indignantly refused to accept anything whatever from the town authorities, least of all a bed which he believed would have been an infected one, so he elects to sleep on straw. Subsequently the Sénate of Venice sent him a message that he must stay where he was till further orders, without specifying the time. Meanwhile poor Harvey, having bad food and great exposure, had contracted sciatica. He seems to have been kept between a fortnight and three weeks, but we do not know the exact date or method of his release. He sent on his letters to Lord Feilding, and though he did not stay long in Venice he seems to have had a good time there, and then he went to Florence, where he enjoyed the hospitality of the Grand Duke, who lavished everything upon him that heart could wish.

Harvey's last letter to Lord Feilding was to announce his return to Ratisbon in November so as to be ready to accompany Lord Arundel on his return to England, his mission having turned out rather a fiasco. It has hitherto escaped notice, but I find in the Clarendon Papers a letter from Sir John Borough in which it is stated that they were aware at Ratisbon that Dr. Harvey had been kept in quarantine at Treviso, "being not as yet, for aught we hear, released." His return to Ratisbon may have been somewhat surprising. A perusal of Harvey's letters and of the State Papers gives us a poor opinion of the estimation in which Englishmen were held in Charles I's time in foreign lands, and we may be sure that Cromwell would not have brooked such scant consideration to any English subject during his rule.

Between the time of Harvey's leaving Florence and going back to Ratisbon we must, I think, intercalate his visit to Rome, where, under the hospitable roof of the English College, he dined with one who became a very staunch friend. This was Dr. Ent, who, in the evening of Harvey's life, secured for publication his work on generation. The alleged visit to Rome with Dr. Ent which Aubrey mentions has been shown by Dr. Munk to be one of his many inaccuracies. The joint visit was the one just mentioned; it was in October, 1636. Harvey was back in London at the end of the year. He doubtless made other visits to Italy, and probably to Padua.

As Court physician, Harvey accompanied the King for his Scottish coronation. It is eminently characteristic that the chief interest for Harvey was not the ceremony, nor the theological disputes, but his own visit to the Bass Rock in order to find out some points with regard to the solan goose, which then, as now, congregated on that island in great numbers. He probably also accompanied the King in his abortive warlike journey to Berwick in 1639, and perhaps again in 1640, but there do not appear to have been any important questions of natural history to be solved in those journeys, and I find no reference to them in Harvey's papers. The clouds were gathering for the Civil War, and Harvey's official association with the King rendered him persona ingrata not only to the Parliamentarians in the House of Commons, who tried to oust him from St. Bartholomew's Hospital, but to a mob who sacked and plundered his official lodgings in Whitehall. It is somewhat piquant and characteristic that Harvey, referring to this outrage, says the cause of his sorrow is that certain rapacious hands "stripped not only my house of its furniture, but what is subject of far greater regret with me, my enemies abstracted from my museum the fruits of many years of toil, . . . whence it has come to pass that many observations, particularly on the generation of insects, have perished, with detriment, I venture to say, to the republic of letters." It has been assumed that Harvey's "Medical Observations" as well as some other papers were destroyed by this mob. But Sir George Paget has drawn attention to the fact that Harvey himself speaks of these same Medical Observations being in his possession at the time when he writes, many years afterwards, his first letter to Riolanus.

In regard to the historic incident of Harvey looking after the two young princes at the fringe of the battlefield of Edgehill, it is interesting to remember that his friend Lord Feilding had been removed from his ambassador's post at Venice and was fighting on the Parliamentary side, whilst the Earl of Denbigh (Lord Feilding's father) was fighting for the King. There must have been many of Harvey's friends on both sides of the great struggle, but it is noteworthy that throughout the four years, from 1642 to 1646, that Harvey was with the King at Oxford there is no evidence that he took any part in political affairs, and there is no report of any utterance of greater resentment than is expressed in the one just quoted concerning his natural history collection.

Nothing daunted by the limitations of his surroundings at Oxford he goes to visit his friend Bathurst at Trinity College and conducts with him daily observations on the development of the hen's egg. He was incorporated a Doctor of Medicine of Oxford, and during the last year was appointed Warden of Merton College. His brief opening address to the fellows, appealing to them to cultivate harmonious friendship amongst themselves and pledging himself for the development of the welfare of the College, is quite in harmony with Harvey's subsequent utterances at the College of Physicians. One interesting experience at Merton was his welcome to Scarburgh, who had been expelled from his fellowship at Harvey's old college in Cambridge on account of his Royalist principles. Scarburgh seems to have been not unnaturally interested in the lively military expeditions around Oxford of Prince Rupert and his fellow officers. Harvey said to him, "Prithee leave off thy gunning and stay here and I will bring thee to practice." He probably recognized Scarburgh's mathematical abilities and foresaw a great future for him, and Scarburgh is said to have helped Harvey in some of his investigations.

In Clarendon's *History of the Rebellion* some of the most attractive pages are the character sketches of the chief men on both sides, and it is significant that Harvey finds no place. Indeed there is not a single mention of him in the whole of the work. Clarendon seems not to have concerned himself, in writing his history, with a single person who took no active political or military part in the great struggle. It seems remarkable in view of Harvey's long personal devotion to Charles I, in prosperous as well as in adverse days, that when the surrender came he left him, and it is doubtful if he ever saw him again. But in fairness we must remember that after the surrender Charles's movements up and down the country were not under his own control, and very shortly the access of particular adherents and attendants was regulated and Harvey may not have been permitted to join him even if it were desired. At all events, he retired a saddened man of 68 to the quiet and rest provided him by his relatives in London and its neighbourhood, and his rich and influential merchant brothers may well have secured him protection in his retirement.

It is probable that from 1602 onwards Harvey was working at his subject, and from 1609, when he was formally elected physician to St. Bartholomew's Hospital, he must have gradually acquired a reputation as an anatomist as well as a physician. In 1615, being then 37, he was appointed Lumleian lecturer to this College, a post which he held, with certain inevitable absences, until 1656, the year before he died. The *Prelectiones*, which bear the date of 1616, are really the lecture notes for the first anatomical course which he delivered. His introduction, with its detailed categories of anatomical study, is interesting as a logical academic statement, but the practical instructions which Harvey laid down for his own

guidance in method seem to me the last word as to the proper objects and limits of oral teaching and demonstration, and are a model to be utilized by every medical teacher of our own time. The special value of this MS., which deals chiefly with the viscera, is that we have here Harvey's first account of the circulation of the blood, the full exposition of which he gave in his printed book in 1628. For these twelve years Harvey had expounded his doctrines to our predecessors, and it is significant that from within this College there was no criticism or opposition to the full acceptance of those doctrines, with the solitary exception of one licentiate, a certain Dr. Primrose, who was rather an abject pupil and follower of Riolanus, the anatomical professor at Paris. Harvey demolished the master Riolanus in the two disquisitions addressed to him, and the pupil needs no further consideration.

I need not dwell on Harvey's masterpiece, so brief, so terse, and so convincing, a model for all time of inductive reasoning. Let us never forget the two supreme doctrines which he established, and which neither his predecessors nor his contemporaries had understood: (1) The circulation of blood from heart through arteries and back through the veins to the heart again. The pulmonary circulation, it is true, had been more or less apprehended, but it was reserved to Harvey to establish the true nature of the systemic circulation and to give the *coup de grâce* to the ebb and flow movement of the blood current now this way, now that, which was the accepted explanation up to his time. (2) The muscular contraction of the ventricles, the real motive force of the circulation, which had been conspicuously ignored and misinterpreted previously.

It is quite true that Harvey's view of the respiratory function was inadequate. For him it was summed up in cooling and ventilation; he never thoroughly faced the difference between arterial and venous blood, and it is doubtful if the meaning of oxidation had taken any definite shape in his scheme of life. But the day of chemistry was not yet, though it was not far off, and it was impossible for him without the help of the microscope to bridge over the space between the arteries and the veins. How he would have leapt for joy if Malpighi had only demonstrated the existence of the capillaries within Harvey's lifetime!

What was Harvey's method? It is certain that he had a wide and thorough acquaintance with the work of his predecessors, but he differs from them all in the courage and independence with which he really begins his work by ascertaining by his own senses what are the anatomical facts untrammelled by the statements of authority. He follows up his human anatomy by comparative studies of the circulatory organs of every animal that he can obtain. Then he reflects on the simplest explanation of the anatomical mechanism before him. Finally he devises experiments, vivisectional and otherwise, to test and verify his hypotheses.

The question has been asked again and again, What was the relation between Bacon and Harvey? Bacon, in his *Novum Organum*, which was published in 1620, makes no reference to Harvey's discovery. Harvey's book appeared in 1628, and Bacon died in 1626, but one would have supposed that Bacon might have heard the account of Harvey's discovery during the four years which had elapsed since he first expounded it in the College. On the other hand, Sir Samuel Wilks is not, I think, correct when he says that Harvey had not read Bacon's works, and owed nothing to Bacon. In the twenty-fifth exercise of Harvey's book on generation there is a sentence in which he proposes to review and analyse some of his previous results, and he says: "Wherefore I think it advisable here to state what fruits may follow our industry, and, in the words of the learned Lord Verulam, to enter upon our second vintage." If Aubrey is to be credited, Harvey "esteemed Bacon for his wit and style, but would not allow him to be a great philosopher. 'He writes philosophy like a Lord Chancellor,' Harvey says, 'but I have cured him.'" I think probably, in spite of Bacon's many-sided enlightenment, Harvey looked upon him as an academic *littérateur* who had no claims to eminence in practical investigation, and it may well be that Bacon's deep-rooted antagonism to Aristotle, which dated from the time when he was a student at the university, may have roused Harvey's distrust. "A man of genius lights his own fire," said John Foster, and in spite of all that has been said about every man's work being more or less dependent upon his environment and the heritage of the past, I do not think we are wrong in claiming that Harvey was a creative genius.

The work on generation has been spoken of as Harvey's aftermath, but in many ways it is more interesting than his *magnum opus* on the circulation, and I do not think it has received adequate appreciation from my distinguished predecessors. It tells us a great deal incidentally about the world experiences of a long and chequered career, and it shows Harvey to us on the speculative and contemplative side. The anatomical observations are of course circumscribed by the absence of microscopical methods, though it must be admitted that Harvey used such magnifying lenses as he possessed to some purpose. There are some erroneous conclusions, but not bad ones.

The introductions on the manner and order of acquiring knowledge and on the method of study are, I submit, masterpieces of lucid exposition. This work is interesting as showing Harvey's own estimate of his teachers. "Foremost of all among the ancients," he says, "I follow Aristotle; among the moderns Fabricius of Aquapendente, the former as my leader, the latter as my informant of the way. . . . For even as they who discover new lands and first set foot on foreign shores are wont to give them new names which mostly descend to posterity, so also do the discoverers of things, and with perfect propriety, give names to their discoveries. . . . And now I seem to hear Galen admonishing us that we should best agree about the things, and not dispute greatly the words."

But with all Harvey's reverence for Aristotle's philosophy, I believe he respected him most of all as a great naturalist and observer, and it is noteworthy that for him as well as for Fabricius and for Galen, his reverence never prevented Harvey from pointing out their blunders in anatomical observation as well as in the deductions drawn therefrom. For example, in his fourteenth exercise, Harvey goes so far as to suggest that on one point Aristotle had not himself seen the things he described but received them secondhand from another observer, and that the periods were not given rightly.

As I have already indicated, from 1646 to 1657, his Court duties ended, his private practice relinquished, Harvey lived henceforward in retirement, first with one of his merchant brothers then with another in London or in the country near by. His brothers were substantial and influential people. In earlier years, when their father had left Kent and had come to live in London, Fuller tells us that "as the sons got great estates they made their father treasurer thereof, who, being as skilful to purchase land as they to gain money, kept employed and improved their gainings to their great advantage; so that he survived to be the meanest of them of far greater Estate than himself." In later years his brother Eliab looked after Harvey's money affairs, and he had no anxieties.

We know little of Harvey's married life, but I think it must have been a happy one. His wife was the daughter of a cultivated and eminent physician, Dr. Launcelot Browne. They were married at the very outset of Harvey's professional career, and the wife died probably during the time Harvey was with the King at Oxford. The references in Harvey's will to his dear deceased loving wife show his solicitude to perpetuate her wishes and his gracious desire that certain of his benefactions should be regarded as from her, though she had long since passed away, manifest his tender affection for her. It is clear that his sisters-in-law and all their respective households were unceasing in their care and solicitude, and the detailed and thoughtful remembrance in his will of all his relatives and their servants, and of many poor folk, is very touching. He was childless, but his care for his nephews and nieces was very marked.

This College was the chief interest of his old age. Besides being Lumleian lecturer he had been at different periods censor, treasurer-elect, and finally, when he graciously declined the proffered presidency, councillor of the College.

It is interesting to think of the devotion and long duration of his friendships. In old days he had nominated Dr. Edmund Smith as his substitute at St. Bartholomew's. Edmund Smith was with Harvey at Oxford, and now when Harvey was building at his own expense the costly and beautiful addition to the College edifice it was Edmund Smith who really superintended the whole business for him and whose name at Harvey's desire, along with that

of Dr. Prujean, the president, appeared on the commemorative inscription. I have referred to the brotherly attachment of Harvey, Ent, and Scarburgh. Harvey's discoveries were at length warmly accepted by foreign universities and by foreign anatomists and scholars, notably by Slegel, Bartholin, and Descartes. Some of these foreign anatomists stoutly defended Harvey's doctrines against the few remaining obscurantists who were still in opposition. His friend Thomas Hobbes said that Harvey was the only man whom he knew that had lived to see his own doctrine established in his lifetime. Abraham Cowley's poetry is seldom read in these days, but his two poems on Harvey, based on intimate knowledge of the man and of his work, are full of genuine feeling and devotion. But the recognition most precious to him was the homage of this College. Fuller says of him he was not only Doctor Medicinae but Doctor Medicorum. The homage of the College was shown during his lifetime by the erection of his statue. It was further shown by the large gathering of fellows who followed his remains beyond the city walls in the first part of his funeral. How many of them gathered round his tomb at Hempstead in Essex we do not know. The homage of his successors in this College was shown in 1883 by the reverent removal of his remains from the damaged outer vault where they lay, to a sarcophagus in the chapel above.

Whilst we of this generation render our homage to our great benefactor let us in a few words picture to ourselves the outstanding features of his work and character.

First observe his pursuit of truth for its own sake, even though a complete solution were not forthcoming and quite independently of any ulterior benefit that might ensue. His discovery was one of those which, in Bacon's phrase, might fairly be called "light bearing" rather than "fruit yielding."

Amongst the objections which Harvey had again and again to combat in his work on the circulation was the ever-recurring question, *Cui bono?* Listen to his reply:

> I own I am of opinion that our first duty is to enquire whether the thing be or not, before asking wherefore it is. . . . Meantime I would only ask how many things we admit in physiology, pathology and therapeutics the causes of which are unknown to us? Whoever therefore sets himself in opposition to the circulation because if it be acknowledged he cannot account for a variety of medical opinions, nor in the treatment of diseases, give satisfactory reasons for the phenomena that appear or who regards it as in some sort criminal to call in question doctrines that have descended through a long succession of ages; to all of these I reply that the facts cognisable by the senses wait upon no opinions, and that the works of nature bow to no antiquity for indeed there is nothing either more ancient or of higher authority than nature.
>
> With what labour (he says) do we attain to the hidden things of truth when we take the averments of our senses as the guide which God has given us for attaining to a knowledge of his works, avoiding that specious path on which the eyesight is dazzled with the brilliancy of mere reasoning, and so many are led to wrong conclusions to probabilities only and too frequently to sophistical conclusions on things.

The doctrine of "spirits" dominated the physics and the physiology of that time. Harvey says:

> As it is still a question what they are, how extant in the body, of what consistency, whether separate and distinct from the blood and solids or mingled with these—upon each and all of these points there are so many and such conflicting opinions that it is not wonderful that "the spirits" whose nature is thus left so wholly ambiguous should serve as the common subterfuge of ignorance.
>
> Persons of limited information when they are at a loss to assign a cause for anything, commonly reply that it is done by the spirits, and so they bring the "spirits" into play upon all occasions even as indifferent poets are always thrusting the gods upon the stage as a means of unravelling the plot and bringing about the catastrophe.

Harvey's demolition of the doctrine of "spirits" marks an epoch in the history of science.

Long sentences were the fashion of the time, but Harvey makes his meaning plain. He was keenly alive to the bondage of names and phrases. He was anxious to get the *knowledge of things* and not greatly concerned about names. He maintains that our business is not so much to inquire what a word properly signifies as how it is commonly understood. His writings are lit up by quaint and homely similes, but they are free from the pedantry of his time. Sir Clifford Allbutt thinks he was lacking in imagination. Perhaps that is so, and I think the result is that although some of his conclusions are incomplete and inadequate they contain remarkably little that is erroneous.

And about his character: There is in the opening sentences of his will a humble and definite statement of his Christian faith, and in his book on generation he expresses his conviction of the immanence of God. "He takes," Harvey says, "the right and pious view of the matter who derives all generation from the same eternal and omnipotent Deity at whose nod the universe itself depends."

Aubrey says that Harvey, like his brothers, was choleric. You may say that the Treviso letters support that assertion, but remember he had great provocation, and he was a gouty subject. At all events, his choleric temper did not interfere with his courtesy and modesty in controversy, nor with generous appreciation of the work of his contemporaries. Harvey's power of concentration and detachment in biological observation in adverse surroundings was amazing. He was patient and laborious in his investigations, and reluctant to make any premature announcement of his conclusions. He was content to wait the judgement of time and enlightenment. He grew more and more fond of contemplation and even of solitude at times, because it gave him greater opportunity for contemplation. His love of family and of friends has been already noted, and to this may fitly be added his unfailing kindness to young men and readiness to advise them as to travel and books, and his willingness to take trouble on their behalf.

The concluding parts of his last letters are very touching. The nearer he approaches the great divide the more he craves for the abiding remembrance and the affection of his correspondents. It is not only the old man eloquent, but the old man mellowed and gentle.

And now in these severe and strenuous days, when we trust that "the winter of our discontent" is soon to pass away, we recall once again the last exhortation of our great master. He bids us "ever to search out and study the secrets of Nature by way of experiment, and for the honour of our profession to continue mutual love and affection amongst ourselves."

MERALGIA PARAESTHETICA.

BY

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MERALGIA PARAESTHETICA—a condition characterized by mononeuritis of the external cutaneous nerve of the thigh—is said to be of infrequent occurrence. In my experience, however, it has not seemed so rare when once the condition is recognized, and I have perhaps seen a dozen cases in the last ten years, five cases in soldiers having come under my care within the last nine months. The condition is important from a military point of view, because it is capable of giving rise to disability of longer or shorter duration, and this disability may be recurrent.

The condition, which occurs in both sexes, may occur with bilateral symmetry, but more commonly one limb alone is affected. The special feature of this neuritis, which, as the external cutaneous nerve is purely sensory, is unattended by motor disturbance, is dissociated sensation, the deep or protopathic sensibility, through afferent fibres contained within the motor nerve bundles supplying the muscles, being unimpaired. Sensation over the area of distribution of the affected nerve, which, as a rule, can be strictly delimited, is lost, so far as finer sensibility is concerned, for slight touch, for perception of points, for heat and cold, and to a certain extent for pain, while deep pressure can be perceived, and a touch on the bare skin is felt as though a layer of clothing intervened, or as one might feel a touch on the back of a gloved hand. In old-standing cases a distinct cutaneous thickening may be made out locally if a fold of skin is pinched up between the finger and thumb, and the skin of the affected area (in some cases at least) begins to grow bald from atrophy of the hair follicles; while, either in association with this, or as the result of the local analgesia, the phenomenon of the cutis anserina is lost locally, so that if the patient is examined in a cold room there is no goose-skin on an area

in the upper and outer aspect of his thigh, even though the other parts show this distinctly, with erection of the hairs over the rest of the limb.

Not only is there this anaesthesia, or rather analgesia, but perverted sensations are present in the affected area. These are variously described, and take the form of shooting pains, of a sensation as though an invisible hand had grasped the thigh and were screwing round a handful of the flesh, and of a sensation as though scalding water were pouring down the outside of the limb. These sensations are usually of short duration, and are of variable onset; they may not occur for months on end, or even for years in old standing cases, but are liable to recur again and again on little or no provocation. Their onset may be ascribed to changes in the weather, to damp and cold combined, to going out into the cold frosty night air from a warm billet, or to exercise, especially moving at the double. The pains may be nothing more than a mere tingling, or they may be so severe as absolutely to incapacitate the patient for the time being, and it is this possibility of the occurrence of sudden attacks of absolutely incapacitating pain that makes the condition of importance from the point of view of military surgery.

I have observed a patient in one of these paroxysms of pain obtain a certain amount of relief by adopting the following attitude. He bent his knee and raised the heel off the ground, flexed his body forward at the hips and seized his thigh with his hand, applying steady pressure. In this position he remained without moving for about a couple of minutes until the pain passed off, afterwards moving forward again slowly and cautiously, only to adopt the same posture a few paces further on, exercise having brought on an almost immediate recurrence of the pain.

The etiology of the condition seems to be unknown. Various more or less unsatisfying causes, including alcoholism of course, have been suggested, and the general opinion seems to be that it is probably of toxic origin.* A case is on record in which pressure of a long corset apparently induced the condition, for when a piece was cut out from that structure where it was supposed to be exerting pressure on the nerve the symptoms disappeared. One of my cases in civil practice quite distinctly occurred for the first time during involution of the uterus after childbirth, while in only one of all my cases was there any definite story of alcoholism, though even here other factors might have been at work, as the patient was a schoolmaster, who was too fat and took little or no exercise. Robust and well-developed persons may suffer from this complaint; I have seen it in a man who had been an international footballer.

It seems possible, however, that the condition may owe its origin to purely mechanical causes and be dependent on the local anatomical peculiarities associated with the course of the external cutaneous nerve. This nerve becomes subcutaneous in the upper and outer part of the thigh by piercing one of the strongest sheets of fibrous tissues in the body, the fascia lata. Posture, as above described, seems to ease the pain during the paroxysms, and exercise—the patients are convinced—to increase it or even to precipitate an attack. This must be associated with the anatomical peculiarities, and it seems feasible that the condition itself is merely caused by a nipping of the nerve trunk at its point of emergence through the fibres of the fascia lata, a possibility that will be increased in any circumstances that conduce to an overgrowth or fibrosis of that fascia. The external cutaneous is the only nerve that has this course, and in meralgia paraesthetica this nerve is alone affected.

It has been suggested to me that if this theory is correct it may be possible to relieve the condition surgically—by cutting down on the nerve, tracing it to its point of emergence through the fascia of the thigh, where this might be incised, and a flap either stitched back or excised, in order to relieve pressure on the nerve. It is a suggestion that is perhaps worth following up.

The five cases met with among soldiers are briefly described below. It is unnecessary to go into full details, as the sensory tests and the distributional area of the analgesic skin are always the same.

CASE I.—Private, aged 24; July 9th, 1915. Outside of both thighs symmetrically affected for past two days (weather at present damp and overcast, and patient sleeping on the ground under canvas). On stepping out smartly he is suddenly pulled up by a sensation as if his flesh had been gripped tightly. Cutaneous sensibility is impaired in the area supplied by external cutaneous nerve; on the inside of the thighs the sensation is normal.

CASE II.—Private, aged 22; July 19th, 1915. Pain in left thigh; coming on acutely the previous morning and preventing marching. Walks with a limp, has pain locally, and cutaneous sensibility is dulled. The other thigh is not affected.

CASE III.—Lance-Sergeant, aged 21; March 22nd, 1916. Acute pain in right thigh of four days' duration. Has never been similarly affected. Onset with aching; while walking he gets sudden stings in his thigh, causing him to stumble. While on a route march his thigh felt as though it were gripped, the sensation causing him great pain. The area of the external cutaneous nerve is analgesic, with a small anaesthetic point at both its upper and its lower limit. He was given phenacetin and rest; at night his thigh was so sore that he was unable to sleep for the pain. Next day he walked with a limp, and said that while he was walking sudden stinging pains shot up the thigh and caused him to stumble.

CASE IV.—Private, aged 18 years; April 5th, 1916. Bilateral, in a dirty, ill-nourished youth who has been six months in the army and who previously plucked fowls for a living. First attack was in Ireland three months ago. The pains occurred mostly when walking and in damp weather; they came and went and were sometimes worse than at others. Occasionally he had sensations as if an open knife were in his trousers pocket and had stuck into and lacerated the limb; at other times as if scalding water were pouring down his thigh. He had smooth, relatively anaesthetic areas on both thighs in the distribution of the area of the affected nerve.

CASE V.—Private, aged 44 years; April 26th, 1916. Of right thigh, with pains running between his hip and knee on marching, these pains having ensued on coming out of the trenches ten days ago and having occurred daily since. When the pain comes on he is unable to use his leg, which he thinks gets quite stiff at these times; it leaves him after resting, but when he has rested and starts off again it gets very sore, and he is then able to do very little. "Sometimes it is a sharp penetrating pain and at other times it is more dead-like." He had the same condition the winter before last, and was in a civil hospital for it for four weeks, being treated, he says, as a case of rheumatics. Is elderly and not well developed; locally the skin is smooth and thickened. He complained also of some pain in lumbo-sacral muscles and had defective teeth.

Treatment, apart from the suggested operative interference, is of little use. Tonics, massage, electrical treatment (including the various forms of high frequency) have all been tried and have all failed. When the attacks are occurring, rest and substances such as phenacetin are indicated, while purgatives should be administered, as pressure of a loaded sigmoid in the region of the lumbar plexus is calculated to exalt the irritability of the affected nerve. Warm underclothing must be worn in all cases, as the patients are unanimous in ascribing the onset of their attacks to climatic conditions, changes of temperature, cold and damp.

The attacks of pain tend to wear off and to become less frequent with the lapse of time. The feature of the condition, however, is the unreliability of the symptoms and the likelihood of relapse.

SHELL SHOCK AND ITS TREATMENT BY CEREBRO-SPINAL GALVANISM.

BY

WILFRID GARTON, CAPTAIN R.A.M.C.

THE term "shell shock" is made use of to describe two distinct conditions—one a severe type of traumatic neurasthenia, and the other bearing no resemblance to a neurasthenic condition, but characterized by hysterical manifestations.

It is for shell shock of the neurasthenic type only that cerebro-spinal galvanism is of service as a treatment, for, its use being based on the assumption that neurasthenia is an organic disorder, there is no reason to expect any favourable results to follow its use in a condition of functional disorder.

In the neurasthenic type of shell shock most, if not all, of the following symptoms are found to be present: Headache (always aggravated by the advent of thundery weather), insomnia, mental depression, loss of memory, nervousness, bad dreams, fatigue (without exertion),

tremors, wasting, and loss of appetite. Paralysis of limbs or groups of muscles and localized pains are also present in a number of cases. The resemblance between this condition and neurasthenia following severe illness is so striking that a similarity of origin is exceedingly probable.

Any one of the above symptoms appearing separately might be looked upon as a functional disorder, but the co-existence of all or nearly all of them in a series of cases admits of only one explanation (if the simplest explanation is the most probable), and that is that they are the effect of a common cause—organic disorder of the central nervous system, and, as there is no gross lesion, this is probably a disarrangement of metabolism. Furthermore, the character and personality of the patient are greatly changed by this condition, and it is inconceivable that this alteration can take place independently of any structural damage or metabolic disturbance in the organism from which the character and personality take their origin and depend on entirely for their continued existence.

A possible explanation of the appearance and persistence of the symptoms is that the violent concussion of the explosion produces a partial paralysis of the nervi nervorum. The interference with the nutrition of the whole nervous system would prevent the restoration of the nervi nervorum to their normal activity, and thus the evil would be acting in a circle. This would account for the resemblance between these cases of shell shock and cases of neurasthenia following severe illness, for a partial paralysis of the nervi nervorum might be produced by the action of toxins.

The cure of neurasthenia by suggestion in some cases is not an inexplicable contradiction, for it is conceivable that the paralysis of the nervi nervorum may be of just such an extent that recovery is only prevented by the mental depression consequent on the condition maintaining a state of lowered vitality. In such cases relief from the mental depression would result in a cure.

Now if there is any probability that shell shock of the neurasthenic type is due to a paralysis of the nerves regulating nutrition or a disorder of metabolism, then the use of the galvanic current is a treatment from which one has every reason to expect good results, for the most powerful agent we have for stimulating the nerves to activity is electricity.

The best form of apparatus is a battery of wet Leclanché cells connected to a switchboard on which are two resistances, each of 1,500 ohms, one in series and the other in parallel with patient and milliampèremeter. The treatment is then commenced with no resistance in parallel and full resistance in series. The parallel resistance is first increased to its full extent and then the series resistance diminished until the required amount of current is obtained. If this apparatus is not at hand a battery of twelve dry cells with cell collector and galvanometer, and a resistance of at least 1,500 ohms may be used. No current derived from the mains or any universal apparatus should ever be used for this treatment.

A pad composed of about sixteen layers of lint, soaked in a solution of sodium salicylate in distilled water, is applied to the forehead, care being taken that the pad is evenly wetted, and that its centre coincides with the middle line of the forehead. Over the centre of the pad is placed a metal plate, and the whole firmly bandaged to the head. The metal plate is connected to the negative pole. A pad of the same thickness, about 10 in. by 6 in., is soaked in tap water, covered with a metal plate, and firmly bandaged to the lumbar region. This is connected to the positive pole.

The current is increased very slowly, taking about twenty minutes to attain the maximum of 20 milliampères, at which point it is allowed to remain for twenty minutes, and then is slowly reduced to zero. When increasing the current the cell collector is advanced before reducing the resistance, and when decreasing the current the resistance is used first.

For a first treatment I give only 10 milliampères for ten minutes, and do not pass the full strength of current (20 milliampères) till the third or fourth treatment. With patients who are nervous of electricity I find it a good plan to give labile galvanism to the spine for two or three days before commencing cerebro-spinal galvanism.

Having found this treatment successful in cases of neurasthenia, I treated several cases of shell shock by the same method shortly after joining the service. Unfortunately, I was unable to keep these patients under my care for a sufficient length of time to effect a cure, but in every case I was impressed with the rapid progress made towards recovery. I had no further opportunity of treating this condition until the end of February, 1916. My first patient had not suffered by a shell explosion at close quarters, but he had been exposed to shell fire in the trenches for a considerable time, and as he showed most of the symptoms of shell shock, I think the case worth recording, although it was not of a severe type.

Case I.

Private S., aged 34. Constantly exposed to shell fire during the latter half of last year. When first seen he was suffering from pain in the back and legs, tremors, headache, fatigue without exertion, nervousness, insomnia, mental depression, wasting, and loss of appetite. Cerebro-spinal galvanism was commenced on February 23rd, but after three treatments his regiment was moved to another district. He was transferred about a month later to a home service battalion, and being stationed in this district again, asked permission to continue his attendance at this hospital, as he had derived so much benefit from his treatment here. The treatment was again given three times a week for five weeks. At the end of that time he had gained considerably in weight, the tremors had disappeared, and he stated that he felt quite well except for the pain in his legs, which had increased. I took an *x*-ray plate of his legs, which showed a syphilitic condition of the bones. Treatment for this condition was carried out by the medical officer of his regiment, and he now feels perfectly well.

Case II.

Private H., aged 30, was knocked over and buried by a mine explosion on December 12th, 1915. He was unconscious for some hours. He was in a V.A.D. hospital for a month after arriving in England, and then returned to his regiment for light duty. He was still exceedingly nervous, and was so distressed by being placed on guard on a railway that he reported sick. When first seen he was evidently in an extremely nervous condition, and very depressed mentally. He complained of bad dreams, want of sleep, loss of memory. He was also suffering from severe headaches, fatigue, and loss of appetite. He was considerably wasted.

Cerebro-spinal galvanism was commenced on March 25th. After four treatments he was sent out of hospital owing to an error, as fit for duty. His medical officer was communicated with, and as the patient was very much better, he was allowed to remain on light duty, and received treatment again on April 5th and 7th.

On April 8th he received news of the death of one of his children, and had no recollection of what happened afterwards until he found himself in Birmingham. About twelve days later he reported to the nearest police station that he was absent from his regiment without leave. He came to this hospital again on May 1st, and was admitted. Treatment was recommenced, and by the end of May he had gained about 1½ st. in weight, and appeared to be in perfect health. Treatment was continued until July as a precaution against a return of the condition.

Case III.

Sergeant P., aged 37, was blown up by a mine explosion on July 27th, 1915. He was unconscious for fifteen hours. On recovering consciousness his left lower limb was found to be paralysed, and it remained so for five months. He was treated at a military hospital for four months, where he was given electric baths, and then removed to another military hospital, where he remained for three and a half months, being treated daily by massage, faradism, radiant heat and ionization. He left there on March 25th, at his own request, to return to light duty. He reported sick again on April 7th. When first seen he was suffering from headache, insomnia, bad dreams, loss of memory, tremors, pain in the lumbar region, mental depression, and fatigue without exertion. He stated that he had lost flesh early in his illness, but had regained his normal weight, and that his headache was less constant than at first, though undiminished in intensity.

He has been treated three times a week by cerebro-spinal galvanism since April 22nd. He has now perfectly recovered from loss of memory and mental depression, and exhibits no tremor. There is very little nervousness. He still suffers from slight headache in the morning. He is sleeping fairly well, and is not much troubled with dreams. He suffers from fatigue, but far less than when treatment was commenced. The pain in the lumbar region is not much improved, but in every other way he is making steady progress. While under treatment he has been doing clerical work continuously.

Case IV.

Sapper M., aged 30, was blown up by a mine explosion in September, 1915. He was unconscious for ten hours. He had the usual symptoms of shell shock, but tremor all over the body was particularly prominent. There was also drop wrist on the left side. After three months in a military hospital he returned to light duty. His condition gradually became worse again, and he reported sick about the middle of April. When first seen tremor was very noticeable. He complained of headache and insomnia, which had not diminished at all while under

treatment. There was also loss of flesh, muscular weakness, loss of memory, mental depression, and bad dreams. He reported sick on account of the tremor increasing and persistence of paralysis of his forearm.

He has now had six treatments by cerebro-spinal galvanism. He is sleeping well, and has only slight headaches occasionally. The tremor has disappeared, his memory is good, and he is quite cheerful. Some voluntary movement returned to the extensors of the hand and wrist after treatment of the spine by labile galvanism, and the power of movement is increasing although he has had no local treatment for these muscles.

The conclusion I have arrived at from the trials I have carried out of this treatment is that nearly all cases of the neurasthenic type of shell shock would derive great benefit from it, and the majority of cases, excepting those of the most severe type, would be cured in under three months.

TREATMENT OF MENINGITIS.

BY

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PNEUMOCOCCAL meningitis is still considered so universally fatal that it seems useful to put on record cases of recovery.

My first successful case occurred a few years ago in a child between 3 and 4 years old, who had a severe attack of broncho-pneumonia lasting a fortnight. The lungs began to clear up, but the temperature remained between 102° and 103° F., and the child became drowsy. When admitted to hospital there was almost complete coma; the neck was retracted, and there was strabismus. By lumbar puncture a thick white fluid flowed off under pressure; it looked like pus from an empyema, and gave an abundant growth of pneumococci. The child was put on urotropine gr. 3 every four hours, and was given 5 c.cm. of Pane's antipneumococcic serum by the mouth; no food was given for two hours before or two hours after. The Pane's serum was given every twenty-four hours on an empty stomach for three days, then every other day, and later twice a week. Lumbar puncture on the third day gave a less thick fluid. After the third day there was slow but steady improvement. The temperature did not settle to normal for six weeks, but at the end of three months the child was perfectly well.

Since then I have had two recoveries in children treated in the same way. I give Pane's serum by the mouth in children, preferably when waking in the early morning, as the stomach is then at its emptiest. In pneumonia it has always acted well taken in this way. The dose by the mouth is double that necessary hypodermically, but the child is saved the pain of the injection.

The only case in an adult which I have treated was a soldier admitted to hospital in April.

He had had headache for eight or nine days, with a temperature from 99° to 101° F. for a week, and vomiting independently of meals. On admission the temperature was 101°, the pulse 90. He complained of severe headache and frequent vomiting. There was a large crop of herpes on his lips, the tongue thickly furred, and the mouth very foul. His head was not retracted, but it could not be moved forwards beyond the vertical. Kernig's sign was present. Knee-jerks were absent, and the plantar reflexes were flexor. Cloudy fluid was obtained by lumbar puncture. Nothing abnormal was found in the chest. He was given urotropine gr. 10 every four hours.

Next day the cerebro-spinal fluid was reported to give a growth of pneumococci, and 10 c.cm. of Pane's serum was injected in the flank; this was repeated every other day for four doses, then every third day for three more doses. Improvement began about the fifth day, the headache being less severe, and the temperature falling in the morning to 98°, though still 101° in the evening, instead of keeping consistently high. Vomiting was less frequent also. As the general condition improved the pulse-rate became faster, 100 to 120. For the first three days it had not risen above 99, though the temperature was 100° to 101° all the time.

The temperature definitely began to fall on the twentieth day after admission, and became normal by the twenty-third. Urotropine gr. 20 was given every four hours up to this date without any urinary symptoms. The patient became very emaciated during the illness, and was a long time regaining flesh and strength, but he is now at a convalescent home feeling quite well.

Lumbar puncture is much simplified if a hypodermic syringeful of eucaine and adrenalin solution is injected under the skin at the selected site, and also down between the arches of the vertebrae, in adults as deeply as the hypodermic needle will reach, in children of course not far enough to risk entering the spinal canal. After waiting five minutes, lumbar puncture can be done painlessly and without any movement on the part of the patient.

An interesting case of streptococcal meningitis, again a soldier, was admitted under me in February.

He had been ill for a fortnight and complained of intense headache, which kept him awake at night. His pulse and temperature were normal for the first four days. He did not vomit, his tongue was very furred, and his breath offensive. There was no retraction of the neck and no Kernig's sign. No drugs had any appreciable effect on the headache. Four days after admission he had a sore throat and his temperature rose to 100° F. There was then for the first time some difficulty in making the chin touch the chest. A day later rigidity of the neck was definite. There was also oedematous swelling of both temporal and preauricular regions, more marked on the right side. Next day there was oedema of the eyelids as well as of the temporal regions. Kernig's sign was present for the first time in slight degree.

The cerebro-spinal fluid was cloudy. After examining this a bacteriologist declared the case to be one of spotted fever, and had him removed to the sanatorium, where he came under the care of Dr. Duncan Forbes, who, when the man died a few days later, kindly showed me the results of the *post-mortem* examination. There was pus at the base of the brain containing a Gram-positive streptococcus. The body of the sphenoid bone was extensively diseased.

It seemed evident that the disease was primarily of the bone, and that the meninges were affected later. The most interesting feature of this case was the swelling of the temporal and orbital regions with definite signs of meningitis, coming on after the throat became infected. There was no nasal discharge nor any indication that the ethmoid was diseased.

The most severe case of meningococcal cerebro-spinal meningitis in which I have seen recovery take place was the following:

A boy aged 14 was seen in consultation several times with Dr. H. J. Pulling in January, 1915. He got up well one morning; at dinner time he refused his food, and complained of headache. When I saw him, at 8.30 p.m., he was lying on his side with his legs drawn up. He was quite comatose, with marked strabismus and paralysis of the left arm. There was evidence of pain on pushing the head forward, but no real retraction of the neck; Kernig's sign was very marked, the knee-jerks were weak, the left plantar reflex extensor; temperature 103° F. Lumbar puncture gave milky fluid under great pressure; over a test tube full was allowed to flow before the stream became of normal pace. There was no rash that day. He was given 8 grains of urotropine every four hours through a nasal tube, and was also fed in that way; 10 c.cm. of Pane's serum were injected as it was at hand. The cerebro-spinal fluid gave an abundant growth of meningococcus, after which Flexner's serum was obtained and injected subcutaneously. By the third day he had improved remarkably, being quite conscious and taking food well, but he relapsed though not to unconsciousness. Later there was incontinence of urine and faeces, but vomiting was not troublesome. He became extremely emaciated, and always lay on his side curled up and often moaning. It was very difficult to prevent the formation of bedsores. He took urotropine for a long time, and opium was given for the relief of pain and to promote sleep. He was very ill for two months, but Dr. Pulling ultimately pulled him through, and he is now quite well mentally and physically except for slight stiffness of the left arm.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

COLLOSOL ARGENTUM.

I HAVE been using collosol argentum lately, and I think the results may interest others.

The first case in which I used it was a lady who had had pyorrhoea for several years. I gave her 15 minims of the drug hypodermically in the arm. One injection cured her.

A young girl, aged 18, came to my house with acute inflammation of one eye with an ulcer on the cornea. Two drops of collosol argentum were dropped in the eye at 7 p.m., and a pad placed over the eye. When she came next morning the eye, to my astonishment, was quite well; the ulcer had disappeared, and there was no inflammation.

A man in poor health was admitted to hospital and I removed his appendix. He did very well till the fourth day when he developed acute intestinal obstruction. He was opened again and a twisted intestine was put straight, but although he had good relief from the bowels he did not do well. The wounds suppurated, and he got septic diarrhoea which nothing seemed to relieve. In despair I injected 20 minims of collosol argentum every day. The diarrhoea soon stopped, the pus dried up, the wounds took on a healthy aspect, and he made a good recovery.

A child, aged 3, had tuberculous glands of the neck, and was very emaciated. The glands were removed and the wound did badly. Collosol argentum (10 minims) was given by the mouth

daily. The pus soon lessened and a cicatrix formed. Another gland subsequently gave trouble under the chin and had to be scraped occasionally, but the general improvement in the child is very remarkable.

A young woman, aged 27, developed symptoms of phthisis with tubercle bacilli in the sputum. She was given 20 minims of collosol argentum hypodermically every other day. The night sweats have disappeared, the cough is much less, and she feels and looks much better.

I find the drug very useful as a nose spray for post-nasal catarrh and also for simple nasal catarrh.

St. Albans. A. H. Boys.

Reports of Societies.

MOUTH PARASITES IN PYORRHOEA.

At a meeting of the Royal Microscopical Society on October 18th, Mr. Heron Allen, the President, being in the chair, Dr. Helen Pixell Goodrich and Mrs. M. Moseley contributed a paper on "Certain parasites of the mouth in cases of pyorrhoea."

After a study of some hundreds of cases and of examples of the condition in dogs and cats they had come to the conclusion that the gingival space was not primarily affected, but that the first lesion occurred at the surface of the gum. The tartar, which was characteristically formed in great amount, they attributed to an organism, a leptothrix, and not to chemical changes. The tartar often extended underneath the crown, and sometimes even to the root. They had seen no reason for separating tartar into two kinds, as had been done by some. In its early stages pyorrhoea was represented as a marginal gingivitis; afterwards the gums receded, and the gingival spaces became affected, pockets of pus and other suppurative changes ensuing. The recession had been noted to be more advanced on the left side in right-handed people, which might be accounted for by the use of a hard toothbrush. The destruction of bone which accompanied pyorrhoea, and which had been variously explained, they regarded as due to organisms emanating directly from the gingivitis. Of parasites they had found swarms of all kinds, particularly bacteria. The amoeba which had been described in America they found to be common; it was absent from healthy mouths which had been kept scrupulously clean. Its favourite habitat was the tartar and not the tissues of the gum. It was found on the under side of the tartar ridge and between the threads of the leptothrix, not in the periodontal membrane as the American authors had stated. The authors were strongly of opinion that it was not the causal organism of pyorrhoea. The reasons given for inculpating the amoeba were (1) that the amoebae burrowed down in the tissues, destroying the periodontal layer, and getting into the deepest parts of the pockets, (2) that it could not be found in healthy gums, (3) that emetine, a known amoeba destroyer, caused their disappearance and an improvement in the condition. To these arguments they raised the following objections: The amoebae did not occur in the periodontal membrane, but in the tartar; A. E. Williams had found the amoebae in 30 per cent. of New York children with healthy gums; and in four cases under close observation emetine had not been beneficial. Moreover, in advanced cases sometimes very few amoebae were found, whilst they might be abundant in early cases. Cysts had been described by some authors, but the only ones which they (Dr. Goodrich and Mrs. Moseley) had found were those of other amoebae, and were such as frequently found their way into the mouth from uncooked vegetables. All attempts to grow the amoebae had proved fruitless. The amoebae bore some resemblance to those of dysentery —*Entamoeba histolytica*—but showed certain differences, notably that the cell inclusions were usually remains of mononuclear leucocytes, not of red blood corpuscles. Trichomonas was often found, but usually in small numbers, and was unconnected with the pyorrhoea. The leptothrix was found in profusion and growing in several forms—as threads, as coccoid bodies, as flower heads, as a bottle-brush shaped form, and as fusiform bodies. It was closely connected with the tartar, which the authors considered was caused by a progressive calcification of its threads from their point of attachment. They had never found tartar in the absence of the leptothrix, and suggested that tonsil stones, salivary calculi, and possibly other concretions might own a similar origin. The fusiform bodies appeared to be identical with the fusiform bacillus regarded as the cause of Vincent's angina.

Reviews.

DERMATOLOGY.

It is easy for a reviewer to say that a textbook which has reached its sixth edition has justified itself by winning public approval, and that it is therefore unnecessary for him to express an opinion on it. We will not take this easy course with the sixth edition of Dr. Norman Walker's *Introduction to Dermatology*,[1] because, though the first edition, which appeared in 1899, was a good book, the author has gone on steadily improving it. It has all along been first and foremost a thoroughly practical book, dealing at length with the commoner affections, but not omitting the more rare. It everywhere gives evidence of the fact that its author is an experienced teacher, and in the discussion on symptoms and treatment its pages are imbued by the most recent lessons of pathology and bacteriology. A good example of the merits of the book is afforded by the section dealing with the various forms of dermatitis. The sections on dermatitis venenata and dermatitis autophyta are instances of shrewd observation, and also afford an example of a respect in which the book has been improved. It has always been well illustrated, but its success has encouraged the author and publisher materially to increase the number of pictures; there were forty-nine plates in the fifth edition, there are sixty-eight in this. All of them are helpful, and none introduced, as sometimes happens, because the author happened to have good drawings by him. A number of them are in colours, very well reproduced. In the discussion of the treatment of rodent ulcer we find in this edition a note upon its treatment by radium, to which the author says "there is no room for doubt that certainly in the earlier stages exposure to radium is the most satisfactory method of treating rodent ulcer. The duration of the exposure required depends, of course, on the amount and activity of the particular specimen of radium used. In about a fortnight after exposure there is a violent reaction, and a peculiarly adherent seal forms. When this falls off (in two or three weeks) the part is usually soundly healed." In the fourth and fifth editions the author acknowledges his obligations to Dr. Cranston Low, and his name appears on the title page of the sixth edition. The book is one which we can heartily recommend to general practitioners, not only because of its practical and comprehensive character, but because the illustrations are so numerous and so typical that they render a separate atlas unnecessary.

Dr. W. Knowsley Sibley's *Treatment of Diseases of the Skin*[2] has reached a second edition. The author has taken the opportunity of adding new sections on a number of skin disorders to which attention has been particularly directed during the last four years. He has also added a chapter on radium, and has extended those on x rays and ionization. In fact the special characteristic of the book seems to be the attention given to physical methods of treatment, and in particular to x rays, which the author considers to be valuable in a number of skin diseases. He does not speak very enthusiastically of the use of radium in rodent ulcer, and appears to prefer to treat this disorder by x rays. A full pastille dose or more should, he advises, be administered the first time, with gradually diminishing doses afterwards, the treatment being repeated about every three weeks. It is, he says, often a good plan to apply carbon dioxide snow first, and then after a few days x rays. The book is illustrated by reproductions of a number of photographs, and its practical utility is increased by a classified list of prescriptions.

[1] *An Introduction to Dermatology*. By Norman Walker, M.D., F.R.C.P., with the assistance of R. Cranston Low, M.B., F.R.C.P. Sixth edition. Edinburgh and London: W. Green and Sons, Limited. 1916. (Demy 8vo, pp. 381; 68 plates, 84 figures. 15s. net.)

[2] *The Treatment of Diseases of the Skin*. By W. K. Sibley, M.A., M.D., B.C.Camb., M.R.C.P.Lond., M.R.C.S.Eng. Second edition. London: E. Arnold. 1916. (Cr. 8vo, pp. 316; 16 plates. 6s. net.)

A MODERN PILGRIM'S PROGRESS.

IN the preface to *A Spiritual Pilgrimage*[1] its author, the Rev. R. J. CAMPBELL, informs us that the book was written in response to the suggestion of the Rev. J. D. Jones, who, in May last, at the meetings of the Congregational Union held in the City Temple, said he thought some explanation was due from Mr. Campbell of his ordination in the Church of England. The volume is, as its title suggests, an account of the author's religious development and an autobiography of his inner life; it also contains a good deal of information with regard to his public career up to the time of his cleavage from the Nonconformist ministry. Apart from its bearing upon recent theological controversies—a matter beyond our province—the book has a purely human interest which should secure for it a wide circle of readers.

The fact which, to our thinking, emerges most clearly from the study of this record is that Mr. Campbell has not the genuine Nonconformist temperament. Without for a moment questioning the sincerity of the motives which determined him to accept at the outset of his career the invitation of a Brighton congregation, the reader cannot but feel that insufficient realization of his own ineradicable tendencies was largely concerned in the issue. But the fact was not hidden from his early advisers; he tells us that Canon (now Bishop) Gore expressed at the time his firm conviction that such a temperament as his could not find permanent satisfaction in Nonconformity, "but would be bound to return to the Church sooner or later." Long before the twenty years of his ministry at Brighton and at the City Temple had elapsed it must have become clear to Mr. Campbell that he was not in his true element, as it seems to have been no less clear to his Nonconformist colleagues and associates. It says much for the patience and charity of all concerned that the connexion endured so long, and proved in so many ways fruitful and successful; also that when the inevitable rupture came it was effected with mutual respect and amity. It is evidently now the dearest wish of Mr. Campbell to utilize his exceptional experience in promoting a better understanding and a more cordial co-operation between the Free Churches and the Anglican Communion; and all sympathizers with the ideal of religious unity will wish him God-speed in this high task.

NOTES ON BOOKS.

A SOUND and workaday account of the problems and practice of two modern departments of medicine, known by the graceless and hybrid names "immunology" and "serology," is given in Professor SIMON'S book on *Infection and Immunity*,[2] now in its third edition. The author is saturated with German doctrine and German thought in these matters, even going so far as to germanize the name of the late Professor Metchnikoff whenever he mentions him. He swallows the doctrines of the late Professor Ehrlich whole, so far as may be seen, and gives a very full account of the side-chain theory and chemiotherapy, and their applications to pathology and therapeutics. He is also, as a result of prolonged personal experience, a firm believer in Abderhalden's test for pregnancy and the principle underlying its method. Professor Simon writes clearly and with conviction; his prose is cold and logical, and his experience seems to have been gathered in the laboratory rather than at the bedside. His book is intended for the use of the general practitioner and of medical students while they are working at clinical pathology.

The thirty-ninth volume of the *Transactions of the Medical Society of London*,[3] from October, 1915, to May, 1916, deals almost entirely with war subjects, such as gunshot wounds, and gas poisoning, and it contains Major P. W. Mott's Lettsomian lectures on "The effects of high explosives upon the central nervous system." It also contains Sir StClair Thomson's thoughtful contribution to the tercentenary of Shakespeare's death, entitled "Shakespeare and Medicine." The volume thus includes contributions of high scientific and literary value, and should be widely read and enjoyed.

The publication of a second edition of Dr. MILDRED E. STALEY'S *Handbook for Wives and Mothers in India*[6] indicates that the work has met with appreciation. The book, as befits its purpose, is written in a plain and simple style, and takes into account the circumstances and perils to health of life in India, its main design being the preservation of health and the prevention of disease. The opening chapters are devoted to general and personal hygiene, brief notices being added of the more common tropical diseases and of the treatment of the sick, both regimenal and medicinal. No mention is made of venereal diseases, which are rife in the East, and which sometimes seriously compromise the health and constitution of both women and children. Part II concerns the physiology and pathology of the female reproductive organs and the influence of disorders of these on the nervous system and general well-being. The information imparted and advice tendered are calculated to be easily understood and usefully applied. The subjects of pregnancy and parturition are dealt with in considerable detail in Part III, and expectant mothers will derive from these chapters very valuable hints conveyed in intelligible language. Part IV sets forth the management and feeding of infants, their ailments, and the prevention and treatment of these. The author lays great stress upon the advantage of nursing by the mother, or, failing her, by a wet nurse, the services of whom are easily procured in India. The difficulties and disappointments of artificial feeding are truthfully acknowledged. The use of a "standard diet" for artificial feeding is hopeless without the possession of a standard stomach. The selection of the food that will agree with a particular stomach is often a matter of repeated and varied trial. Dr. Staley's book can be recommended with confidence to mothers and nurses in India, but it cannot, and is probably not meant to supersede the attendance of the doctor.

The thirty-fifth edition of Professor BOUCHARDAT'S well-known *Formulaire*[7] is packed from cover to cover with all the information about drugs, prescriptions and special methods of treatment that the French medical student or practitioner would wish to find in it. The book has been brought thoroughly up to date, a list of two or three hundred additions of all sorts that have been made in this edition proving that little that is new in treatment has escaped the attention of the editors. The book has an excellent index, but, apparently, no table of contents, so that the pages devoted to such subjects as urinary tests, antiseptic dressings, periods of quarantine or isolation, the use of cold in acute illnesses, grape cures, and the like, will often escape notice because their presence is not suspected by any but those who already know their way about the volume. It may be cordially recommended to all medical men who wish to learn how well the arts of prescribing and treatment are understood in France.

The authoress of *Clinical Notes for Probationers*[8] sets out to give nurses a quantity of theoretical knowledge of medicine and surgery wherewith to eke out the instruction usually given to them by hospital lecturers. It contains four chapters dealing with the general observation of patients, both medical and surgical, accidents and emergencies, medical nursing, and drugs. At the end is a brief glossary of technical terms and surgical operations. The booklet contains a deal of useful information, and is clearly written. It should be of considerable service to nurses and probationers.

Nowadays income tax is being deducted, where possible, at the source, at the rate of five shillings in the pound. Yet all whose incomes are below £2,000 can recover at least a portion of the amount deducted. A brief manual[9] on the recovery of income tax has been published by Messrs. Mathieson. The subject is extremely complex; the little book expounding its intricacies should be of service to those who want to know how best to set about the task of recovery.

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[1] *A Spiritual Pilgrimage.* By the Rev. R. J. Campbell, M.A. London: Williams and Norgate. 1916. (Med. 8vo, pp. 320. 7s. 6d. net.)

[2] *Infection and Immunity: A Textbook of Immunology and Serology for Students and Practitioners.* By C. E. Simon, B.A., M.D. Third edition, revised and enlarged. London: Bailliere, Tindall and Cox. 1916. (Demy 8vo, pp. xi. 314. 8s. 6d. net.)

[3] *Transactions of the Medical Society of London.* Edited by Sir John F. H. Broadbent, Bt., M.D., F.R.C.S., and H. Lett, F.R.C.S. Volume xxxix. London: Harrison and Sons. 1916. (Fcap. 4to, pp. 367: illustrated.)

[6] *Handbook for Wives and Mothers in India.* By Mildred E. Staley, M.B., L.M. Second edition. Calcutta and Simla: Thacker, Spink, and Co. 1916. (Cr. 8vo, pp. 354. 5s. net.)

[7] *Formulaire magistral Bouchardat.* Par G. Bouchardat et F. Rabbery. Trente-cinquième édition. Paris: F. Alcan. 1916. (Pott 8vo, pp. 708. 4 fr.)

[8] *Clinical Notes for Probationers.* By Félicie Norton. S.P. Pocket Guide Series. London: The Scientific Press, Ltd. 1916. (16mo, pp. 136. 1s. net).

[9] *How to Claim Repayment of Income Tax for Year 1916-17.* London: F. C. Mathieson and Sons. 1916. (Cr. 8vo, pp. 94. 1s. net.)

The Hon. Rollo Russell, who died in 1914, had collected from medical and other literature a large amount of information tending to show that cancer increases in prosperous communities where too much food is eaten, and too many stimulating drinks—particularly tea, coffee, and alcohol—are drunk. The preventive measure he advised was that all states and governments should combine to educate their peoples to give up the consumption of the deadly food, deadly drink, and deadly drugs that he believed to promote the occurrence of cancer. His most recent views are put very clearly and compactly in his *Notes on the Causation of Cancer*.[10] The book may be recommended to general readers as a strong plea for temperance in victuals and drink.

The first and second volumes of the twenty-sixth series of the quarterly *International Clinics*[11] contain articles on subjects connected with medicine, neurology, public health pathology, gynaecology, surgery, and treatment, based on the literature appearing in the United States of America for the most part. Some of the articles are excellent, and many form interesting reading.

[10] *Notes on the Causation of Cancer*. By Hon. Rollo Russell. With a Preface by Dr Dawtrey Drewett. London: Longmans, Green and Co. 1916. (Post 8vo, pp. 127 3s. 6d. net.)

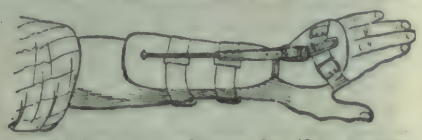
[11] *International Clinics*. Edited by H. R. M. Landis, M.D. Vols. I and II. Twenty-sixth Series. 1916. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 336 and 321; illustrated. 35s. net per year, 4 volumes.

MEDICAL AND SURGICAL APPLIANCES.

Wrist and Foot Drop Appliances.

Appliances for wrist drop and foot drop are made by Mr. Robert Whitelaw, 51, Woolmanhill, Aberdeen. The





designs are shown in the accompanying diagrams. The chief feature about the wrist appliance is the method of adjusting the tension of the spring. Where there is still any prospect of recovery the necessity of not at any time relaxing the extension of the wrist must be impressed upon the patient. The foot appliance, as will be seen, has a spring connected with the sole of the boot through a lever in front of the axis of the ankle, which tends to counteract the drop and lift the toe when it is raised from the ground.

THE EFFECTS OF ABOLISHING THE REGULATION OF PROSTITUTION IN COPENHAGEN.

The much debated problem whether the registration and systematic medical supervision of prostitutes has any effect on the incidence of venereal disease is still unsolved; and the most recent evidence shows how difficult it is to arrive at the truth by statistics. It was anticipated that the incidence of venereal disease before and after the abolition of the regulation of prostitution in Copenhagen in 1906 would be a valuable index to the influence, if any, of the regulation of prostitution. Some figures now available are not interpreted alike by the two parties, regulationists and abolitionists. In his report to the British Royal Commission on Venereal Disease Dr. Svend Lomholt answered the question, Has the abolition of regulation aggravated matters? with an emphatic "No." To the question, Has the new system proved advantageous, notably from the sanitary point of view? he replied with an unequivocal "Yes." In support of these contentions he quoted the weekly notification lists of venereal disease, which have long been employed by both parties in support of diametrically opposite opinions. In a letter to the journal of the Danish Medical Association, *Ugeskrift for Läger* (May 4th, 1916), Professor Pontoppidan has challenged this confident verdict on the benefits of the legislation of 1906. He considers the evidence afforded by the weekly notification lists so faulty as to be practically useless. He has relied on the statistics showing the number of cases of venereal disease treated in the communal hospitals before and after 1906. He has collected the figures for the seven years 1900–1906, and for the following seven years, 1907–1913. He admits, however, that the following table is misleading as far as the incidence of venereal disease in women is concerned, for with the sudden cessation of the systematic examination and compulsory treatment of prostitutes in 1906, the number of women treated in hospital was bound to fall, even if the actual amount of disease among the women of Copenhagen remained as before.

Men.

	1900-1906.	1907-1913.
Total number of cases	6,048	9,196
Gonorrhoea	2,851	4,597
Epididymitis	1,070	1,351
Syphilis	2,600	5,629
Primary syphilis	1,404	1,961

Women.

	1900-1906.	1907-1913.
Total number of cases	13,167	5,270
Gonorrhoea	4,701	2,072
Syphilis	2,938	2,703
Primary syphilis	1,256	1,269

The great increase in the number of men treated in the seven year period after 1906 is noteworthy. Professor Pontoppidan has given the figures for epididymitis separately because, whereas patients suffering from uncomplicated gonorrhoea may often refuse to avail themselves of hospital treatment, the subjects of epididymitis among the hospital-seeking classes almost invariably submit to hospital treatment. Professor Pontoppidan argues that the total number of cases of gonorrhoea must be directly proportional to the number of cases of epididymitis in the two periods. He concludes with the guarded opinion that, though the effects of the old system were unsatisfactory, those of the new are no better.

ROYAL MEDICAL BENEVOLENT FUND.

(Concluded from p. 558.)

The following is a continuation of the summary of cases relieved by the Committee at its meeting on October 10th:

Daughter, aged 46, of M.R.C.S.Eng. who practised at Redcar and died in 1873. Owing to ill health unable to work, and only income a pension from the R.U.K.B. Association of £21. Mother has £65 per year, but is an invalid, and a sister who is a trained nurse has had to give up her appointment to look after her mother and sister. Relieved five times, £52. Voted £10 in two instalments.

Daughter, aged 31, of L.R.C.P.Glas. who practised at Glasgow and died in 1897. Up to the commencement of the war managed to earn a living by taking in lodgers and paying guests in her house on the N.E. coast of Scotland; has recently been confined to bed. Relieved twice, £20. Voted £10.

Widow, aged 69, of M.B.Edin. who practised in the Shetland Islands and died in 1907. Applicant has very indifferent health, but has tried to live on her pension of £30 from another medical charity, but owing to the increase in the price of food has got into difficulties. Relieved once (four years ago), £6. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 81, who is practising in Cornwall, and previously at Nottingham. Lost his practice through the Insurance Act, and during the last twelve months has only earned £34. Relieved twice, £20. Voted £18 in twelve instalments.

Widow, aged 71, of L.R.C.S.Irel. who practised at Walworth and died in 1915. Left unprovided for with one daughter, who is now earning her living as a clerk. Applicant's only income, the old age pension. Relieved twice, £14. Voted £12 in twelve instalments.

Widow, aged 62, of L.R.C.S.Irel. who practised in London, and died in 1893. Until two years ago applicant managed to earn her own living, but was overtaken by illness, and was operated upon, and she has been in indifferent health since. A furnished room provided by friends, but she has no income. Relieved once, £12. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, OCTOBER 28TH, 1916.

"THE KINETIC DRIVE."

THE interesting speculations, conjectures, hypotheses, and references to experiments of Dr. Crile expounded in the "Wesley Carpenter" lecture concerning the inter-relations of the brain, the thyroid, and the adrenals as "the master key to the automatic action of the body" should, from their boldness of assertion and novelty, attract attention.

The lecture was delivered before the New York Academy of Medicine last year, and in a prefatory note to the volume in which it has now been published,[1] the author states that "it is in effect an epitome of a monograph which will offer the complete experimental evidence upon which the themes and postulates contained therein are founded."

The term "kinetic drive" implies an increased transformation of latent into active energy. Dr. Crile conceives that certain parts of the brain serve as the driving force which causes the transformation within the organism, and that in the brain structure is found the mechanism which makes the final manifestation of the transformed energy specific to the environmental contact which initiated the drive. He divides the initiators of the kinetic drive into contact ceptor stimuli, distant ceptor stimuli, and chemical ceptor stimuli. In other words, the brain, by means of the senses, is the organ of external relation. Dr. Crile declares that at the present time the great war is a mighty stimulus to the conversion of human latent into active energy, and we might add, to its wasteful dissipation. There is nothing new in this proposition, for it is generally recognized that the two great fundamental principles of life, whether animal or human, are the preservation of the individual and the preservation of the species. The driving force actuating all human beings is, then, the desire to live and reproduce, and this principle underlies the struggle for existence of nations as well as of individuals.

Man, by the great development of his brain, is enabled by voluntary attention to make innumerable new sensori-motor adaptations to environment involving continuous transformation of latent into active muscular energy; but this voluntary attention has its roots in that spontaneous attention which ministers to the desires necessitated by the organic needs common to animals and human beings. The subjective feeling of this transformation of energy by voluntary attention is conscious effort: and if the recuperation of neuro-muscular energy and elimination of fatigue products is not automatically effected by rest and normal sleep, this subjective feeling of conscious effort is accompanied by a sense of fatigue and exhaustion which is protective.

Dr. Crile maintains that the neural activity incidental to psychic processes serves as a stimulus to the adrenals, causing a liberation of adrenin into the blood. The work of Cannon and Elliot supports this view, particularly in regard to the emotion of fear; but, as Mr. Shand has pointed out, instinctive reaction to fear may be either concealment, flight or fight. But (and Dr. Crile does not mention this fact) in the case of instinctive concealment the emotion of fear may result in paralytic immobility and suppression of the kinetic drive, whereas flight, or fight when escape is impossible, necessitates an increased liberation of muscular energy.

We may, then, assume that the amount of adrenin liberated in paralytic fear is diminished, whereas in the case of flight or fight the amount of adrenin is largely increased, and its mobilization causes an increased conversion of glycogen into sugar—the source of heat and muscular energy. But the emotion of anger also increases the kinetic drive, and therefore it is probable that a judgement of value for the preservation of the individual, acquired by instinctive reaction or voluntary variations of adaptation to this end, rather than a particular emotion, is the determining cause of mobilization of the adrenin.

Dr. Crile supports his theory of the inter-relation of the brain, the adrenals and the liver, in the transformation of latent into kinetic energy, by showing the effects of exhaustion on the cells of these organs, and photomicrographs are given illustrating the histological appearances presented by normal organs compared with those exhausted by the kinetic drive under unfavourable conditions of recuperation.

He has selected the Purkinje cells of the cerebellum as the indicator of the exhaustion of the neurone kinetoplasm. He also shows that the same conditions of exhaustion of the cells of these organs may be effected experimentally by an acid condition of the blood, and it may be implied, therefore, that the fatigue products accumulating in the blood cause an acidosis which plays an important part in the process of exhaustion of the materials necessary for the "kinetic drive."

Amongst the interesting illustrations is a series of three photomicrographs prepared from the above-mentioned organs of a soldier who had suffered from hunger, thirst, and loss of sleep during the memorable forced march from Mons to the Marne. In this great battle he was wounded by the explosion of a shell, lay for hours waiting for help, and died from exhaustion soon after reaching the ambulance. Dr. Crile will, no doubt, give later more precise details of the method of preparation, and the elimination of possible fallacies, such as might arise from septic absorption or *post-mortem* decomposition. In any case we agree with him that a unique opportunity now occurs of studying the behaviour of the human mechanism under the strongest physical and psychic stress.

Dr. Crile assumes that there is evidence to show that the thyroid gland is essential for the production of the kinetic drive. There is some histological evidence forthcoming, to which he does not allude, in favour of the iodothyrin being necessary for the kinetoplasm of the motor neurones. Thus, Mott has shown in a number of cases of myxoedema that there is a marked chromatolysis with eccentric position of the nucleus of the motor neurones of the brain and medulla.

We hardly think that surgeons or physicians in this country will consider that Dr. Crile's ingenious theory of the kinetic drive rests on a sufficiently sound basis to permit them to accept as justifiable the removal of one adrenal, division of the cervical sympathetic trunks, together with excision of approximately three-fourths of the thyroid, for the treatment of epilepsy, even though the operation be performed in successive stages. Thirty years ago Alexander claimed that operations such as tying the vertebral arteries or

[1] *The Kinetic Drive: Its Phenomena and Control.* By G. W. Crile, M.D. The Wesley M. Carpenter Lectures before the New York Academy of Medicine, 1915. Edited by Amy F. Rowland, B.S. Philadelphia and London: W. B. Saunders Co. 1916. (Post 4to. pp. 73; illustrated. Cloth, 3s. 6d. net.)

removal of the superior cervical sympathetic ganglion had been followed by cessation of fits. We predict that Dr. Crile's venturesome treatment will similarly be given up and forgotten.

In conclusion, we wish the author before launching in lecture form the theory of the kinetic drive had published his monograph setting forth in detail the evidence upon which it is based, for without this it is impossible to criticize it or even comment upon its validity.

ALLEGED ADVANTAGES OF THE COMPULSORY NOTIFICATION OF VENEREAL DISEASE.

A LETTER calling on the mothers and wives of the empire to demand the compulsory notification and treatment of venereal diseases was published at the end of last week. It is signed by a large number of women who have either earned distinction themselves, and they form the majority, or are the wives of men of eminence in various callings. The signatories are dissatisfied with the recommendations of the Royal Commission. They do not think that one in a thousand of the public will be reached by lectures and private admonitions, and state that "even warnings are libellous before the law." They find it almost incredible that men and women known to be infectious should be at liberty to spread the contagion when and where they will, and allege that the disease is now very largely spread by girls of between 15 and 18 years of age. "Can we," they ask, "wait while these mere children, caught perhaps innocently or in a moment of madness, become the mothers of the future generation, and give birth to children more miserable than themselves?" They lay a good deal of stress on indirect contagion as by "kissing an infected person, by surgical or dental instruments, by razors, combs, brushes, forks, spoons, drinking vessels, pipes, towels, clothing, many industrial implements, etc."; and conclude that "by contagion, or for hereditary reasons, innocent persons are constant sufferers, and it is the first duty of the State to protect them."

If the general truth of all this be granted—and nearly all of it may be granted, the only doubt being as to whether the frequency of innocent infection, other than hereditary, may not have been, by implication, somewhat exaggerated—and we ask for the remedy, all that is suggested is contained in the following sentences: "The obvious remedies for every contagious disease are notification and compulsory treatment, and other dangerous and contagious diseases are thus treated. The evidence is so strong under our personal observation that we believe when the general public become alive to the grave dangers arising, notification of all infected persons will be demanded, as the Commission states. Time is short, and that demand should be made now, or it will be too late." The meaning of the last sentence appears to be that the signatories believe that venereal diseases are becoming increasingly prevalent, for in another part of the letter they say: "The disease [syphilis] is certainly spreading, and that is why we suggest that something should be done immediately." The Royal Commission was unable to obtain reliable statistics and refrained from expressing an opinion one way or the other. It reported, however, that the statistics for the Navy and Army, before the war, indicated a very satisfactory decline, and it is significant that the number of army recruits rejected for syphilis fell from 0.63 per cent. in 1890 to 0.14 per cent. in 1911–12, and that the decrease was fairly uniform throughout this period. But though there may be no statistical evidence that venereal diseases are increasing in this country nobody doubts that they are so extensively prevalent as to constitute a serious menace to the public welfare. The conclusion of the Royal Commission on this point was expressed in the following sentence. "While we have been unable to arrive at any positive figures, the evidence we have received leads us to the conclusion that the number of persons who have been infected with syphilis, acquired or congenital, cannot fall below 10 per cent. of the whole population in the large cities, and the percentage affected with gonorrhoea must greatly exceed this proportion."

The arguments against compulsory notification are well known. That which has most weight with public opinion is the risk of concealment, and consequent failure to obtain adequate treatment, which is a first essential in the interest of the individual and the family and an important part of any plan of prevention.

The National Council for Combating Venereal Disease has issued a kind of counterblast to the women's manifesto, and its letter is also signed by women well qualified to form an opinion. Compulsory notification, they say, "is obviously only one of many means to an end—the suppression of these diseases—and a much more comprehensive scheme is necessary if that end is to be attained. To be effective, the scheme must, in our judgement, include as the first and most necessary measures: (1) The provision in every area of adequate facilities for prompt diagnosis and efficient treatment, free of charge. (2) The prohibition of quack treatment. (3) The granting of privilege to any communication made in good faith by a medical man in order to prevent the spread of infection. Notification must be futile unless accompanied by police measures for enforcing treatment, which could not be given until full facilities had been made available to all classes. When these facilities have been provided, the question of compulsion can be considered."

The Contagious Diseases Acts were, in part of their machinery, an experiment in compulsory notification. They were abrogated in the country mainly for two reasons: first, that they seemed to involve the assumption that prostitution was a necessary institution; and secondly, because in practice they applied only to women known or suspected to be following a course of life likely to lead them to contract and disseminate venereal diseases. The general experience of this and other countries is by no means conclusive that police measures of this nature are effective in checking the prevalence of these diseases. We publish elsewhere a note on a careful analysis by Dr. Pontoppidan, Professor of State Medicine in the University of Copenhagen, of the statistics for seven years before and seven years after the abolition of the registration and medical supervision of prostitutes. Taking primary syphilis alone, they show an increase in the seven years after the abolition of control of about 25 per cent. among men, and a slight increase among women, but taking all cases of venereal disease they show a very large increase among men, and an immense decrease among women. Professor Pontoppidan points out that with the sudden cessation of the systematic examination and compulsory treatment of prostitutes a sudden diminution in the number of women treated in hospital was to be expected, even if the actual amount of disease among them remained as before. The Copenhagen statistics, therefore, like all others hitherto produced, are inconclusive, and all their compiler can say is that though the effects of the old system were unsatisfactory those of the new are no better.

Compulsory notification would apply to both sexes, and such a verdict does not encourage a hope that compulsory notification and treatment can be trusted to produce results which outweigh the ethical objections which apply particularly in the case of women, and the practical objections that, especially in regard to concealment, apply to both sexes. The signatories of the letter of the National Council conclude that "notification would be futile unless accompanied by police measures for enforcing treatment." The meaning of the term "police measures" is not defined, but at the meeting at the Mansion House on October 24th the Home Secretary suggested that an Act of Parliament should be passed making it an offence for a person knowingly and deliberately to do anything calculated to transmit venereal disease to another person, and that this should apply to the act of solicitation for prostitution. Such an enactment would be more or less in the line of the provisions of the Public Health Acts, which make it an offence for a person suffering from a dangerous infectious disorder, or anyone in charge of such a person, wilfully to expose himself or his charge in any public place without taking "proper precautions against spreading the said disorder." Mr. Samuel admitted that it might be difficult to prove knowledge, and the suggestion appears to go beyond the recommendations of the Royal Commission, but he suggested a special application of the principle which would be on all fours with recommendations of the Commission. He advised that men and women in prisons or other institutions, by which is to be understood apparently Poor Law institutions, who when medically examined were found to be infected, should be given a certificate to this effect which could be used as evidence of knowledge should they afterwards be charged with the offence of disseminating the disease. The Commission indeed advised that the applicability of the section of the Poor Law Amendment Act 1867 to secure the detention of Poor Law patients suffering from venereal disease should if necessary be made clear by legislation, but it did not consider it practicable in present circumstances to apply a general rule for the detention of prisoners suffering from these diseases.

TRAINING OF THE DISABLED SOLDIER.

AT a meeting of the Association of Technical Institutions on October 21st Major Robert Mitchell, director of education at the Polytechnic, Regent Street, London, read a paper, in which he said that in every local centre an advisory committee—consisting of doctors, employers, and employees—should be formed to select disabled men to be trained in suitable workshops. There were, he said, at least 150 technical schools which could be utilized for this purpose. Sir Alfred Keogh, who presided, said that the two great problems were continuous treatment and training, and the provision of employment. After pointing out that the modern army differed from the regular army before the war in that it included every class of society, and that the training required for clerks and men of higher education was different from that for men who would engage in manual employments, he said that he fully recognized that no movement for the training of men who had left the army could be successful without the co-operation of the heads of the technical institutions. Many discharged soldiers would require prolonged treatment, extending, perhaps, to a couple of years, and he held that treatment and training should go together. It was not possible for the army to establish institutions for treatment and training except in large camps in the country, far from technical institutions and centres of industry. The local pensions committees should have three subcommittees dealing respectively with pensions, treatment, and training. The treatment and training should be given in the great centres, where, in fact, most of the men lived and where there were hospitals. The class of man who lived in agricultural districts would have to be brought, if necessary, with his family into the great centres and maintained there until the treatment and training were complete. This meant that the technical institutions must be intimately associated with the hospitals. He felt sure that the resources of the army, which were very large, would all be placed at the disposal of the discharged soldier for as long as might be necessary, just as if he were a serving soldier. The experts of the country were at the hospitals already, and the men would there get the best care and attention that could be given. The Army Council was making arrangements to establish in connexion with its orthopaedic hospitals workshops for curative treatment; it was better to provide these manual curative workshops than machines for orthopaedic exercises. The opportunity would be taken at the military hospitals for starting the training of the men in certain industries, but the primary object of military hospitals was to get men back to the ranks. We had not half beaten the Germans yet, and the training of men who had been discharged should be placed in the hands of such a body as the Association of Technical Institutions, that is to say, the training must be in the hands of men accustomed to training, and the great technical institutions were the proper bodies to train the soldier. It was very important that treatment and training should go on together; without continuous training men would never be able to follow such trades as were proposed, and most of them could be very greatly improved by continued treatment. In speaking of technical institutions he included the agricultural colleges, where men could receive the highly technical education necessary for agriculture or horticulture. In the discussion it was stated that men had failed to respond readily to offers of training owing to the existence of the mistaken idea that allowances or pensions would be reduced in proportion as earning power increased. The meeting adopted resolutions pledging the association to do all in its power to place the resources of the technical institutions at the disposal of the authorities for training purposes, and inviting agricultural colleges to affiliate themselves to the association.

THE CLERGY AS HEALTH MISSIONARIES.

THE "failure of the Churches" is a favourite text of the Jeremiahs who fill the newspapers with lamentations over the general rottenness of things in these evil days. It is scarcely within our province to discuss the question whether Christianity has failed, as many in their haste declare, but, assuming that there is some ground for complaint of the inefficiency of the churches, we may be allowed to point out that one possible cause is the want of interest in health problems displayed by ministers of religion as a body. This is admitted by leading men in the Church. The other day Canon Carnegie, Chaplain to the House of Commons, speaking of his own experiences in Birmingham, told an interviewer that so far as the Church's teaching deals with conduct it has tended to limit its view to the personal and domestic virtues, and to leave out of account the larger social duties and responsibilities. As an organized social power, he said, the Church is strangely ineffective. The clergy knew that within the areas in which their churches were situated the drink evil was rampant, and that in many of them slum dwellings existed unfit for the habitation of brute beasts. But they also knew that so far from being the head centres of the movement for social amelioration, they were hardly taken into account by those interested in that movement. We welcome as another sign of awakening to the importance of the matter a resolution adopted on October 20th by

the Manchester Diocesan Conference calling on all churchmen in the diocese to interest themselves effectively in the improvement of housing conditions. We hope this example will be widely followed by other ecclesiastical bodies, and that the good resolutions will be translated into effective corporate action. The dirt and squalor so painfully in evidence in countries where the priesthood holds sway over the minds of the people are in large measure due to the intensity of a faith which makes them feel the futility of things that merely concern a brief life on earth. This indifference is one of the "notes" of the theological mind, and tends to put it out of sympathy with the medical profession, whose aim is the prevention of disease and the increase of physical well being. It is, perhaps, not too much to say that the clergyman is often a little suspicious, if not actually jealous, of the influence of the doctor, who has not yet wholly outlived the effect of the mediaeval libel, *Ubi tres medici, duo athei.* But although it may be admitted that, like Chaucer's physician, the modern mediciner's "studie is litel on the Bible," we hold that in the highest sense of the word—the sense which teaches that

> He prayeth well who loveth well
> Both man and bird and beast—

the doctor is by his profession the most religious of men. The attitude of the clergy is unfortunate, as they might be most powerful allies of the medical profession. They would be more disposed to help if they realized that war against disease is to a large extent war against sin. As Johnson said, every man is a rascal when he is sick, meaning that a bad condition of body breeds an unholy and malevolent state of mind. Sydney Smith studied medicine, as he felt that such knowledge would increase his usefulness as a parson; and his experience led him to say that the longer he lived the more convinced he became that the doctor is of more importance than Seneca. We wish that all of his cloth were equally enlightened. If the clergy take so small a part in the campaign for the sanitary betterment of the people, this is, to some extent at least, due to their ignorance of the aims and methods of sanitarians. Instruction in hygiene should, therefore, be an integral part of the training given in theological colleges. Clergymen need not be experts in sanitary science, but they should understand its principles and the main facts concerning the conservation of the health of the community and the individual. We are sure this would make their ministry more fruitful in every way. Efforts to arouse in them as a body an active interest in the subject have from time to time been made, but the results have, on the whole, been disappointing. In 1892 the Lower House of Convocation of the Province of York unanimously passed resolutions calling for some definite action by the Church in view of the dangers to health and morality caused by insanitary houses and overcrowding. The resolutions found little support in the Upper House, but the Archbishop promised to consider the matter. Nothing, however, seems to have come of his consideration. In 1887 the very step we now urge on the churches in this country was taken in Portugal. Cardinal Americo, Bishop of Oporto, founded at his own expense a chair of hygiene in his diocesan seminary of Carballos. He enacted that no candidate for holy orders should be ordained priest without giving proof of a knowledge of the principles of hygiene. This brought a good deal of adverse comment on the head of the enlightened prelate; and, as far as we are aware, he found no imitators among his episcopal brethren in Portugal or elsewhere. This suspicion of medicine among the modern clergy is all the more remarkable in view of the importance assigned by Moses to sanitation, and by the attitude of the early apologists for Christianity. Tertullian and Clement of Alexandria are full of medical illustrations, and others of the Fathers show a clear understanding of the value of hygiene.

GERMAN TREATMENT OF PRISONERS.

Mr. J. F. Hope stated in the House of Commons on October 17th that the latest reports from the United States Embassy at Berlin showed that the treatment of British prisoners in Germany has somewhat improved. This is confirmed by men who have lately come home. That there was a crying need for improvement is shown by a report by the Government Committee on the treatment by the enemy of British prisoners of war, on an epidemic of typhus at the Gardelegen camp, which has just been issued as a White Paper. The outbreak occurred in the early part of 1915, and the main facts were published in a paper by Major P. C. T. Davy and Captain A. J. Brown, R.A.M.C., which appeared in the British Medical Journal of November 20th, 1915, p. 737. That paper, which is a purely scientific report, and is written in a tone of studious moderation, gives only a faint impression of the horrors of Gardelegen, a name which will henceforth take its place by the side of Wittenberg in the records of German infamy. It is virtually the same story of cowardice, incapacity, and brutality. The Germans, including the medical staff, and even the women employed in the kitchens and the orderlies, fled hastily, leaving the sick unattended till British, French, and Russian doctors were placed in charge. According to Mr. D. Thomas Curtin, the American journalist whose articles give a vivid impression of the state of things in Germany, the improvement in the treatment of prisoners now reported is due to a change that has come over the spirit of the Teuton's dream as the result of the large captures of Prussian Guards made on the Somme. Writing in the *Times* of October 18th he says that since then a number of really excellent camps have been arranged to which neutrals are taken. He visited Soltau, a veritable city which has sprung up on the Lüneberg Heath five hours from Berlin, "with the speed of a boom mining town in Colorado." Mr. Curtin found nothing wrong in the camp, which has 31,000 inmates of whom 200 are British; our countrymen there are as well treated as any in Germany. This cautious statement does not perhaps amount to much, as in the same article he says that the British, though by far the least numerous among the prisoners in Germany, are much the most highly prized for propaganda purposes. He adds that, although Soltau and other camps are satisfactory, "there are others, many, many others." It is a matter of common knowledge throughout Germany that the most loathsome tasks of the war in connexion with every camp are given to the British. Officers and men are utterly weary of the privation, imprisonment, monotony, and hardship they have to endure. It is hard, says Mr. Curtin, to see these men slowly ageing amidst harsh surroundings while the German prisoners in England are, as he heard in Germany, bountifully fed and well cared for. He is convinced that the policy of indulging the German prisoners while they illtreat ours is mistaken. As the number of Germans in our hands now exceeds that of British prisoners in Germany, we could secure equal accommodation and equal treatment not only at Ruhleben but in all the German camps. "But," says Mr. Curtin, significantly, "you will not get it by trying to stroke the German tiger's back and making him purr." While testimony from all sides shows that the British have been treated with special cruelty in German camps, other nationalities have had much to suffer. *Le Journal* of October 19th published a circular of the German Ministry of War relative to French prisoners interned in the so-called reprisal camps in Russian Poland, and Courland. The document, which is dated "Berlin, April 25th, 1916," directs that the prisoners are to be housed in huts or tents, unheated and dimly lighted; the supply of water and soap is to be insufficient; the confinement is to be as strict as possible; no communication with the civil population is to be allowed; the prisoners must work nine hours a day without rest; their food is to be vegetables

especially peas; they are to have no hot water; the canteen is to be of the most limited kind; the sale of dainties and fruit is forbidden. No clothing but undergarments is to be supplied; no music, singing, concerts, or games are to be allowed. For long punishments bad localities are to be selected; the lightest punishment is to involve deprivation of food. This order is conceived in the true spirit of the German gaoler. The object is to destroy the constitution and break the heart of the captives; even the consolation of religion is withheld from them, for it is expressly enjoined that no Mass is to be allowed. It is gratifying to learn that the unhappy prisoners who have gone through this martyrdom are to be returned to their original camp where the severity of their treatment will be relaxed.

STERILIZATION AND SUTURE.

DR. DEPAGE is one of the latest converts to the principle of the secondary closure of war wounds after cleansing, excision, and disinfection by a hypochlorite solution, which is now so extensively used in British military hospitals in France. He studied the method at the hospital at Compiègne, of which Dr. Carrel is the chief surgeon, and in a communication to the Société de Chirurgie de Paris[1] he enlarges upon the importance of controlling the method by bacteriological observations made by taking a smear from the wound every other day, and counting the number of microbes in a field. Depage's observations were made at the hospital at La Panne, and the bacteriological work has been done by Dr. Govaerts, who finds that during the first six days after the wound the exudation consists chiefly of polynuclear cells, and contains an enormous number of microbes. About the sixth day the polynuclears begin to disappear, their place being taken by mononuclear cells, and the microbes diminish. After the tenth day macrophage cells appear, and the few microbes to be seen are all of them included in the phagocytes. The appearance of the macrophages, therefore, is the sign that the wound is approaching the condition of asepsis. Charts are kept of the number of microbes, as in the British military hospitals; smears of the exudate when the patient is first admitted show in the majority of cases no microbes, the wounds being covered with blood, which is always aseptic. On the second or third day the number of microbes rapidly increases, reaching as many as one hundred, two hundred, three hundred, and even one thousand microbes in a field. It remains at this high level for some days, and then begins to fluctuate, with a general downward tendency. Wounds of the soft tissues were found to become practically sterile at the end of six days. In anfractuous and badly contaminated wounds this condition of practical asepsis is attained later, and in cases of compound fracture the period may extend to a month. If any sequestrum is present, it must be removed before practical asepsis can be attained. If the use of the hypochlorite solution is discontinued, the wound quickly becomes infected again. Depage, therefore, distinguishes three periods: The first that of acute infection, when the microbes are very numerous and virulent. Suture at this period is always unsuccessful, and may be followed by serious complications. The second period is one of attenuated infection; the microbes are less numerous and less virulent. Suture at this time only rarely succeeds, and may be followed by a return of the acute infection. In the third period the wound is aseptic, or so nearly aseptic that it may be sutured, but Depage advises that, in the case of bone lesions, it is prudent to wait for two or three negative results. He reports the results in 137 wounds closed on this principle by suture. In 112 the success was complete; in 23 it was partial, but in many of them there was no more than a failure of a few stitches to hold owing to skin tension or to slight suppuration. In such cases rapid healing was obtained by the use of a hypochlorite liquid (Dakin's). Two cases failed, and in both the failure was due to the tension of the skin being too great. In closing the wound Depage does not, as a rule, remove granulations, but brings the skin over them. In some cases he has found it necessary to loosen the skin and slide it forward, and in others to transplant.

[1] Bulletin XLII, No. 30, August 29th, 1916.

THE ANTHROPOMETRIC SIDE OF RECRUITING STATISTICS.

IT was recently announced that the Secretary of State for War had formed a new department for the collection of statistical information, and had appointed Mr. H. J. Creedy, of the War Office, to take charge of it. As Mr. Creedy is an experienced civil servant, but not, we believe, an expert statistician, it may be presumed that the new department will be charged principally with the compilation of returns which, although of great administrative importance, do not call for any special skill in the analysis of numerical data. There are, however, certain classes of statistics accumulated in consequence of the war which fall into a different category. At an early stage it became obvious that the invalidity and sickness data would not only be very numerous, but also very intricate, and would demand the special skill in reduction and analysis which is only possessed by a small number of experts. The Army Medical authorities took advantage of the services of the Medical Research Committee's investigators, with the result that the sickness and casualty data are being compiled under the supervision of Dr. John Brownlee, Statistician to the Committee. The statistics of recruiting do not, however, seem to have shared the benefits of this arrangement. Under the Military Service Acts all males of military age, not already with the colours nor exempted by the tribunals, are required to present themselves for examination before a medical board. The nature of the particulars recorded and their exactitude perhaps vary, but, in the aggregate, a vast amount of statistical information has been and is being registered. The national importance of such data is considerable. Were all males of military age submitted to an identical examination, and such particulars as height, weight, chest dimensions, visual acuity, eye colour, etc., recorded, the data would form an ideal basis for an anthropometric survey of great interest; it might prove possible to contrast the physical types of natives of different portions of the United Kingdom, to compare the average characters and proportional fitness of men in different trades, and even to tackle the moot problem as to the relative values of different types when exposed to the physical and mental strain of active service. This ideal cannot of course be attained. Data collected under the pressure of work from which no recruiting medical boards are free cannot be expected to reach the required standard of fullness and accuracy. Further, before the real significance of any averages could be determined, allowance must be made for the double process of selection the examinees have undergone. In the first place, large numbers joined, or attempted to join, the army before compulsion was instituted; and, in the second, not only does the ease with which exemptions are granted vary from tribunal to tribunal, but men following certain occupations are more likely to be exempted by any tribunal than those engaged in other trades. To make the due allowances would tax the powers of experts in statistical science, and those unversed in statistical methods would find the task hopeless. It is, accordingly, obvious that the data would have to be handled by thoroughly competent medical statisticians, familiar alike with statistical methods and the technique of medical examinations; it is probable that, if so handled, they would yield results of great interest. It will be said that the energies of the officers are already fully

occupied with matters of more immediate importance, and that the data can be left to accumulate until peace brings leisure. These objections are not wholly valid. With regard to the first, it is to be remembered that an expert staff already exists in the form of the Medical Research Committee's Statistical Department, that this staff is already tabulating the sickness and casualty data, and, possibly with some addition to the personnel, might well undertake the codification of the recruiting data. With respect to the second point, the advantage of placing the data at once in the hands of the expert lies in the fact that slight modifications in the form of the records or possibly a special investigation of some particular sample, by way of control, might make all the difference to the value of the final result. Nearly every statistician who has had to report upon a collection of data has been beset with doubts, which might have been removed by a few simple inquiries when the data were in process of collection, but must remain insoluble when he is dealing with the matter *ex post facto*. It appears, then, the utilization of recruiting statistics might disclose information of national value, that machinery for the performance of that analysis exists, and that the material with which it could deal is in danger of accumulating into an unmanageable mass.

WORK AND OVERWORK FOR JUVENILES.

The demand for juvenile labour is being loyally responded to, but there is great need for careful regulation of the hours of work if the supply is to be kept up to the required standard. The memorandum[1] recently issued by the Health of Munition Workers Committee, dealing with the subject of juvenile employment, points out in considerable detail the many difficulties that have to be overcome in order to keep young workers of both sexes in sound health under the existing conditions of labour. Boys and girls living at home but working all day in factories or workshops are under double control. The regulation of their daily round of work can be fixed by the authority of employers, but the hours for rest and recreation may be well or ill spent according to the example and influence in the home. In too many households the father has been called away to military duty, the mother is overburdened with domestic cares, and the children are only too ready to seek change and recreation in the streets or in the picture shows. The direct result of this is to shorten the hours for sleep to the detriment not only of their own physical well-being, but also of the quality of the work they turn out. Youth is remarkably adaptable to changing conditions, but sleep is an essential element of sound health. In a very large number of workmen's houses the sleeping accommodation is overcrowded, and undisturbed sleep is at the best of times difficult to secure. But long hours of labour and short hours of rest must in the long run lead to breakdown, or at any rate to serious impairment, of physical vigour. Hence the Committee has strongly urged the paramount necessity for rigid limitation of the labour hours and for due allowance of time and opportunity for mental and bodily refreshment and rest. The abolition of Sunday labour for juvenile workers, the curtailment of night work to the lowest possible degree, and the provision of reasonable intervals between one spell of work and another, are the main points upon which the Committee insist. Young folks of both sexes suddenly plunged into the whirl of adult life stand in great need of guidance, more especially if home influence is withdrawn. In some establishments the institution of welfare visitors has been attended with excellent results. A tactful adviser may render most valuable service by observation of individual character and by helping those who most need assistance to avoid evils that they do not recognize, and to make the most of their opportunities for improvement as they occur. The comparatively high wages which are being paid to quite young workers are an additional source of danger and are likely to lead to extravagant expenditure or to gambling, if inclinations in such directions be not counteracted. A welfare visitor must be possessed of no small degree of tact and forbearance. On the one hand he or she must keep the interests of the young employees in view, while on the other the demands of the manager or foremen have to be recognized and their goodwill enlisted if recommendations with respect to individual cases are to be regarded. However willing the juvenile worker may be, the sudden transition from the school to the workshop, involving the study of entirely new conditions, would seem to call for regular tuition in order that the manual work may be undertaken with some degree of intelligence. Evening classes have been proposed to meet the difficulty, but such classes would be absolutely useless to those who had already been working for ten hours. For many months to come there will doubtless be an ever-increasing call for juvenile as well as adult labour, but its full effect, both as to quality as well as quantity, will largely depend upon the maintenance of bodily and mental vigour in the workers. Neither men nor women can produce their best work for long together if their labour is not duly balanced by rest. In the case of children it would be the acme of false economy to overdrive the willing young horses.

[1] Ministry of Munitions: Health of Munition Workers Committee. Memorandum No. 13. Juvenile Employment. H.M. Stationery Office [Cd. 8362]. Price 1d.

THE DIAGNOSIS OF BACILLARY DYSENTERY AND ENTERITIDIS INFECTIONS.

With a view to the convenience of bacteriologists at military hospitals and the co-ordination of results obtained by different observers at different times and places, the Medical Research Committee made arrangements some time ago for the preparation and supply of sterilized standard agglutinable cultures and standard agglutinating serums for the diagnosis of certain intestinal infections by means of macroscopic agglutination tests. The preparation of standard cultures and serums carried out in the Department of Pathology, Oxford, under the direction of Professor Dreyer, has now been extended to include *B. dysenteriae* (Shiga, Flexner, and Y), and *B. enteritidis* (Gaertner), in addition to *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B. The standard cultures and serums will be supplied by the Medical Research Committee free of charge to pathologists working in connexion with military hospitals. Applications for standard cultures or serums should be addressed to the Standards Laboratory, Department of Pathology, University of Oxford (telegraphic address, "Pathology, Oxford"; telephone, Oxford 467). To facilitate the performance of agglutination tests under service conditions or otherwise, a special outfit has been prepared. This consists of a special stand, dilution tubes, agglutination tubes, and two dropping pipettes, which can be obtained free of charge by pathologists working for military hospitals upon application to the Medical Research Committee, 15, Buckingham Street, Strand, W.C., or may be purchased from Messrs. Baird and Tatlock, 14, Cross Street, Hatton Garden, E.C., or from Messrs. R. B. Turner and Co., 9, Eagle Street, Southampton Row, W.C., price 4s. 6d. each set. Full directions for use are sent out with each set of apparatus and with all standard cultures. Under service conditions the standard agglutinable cultures will be supplied in quantities sufficient for all ordinary routine work. When application is made for them the probable weekly number of agglutination tests to be made should be stated. The standard agglutinating serums for *B. dysenteriae* (Shiga, Flexner, and Y) and *B. enteritidis* (Gaertner) will be provided either for the identification of these several forms or for use in the standardization of killed agglutinable cultures. The use of the standard

agglutinable cultures, with the set of apparatus as provided, is believed to offer the following advantages: (1) The procedure is simple and rapid. (2) The materials are always ready, and no cultures have to be incubated and prepared. (3) The culture is killed, and all risk of infection is absent. (4) The reaction can be carried out at any temperature between 35° C. and 56° C., or even at room temperature if necessary. (5) No microscope is needed. (6) Owing to the precise quantitative determination which it allows, the method enables the worker to follow the course of the agglutination curves obtained by successive examinations, and thus facilitates the diagnosis of active disease. (7) The results obtained possess standard uniformity even in relatively unpractised hands, and are strictly comparable from case to case and from day to day, wherever the tests are performed. The expression of the results in standard agglutinin units allows the comparison of extensive series of observations in different laboratories and at various times for statistical or other purposes. The standardized cultures and serums already provided for *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B, have now been in use at the chief military laboratories engaged in work upon enteric fever cases and carriers with the Expeditionary Force and at home for over a year. It is hoped that in the interests of uniformity of results and the unification of records the new standards now made easily available may be generally adopted.

COCAINE AND UNREGISTERED "DENTISTS."

WHEN the Order in Council regulating the supply of cocaine and forbidding its sale to unauthorized persons was promulgated appeals were at once made to the Home Secretary in the House of Commons on behalf of unregistered practitioners in dentistry. As we then pointed out, the reply of the Home Secretary showed a correct appreciation of the fact that individuals possessing no qualification have no legal or moral claim to be treated otherwise in the matter than any other members of the general public. In view of the fact, however, that supplies of novocain were then restricted he eventually consented to permit unregistered dentists to purchase cocaine for a limited period which was afterwards extended to October 31st. Notices have now been given in the House of Commons, and have the support of a considerable number of members, asking the House to express the opinion that the special permit granted to unregistered practitioners in dentistry to purchase and use solutions containing not more than 1 per cent. of cocaine for purposes of local anaesthetics should be extended for a further period of six months. We do not know of any valid argument which can now be advanced in support of this contention, and hope very strongly that the Home Secretary will not give way. He has stated that it is not possible to state even approximately the number of unregistered persons practising dentistry. Any person can call himself an unregistered dentist, and could, on that ground, if the regulation is relaxed, obtain cocaine which he might dispose of as he thought fit; this would go a long way towards rendering the regulation nugatory.

Medical Notes in Parliament.

Royal Commission on Public Services in India. In a written answer to Sir H. Roberts, on October 24th, the Secretary of State for India said that the report of the Royal Commission on the Public Services in India was being printed off, and copies would be shortly dispatched to India. It was proposed that it should be issued simultaneously in India and in this country, and the Government of India had been requested to take it into consideration with as little delay as possible.

War.

Disabled Sailors and Soldiers.—Mr. Hayes Fisher stated on October 19th, in reply to Mr. Hogge, that the scope and terms of the agreement between the Statutory War Pensions Committee and the Insurance Commissioners for a scheme of medical treatment, including specialist advice for all disabled sailors and soldiers, had not yet finally been settled.

Medical Men as Combatant Officers.—In reply to Mr. Perkins, Mr. Forster said, on October 18th, that qualified medical men serving as combatant officers in the Territorial Force had been given an opportunity of serving in the Royal Army Medical Corps. If particulars of any case of hardship were supplied he would make inquiries.

German Prisoners.—Mr. Forster stated on October 18th that, according to the latest returns, the number of German military prisoners interned was 757 officers and 38,064 other ranks, excluding those repatriated to Germany, transferred to Switzerland, or dead. There were also some prisoners in France not yet included in the returns, and a certain number had recently been released on parole in South-West Africa; in addition, there were 150 naval officers and 1,976 other ranks. The Prime Minister stated that the total number of prisoners captured by the French on the Somme from July 1st to October 12th was 40,125. Mr. Forster stated on October 19th that the number of British prisoners in the hands of the Bulgarians was 450, and that, according to the latest information, they were all to be concentrated at Philippopolis.

Typhoid and Paratyphoid.—In reply to Mr. Chancellor, who asked on October 18th for information as to the number of cases and deaths from typhoid and paratyphoid fever amongst inoculated and uninoculated men in the British army on the Western front from August, 1914, to the latest date available, the Financial Secretary to the War Office said: "Up to August 25th, 1916, 1,501 cases were finally diagnosed as typhoid fever amongst the British troops in France—903 amongst inoculated men and 508 amongst non-inoculated men. There were 166 deaths, 47 of which were amongst the inoculated and 119 amongst uninoculated. To the same date there were 2,118 cases of paratyphoid—1,968 amongst inoculated men and 150 amongst men who had not been inoculated. There were 29 deaths, 22 of which were amongst the inoculated and 7 amongst the uninoculated." Mr. Chancellor also asked the number of cases amongst inoculated and uninoculated men in the Gallipoli campaign diagnosed as dysentery, cholera, trench fever, pyrexia, typhoid, paratyphoid, and Gallipoli fever, with the mortality from each. Mr. Forster said he could give the number of cases so diagnosed, but the army had not information as to how many cases under each category occurred amongst inoculated and uninoculated men respectively.

Doctors' Motor Boat (Land Lights).—In reply to Mr. C. Wason, who asked whether a doctor, bound by the terms of his contract to keep a sea-going motor boat, was prohibited from the use of reasonable land lights, Dr. Macnamara said that the doctor must comply with any directions given by a competent authority.

Tri-nitro-toluol Poisoning.—Mr. Brace stated on October 19th that the question of T.N.T. poisoning was receiving the close attention of the Home Office and Ministry of Munitions, and special measures had been taken for dealing with it. Further modifications of the regulations were under consideration. The problem was a new one, and was made more difficult by the fact that the manufacturing processes were constantly being modified. The precautions which were now required, or under consideration, included all the measures which the experience so far obtained suggested, and further investigations and experiments with new methods and appliances were being made. Mr. Brace stated, in a written answer on October 24th, that during the quarter ending September 30th the number of deaths reported from tri-nitro toluol poisoning was 21.

THE late Sir William Henry Power, formerly principal medical officer to the Local Government Board, left estate valued at £10,199.

THE *Journal of the American Medical Association* has for fourteen consecutive years collected statistics of deaths and injuries resulting from the celebration of the Fourth of July in the United States. In recent years the number of casualties has rapidly declined, and this year not a single case of tetanus was reported. During the thirteen years preceding 1914, 1,119 cases of tetanus were reported as due to injuries resulting from the use of fireworks during the celebrations, and 991 of the patients died. In 1903 one case of tetanus resulted from every four blank cartridge injuries, and in 1909 one from every eight. The proportion in the entire thirteen years was 1 in 7.5 blank cartridge injuries. Owing, no doubt, to the more general use of antitoxin the proportion has dropped conspicuously during recent years. In 1915 there was only one case, although there were 295 blank cartridge wounds. Out of the cases of tetanus, 889, or 79.5 per cent., were caused by blank cartridges; 94 by giant crackers; 76 by powder and other explosives; 33 by firearms, and 27 by toy cannon.

THE WAR.

THE ROYAL NAVAL MEDICAL SERVICE IN ACTION.

Mr. Rudyard Kipling has shown how a plain tale told by an expert with the technical terms of his craft may give a more living picture, biting more strongly into the imagination than enthusiastic rhetoric. There are three articles in the *Journal of the Royal Naval Medical Service* for October which produce this sort of effect. We are quite sure the writers were not striving after effect: they are experts addressing brother experts upon experiences novel to all and which only relatively few naval medical officers have yet had.

The principal idea upon which all plans for handling the wounded during a naval action must be founded is to remove them from amongst the fighting men as quickly as possible so that no interference with the working of the ship can take place. The surgeon has to settle beforehand on stations to which the men can find their way if they can walk or to which they can be carried in Neil Robertson stretchers during lulls, often by devious routes, down hoists, slipped carefully down canvas chutes, and brought along cramped passage ways. Usually he establishes two such stations called by an odd inversion "distributing stations," for they are in fact reception stations, one forward and the other aft.

The places are supplied in the design of the ship, and it is rarely possible to change their position, but Fleet Surgeon John Muir, writing from experience of two important actions as senior medical officer H.M.S. *Tiger*, advises that they should be carefully examined to see whether they are really safe for the wounded or not, remembering that in the modern long-range actions there is great danger from plunging shell fire. Being doubtful about the protection of the after dressing station in his own ship, he ordered the surgeon in charge during the first action to withdraw his parties into the ammunition passages on the disengaged side. After the action the matter was discussed, and it was determined in any future action to rig the after dressing station, but to instruct the medical officer, sick berth staff, and stretcher parties, when the order was given to man the dressing stations, immediately to go to the forward dressing station and remain there until the action was over. Had the party in the last action actually manned the after station "they would have been annihilated."

In these stations temporary dressings are applied, and a dose of morphine given. Near by the surgeon must plan to make the best use he can of any adjacent space where the men can lie until the action is over, for until then the real work of surgical treatment cannot be undertaken.

After he has chosen the best protected places for his wounded and staff, he must consider what he will do if a shell upsets them altogether or stops his electric light, or cuts his water and steam supplies as happened on the *Tiger* in both actions. He cannot depend on having the sick bay intact after action, as few sick bays are behind armour. It follows that when the dressing stations are being rigged before action, provision must be made for the possibility of there being no sick bay after action, and necessary gear must be placed under protection.

As soon as the ship is in commission her naval surgeons must set to work to train the stretcher parties so that they may not only learn to handle and transport wounded, but also get to know their ship thoroughly. On the *Tiger* we are told, "Not one of these men ever fails to tell you the shortest route available to get to the distributing station from any part of the ship, and should that route be blocked they always know the next quickest."

On "action stations" being sounded the medical officers' parties are reinforced by others not actually engaged in fighting or working the ship. On the *Lion* the surgeons had the help of first-aid parties, comprising writers, cooks, stewards, canteen hands, and the opinion is expressed that well-trained first-aid parties are essential. "Little benefit is derived from instructing the ship's company as a whole, as, although the men will tend their fellow shipmates with brotherly affection, they shrink from dressing their wounds, and always seek aid from a trained staff."

On the *Tiger* the medical officers had the assistance of the fleet paymaster and a chaplain; the chief writer was in charge of stretcher parties; the captain's cook looked after the supply of water and brandy and hot soup for the wounded; two cooks removed their clothing; the chief sick berth steward was in charge of the instruments and took general supervision, and the sick berth steward had charge of dressings and lotions.

In a light cruiser with two surgeons which was engaged in the battle of Jutland the senior's staff consisted of the sick berth steward, sick berth reserve steward, the ship's steward's assistant, a cook's mate, and the master-at-arms. The other surgeon had a sick bay attendant, the ship's steward, ship's corporal, a cook's mate and third writer.

The parties assembled at the stations may have a long wait. In the *Tiger* in one action they had to wait two hours before they had anything to do, and it is easy to understand that this period is very trying to the nerves. Fleet Surgeon Muir writes: "It must be remembered that the noise in the action is deafening, the concussion and vibration so severe that one feels as if every half minute one were taken by the shoulders and violently shaken; the smell of cordite is sickening in its intensity and penetration, the rumours that are passed along the deck occasionally most alarming, and the stampede of the fire parties to put out even the smallest fire liable to make any one's heart beat more quickly. Add to this the absolute ignorance of what is going on up above and the knowledge of the supreme hopelessness of any effort at escape should the ship go down suddenly, and it is not in the nature of mankind to sit calmly waiting for the gruesome sights which we know must come. The only remedy is work and plenty of it. If there is nothing else to be done the staff can always be ordered to swab out the station with izal. The officers must keep a tight hold of themselves, as even an innocent jest has been received with alarm. Once the real work does come along, the medical officer will find that, as if by magic, all traces of excitement disappear, and he will be surrounded by an eager, capable band of cheerful workers."

In the *Tiger* when a wounded man reached the station he was removed from the stretcher, laid on a couch, rapidly stripped by the two cooks, who were provided with large service scissors, and wrapped in a blanket. He was then quickly overhauled by a medical officer, who either applied temporary dressings or gave instructions. Temporary dressings were of the simplest description, chiefly gauze over wounds and boracic ointment to burns. Each patient was given ½ grain of morphine hypodermically by the medical officer if necessary, and the dose was repeated in half an hour should the men be found restless with dilated pupils. Tablets under the tongue were not found satisfactory. After the injection the patient was placed on one side, on a mattress on the floor of the station, on a mess table outside, or slung in a cot, and the cook came along with half a pint of warm bovril with, when ordered, 2 oz. of brandy in it. It was found that the wounded could be brought to the station from any point except the turrets without interfering with the work of the ship and without exposing the stretcher parties to undue risk. The wounded who were able to walk could easily reach the dressing station from the turrets, but to remove those who required to be carried it would have been necessary to hold up the turret for about ten minutes whilst the wounded were being lowered into the shell room. As this was obviously impossible in close action two special cook ratings who had been well trained in first aid, and provided with first aid bags, were stationed in each turret; when it was expected that a lull in the action was coming the captain sent down word from the conning tower, and the wounded were then moved.

In the *Lion* the forward dressing station was very inaccessible and could not accommodate more than a dozen men; the after station, though easy of access, was so small that only stores and instruments were placed therein. "During action the mess deck itself, which is behind armour, received all stretcher cases, who were placed out of the way in bathrooms or on mess tables." Fleet Surgeon Maclean and Surgeon Stephens tell us that in this way parts of the mess deck automatically became dressing stations as required. The wounded were not carried any further than was necessary from where they fell, and in this way, it is believed, shock was greatly

reduced. Those injured in turrets and isolated compartments were only removed during a lull or after the action. The wisdom of making arrangements for the wounded as simple as possible was illustrated on this ship during the battle of Jutland by the fact that the only portion of the mess deck specially prepared for the reception of casualties was rendered untenable by smoke and fumes at the very outset. Nearly all the casualties occurred in the first half-hour, and most of the wounded remained on the mess deck, where they were kept warm and dry on the mess tables; they had been dressed temporarily, and the medical officers gave them morphine hypodermically (⅔ grain). This large dose "acted like a charm; pain was instantly relieved, and haemorrhage controlled." No splints were applied, since the Neil Robertson stretcher answered the purpose admirably. The battle was thrice renewed during the evening, but in the lulls all were carried to the mess deck, where they were nursed through the night, and kept warm with blankets and hot-water bottles, and given bovril and medical comforts. Ten desperately wounded and burned died during the night. As it was thought probable that the action might be renewed at dawn, and as absolute rest was considered essential, no wounded were moved during the night, and the majority slept undisturbed.

At half-past seven on the morning of June 1st it was found safe to bring the wounded up from below. The vice-admiral's and captain's cabins were cleaned, dried, and thoroughly ventilated, a process which took a considerable time, since both were full of water and smoke, and here the men were placed on bedding laid on the deck. The captain's bathroom was rigged as an operating theatre, "and by 8.45 a.m. we commenced." They worked continuously until 12.15 a.m. on June 2nd, when the last case received attention; by that time both surgeons and assistants were "pretty well exhausted." They had dealt with 51 cases, and a general anaesthetic (chloroform and ether in equal parts) had been administered to 28. There were no mishaps, and on June 2nd 46 wounded were transferred to the hospital ship, 5 of the slight cases being retained on board. "We were," they say, "much helped by two officers who lent a hand in giving several of the anaesthetics." The work was severely handicapped by the fact that there had been 44 per cent. of casualties among the medical officers and sick berth staff. Three urgent amputations of the lower limb were performed, and five compound comminuted fractures of the leg treated and splinted. Some of the cases waited sixteen hours with only first-aid dressings, and others remained twenty-four or even thirty hours, before attention could be given to them; yet sepsis was much less frequent than might have been expected from these conditions. The wounds were treated by swilling them thoroughly with eusol, draining, trimming, and suturing when needful. "The cheerfulness and pluck of the wounded were simply magnificent. Content to be alive, they waited to be dressed with a silent patience admired by all." "In every case we found that the wounds were far more severe than we had been led to anticipate by the demeanour of the patient." Fleet Surgeon Muir, too, states that "it is very difficult to decide off hand the relative seriousness of the cases, and satisfactory treatment can only be given after very systematic examination and observation." He draws the moral that the surgeon must think out his plans beforehand, and keep to them, for "the apparent delay of a well-considered routine is as nothing with the time lost in a disordered though well meant effort at treating the worst cases first."

Staff Surgeon Holmes, who was on a light cruiser with Surgeon Murray Wilson, also had a hard time. The ship came into contact with the enemy at about 6.45 on the evening of May 31st, and was engaged off and on during the night. She was heavily engaged with three enemy cruisers about 9.45 p.m., and then all the casualties occurred almost at once. They numbered forty-one, of whom twelve were killed. There were two dressing stations, both on the lower or main deck, one forward and the other aft. The stewards, the first-aid party and the surgeon each took a case, and in less than half an hour all had received morphine, and had been dressed or re-dressed, some had had a first-aid dressing applied on the upper deck, and were distributed in the adjoining chief petty officers' messes, wardroom stewards' mess, and on the stokers' mess deck. Surgeon Wilson, in the forward station, was severely handicapped in his work by the fact that among the first to be severely wounded was the sick berth attendant, who was hit in several places, one large splinter passing through the abdomen in the right hypochondriac region. Staff Surgeon Holmes, in the after station, began to operate at 10.45 on the evening of May 31st, and had finished by 9 a.m. the next morning. Owing to the water-tight doors being closed, Surgeon Wilson could not reach him till 5 a.m. The ship was pitching and rolling a great deal, and was engaged with the enemy again. Chloroform was administered by the sick berth steward, and each case, as soon as finished, was removed by the first-aid party or the stoker's fire-brigade party to improvised beds already prepared, consisting of three hammocks placed longitudinally, and one transversely for a pillow, and covered with a blanket. The fire party looked after the men until they recovered from the anaesthetic. "While I was operating," Staff Surgeon Holmes says, "the chief writer from the commodore's office joined up with the party, as well as the chief cook and his assistant, all rendering great help, the former taking notes." The staff paymaster superintended the making up of improvised beds, and helped with dressings and the transport of wounded.

There is usually a fairly long interval between the temporary dressing of the last wounded and the end of the action, but this is not an unmixed evil, for of the two enemies the surgeon has to fight—shock and sepsis—the former, Fleet Surgeon Muir says, is the more fatal. The degree of shock in all cases of injury in action is relatively excessive, and the change to be noted in twenty-four hours after the receipt of the injury in severely wounded men, who have seemed to be on the point of death, is amazing. The means for combating shock during these early hours have already been mentioned. With regard to sepsis it must be assumed that all wounds and burns received in action are septic. Though they have donned clean clothing before action the patients are usually in an indescribably dirty condition. The mess decks and ammunition passages are covered with water, it may be to as much as a foot deep, and the men are constantly splashing through it. They are hot and perspiring; clouds of dust and smoke arise when the ship is struck by a shell, and the powerful supply fans bring down dust and smoke from the upper deck. In the *Tiger* the wounds and the surrounding skin were first cleaned with soap and warm water, using a very soft nailbrush and sponge. After all the foreign matter was removed the wound was flooded with methylated spirit to dehydrate it, and then sponged over with a 10 per cent. solution of tincture of iodine in methylated spirit. Drainage tubes were inserted and the wounds approximated, a few stitches being used to keep them in position. The wound was then covered with a gauze dressing and wool and bandaged. The men, after the final dressing, are nursed for the twenty-four or thirty-six hours which may elapse before they can be discharged to hospital or hospital ship. In the *Lion* the surgical toilet consisted of swilling the wounds thoroughly with eusol, draining, trimming, and suturing when needful. Of the cases discharged from the *Lion* to the hospital ship *Plassy*, fourteen were examples of extensive wounds, in many instances multiple with considerable loss of tissue and compound comminuted fractures. On June 11th Staff Surgeon R. J. Willan, F.R.C.S., of the *Plassy*, reported that nine of these cases were found aseptic and five septic, and in three of the latter pieces of clothing had, owing to the limited time available in the *Lion*, been missed. Staff Surgeon Holmes, when the men were first brought to the station, washed the wound and surrounding skin with mercury perchloride solution 1 in 1,000, and dressed with cyanized gauze wrung out of 1 in 40 carbolic lotion. Before operating he cleansed the wounds and surrounding skin with soap and water, then with spirit, and finally with mercury perchloride. Later they were dressed sometimes with iodine in spirits, at others with boracic powder.

General burns due to cordite fire were very severe and fatal. Almost 50 per cent. of the wounded suffered from burns of the face and hands alone, though the ankles were scorched in a few instances. These burns were caused by the flash of high explosives in a confined space, so

momentary that clothing protected the rest of the body. Both in the *Tiger* and *Lion* picric acid was found a suitable first dressing, but if left on too long it dried, and was difficult to remove. As a second dressing, a 5 per cent. mixture of eucalyptus in olive oil sterilized by boiling, and, if acid, rendered alkaline by lime water.

The ventilation was a serious question in all the ships. In the *Tiger* the distributing station was filled at one time with fumes from exploding shells and burning cordite, so that for a time the risk of suffocation in spite of respirators was really serious. In the *Lion* the fans to the cabins and mess decks were switched off at the commencement of the action, but restarted during lulls; those supplying compartments below the mess deck were run continuously. They drew their supply from the upper deck, and the delivery openings were packed closely with shavings soaked in the usual soda solution. In the *Tiger* the respirators, consisting of a bag of black gauze veiling soaked in solution, were perfectly efficient, but had to be damped in about fifteen minutes. The seriousness of cases of poisoning from nitrous oxide fumes was not always obvious. The extreme cases suffered from severe dyspnœa, sickness, and vomiting, and the minor cases, which might subsequently prove fatal, from a husky voice, slight cyanosis, pain and tightness behind the sternum, and slight mental disturbance.

The Neil Robertson stretcher used in all the ships is highly praised by all the surgeons—"None better or more suitable," says Fleet Surgeon Muir, "can be imagined." It was devised for moving wounded out of difficult places inaccessible to the ordinary stretcher with stiff poles. The man is wrapped up into a bundle, flexible only, and then to a small extent, at the waist. He is hoisted vertically or carried horizontally. The stretcher is made of stout canvas, strengthened by bamboo slats sewn on. The upper part taking the head and neck is secured by a canvas strap, which passes round the forehead. The part for the chest wraps round it, and is fixed with three canvas straps, one of which binds the upper limbs to the outside of the stretcher. The waist portion allows of enough bending to enable the stretcher to get round corners. The portion of the stretcher which is folded round the hips and lower limbs and down to the ankles is secured by two canvas straps. There is a central backbone of stout rope passing along the under surface. It has two beckets passing out from it on either side, which can be used as handles or for securing tackles when the patient is slung horizontally. At the head the rope ends in a rope grommet, which takes extra security from two brass eyelets let into the canvas. At the foot the rope ends in a galvanized iron ring, which is also secured to the stretcher by a span going to brass eyelets in the canvas.*

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Surgeon W. H. Edmunds, R.N.

Surgeon William Henry Edmunds, R.N., whose death at the Western Infirmary, Glasgow, we announced in our issue of October 14th, was the only son of Mrs. H. A. Edmunds, of Brockweir, Chepstow. He was 27 years of age and received his medical education of St. Mary's Hospital, London; he took the diploma of L.M.S.S.A. in 1913. After holding an appointment at the Middlesex County Asylum and assisting a practitioner at Old Hill, he was appointed medical superintendent to the West Heath Sanatorium and Fever Hospital. He joined the navy as a temporary surgeon in December, 1915, and was appointed to the Royal Naval Hospital, Haslar, in the following February. Later he was transferred to Chatham and became medical transport officer to the No. 2 naval ambulance train. He was taken ill with blood poisoning on September 24th and died on October 4th. Surgeon Edmunds was a prominent Rugby football player. The funeral took place at the Kingswood Unitarian Chapel, Hollywood, on October 9th. He was married in January of this year, and his widow has received a message from the King and Queen expressing their sympathy in her sorrow.

* The stretcher is described and figured in *First Aid in the Royal Navy*. H.M. Stationery Office. (Price 9d.)

ARMY.

Killed in Action.

Captain G. MacL. Levack, R.A.M.C.(T.F.).

Captain George MacLeod Levack, R.A.M.C.(T.F.), was killed in action on October 7th, aged 25. He was the younger son of John S. Levack, of Tobermory, Argyllshire, and was educated at Edinburgh University, where he graduated as M.B. and Ch.B. in 1914. He joined the 3rd Highland Field Ambulance as a lieutenant on October 19th, 1914, was promoted to captain after a year's service, and was attached to the Oxford and Bucks Light Infantry when killed.

Captain R. E. Harkins, R.A.M.C. (temporary).
Lieutenant S. A. Walker, R.A.M.C. (temporary).

Died on Service.

Captain W. Crymble, R.A.M.C.

Captain William Crymble, R.A.M.C., died recently at Alexandria of enteric fever. He was the son of Mr. Hugh Crymble, of Downpatrick, County Down, was educated at the Belfast and Dublin medical schools, and took the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1909, afterwards filling the posts of resident clinical assistant at the Royal Victoria Hospital, Belfast, assistant medical officer of Down District Asylum, and senior assistant medical officer of Beckett Street Infirmary, Leeds. He had joined the Special Reserve of the R.A.M.C. before the war, attaining the rank of captain on July 13th, 1914. He went to France with the original British Expeditionary Force in August, 1914, was taken prisoner in the retreat from Mons, and released in June, 1915, being posted some time after to the Mediterranean Force.

Wounded.

Captain J. E. Bruneau, R.A.M.C. (temporary).
Captain T. I. Dun, R.A.M.C.(S.R.).
Captain W. J. Grant, R.A.M.C. (temporary).
Captain S. Miller, R.A.M.C. (S.R.).
Captain S. A. Montgomery, R.A.M.C. (temporary).
Captain R. Silcock, R.A.M.C. (temporary).
Captain J. H. Wood, Canadian A.M.C.
Lieutenant A. Davidson, R.A.M.C. (temporary).
Lieutenant P. G. Leeman, R.A.M.C. (temporary).
Lieutenant R. S. MacLaren, R.A.M.C. (temporary).
Lieutenant J. M. Thompson, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Boyd, William Gaston, Second Lieutenant Inniskilling Fusiliers, formerly in the Canadian Mounted Rifles, only son of Dr. Boyd, of Liffard, County Donegal, died on October 13th, of wounds received the previous day, aged 30.

Chapman, William Murray, Lance-Corporal London Regiment, second son of Dr. Charles W. Chapman, of Harley Street, and of Highwood Common, Mill Hill, killed recently.

Chattaway, Philip Spencer, Second Lieutenant Cheshire Regiment, only son of Dr. F. D. Chattaway, of Oxford, killed October 14th, aged 20. He was educated at Orley Farm Preparatory School, Harrow, and at Eton, where he was a scholar, and in December, 1914, gained an open scholarship at Christchurch College, Oxford. He got a commission in April, 1915, and was sent to the front in September, 1916.

Doyle, Edward Percival, Second Lieutenant West Yorkshire Regiment, whose death at the age of 26 we noticed in our issue of August 5th, was the eldest son of Dr. and Mrs. Doyle, of San Fernando, Trinidad. After being educated at the Queen's Royal College, Port of Spain, he entered as a student at the Middle Temple, was called to the Bar in 1913, and practised in Trinidad. Shortly after the outbreak of war he enlisted in the King Edward's Light Horse and received a commission after being on active service for some time in France. His commanding officer said of him: "No more gallant officer ever wore the King's uniform. His loss has been a very great blow to me and a grievous loss to the battalion. He was gallantry itself, beloved by his men, who would, and did, follow him anywhere."

Gray, G. M., Second Lieutenant Royal West Kent Regiment, second son of Dr. Gray, of Hastings, killed October 7th, aged 30.

Hatch, Philip Randall, Lieutenant East Kent Regiment, the Buffs, eldest son of Dr. F. H. Hatch, of Wimbledon, killed October 7th, aged 24. He was born in 1892, educated at Oundle School and at Christ's College, Cambridge, where he took the diploma in Agriculture, and was studying in Denmark when the war began, and returned to join the army, getting a commission on December 18th, 1914.

Heyward, Harry Neale, Second Lieutenant Durham Light Infantry, third son of Dr. Heyward, of South Croydon, killed October 10th.

Kidd, L. C., Second Lieutenant Royal Flying Corps, second son of Dr. Cameron Kidd, of Bromsgrove, Worcestershire,

killed October 12th, aged 23. He was educated at Bromsgrove School, took a pilot's certificate at Hendon before the war, and was tea planting in Ceylon when the war began. Returning to England, he got a commission in the Royal Flying Corps, went to the front last February, and had recently received the Military Cross.

King, Frederick Harvey, Lieutenant West India Regiment, attached to the West Riding (Duke of Wellington's) Regiment, son of Colonel W. G. King, C.I.E., I.M.S. (ret.), killed October 13th, aged 27. He became lieutenant on January 1st, 1913.

Knapp, E. M., Grenadier Sergeant London Regiment, eldest son of the late Dr. E. M. M. Knapp, of Ross-on-Wye, killed October 7th, aged 32. He had gained the Distinguished Conduct Medal.

Kriekenbeek, Ronald Edward Elliott, Major Indian army, second son of the late Dr. Kriekenbeek, of Colombo, reported wounded and missing on April 18th, 1916, now supposed killed on that date, aged 45. He was born on October 24th, 1871, got his first commission on November 30th, 1892, joined the Indian army on March 1st, 1894, and attained the rank of major on November 30th, 1910. His regiment was the 128th Pioneers. He served in the China war of 1900, receiving the medal, and had been mentioned in dispatches for his services during the present war.

MacCormick, Alexander Campbell, Second Lieutenant Argyll and Sutherland Highlanders, elder son of Sir Alexander MacCormick, M.D., F.R.C.S., of Sydney, killed October 11th, aged 19. He was educated at Fettes College, and got his commission in July, 1915. He was shot through the head in a raid on the German trenches.

Maxwell, Thomas, Second Lieutenant Royal Dublin Fusiliers, only son of Dr. Patrick W. Maxwell, Dublin, killed September 9th, aged 20. He was born in December, 1895, and educated at Cargilfield School, at Charterhouse, and at Trinity College, Dublin, which he entered in May, 1914. His commission was dated September 26th, 1914.

Nicholson, Charles Stanley, New Zealand Machine Gun Company, younger son of Lieutenant-Colonel J. E. Nicholson, R.A.M.C., senior medical officer, Winchester, killed September 15th, aged 29.

Peddie, Harry M. K., Bombardier, Royal Garrison Artillery, third son of the late William Peddie, of Stanley, killed October 11th, aged 22.

Power, William Goodlake, Captain Army Ordnance Department, only son of Fleet Surgeon W. M. Power, R.N. (retired), killed October 16th, aged 29. He was appointed an Inspector of Ordnance Machinery on February 25th, 1915.

Schäfer, Thomas Sydney, Second Lieutenant Northumberland Fusiliers, younger son of Professor Sir Edward Schäfer, of Edinburgh, reported wounded and missing in September, 1915, now presumed killed. He was born at Rickmansworth in 1891, educated at Cargilfield School, at Stanmore Park, at Edinburgh Academy, and at Caius College, Cambridge, where he gained a scholarship, and had taken the Natural Science Tripos. He entered University College Hospital as a medical student in 1913. At the beginning of the war he went to France with the Australian Voluntary Hospital, got a commission on December 18th, 1914, went back to France in August, 1915, and took part in the battle of Loos and the assault on Hill 70, being reported wounded and missing on September 26th, 1915.

Seccombe, Lionel A., youngest son of Dr. S. H. Seccombe, of Melbourne, died of wounds on September 11th, aged 21.

Sydenham, Humphrey St. Barbe, Lieutenant Devon Regiment, only son of Dr. G. F. Sydenham, of Battleton, Dulverton, Somerset, died October 8th of disease contracted at the front. He was born in 1896, educated at Blundell's School, Tiverton, and had entered Exeter College, Oxford, where he was a sergeant in the O.T.C. He got a commission on October 1st, 1914, and was sent to India before the end of that year.

MEDICAL STUDENT.

Hoclands, Wilfrid George, Second Lieutenant Royal Fusiliers, killed recently, aged 24. He was educated at St. Olave's Grammar School, Tower Bridge, and entered Guy's Hospital in October, 1912. He enlisted in the Public Schools Battalion of the Middlesex Regiment in September, 1914, got a commission in May, 1915, and went to the front in April, 1916.

NOTES.

HONOURS.

THE *London Gazette* of October 20th publishes a long list of honours. Sixty-five officers receive the D.S.O. and three a clasp to that order, 365 Military Crosses are gazetted, and six officers who had previously gained the Cross receive a bar. Among those decorated are forty medical officers, of whom four receive the D.S.O., thirty-five the Military Cross, and one a bar to the Cross, previously gained. Their names are as follows:

D.S.O.

Surgeon-Major Francis W. Bailey, R.F.A. (Medical Officer) (T.F.).
For conspicuous gallantry and devotion to duty. When the battalion of his brigade came under heavy shell fire, he at once went out to tend the wounded and dying in the open with utter disregard of danger.

Major Michael J. Mahoney, M.D., R.A.M.C.(T.F.).
For conspicuous gallantry and devotion to duty in action. When his aid post was blown in he at once established another under heavy shell fire and tended the wounded for two days and nights. When relieved he took a few hours' rest and then returned to his gallant work.

Captain Joseph E. Milne, M.D., R.A.M.C.(T.F.).
For conspicuous gallantry and devotion to duty during operations. He has repeatedly tended the wounded under heavy shell fire, and has shown himself utterly regardless of personal safety.

Captain Edgar Percival, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led a party of stretcher bearers into a wood and remained for over two hours searching for wounded under shell and machine gun fire. On previous occasions he has done similar gallant work.

Military Cross.

Temporary Captain Harold Ackroyd, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He attended the wounded under heavy fire, and finally, when he had seen that all our wounded from behind the line had been got in, he went out beyond the front line and brought in both our own and enemy wounded, although continually sniped at.

Temporary Lieutenant Frederick A. Anderson, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. When his aid post was hit and all his assistants were wounded, he himself being badly bruised, he helped to dig out three buried men under heavy shell fire. He stuck to his duty till his battalion was relieved.

Temporary Lieutenant Bernard F. Bailey, R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. For two days and nights he tended the wounded under heavy shell fire. He was stunned by a shell, but, on regaining consciousness half an hour later, continued his fine work with the greatest coolness.

Temporary Captain Cyril C. Beatty, R.A.M.C.
For conspicuous courage and coolness when in charge of an advanced dressing station. By his fine work he has ensured quick and successful evacuation of wounded from the aid posts. In times of difficulty he set an invaluable example.

Temporary Lieutenant James G. Bell, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended the wounded under heavy shell fire. On being relieved he heard that some wounded men had been left in a trench, and immediately went back 2½ miles with a stretcher party through heavy shelling, and brought in three wounded men.

Temporary Captain Thomas Bourne-Price, R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He went from place to place under very heavy shell fire to try and get into communication with the ambulance cars. Finally, he was half-smothered by the explosion of three successive heavy shells. For many months he has done very fine and gallant work when in charge of stretcher bearers, and when tending and evacuating wounded under shell fire.

Captain William Bowater, R.A.M.C.(T.F.).
For conspicuous gallantry and devotion to duty during operations. He collected the wounded from the front line trenches and advanced dressing stations under heavy shell fire during several days. He allowed himself hardly any rest, and set a fine example to his men.

Captain Samuel Brown, R.A.M.C. (temporary).
For conspicuous devotion to duty during operations. He was blown up by a shell, and so much injured that he had to spend the night in a field ambulance; but, though still suffering, he returned to duty next day. A few days later he was again blown up. He has never spared himself, and has displayed the greatest gallantry.

Temporary Captain William Campbell, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He repeatedly attended the wounded under heavy shell fire. On one occasion, when a dug-out had been hit by a gas shell, he went in to attempt the rescue of those within under very dangerous conditions.

Temporary Lieutenant John R. Christian, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. When brigade head quarters was shelled by the enemy, one man being mortally wounded and two officers incapacitated, he remained with them all night exposed to shell fire. After the wounded had been removed to safety he remained behind in order that other units might know where to find him. He has done other fine work.

Temporary Captain Arthur G. Clark, M.B., R.A.M.C.
For conspicuous gallantry and good work, controlling bearers at the front under very heavy fire. He did especially good work in advanced trenches.

Temporary Lieutenant Vincent M. Coates, R.A.M.C.
For conspicuous gallantry and devotion to duty in action. During an attack he tended the wounded under very difficult circumstances, working without assistance after his orderly was hit. He was under heavy shell fire.

Captain Aston R. Dale, R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty during operations. He was untiring in his efforts on behalf of the wounded, and showed great courage when a shell burst in the entrance of his dressing station, killing his orderly and wounding a sergeant.

Temporary Captain Douglas A. Donald, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. When a dug-out was hit by a gas shell, he twice entered and removed two wounded men under very dangerous conditions. He had previously been working continuously for forty-eight hours removing the wounded from aid posts.

Temporary Lieutenant Richard Felton, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He tended the wounded during an intense bombardment, and, a few days later, when a shell blew in the orderly room, killing three men and burying the remainder, he rescued the latter under most dangerous conditions. But for his pluck and devotion to duty many more lives would have been lost.

Temporary Captain William E. Giblin, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in action. He tended the wounded in "No Man's Land" under heavy shell and machine-gun fire, and showed an utter contempt of danger.

Captain Samuel S. Greaves, R.A.M.C.(T.F.).

For conspicuous gallantry and devotion to duty in action. For thirty-six hours he tended the wounded in the open. On several other occasions he has shown great courage under heavy shell fire.

Temporary Captain John Greene, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded under heavy shell fire, though himself injured by a shell which burst only ten yards from him. He immediately returned to duty after being tended at the dressing station.

Captain Eben S. B. Hamilton, M.B., R.A.M.C.(S.R.)

For conspicuous gallantry and devotion to duty during operations. He rescued three severely wounded men from the ruins of a dug-out under heavy shell fire. As he was removing the last man the dug-out was blown in on him, and he had himself to be dug out. He has done other fine work, and has shown an utter disregard of danger.

Temporary Captain John B. Hunter, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded under heavy shell fire when the battalion had suffered heavy casualties. By his fine example he inspired all under him with courage and energy.

Temporary Captain Ernest E. Isaac, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded in a very exposed position for twelve hours, some of them being wounded and one actually killed by shell fire in his aid post. At one time he had worked unceasingly for thirty-five hours without food, drink, or rest, having divided up his food and water among those of the wounded who most needed it.

Captain Frank G. Lescher, R.A.M.C.(S.R.)

For conspicuous gallantry and initiative in searching for wounded under heavy shell fire. He repeatedly led his bearers through heavy barrage. He continued his work until he had got all the wounded to safety.

Temporary Captain Kenneth W. Mackenzie, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. His aid post was continually shelled, but he carried on with great determination. He personally assisted some of the walking cases across the shelled area, and, when water ran out, went himself across the open to get some. He showed an utter disregard of personal safety.

Temporary Lieutenant George B. McTavish, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. Throughout very severe fighting he was responsible, by his energy, courage, and contempt for danger, in saving a large number of severely wounded who had been left in the battered front line trenches or in "No Man's Land."

Temporary Lieutenant Gregor M. Miller, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. By his splendid example and cheerfulness he gave great encouragement to the men under heavy and continuous shell fire. He volunteered to remain in the front line trenches, where he saved the lives of many badly-wounded men by being on the spot.

Temporary Captain Francis J. Morris, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He led his stretcher bearers to collect wounded in full view of the enemy's position, and set a fine example to all near him. He has done other similar gallant work.

Temporary Captain Bartholomew J. Mullin, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded under heavy shell fire after himself being knocked down by a shell. He had to work in an open trench without any overhead cover, and exposed to enfilade fire.

Captain Hugh R. Partridge, R.A.M.C.(T.F.).

For conspicuous gallantry and devotion to duty during operations. During several weeks he was in charge of a collecting post, and repeatedly under heavy shell fire. He has shown the greatest coolness, and has worked incessantly evacuating the wounded. He has been hit more than once by débris, and has set a fine example to those around him.

Temporary Captain Wellington Le R. Pedlow, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded utterly regardless of the enemy's fire, and carried a severely wounded officer from a very exposed part of the captured position to the aid post, being fired at all the way.

Captain Rudolf A. Peters, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty during operations. He tended the wounded the whole day and night under heavy shell fire, and at night was instrumental in getting in many wounded who were lying out in front in the open.

Temporary Captain Nicol McN. Rankin, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in remaining at his post and attending to wounded after the regimental aid post had received three direct hits and he himself had been wounded in the face. For four hours he continued at duty, the area around his aid post being heavily shelled all the time.

Temporary Captain Charles Roche, R.A.M.C.

For conspicuous courage and skill in the performance of his duties, many times under fire. He organized large stretcher parties and rescued many seriously wounded men from points which were constantly under heavy fire. He has displayed great devotion to duty under distressing circumstances.

Captain Hugh K. Ward, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty during operations. He has shown an utter contempt for danger, going to any and every place, however exposed, in which there were wounded men. He has himself been wounded by a shell while carrying out this gallant work.

Captain Albert Groenewald, M.B., Medical Officer (attached S. African Horse).

For conspicuous gallantry and devotion to duty during several actions. He tended the wounded under fire with utter disregard to his personal safety.

Captain Stephen Liebson, South African Medical Corps.

For conspicuous gallantry and devotion to duty when tending the wounded during operations. Though himself wounded and with nothing but a small trench to work in, he carried on during several days under heavy shell and sniping fire with the greatest courage.

Bar to Military Cross.

Temporary Captain William H. Lister, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. For thirty hours he supervised the work of his stretcher bearers in the open under heavy shell fire. On another occasion he searched a wood for wounded under very heavy shell fire.

The Military Cross has also been conferred upon the following chaplains and other officers in recognition of services rendered to the wounded: Rev. John Allan Gray, Rev. Thomas William Hart, Rev. Kenneth Curteis Jackson, M.A., Rev. Cyril Walford Osborn Jenkyn, Rev. Alister John Stewart, Second Lieutenant Geoffrey Cholerton Smith, A.S.C., Second Lieutenant Louis C. Diespecker, R.F.A. Special Reserve.

Distinguished Conduct Medal.

Sergeants H. W. Abbiss, J. Ellis, R. Fraser, T. Smalley, and H. B. Stuart, Corporal J. B. Purvis, and Private A. Samson, all of the R.A.M.C.; and Private S. H. Kirby, Australian Army Medical Corps.

Dispatches.

A dispatch from Lieutenant-General Sir Percy Lake, K.C.B., Commander-in-Chief in Mesopotamia, dated August 24th, was published in the *London Gazette* of October 19th, giving the names of officers and men specially mentioned for good service. To it was appended a list of those mentioned by Major-General Townshend for their services in the defence of Kut. The names of the medical officers mentioned are as follows:

General Sir Percy Lake's Dispatch.

Royal Navy.—Staff Surgeon E. Cameron, Surgeon F. G. Hitch.

Staff.—Colonel A. E. Tate, A.M.S.; Lieutenant-Colonels G. B. Irvine, I.M.S.; H. Boulton, I.M.S.; Major A. W. C. Young, I.M.S.

R.A.M.C.—Lieutenant-Colonels D. J. Collins, S. F. Green, F. T. Palmer, B. M. Sloan; Majors H. J. Crossley, J. G. Foster; Captains R. M. Allan, F. H. M. Chapman, F. T. Dowling, R. W. Duncan (killed), H. L. Garson, A. Glen, W. T. Graham, A. J. Ireland, S. W. Kyle, A. N. Mitchell, W. H. O'Riordan, R. T. Vivian, H. F. Warwick, P. A. With; Lieutenants W. G. Macdonald, J. B. Thackeray.

Indian Medical Service.—Brevet-Colonel W. W. White; Lieutenant-Colonels S. Anderson, A. H. Nott, E. L. Perry; Majors R. J. Bradley, F. P. Connor, W. Gillitt, C. M. Goodbody, D.S.O.; R. Kelsall, J. H. Horton, D.S.O., R. A. Lloyd, N. W. Mackworth, W. S. Patton, C. C. C. Shaw; Captains F. C. Fraser, D. C. V. FitzGerald, E. S. Goss, R. D. Green-Armytage, W. H. Hamilton, R. de S. B. Herrick, J. H. Hislop, J. W. Jones, E. W. O'G. Kirwan, L. A. H. Lack, R. F. D. Macgregor, J. S. Martin, Rai Dewan Hakumat, H. K. Rowntree, J. A. Sinton, V.C., R. Sweet, R. T. Wells, Jyoti Lal Sen; Lieutenants U. N. Banerjee, J. P. Canteenwalla, S. D. Sondhi.

I.S.M.D.—Honorary Lieutenant K. G. S. Macqueen, Honorary Captain R. T. Murphy, and fourteen other assistant surgeons, and twenty-two subassistant surgeons.

Two lady superintendents of Queen Alexandra Military Nursing Service for India, twenty members of the Army Bearer Corps, three nursing orderlies, and nine ward servants and orderlies are also mentioned.

Major-General Townshend's Dispatch.

Staff.—Colonel P. Hehir, C.B., I.M.S.; Lieutenant-Colonel H. O. B. Browne-Mason; Subassistant Surgeon Manikkam.

Royal Army Medical Corps.—Lieutenant-Colonel J. Hennessy; Majors E. V. Aylen, F. C. Lambert (deceased); Captains A. S. Cane, E. G. S. Cane, T. E. Osmond (attached Norfolk Regiment); J. Stanton (attached Oxford and Bucks Light Infantry).

Indian Medical Service.—Majors E. F. E. Baines and C. H. Barber; Captains D. Arthur (attached 7th Rajputs), R. C. Clifford (attached 24th Punjabis), A. R. S. Alexander, killed, (attached 7th Gurkhas), and M. L. Puri; Lieutenant W. C. Spackman (attached 48th Pioneers).

Indian Subordinate Medical Service.—Honorary Captain G. O. Weston, Assistant Surgeon E. B. Holt, and five subassistant surgeons.

The same *Gazette*, of October 19th, notifies the grant of a few honours for the defence of Kut, all dated June 3rd, 1916. Among them is a K.C.B. to Major-General Townshend. The following medical officers are also decorated:

D.S.O.—Lieutenant-Colonel H. O. B. Browne-Mason, R.A.M.C.; Major E. V. Aylen, R.A.M.C.; Captain R. C. Clifford, I.M.S.; Captain L. Murphy, R.A.M.C.

Military Cross.—Captain D. Arthur, I.M.S.; Captain A. T. J. McCreery, R.A.M.C.; Captain K. K. Mukerji, I.M.S.

Sudan Operations.

The following officers of the R.A.M.C. are among those commended for service in connexion with the military operations in the Sudan in General Sir Reginald Wingate's dispatch published in the *London Gazette* of October 25th: Lieutenant-Colonel F. F. Carroll, Majors R. G. Anderson and W. Byam, Captains R. G. Archibald, C. Cassidy, A. G. Cummins, D. S. Buist, and E. Gibbon. Dr. A. J. Chalmers, Director of the Wellcome Research Laboratories, Khartoum, and Dr. E. S. Crispin, Acting Director, Medical Department, Sudan Government, are also mentioned.

England and Wales.

THE CAMPAIGN AGAINST VENEREAL DISEASES.

AT a meeting called by the Lord Mayor of London at the Mansion House on October 24th, at the request of the National Council for Combating Venereal Diseases, Lord Sydenham, who presided, said that the first step was to provide treatment centres and laboratory facilities, and it was essential that treatment should be free, and that no stigma should attach to those who sought it. He appealed to private practitioners and panel doctors, who must always be the first line of defence, to master the technique of the treatment themselves, or at least direct their patients to places where they could receive it. The legislation needed with regard to quack remedies and treatment by unqualified persons was only such as Parliament in these days might readily pass. Mr. Walter Long, the President of the Local Government Board, in a sympathetic speech, said that he was confident that the New Year would see a scheme ready for London and Greater London, and that similar schemes would be forthcoming for other places. He expressed great indebtedness to the hospitals for the public spirit they had shown in dealing with this problem. If the Government did not adopt compulsory notification and treatment as part of their scheme it was not on account of fear or prejudice, but because it thought that other methods were more effective. If a really workable proposal for legislation against quack practice could be made, and shown to commend itself to public opinion, he would do his best to carry a measure through Parliament. Mr. Herbert Samuel, the Home Secretary, dealt with the preventive side of the question and the problem of prostitution generally. The Home Office was anxious to encourage the employment of women police and women patrols. Unhappily, at the present time, venereal diseases were being spread through the agency of quite young girls who were not of the ordinary prostitute class. At first sight the argument in favour of compulsory notification seemed unanswerable, but he believed that such a measure would have the opposite effect to that desired, inasmuch as it might deter people from coming forward for treatment. He suggested that legislation should provide that it should be an offence against the law for a person knowingly and deliberately to do that which was calculated to transmit this disease to another person, including soliciting for prostitution. It was true that in many cases it would be difficult to prove the fact of knowledge, but there was one class of cases which might be dealt with—namely, that of men and women who found their way into prisons or other institutions, and were medically examined, and on leaving were still in an infectious state; they might be given a certificate the possession of which could be used as evidence of their knowledge of their condition should they afterwards be charged with the major offence. Mr. A. F. Buxton, chairman of the London County Council, gave some instances of what the council was doing; and a final speech was delivered by Sir Thomas Barlow, who pleaded for the cordial co-operation of the medical staffs of the hospitals and for the establishment of evening clinics without which the plan could only be inadequately accomplished. More notification he regarded as a fetish, and compulsory treatment as absolutely impossible. A vote of thanks to the Lord Mayor for his hospitality was moved by Sir Malcolm Morris and seconded by Lady Barrett.

PORTSMOUTH SCHEME FOR CONTROLLING VENEREAL DISEASES.

A report on venereal disease and details of a scheme for putting the provisions of the regulations for venereal diseases issued by the Local Government Board into operation at Portsmouth has been presented by Dr. Mearns Fraser, M.O.H. to the Health Committee of the borough. The principal points of the scheme are briefly as follows: (1) Arrangement with the Committee of Management of the Royal Hospital, Portsmouth (a general hospital), for carrying out the treatment of venereal diseases under the direction of a special medical officer and staff, to be appointed by the Hospital Committee subject to the approval of the Local Government Board. (2) Treatment to be free to every person who applies, without distinction; male and female patients to attend at different times; two beds to be provided for each sex. (3) Laboratory facilities for diagnosis and guidance in treatment, available for Poor Law medical officers, medical officers of other institutions, and medical practitioners generally, to be provided at the same hospital. (4) Salvarsan, or its approved "substitutes," and apparatus for collecting material for examination, to be issued to medical practitioners gratuitously by the medical officer in charge and by the medical officer of health. (5) The formation of a committee, including representatives of various public bodies and voluntary agencies, for the purpose of advising the council in regard to measures for making the scheme generally known to the public, and for the control of venereal disease. These measures would include public lectures and the dissemination of literature prepared by the National Council for Combating Venereal Disease, and endeavours to secure the co-operation of the Board of Guardians, the Local Insurance Committee, other public bodies and voluntary agencies, and the members of the medical profession. The cost of the scheme for the first year is estimated at £1,462, including a salary of £300 for the medical officer in charge; 75 per cent. will be paid by the Government. It is specially noted in the report that this scheme for the treatment of venereal disease is entirely voluntary; that there will be no compulsion or pressure brought to bear on persons to make them attend or continue attendance; and that the persons attending will be under no control.

MEDICAL SUNDAY IN LIVERPOOL.

The Committee of the Liverpool Royal Infirmary revived on Sunday, October 22nd, a ceremony which had been in abeyance for at least half a century. This was a visit in state of the Lord Mayor, members of the city council, the committee and medical staff of the Infirmary, and other public men to St. Nicholas's Church, one of the oldest city churches. The procession started from the Town Hall, led by the police band. It is hoped that this will establish the custom of a "Royal Infirmary Sunday." Archdeacon Howson preached the sermon, and we believe the offertory in aid of the Royal Infirmary realized a considerable sum. This institution, in spite of many benefactions, needs much increased pecuniary support to meet the greater cost of maintenance. In 1914 this amounted to £21,135 and in 1915 the sum was £23,273.

In the afternoon of the same day the annual medical service for medical men was held at St. Luke's Church. Bearing in mind the depleted ranks of the medical profession the attendance of medical men—chiefly in khaki and a sprinkling of some in academic dress—was more numerous than was expected. The Lord Mayor and Lady Mayoress were present, and the church was well filled. The sermon was preached by the Rev. E. W. Barnes, Sc.D., F.R.S., Master of the Temple, whose theme was the credibility of miracles in the New Testament. He urged his hearers, by calling to witness the additions to our knowledge of psychotherapy, not to brush lightly aside the sacred records of spiritual healing of bodily infirmities. The offertory was devoted to the Royal Medical Benevolent Fund, and amounted to £30.

Scotland.

ACUTE ANTERIOR POLIOMYELITIS.

DR. MATTHEW HAY, M.O.H. Aberdeen, in his last monthly report, stated that ten further cases of acute anterior poliomyelitis had been reported, making altogether 76 from the commencement of the outbreak to the end of September, and that three additional cases had been notified in October. He gave an account, founded upon official bulletins, of the contemporaneous and much larger epidemic in New York. In both cities there were a few cases in May, but in New York the number increased very rapidly. In June there were 320 cases, in July 3,731, in August 4,104, but during the last fortnight of that month the cases began quickly to decline. Altogether, 8,155 cases were reported to the end of August, and the type of the disease was very grave. Over 1,932 deaths were recorded. Cases among infants were, in proportion to the total cases, somewhat fewer in New York than in Aberdeen, and the cases among persons

above 5 years of age somewhat more numerous, but the proportion of adult cases was not high in either town.

	Aberdeen.	New York.
Cases under 1 year	21.0	11.0
,, above 1 and under 3 years ...	55.0	57.0
,, above 3 and under 5 years ...	15.0	15.0
,, above 5 and under 10 years...	8.0	14.0
,, above 10 years	1.3	2.7

It may be added that recent reports show a notable diminution in the epidemic of poliomyelitis in New York, During the week ending September 23rd, 160 new cases with 58 deaths were reported, as compared with 254 cases and 84 deaths in the previous week. For the week ending September 30th the number of cases reported was 140. The total number of cases up to September 30th was 9,029, with 2,286 deaths.

Removal of Patients to Infectious Hospitals.

The Stirling Burgh Medical Committee has adopted a minute pointing out to the Western District Committee of Perth County Council that the arrangements for the transfer of infectious cases from the southern districts of Perthshire to a fever hospital are unsatisfactory, and recommending that in the interest of the patients it is desirable to make arrangements for their admission to the Stirling Combination Fever Hospital, or, should this not be possible, the provision of a motor ambulance. Two children recently died during removal, and the medical officer for Perthshire had made a report to the Western District Committee which appeared to accuse the medical practitioner concerned of negligence. The Stirling Medical Committee points out that if arrangements had existed by which infectious cases in that neighbourhood could have been removed to Stirling Fever Hospital both the children would have been in hospital and isolated a few hours after diagnosis, whereas existing arrangements led to a delay of one day and a half.

Child Welfare in Aberdeenshire.

Dr. Watt, M.O.H., submitted a scheme for maternity service and child welfare to the Public Health Committee on October 13th. Dr. Watt's suggestions were as follows: (1) The employment as health visitors for their areas of the existing district nurses, where suitable and available, and the appointment of nurses for health visiting and other county work in the areas not so supplied; (2) the establishment of infant and maternity centres in the more populous places; (3) co-operation with the Secondary Education Committee in the organization and conducting of classes for mothers or young women at suitable centres. The committee resolved to recommend the county council to defer further consideration of the scheme till after the end of the war.

Ireland.

Another hospital ship, conveying 468 wounded, mostly from the fighting in the Somme area within the last fortnight, arrived at the North Wall last week; 120 cases were dispatched by a special hospital train to Belfast; the remainder were removed for treatment to the various Dublin hospitals. Orderlies of the joint V.A.D. for Ireland, of the British Red Cross and St. John Ambulance were on duty, 118 at the North Wall, and 133 at the various Dublin hospitals.

Memorial to the late Sir Henry Swanzy.

Last week the Archbishop of Dublin unveiled a memorial to the late Sir Henry Swanzy. It consists of a bas relief mural tablet with portrait in bronze, by Mr. Oliver Sheppard, R.H.A. The tablet is placed in a specially constructed, well-lighted alcove in the entrance hall of the Royal Victoria Eye and Ear Hospital, Dublin. Viscount Monck presided, and there was a large assemblage of friends and supporters of the hospital. Mr. J. B. Story, Vice-President of the Royal College of Surgeons, explained that a committee was appointed at a public meeting held in the Royal College of Surgeons in June, 1913, and a sum of £1,422 was subscribed. Of the total receipts £1,000 had been devoted to paying off part of the debt incurred in building the west wing of the hospital, and it was estimated that after all expenses were paid there would be a further sum of £140 to hand to the treasurer of the hospital. The Chairman said that Sir Henry Swanzy had worked for years for the amalgamation of the two hospitals previously existing, and the result was the present splendid institution, the new wing of which was called the Swanzy Wing.

The President of the Royal College of Surgeons said that Sir Henry Swanzy, after studying in Germany, where he acted as assistant to the greatest oculist of the day, served as surgeon with the German army in the Franco-German War of 1870. In 1888 the ophthalmic surgeons of the United Kingdom paid him the high honour of selecting him to deliver the Bowman lecture, and his reputation was by that lecture so established in America that he was asked to write an article which was really a monograph on eye symptoms in their relation to organic diseases of the brain and spinal cord. That article was generally considered to be the most authoritative on the subject. He was elected President of the Royal College of Surgeons in 1906. His professional career, as his private life, stood without blemish. He was the soul of honour, his ideals were high, and his ethics unimpeachable.

The Archbishop of Dublin, in unveiling the memorial, said that the hospital was one for the successful establishment of which Sir Henry Swanzy was responsible, and it was owing to his indomitable perseverance that all the difficulties were overcome. It was specially fitting that his name should be preserved there where the poor, for whose sorrows he always had great pity, were attended with care and skill. He had brought distinction to Dublin ophthalmology; he was amongt the foremost of European ophthalmologists, a good citizen, and an honoured friend.

Sydney.

Venereal Diseases.

The Federal Government has decided to take important action, in connexion with the States, to eradicate, or at any rate to minimize, the effects of venereal diseases. It has decided to offer to share equally with the States the cost of establishing clinics and providing other facilities for the diagnosis and treatment of these diseases, but it is not intended that the Commonwealth should usurp the functions of the States Health Departments. It is expected that by the expenditure of about £25,000 a year for the whole of the Commonwealth, a very considerable reduction can be made in the number of deaths, and in the amount of sickness and inefficiency caused by venereal diseases. This action has been taken in consequence of the serious losses sustained by the large amount annually spent in providing invalid pensions for persons whose invalidity is due more or less directly to venereal disease. It is estimated that fully 16 per cent. of the persons at present in receipt of pensions have become invalids through the effects of inherited or acquired syphilis, and that if syphilis could be eliminated the present number of invalid pensions could be reduced by fully 10 per cent. As the annual pension bill in the Commonwealth is approximately £575,000, a saving of nearly £60,000 might be effected, and as the commitments of the Commonwealth under the present scheme only amount to about £13,000 or £14,000 a year, the investment would be a profitable one, even if five to ten years were to elapse before the falling off in the number of invalid pensions became noticeable. Two conditions are attached by the Federal Government to the grants proposed to be made for the purpose of combating this evil. First, that the State seeking monetary assistance must first adopt legislation making the notification of venereal disease compulsory, for the Government believes that without this all other means taken to stamp out the disease would be futile. Secondly, the Commonwealth officials must be given facilities to see that the money is spent wisely, and that medical men and students are given an opportunity at the various Government clinics of familiarizing themselves with the nature of the diseases concerned, and so familiarize themselves with the treatment of these diseases.

Correspondence.

THE LIFE-HISTORY OF THE MENINGOCOCCUS AND OTHER BACTERIA.

SIR,—Professor Adami's stimulating article in your issue of October 14th, p. 525, will meet with strong sympathy from those who are looking toward the new era.

The question of mutability of organisms has kept cropping up persistently during recent years, although always looked on rather askance by those who forget that bacteriology was only founded, not completed, by Pasteur and Koch.

Since I had the privilege of working in Professor Adami's laboratory a few years ago, I have pondered much on the mass of data there obtained, as well as on other facts since observed in my own body—that the bacterial flora of the intestine, mouth, and throat can be altered "at will" by the simple expedient of adopting rigid dietaries of limited range. This finding, too, is corroborated in the case of animals by French observers.

Hence one would propose that it is not enough to say that the life-cycle of an organism may consist of two phases. The truth seems to require the addition of the idea that the nature of an organism depends to an important extent upon the chemical or physico-chemical composition of the juices of the host in which it occurs. Given an "ultra-microscopic germ," it may appear respectively as meningococcus, pneumococcus, or streptococcus, for instance—according to circumstances. We can only accept this after accepting the idea that "microbes" are not "living" things in the ordinary sense of the word, but belong to a state of matter intermediate between "lifeless" and "animal life."

These suggestions may seem visionary, because presented without tangible proofs. But a number of isolated links are to be found in connexion with certain studies of blood cells; and though these are not enough, we know from mathematics that one can predict missing links in a chain with provisional accuracy, after constructing a general formula from isolated ones.

Progress in the knowledge of microbes therefore demands much deeper knowledge of dietetic methods of altering the properties of our tissue-juices than has hitherto been deemed necessary. In short, one is brought to the conclusion that bacteriology has, in a sense, been begun at the wrong end.—I am, etc.,

Leeds, October 24th. O. C. GRUNER.

NAUHEIM BATHS AND THEIR ARTIFICIAL IMITATIONS.

SIR,—In the course of a review of Sir James Mackenzie's work on the *Principles of Diagnosis and Treatment in Heart Affections*, in your issue of September 30th, the following passage is quoted:

> The reputation of Nauheim baths and of the artificial imitation of them depends . . . more on brazen advertisements, financial interests, and the slavish tributes of other spas than intellectual appreciation and application of the principles of treatment.

As I had the honour of bringing the method of treatment referred to before the English-reading members of the medical profession, now nearly five-and-twenty years ago, I beg to say that that statement is contrary to the fact and gravely misleading. The reputation of the methods of the balneological and physical treatment of cardio-vascular affections is, on the contrary, founded on intrinsic merit and demonstrated results. Before attention was drawn to them, cardio-vascular degeneration and cardiac dilatation, as well as loss of compensation for valvular defects, were regarded as being beyond the range of treatment, and it is in great measure due to the methods in question that more sound and hopeful views prevail.

In the early days I had the pleasure of demonstrating the methods and pointing out the results of their application to the late Professor Sir T. Grainger Stewart, Sir Francis Cruise, Sir Philip Smyly, and Dr. Huchard of Paris, among many others, and each and all of them were convinced of their efficacy. The late Sir Lauder Brunton underwent the treatment some years ago, and informed me that he had derived the greatest benefit from it. It can scarcely be suggested that those able physicians and experienced clinicians were the victims of brazen advertisement or influenced by financial interests. Judging by cases that come under my notice of soldiers who have for months submitted to other kinds of treatment with little or no result, and by the statements of officers of the Royal Army Medical Corps who have been restored from a hopeless condition to one of health by recourse to Nauheim treatment, I venture to say that there are hundreds of officers and many more of the rank and file, some relegated to light duty and others invalided out of the service, who might in a short time be restored to health and vigour fitting them for active service. Neglect of the most effectual known means of relieving cardio-vascular troubles, and of the nerve complications associated with them, would be a grave matter at any time. At the present juncture it is little less than a national misfortune, and such statements as that quoted by your reviewer are in no small degree responsible for it.—I am, etc.,

London, W., Oct. 20th. W. BEZLY THORNE.

A NEW ULCERATIVE DERMATO-MYCOSIS.

SIR,—The unnecessary multiplication of the names of moulds ought to be opposed, because this, perhaps more than anything else, is responsible for the chaotic condition of pathogenic mycology. For this reason I pointed out (*Lancet*, 1912, i, p. 830) that in his description of *Endomyces pinoyi* and other endomyces Dr. Castellani had no evidence that the organisms were endomyces. I hope he appreciated the criticism, but I have no doubt he has dropped that genus.

In bringing forward a new pathogenic mould he has handed over the organism to Professor Pinoy, who tells us it is of somewhat difficult classification. I maintain that without more evidence than is contained in his description and figures Professor Pinoy ought not to have classified it at all. His description is even discursive, but it is neither precise nor impressive. The figures show branching hyphae which are freely septated even in the youngest culture. If pathogenic, it is safe to accept this as an imperfect fungus, because perfect fungi rarely enter man till they have been prepared for table. Fig. 6 shows terminal chlamydospores of quite ordinary type, such as may be found in almost any imperfect fungus. Why Professor Pinoy in this connexion drags in Fusarium does not appear on the surface. So far, then, classification is out of the question. It follows, therefore, that Professor Pinoy relies absolutely on the only remaining element which he either describes or figures, the so-called pseudoconidia. Though the description is vague, I gather that the organism produces conidiophores which "carry laterally pseudoconidia." But in Figs. 5 and 6 these elements are shown to be terminal as well as lateral. Moreover, some occur on short branches. Does Professor Pinoy believe that this comes within the genus Acladium of Link (1809)?

Since he cites Trichophyton, I submit that his figures recall the well-known Sporotrichum type of Trichophyton rather than the rarely seen Acladium type of Bodin. (Unfortunately there is already a *Sporotrichum castellani*.) But why drag in the rare Acladium type of Trichophyton when it is scarcely possible to examine a culture of the common microsporon without finding the Acladium type? Moreover, the *Microsporon audouini*, var. *equinum* (Bodin, 1896), when cultivated for some time at 37° C., becomes fixed in the Acladium form (Gedoelst, *Les champignons parasites*, p. 111). Further, Bodin has described this microsporon in the type Oospora, commonly called streptothrix, with elements like bacilli and cocci. Obviously this may explain the perplexing nature of cultures from leprosy, as well as the organism reported from the Pasteur Institute by Broughton-Alcock (BRITISH MEDICAL JOURNAL, 1913, ii, p. 299).

In conclusion, I hope that such an interesting organism as Castellani's will not be buried under the name Acladium until its mode of growth in the tissues has been studied.—I am, etc.,

Ealing, Oct. 10th. ROBERT CRAIK.

EMOLUMENTS OF OFFICERS R.A.M.C. SPECIAL RESERVE.

SIR,—I notice that one of your correspondents speaks of the temporary R.A.M.C. officers as men who were practically forced into the army.

This taunt from one who was actually and literally forced into active service is in as bad taste as my description of him would be, if I did not add that the most potent force applied to all of us, S.R. and Temporary alike, was our own sense of duty.

With the rest of his letter I quite agree, though there are other considerations than the very important one of pay.—I am, etc.,

H. DOUGLAS SMART, Captain R.A.M.C.

B.E.F., Oct. 7th.

SIR,—To further illustrate the deep injustice being done officers of the Special Reserve, I beg that you will give publicity to a statement of my case.

I was called up at the beginning of the war, and have been in France for two years. Recently I was invalided home, and after a brief leave granted an appointment in a home hospital. For my services I am granted 15s. 6d. pay and 3s. in allowances, 18s. 6d. in all. A young man newly qualified and inexperienced, for services less responsible is granted 24s. a day, and in some cases other allowances as well. I know several newly qualified men in receipt of 28s. a day. How long will such a crying injustice be permitted, or patriotism and preparedness so grossly penalized?—I am, etc.,

October 15th. SPECIAL RESERVE.

Medico-Legal.

AN INSURANCE BROKER'S SCHEME.

THE *Yorkshire Herald* reports the conviction at the West Riding Quarter Sessions, on October 16th, of Edward Thomas Johnson, Moss Side, Manchester, described as an insurance broker, of having obtained a sum of money by false pretences from Dr. J. W. Sutcliffe of Acomb. It appeared from the opening statement of counsel for the prosecution that the accused went into a chemist's shop in York and asked for the name of a doctor at Acomb, and that of Dr. Sutcliffe was mentioned. He called upon Dr. Sutcliffe, stating that he had been recommended by the chemist to see him with reference to a proposal that Dr. Sutcliffe should examine persons who desired to assure in companies with which the prisoner said he was identified. He stated that he represented a number of loan societies which insisted upon borrowers taking out life policies for the amount of loans as security. He said it would be necessary for Dr. Sutcliffe to take out a policy on his own life and produced proposal forms of the Liverpool, London, and Globe Insurance Company. Eventually Dr. Sutcliffe filled in a proposal form for £1,000 and gave an open cheque for the amount of the premium, £11. The accused said a guinea would be paid for each examination at the surgery, with liberal expenses for out of town visits, and that the fees would come to not less than fifty guineas a year. About a fortnight later the accused again called upon Dr. Sutcliffe and told him that a number of the assurances to be effected would be with the Eagle Insurance Company and that it would be necessary for him to take out a policy with that company also, but that he would guarantee Dr. Sutcliffe not less than seventy-five guineas a year. Dr. Sutcliffe agreed to take out a life policy for £300 and gave the prisoner a cheque for the amount of the premium, £9 7s. 6d. In exchange the accused gave a cheque for ten guineas, post-dated July 31st, on account of fees and expenses in connexion with examinations at Harrogate and Leeds, where Dr. Sutcliffe subsequently examined two doctors; a Leeds doctor also examined Dr. Sutcliffe. These doctors were being defrauded in the same way as Dr. Sutcliffe, and the cheque for ten guineas given to Dr. Sutcliffe by the prisoner was dishonoured. Counsel said that thirteen other doctors in Manchester and other places had been defrauded in a similar manner. The prisoner admitted all the offences, and his counsel pleaded that he had yielded to temptation owing to loss of business through the war. The prisoner was sentenced to twelve months' hard labour on each charge, the sentences to run concurrently. The bench ordered a sum of £20 7s. 6d. to be paid to Dr. Sutcliffe out of the amount of over £30 in the possession of the prisoner.

This is not the first occasion on which we have heard of attempts to work a scheme of this kind. As counsel for the prosecution said, in many cases of this sort a defrauded person does not take proceedings because he does not like it to be known that he has been weak enough to let himself be so defrauded. Dr. Sutcliffe, in taking the action he did, waived all personal consideration and served the interests of justice.

IN the second year of the war the number of women medical students in Germany, studying at the universities, had increased by 900. The total number of women medical students is 4,820. Of these about 200 are employed on some form of war service.

Obituary.

JAMES LAIDLAW HUGGAN, M.B., CH.B.EDIN.,

LIEUTENANT, R.A.M.C.

IT has often been said that no better recruiting stimulus could be provided than the publication of the splendid deeds and heroism of our military units and of individuals. The brief announcement made in 1914, in the JOURNAL, of the death of Lieutenant Huggan, deserves, even at this late date, a supplementary notice of this fine young officer, now that the facts about his death are available.

Lieutenant J. L. Huggan was born in 1888, at Jedburgh, the younger son of Mr. Robert Huggan, engineer. His mother, who survives him and lives in Edinburgh, was the daughter of a well-known manufacturer, Mr. Laidlaw, formerly Provost of Jedburgh.

Huggan was educated at Watson's College, Edinburgh, till the age of about 12, when he went to the Darlington Grammar School. On leaving it he entered the University of Edinburgh and graduated M.B. in 1911. He became house-surgeon to Mr. Alex. Miles, Surgeon to the Edinburgh Royal Infirmary, who describes him as one of the finest young men he ever met. He passed high in the examination for entry to the R.A.M.C., and a little more than a year later was about to leave for India when war broke out. He was gazetted to the 3rd Battalion Coldstream Guards and left for France with the first part of the Expeditionary Force. That he was an exceptional type of man is the opinion of his colonel, his brother officers, and the men who worked with or under him. Many expressions of opinion have now reached his friends showing how much he was esteemed and admired by every one, and bearing testimony to his splendid courage, strong individuality and fine sense of duty.

On September 16th, during the retreat on the Aisne, the Guards Brigade were ordered to retire from their position at Soupir farm, temporarily leaving behind—between our lines and the German—a barn which had been used as a hospital and which was occupied by about sixty wounded German prisoners. In spite of this the Germans shelled it and set it on fire. It was, Lord Ernest Hamilton says in his book *The First Seven Divisions*, clearly a case for very prompt action and very risky action, but there was no hesitation about it. Huggan, in spite of shot and shell raining about him, called for volunteers to help him save these wounded men from the burning flames, and it was greatly in consequence of his bravery that they were all saved. After he had run this great danger successfully he moved many of the wounded men to a cave or old quarry in the rear. Two days later, having moved one of his patients, a Prussian officer, to the entrance of the cave so as to get better light to deal with severe haemorrhage, a shell landed which killed him and his patient at the same time. While we quote this incident which unfortunately ended the career of a brave and most promising young officer it is merely typical of the man. At Landrecies, at Villers-Cotterêts, and on many occasions he earned the high praise of his C.O. for his devotion to duty and disregard of danger, and it is understood that his name was to be sent forward, recommended for the V.C.

Among those who went forward with him to the barn was Lieutenant H. J. Shields, who was killed in action on October 26th. Huggan was a Rugby International. He played for the Jedburgh Forest teams in his early days and afterwards became captain of the Edinburgh University team, and later played for Scotland *v.* England. He also represented the Army in the great match of 1913, Navy *v.* Army, when the King was present and received personally each member of the teams. In all his clubs he was looked upon as a fine exponent of the game, strong, resourceful, fast, and full of dash—a man who always played the game! In football there is no use for the man who plays for himself; he must play for his side. The lessons of the game stood him in good stead in the more serious work which fell to him in France. But there, as formerly, he played the game, right nobly!

Thus early has ended a fine young life, but Huggan's name will survive as an example and a model of how to live—and die. He lies at rest in the garden of Le cour soupir farm, "somewhere in France."

RALPH BROWN, M.D.LOND., B.S., M.R.C.S.ENG., L.R.C.P.LOND.,

SENIOR ASSISTANT PHYSICIAN AND DEPUTY MEDICAL SUPERINTENDENT, BETHLEM AND BRIDEWELL ROYAL HOSPITALS.

DR. RALPH BROWN was one of a large family of sons, all serving their country; he had volunteered for a commission in the R.A.M.C., and the formalities for the granting of this had not quite been completed when his untimely death occurred from a severe attack of typhoid fever. Early in the war his youngest brother was taken prisoner; shortly afterwards another was killed in Flanders, and this bereavement affected him very deeply.

Ralph Brown was educated at Sherborne School and entered University College, London, in 1899, where he became prosector of anatomy and later gained a gold medal in materia medica and therapeutics. Owing to the fact that the hospital was in the process of being rebuilt, he decided to carry out his clinical work elsewhere, and in 1903 gained the scholarship for third year students at Westminster Hospital. His career there was one of uninterrupted success. He took the conjoint diploma in 1906, and graduated M.B., B.S. at the University of London in 1908, and held in turn the posts of resident obstetric assistant and junior and senior house-physician. He then became house-physician to Bethlem Royal Hospital, and decided to specialize in psychological medicine. He was then appointed resident medical officer to Moorcroft Asylum, Hillingdon, but in 1911 he returned to Bethlem as junior assistant physician. With this appointment he became assistant medical officer to King Edward Schools, London and Witley. The latter work always filled him with pleasure and happiness, and often in his few spare hours of leisure he would visit the children and participate in their pastimes. He at one time held the post of clinical assistant to the West End Hospital for Diseases of the Nervous System. He was a member of the Medico-Psychological Association of Great Britain and Ireland, and a Fellow of the Royal Society of Medicine. He was also co-editor of the *Asylum Workers' News*. In 1913 he took the M.D. in psychology and mental diseases, and in 1914 was appointed senior assistant physician to Bethlem Royal Hospital, which post he held to the day of his untimely death.

Although of a quiet and retiring disposition he possessed a keen sense of humour, and his kindness of heart, his sympathetic manner, and his happy way of giving hopeful assurance to distressed patients will always be gratefully remembered by those who came in contact with him. So abundantly had he fulfilled the promise of his earlier years that the future must have held much success in store for him, and his death will not only prove a sad blow to his numerous friends but a loss to psychological medicine. A memorial service was conducted by the Rev. E. G. O'Donoghue in the Hospital Chapel on October 10th, and attended by many colleagues and friends.

THE LATE SIR LAUDER BRUNTON.—Dr. T. Bodley Scott (Bournemouth) writes: I first knew Brunton more than forty years ago, in his early days at St. Bartholomew's, when he was lecturing on pharmacology and therapeutics, and when he made even those dry bones live. It may fairly be said, I think, that they were the most interesting and instructive of all the lectures given there at that time. Ever since I have known him more and more intimately, and what one has learnt from him and from his work it would be difficult to exaggerate. If I may say so, he was more the general practitioner's consultant than most physicians of his time. There was never any cause to fear Brunton as an academic critic, living and thinking on a different plane to ourselves. He was always full of kindness and consideration, and what endeared him to us more was his humility—the humility of the true philosopher. The general practitioner of to-day is a pretty good man, and he does not want a consultant to whitewash him or to cover his mistakes, if such there be, under a nebulosity of scientific words; but he wants a man who will help him to cure his patient, or, if that be not possible, to relieve his pain, and such a man was Brunton. In a consultation with him one always felt that one learnt and gained something, not alone for oneself, but for one's patient. In treatment especially he was a man of infinite resource. His mind was a treasure-house of knowledge and experience, and the treasure was always to hand, not on some other shelf, as is the case with most of us. If he had a fault, it was that of too great hopefulness; but his optimism—surely a fault on the right side—was due partly to his faith in his own therapeutic skill and partly to his sanguine optimistic temperament. For his brilliant scientific work and discoveries it is not for me to speak. Though he always preached moderation for others, he never spared himself, and that rather frail body gave forth a giant's output of work, not only in his own profession, but in philanthropy and sociology also. When one recalls that delightful corner house in Stratford Place, its unvarying hospitality, kindness, and sympathy, one feels that one must use Horace's words, "Ille terrarum mihi praeter omnes angulus ridet," and from that corner for many of us, as from a beacon light, will ever shine the memory and influence of Lauder Brunton.

THE LATE LIEUTENANT-COLONEL A. N. WALKER.—Surgeon-Major W. Savile Henderson, 1st King Edward's Horse, writes: I was privileged to command a field ambulance in the same division as that of Colonel Nimmo Walker, R.A.M.C., and when in France saw much of him and his work. Devotion to duty was the keynote of his life and in the fulfilment of it he was fearless. His chief concern was for others and at all times he was ready to sacrifice his own interests on behalf of his officers and men. He had the complete confidence and was loved by all those under his command, for whom I feel the deepest sympathy, since they have lost a true friend and a brave officer.

PROFESSOR VINZENZ VON CZERNY, the distinguished German surgeon, has died in his 74th year. He was born at Trautenau in Bohemia on November 19th, 1842, and studied medicine at Vienna, where he graduated in 1886. He was assistant to Arlt and Oppolzer, but was chiefly associated with Billroth. In 1871 he was called to Freiburg as professor of surgery and director of the surgical clinic in the university. In 1877 he accepted the corresponding chair at Heidelberg, where he remained till his death, having declined a call to succeed Billroth at Vienna which came to him in 1894. He was the author of a work on operative surgery, published in 1875, and of memoirs on extirpation of the larynx, the œsophagus, the kidney and the uterus, resection of the stomach and bowel, operation for faecal fistula, gall stones, and radical cure of hernia, and diseases of the appendix. In his later years he devoted himself almost entirely to the study of malignant disease. When the institute for the experimental investigation of cancer was founded at Heidelberg in 1906 Czerny was appointed director; an account of the work done under his inspiration and supervision was published at Tübingen in 1912 under the title *Das Heidelberger Institut für experimentelle Krebsforschung*. Czerny was president of the Heidelberg society for the investigation of cancer. His general eminence as a surgeon and his special work on cancer were recognized by the bestowal of the title of Excellenz. Notwithstanding his advanced age Czerny at the outbreak of the war volunteered for military service as consultant of the surgeon-general's staff.

DR. GEORGE MARTIN, who died recently at Chaumont-sur-Charonne at the age of 72, had been a member of the Municipal Council of Paris and President of the General Council of the Seine. He had also represented the Seine Department in the French Senate, where he filled the seat formerly held by Victor Hugo.

The Services.

EXCHANGES.

TEMPORARY Captain R.A.M.C., nearly a year in France with R.F.A. (eighteen months same unit), desires, for family reasons, to exchange with Temporary Officer (preferably) at home who has no prospects of foreign service. Please state particulars, unit, station, duties, etc. Address No. 4200, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C., over eighteen months' foreign service, now in charge of corps troops, desires exchange with M.O. on home station, London or home county hospital preferred. Address No. 4199, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), employed Recruiting Medical Board, cathedral city, Eastern Counties, desires exchange to York district.—Address No. 4229, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF LONDON.

London Hospital Medical College.

The following Entrance Scholarships in Science have been awarded: "Price" Science Scholarship, value £50, to Mr. R. A. Madgwick; Entrance Scholarship in Science, value £50, to Mr. D. Hunter.

King's College Hospital Medical School.

The University Scholarship in Anatomy and Physiology has been equally divided, and awarded to Messrs. L. M. Moody and H. T. Rymer.

NATIONAL UNIVERSITY OF IRELAND.

The Dr. Henry Hutchinson Stewart Medical Scholarship has been awarded to Stephen Shea of University College, Galway.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

The following gentlemen, having passed the requisite examinations, have been admitted Fellows: M. L. G. Hallwright, M. Horan, W. C. M'Caw, J. M'Houl, J. D. Milne, H. Nicol, A. C. Oldham, G. L. Preston.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the 224th annual meeting of the President and Fellows of the Royal College of Physicians of Ireland on October 18th the following elections were made:

President, Dr. Joseph O'Carrell; Vice-President, Dr. Bewley; Censors, Dr. Henry Bewley, Dr. Martin Dempsey, Dr. W. A. Winter, Dr. B. Solomons; representative of the College on the General Medical Council, Sir John W. Moore; representatives of the College on the Committee of Management, Dr. Walter G. Smith, Sir John W. Moore, and Dr. T. Percy Kirkpatrick; Treasurer, Dr. Henry Bewley; Registrar, Dr. T. Percy C. Kirkpatrick; Librarian, Mr. Robert Phelps.

Mr. Leo Patrick O'Connor, having passed the final conjoint examination, was admitted to the licences in medicine and midwifery of the College.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examination indicated:

Final Examination.—R. J. T. Malcolm-Casper, S. C. Swinburne, W. J. M. White, E. Annequin, S. W. Hoyland, Martha H. Hoahing, C. G. Booker, H. A. G. Dykes Janie I. McBirnie, E. M. L. Morgan, P. L. Manuel, H. Morley, R. V. Clarke, R. McGregor, O. G. Evans, E. Butler, and R. Woodside

Medicine.—Y. N. Kadam, E. G. Jones, W. F. Mason, and J. J. Mulvey.

Midwifery.—Y. N. Kadam, W. F. Mason, R. N. Burton, and W. T. Carrotson.

Medical Jurisprudence.—C. V. Samwell, I. Bourah, W. U. D. Longford, G. N. Groves, T. R. Wilson, H. Shaw, Don A. Jayasinghe, R. McLaren, P. A. O'Brien, and W. T. Carrotson.

SOCIETY OF APOTHECARIES OF LONDON.

The diploma of the society has been granted to Messrs. W. Burridge, R. F. Jarrett, S. C. Varley, and H. St. H. Vertue.

Medical News.

The next session of the General Medical Council will commence on Tuesday, November 28th; the President, Sir Donald MacAlister, K.C.B., M.D., will take the chair at 2 p.m.

The London County Council has appointed Dr. C. H. Pring, Camberwell, to serve as a medical practitioner upon the Insurance Committee for the County of London.

A course of lectures on diseases of the male urethra will be given by Mr. Frank Kidd in the clinical theatre of the London Hospital on Mondays, November 13th, 20th, 27th, and December 4th, at 4 p.m.

At the meeting of the Royal Anthropological Society on Tuesday next Mr. Aubyn Trevor-Battye will give an address, illustrated by the epidiascope, on the Gurkhas and their country. The meeting will take place at 5 p.m. at 50, Great Russell Street, W.C.

A meeting to consider the steps to be taken to raise a memorial to the late Sir William Ramsay will be held at University College, London, on Tuesday next, at 4.30 p.m. Lord Rayleigh will preside, and Professor J. Norman Collie will deliver a memorial lecture.

The Bradshaw lecture before the Royal College of Physicians of London will be delivered on Thursday next by Dr. Hector Mackenzie, whose subject will be exophthalmic goitre. The Horace Dobell lecture will be delivered on November 7th by Dr. H. R. Dean, on the mechanism of the serum reactions. Dr. W. H. R. Rivers will give a second course of FitzPatrick lectures on medicine, magic, and religion, on November 14th and 16th. The lectures are given at 5 p.m. on each day.

The Department of the Official Receivers in Companies Liquidation of the Board of Trade has notified that the firm of Slack and Brownlow of Manchester and Imperial House, Kingsway, W.C., have become the purchasers of the Berkefeld Filter Company, Limited, and are now carrying it on under the style of the Berkefeld Filter Company (British). The Board of Trade is satisfied that all persons interested in the purchase are purely British, and the business may now be regarded as a British concern. Transactions may be entered into with the Berkefeld Filter Company (British) without infringing the provisions of the Trading with the Enemy Act.

An association for the study of the internal secretions was formed during the recent meeting of the American Medical Association in Detroit, and will meet annually during subsequent sessions of that association. It proposes to publish a periodical, to maintain circulating libraries, and to establish local groups to hold round-table discussions in clinical medicine, neurology, gynaecology, surgery, pediatrics and paedology, and experimental medicine. Among the members of the organizing committee are Professors L. F. Barker, of Baltimore, and Judson Daland, of Philadelphia. The secretary is Dr. Harrower, of Los Angeles, and the treasurer Dr. W. W. Duke, Waldheim Buildings, Kansas City, Missouri.

Another course of Chadwick public lectures has been arranged. Professor Stirling gave the first of three lectures on fatigue and its effects on industry and efficiency, at the Royal Society of Arts, Adelphi, on Friday. Dr. Charles Porter will begin a course of three lectures on the health of the future citizen, at the Norwich Museum on November 2nd; Dr. J. C. Nash, county medical officer and chief school officer, Norfolk, will give a lecture on baby saving for the nation, at the Hampstead Central Library on November 20th; and Mr. Paul Waterhouse will give the first of three lectures on architecture in relation to health and welfare, at the Surveyors' Institute, Westminster, on November 30th. The lectures are free, and a programme can be obtained from the Chadwick Trust, 40 (6th), Queen Anne's Chambers, Westminster.

The Post Office regulations permit the transmission of deleterious liquids or substances only by letter post. Any such liquid or substance must be enclosed in a receptacle, hermetically sealed or otherwise securely closed, which receptacle must be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool) so packed about it as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle. The packet so made up must be conspicuously marked "Fragile, with care," and bear the words "Pathological Specimen." A person who sends such liquids or substances contrary to these regulations is liable to prosecution.

The discussion on the need for improvement in the care of pregnant women, at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on Thursday, November 2nd, will, as has already been announced, be opened by Dr. S. G. Moore, M.O.H. Huddersfield. Abstracts of his lectures on infantile mortality and the relative value of measures for its prevention were published in the British Medical Journal of May 6th and May 13th, 1916, pp. 659 and 693. The discussion will be continued by Dr. Amand Routh, who will speak on the importance of getting all pregnant women under supervision, and affording them the necessary treatment; Dr. Comyns Berkeley, who will speak on the co-operation of medical practitioners and midwives with the local health authorities, and Lady Barrett, M.D., M.S., who will deal with the linking up of all organizations for maternity and child welfare in local health districts.

The medical profession in Berlin has lately expressed its disapproval of the way in which the authorities have ignored the opinion of doctors on the distribution of food. Apparently not a single medical man has been consulted. It is not, therefore, surprising that the interests of the sick and the mentally deficient have been overlooked, and that facilities for providing them with adequate supplies of nourishing food are lacking. The representatives of the medical profession in Berlin insist on a reorganization of the present methods of distributing milk, cream, butter, and meat among invalids. After August 1st, 1916, the amount of soap and other fatty preparations for washing

was reduced to 50 grams a head a month. As a substitute 250 grams of soap powder may be claimed for each person, but the use of all soft soap is totally prohibited. As a concession to the medical and nursing professions, four soap cards are allowed.

As from April 1st, 1916, glycerine manufacturers were asked to obtain from buyers a guarantee that all medicinal glycerine delivered would be used only for making up *British Pharmacopoeia* or *B. P. Codex* preparations, or where it was prescribed in individual cases, either alone or in combination with other drugs, by a duly qualified medical practitioner. These restrictions were not applied to stocks held by wholesalers or retailers prior to April 1st, but in view of the increased necessity for conserving the supply for the needs of the war, and the possibility that it may be necessary to reduce still further the quantity to be allowed for medicinal purposes, holders of such stocks are now asked to apply the restrictions to them. Such action will directly serve national interests in tending to secure a sufficient supply of glycerine for the general public in those cases where its value for medicinal purposes is of importance.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2631, Gerrard (2 FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3 MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 15, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

OCTOGENARIAN asks whether the daily use of an ordinary glycerine suppository has been known to produce any injurious results. He has heard that haemorrhoids have been the result of frequent use.

A. A. P. asks to be recommended a preparation of cod-liver oil which is made up with salt instead of sugar, and which is free from nauseating flavour.

*** In the *British Pharmaceutical Codex* and in Martindale's *Extra Pharmacopoeia* formulae are given for emulsions containing solution or elixir of gluside (saccharin) instead of sugar.

INCOME TAX.

R. H. S. M. has for the past six years been in charge of a hospital abroad but returned to England to join the R.A.M.C. and has been an officer of that corps since August 1st. His intention is to return to his appointment abroad as soon as his services in the army are no longer needed. Is he liable to income tax?

*** So far as his army pay is concerned the answer is in the affirmative, inasmuch as tax is payable in respect of every public office or employment and upon every stipend payable out of the revenue of the United Kingdom. It is true that this means offices, etc., which are exercised within the United Kingdom (Pickles *v.* Foster), but this qualification does not assist our correspondent. He is not liable to pay tax on remittances from foreign property—if any—unless he remains in this country for at least six months, and possibly in the special circumstances any technical liability under this head would not be pressed. We may perhaps point out that in calculating the total income of the financial year 1916-17 for purposes of abatement or the fixing of the appropriate rate of tax, income which is not assessable—for example, the earnings of R. H. S. M. before he came to this country—should not be included. This might affect the amount of abatement due to him.

LETTERS, NOTES, ETC.

SCHOOL VICE.

CAPTAIN E. DUKE, M.D., R.A.M.C. (Hove) writes: It appears to me, and has done so for years, that the advice needful for boys may be summed up in three brief sentences: (1) Never allow any boy or man to touch you indecently; (2) never touch any boy (or man) indecently; (3) never touch yourself indecently. These cardinal rules should be impressed sanely upon every boy, whether at school or at home.

GASTRO-ENTERITIS DUE TO BACILLUS AERTRYCKE VEL SUIPESTIFER.

DR. J. W. MARTIN (Dumfries) writes with reference to Professor E. J. McWeeney's case of fatal gastro-enteritis (BRITISH MEDICAL JOURNAL, September 30th, p. 451): I treated a somewhat similar case at home of gastro-enteritis six months ago in a lad 17 years of age, a railway clerk. There was vomiting and profuse diarrhoea, which at times was bloody. A bacteriological examination of the stools by the local bacteriologist showed large numbers of a non-lactose fermenting bacillus which gave reaction similar to the paratyphoid group, non-agglutinated by paratyphoid A, B, or Gaertner serum, but serum from the patient did so in dilution of 1 in 1,000. The patient made a slow recovery. This bacillus may be allied to the one described by Professor McWeeney.

FERGUS(S)ON'S SPECULUM.

A CORRESPONDENT, in reference to the paragraphs on this subject in the JOURNAL (March 11th, p. 397, and August 5th, p. 208), points out that, in speaking of his well-known rectal speculum, Sir William Fergusson states that "it may be made in all respects similar to the speculum for the vagina which I devised many years ago, and which is now (1870) in very general use when such a mode of examination is needed" (*A System of Practical Surgery*, fifth edition, 1870, p. 655). Thus the great surgeon claimed it as his own, but it is not clear that it was not in some points a modification of a glass speculum used by Dr. Robert Ferguson.

NOCTURNAL DYSPNOEA ASSOCIATED WITH NASAL OBSTRUCTION.

T. writes: Surgeons have been operating on growing noses after the manner of Killian for more than ten years, a sufficiently long period to be able to give end results and thus enable the physician to advise operation or not—a difficulty at present. One cannot expect much benefit from organotherapy or drugs when the trouble is anatomical. But it is hard to witness healthy young chests gradually becoming crippled without let or hindrance. For sporting purposes men will do a tracheotomy on a hunter or racehorse, and exercise all sorts of ingenuity to prevent its roaring, etc. Is not the child worthy of more effort?

RETRACTION OF THE UTERINE MUSCLE ASSOCIATED WITH OBSTRUCTED LABOUR.

DR. GORDON O. LAMBERT (Reading) writes: I have read with great interest the very instructive article in the JOURNAL of October 14th on retraction of the uterine muscles associated with obstructed labour. The personal experiences of Mr. H. T. Hicks, and the conclusions which he draws from it, are very valuable to those who undertake midwifery practice. One of his statements, however, seems to be not strictly accurate. Perhaps it is the inference naturally drawn from the statement rather than the statement itself which is open to criticism. Mr. Hicks writes: "It will be noticed that I have made no reference to textbooks or papers. I wish only to give a clear clinical account of a condition which I know occurs time after time without being recognized. . . . In one of the latest books on obstetrics this condition is lightly touched upon." I venture to think that Mr. Hicks is hardly just to the authors of several standard textbooks—for example, Galabin (*Manual of Midwifery*), Herman (*Difficult Labour*). In these books the condition is clearly described, under the head of "Bandl's Ring," and every well-educated medical man should be familiar with it in theory and on the watch for its occurrence in cases of obstructed labour. One is inclined to derive hope from Mr. Hicks's statement that "many practitioners may go thirty years without seeing a case of this kind, or never see one at all." Possibly prompt recognition and treatment of obstruction to delivery has greatly reduced the frequency of occurrence of Bandl's ring, or "the retraction ring," during many years past.

FASTING IN HEART DISEASE.

DR. JOHN HADDON (Hawick, Scotland) writes: In 1892 Sir Thomas Lauder Brunton, after careful examination, diagnosed heart disease and warned me against making much exertion. Since then I have learnt that, bad as my heart may be, if I do not eat "too much" or "too often," it seems to work well enough. To-day I have climbed to the top of our highest hill—1,400 ft. above sea level—better than I could do before I became a vegetarian in 1896. I have tried fasting myself and made others fast, and, from experience, I have come to the conclusion that the worse a heart is the more occasion there is for fasting.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

An Address
ON
THE POSSIBLE FUNCTIONS OF THE CEREBRO-SPINAL FLUID.

Delivered before the Neurological Section of the Royal Society of Medicine.

By W. D. HALLIBURTON, M.D., F.R.S.,
Professor of Physiology, King's College, London; President of the Section.

So much has within recent years been written about the cerebro-spinal fluid that I must apologize for my want of originality in selecting that subject for this address. But however hackneyed the subject, we are still far from possessing complete knowledge as to the functions and significance of the fluid. From the pathological as well as from the physiological point of view, we at least know that this remarkable fluid is one of the greatest importance, and its careful examination in many diseases has yielded results of inestimable value. During the last few years it is a subject at which I have myself worked, and I have been fortunate in securing as my collaborator such a skilful and accurate experimenter as my colleague Professor W. E. Dixon, F.R.S.

One cannot work at any subject for any length of time without speculating beyond actually observed data. It is the safest rule to keep ideas of this nature to oneself, but there are some occasions when it is permissible to speak rather more freely; this is one of them. I happen to be the unworthy occupant of a presidential chair, and for an hour or less I shall be free from contradiction and criticism, so I propose to inflict upon you during that time some speculations, and have only safeguarded myself in the title of this address by alluding to the functions of the fluid as possible rather than probable. As my colleague Dixon is away on war service, I have had no opportunity of discussing the matter with him, so that if I say anything that is wildly improbable he, at any rate, is free from responsibility.

May I, after this preface, proceed next to another chapter, which is also of a prefatory character, and state as shortly as I can the present state of our knowledge regarding the characters, composition and fate of the fluid? The fluid, as you know, is, under normal conditions, as clear as water and of low specific gravity; it contains in solution inorganic salts similar to those in the blood plasma, a trace of coagulable protein, and a certain amount of a reducing substance which has now been definitely proved to be glucose; it is practically free from formed elements. Under various abnormal conditions the protein matter may be largely increased, or other substances than the usual ones may be added to it, such as cholesterol and choline (or a choline-like substance). It may further have added to it various kinds of cellular structures, the differentiation between which is a valuable aid in diagnosis, and in other cases parasites of different sorts may be found. The fluid is primarily formed by the secreting cells which are so prominently found covering the choroid plexuses in the cerebral ventricles, so that this structure may be appropriately designated, as Mott first suggested, the choroid gland. The fluid is normally present at a certain pressure, and this pressure is not the result of arterial pressure passively transmitted to the fluid. The cerebro-spinal pressure, it is true, may be affected by changes in the arterial and venous pressures, but it is not dependent on them; and it may and often does vary quite independently of these. The true cerebro-spinal pressure is the result of the secretory pressure of the choroid epithelium cells. In other words, the cranio-spinal contents cannot any longer be regarded as a fixed quantity without the power of expanding or contracting in volume.

The rate of flow and the pressure of the fluid can be readily investigated in animals by placing a cannula in the subcerebellar cisterna and connecting it with the necessary apparatus. It is then found that there are three groups of substances which promote the flow and increase the pressure independently of those which affect it secondarily by altering the blood pressure. The first group consists of excess of carbon dioxide (or lack of oxygen) in the blood, as in asphyxia, and drugs which interfere with respiration. The second group is that of the volatile anaesthetics, which may act by interfering with the respiration or by altering the physical conditions of secretion. The third group is specific, and consists of an extract of the choroid gland, or of the brain. The former is the more powerful. The chemical nature of the hormone in this extract is uncertain, but it is probably some product of nervous metabolism which, arising in the brain, passes to the choroid plexuses, accumulates there, and stimulates the secreting cells to activity; it cannot be discovered in the normal secretion, but in cases of general paralysis and brain softening—conditions in which catabolic processes are excessive—it can be recognized (by physiological tests) in the fluid itself. The choroid plexuses are abundantly provided with nerves, but there is no evidence that these are secretory in nature; indeed the evidence derived from experiments with atropine and similar alkaloids points in the opposite direction. The hormone, whatever its nature, acts probably not on nerves, but on the secreting cells directly.

There is no doubt that this fluid is being continually formed, and the next question is, What becomes of it? Large quantities of a neutral fluid, such as physiological saline solution, disappear within a few minutes when introduced into the cranio-vertebral cavity, and the course taken by such fluids, and presumably also of the normal cerebro-spinal fluid, can be traced by adding some substance which can be easily recognized by its colour, or by chemical tests, or by its physiological action. Using such methods it has been demonstrated that the exit is by the blood stream and not by the lymph channels of the nerves, which was formerly thought to be the case by a number of French observers.

If such substances are readily diffusible the speed with which they appear in the blood is very remarkable, especially if they are introduced into the subcerebellar region. An injection, for instance, of adrenaline, nicotine, or atropine produces typical physiological actions within a few seconds, in fact, almost as rapidly as if the injection had been made into the venous circulation direct.

On the other hand, substances which are not readily diffusible (such as commercial peptone) do not produce their characteristic effects when they are introduced into the cerebro-spinal fluid, so that one of the older theories, that actual valved orifices exist leading into the large veins at the base of the brain, must be abandoned.

The diffusion process is most rapid in the subcerebellar district, but is extremely slow in the spinal, especially the lower spinal region.* It probably occurs into the venous sinuses by the microscopic arachnoid villi described by Weed. There is also a possibility that, in addition to this, transference may occur through the thin walls of the blood vessels within the central nervous system, for, as Mott has pointed out, contact of these vessels with the cerebro-spinal fluid is maintained throughout their extent by the perivascular spaces which are continuous with the subarachnoid cavity. Diffusion in the opposite direction from blood to cerebro-spinal fluid does not occur except in an almost negligible degree in the case of a few drugs, such as alcohol and urethane.

But, in addition to this, there is another and minor communication between the fluid and the other parts of the body. Dixon and I found that dyes added to the fluid travel along the course of certain cranial nerves, and this is especially true for the olfactory nerve. This is not the case for the spinal nerves; no dye can be detected in their sheaths outside the spinal canal, and no dye is discernible in the lymph of the thoracic duct. I have spoken of this cranial (olfactory) outlet as a minor one, but clinical experience has shown that it is not a negligible one. For this loophole affords an opportunity for the entry of infective agents, as Flexner has shown in the causation of infective poliomyelitis.

Such, then, is a brief and, I fear, imperfect summary of the present state of our knowledge, and I propose now to pass to the main object of my address, which is to discuss the meaning and functions of the fluid we are dealing with.

* This is tacitly accepted by those who produce spinal anaesthesia by the injection intrathecally of substances of the cocaine group, for they recognize the danger of absorption if the drug reaches the medullary region.

In the first place, it can hardly be doubted that the presence of fluid within and around the structures of the central nervous system fulfils certain mechanical functions of support and pressure. That, however, does not explain why ordinary lymph would not do just as well, as it does in the majority of other organs. The relationships, however, of the brain and cord within a closed cavity are peculiar, and it may be that ordinary lymph is here insufficient to maintain a more or less constant pressure. For the pressure of ordinary lymph is wholly dependent on blood pressure; here, in addition, we have an independent pressure—namely, the secretory pressure of the choroidal secreting cells, and it is therefore quite possible that this may come into play in maintaining, equalizing, and adjusting those pressure relationships which are most advantageous for the well-being and function of the brain and cord. It is further quite possible that the ameliorative effects not infrequently noticed as a result of withdrawal of the cerebro-spinal fluid by lumbar puncture may be due to the relief of cerebral pressure. But such considerations offer no explanation of the peculiar composition of the fluid. Its characteristic chemical composition must have a deeper meaning.

It is very common to speak of the cerebro-spinal fluid as the lymph of the brain. Let us now examine this phrase more fully, and see if it has any scientific accuracy.

In the first place, we must be quite clear as to what lymph is, and what it does. It is a fluid which exudes through the thin walls of the blood capillaries. Whether lymph formation depends solely on physical conditions (filtration and osmosis), or whether in addition we have as a factor a secretory activity of the vascular lining membrane, is an interesting physiological problem which need not concern us now. The leakage fluid resembles blood plasma in its composition, except that it is comparatively poor in protein material, the diffusion of which through membranes is so difficult. This lymph, when formed, acts as the intermediary or middleman between the blood and the tissue elements, conveying to the latter, on the one hand, the oxygen and nutritive substances they need; and, on the other hand, it is into the lymph primarily that the tissues pour the waste products of their activity, and thus these are started on their journey to the organs of excretion (lungs, kidneys, etc.). The very essence of a lymph is that it should be in free communication, except for an intervening membrane, with the blood stream, and that this membrane should be equally permeable to water and other substances in both directions. The arrangement of the perivascular and perineuronal spaces, filled as they are with cerebro-spinal fluid, certainly resembles that of a lymphatic system, and therefore it is not surprising that the idea has caught on that cerebro-spinal fluid plays in the central nervous system the rôle of lymph. The peripheral nerves have a true lymphatic system analogous to that found in other organs, but anatomists are far from unanimous on the question whether the central nervous system possesses real lymphatic channels apart from the system of intercommunicating spaces occupied by cerebro-spinal fluid. The mere difficulty of discovering true lymph vessels does not indeed finally negative their existence, but until they are satisfactorily demonstrated we may provisionally assume that they are absent. If, then, cerebro-spinal fluid is the only fluid which actually comes into contact with the tissue elements of the brain and cord it necessarily follows that it must play the part played by lymph in other districts of the body; it must be, for example, the intermediary medium which is traversed by the oxygen on its way from blood to the tissue elements; and oxygen we know is essential for the continuance of nervous life and energy. Furthermore, it must be the vehicle by which other nutriment reaches the cells and fibres of nervous tissue. The next point is, Have we any evidence that the products of nerve catabolism pass into the fluid from the tissue elements as they do into ordinary lymph? If it were only possible to analyse and compare the composition of the fluid before it enters the perivascular spaces, and after it leaves them, it would be possible to answer this question authoritatively, but in the absence of such proof one can only argue from probabilities. Seeing that the fluid is the only one available for the purpose, an affirmative answer seems inevitable, and this is supported by the fact that cerebro-spinal fluid is rich at any rate in one waste product—namely, carbon dioxide.

The expression "lymph of the brain" is therefore so far justifiable. But we have absolutely no proof that the cerebro-spinal fluid is in part an exudation from the blood, and it is in the origin of the fluid that the analogy between lymph and cerebro-spinal fluid breaks down. Whatever views we may hold as to whether a secretory factor comes into play in the production of ordinary lymph (and, at the best, such a factor can only be an insignificant one), we can have no hesitation in proclaiming that cerebro-spinal fluid is a true secretion arising in a definite glandular structure. Such a fluid must obviously be the best one for maintaining normal life in the nerve cells, and the whole lining membrane of the spaces in which it resides appears to co-operate with the choroid gland in maintaining its constancy of composition, and to militate against the escape into it of substances from the blood stream, such as drugs or poisons, which would be foreign to the fluid or harmful to the delicate and sensitive structure which it bathes.

We have seen that the essential feature of a true lymph is the free interchange between it and the blood in both directions. This essential character is lacking in the cerebro-spinal fluid; in all probability the lining membrane of the cerebro-spinal spaces is permeable to substances passing from it into the blood, but it appears to be impermeable (except for oxygen) in the direction from the blood to the fluid. The nutritive materials the fluid contains appear to be formed in the choroid gland, and not to be merely exuded from the blood stream; otherwise one cannot explain why the protein it contains is not similar to that in the blood or in exudations (lymph) formed from the blood.

If, as Weed has suggested, cerebro-spinal fluid is partly formed as ordinary lymph is by exudation from the blood in the perivascular spaces, it is difficult to understand why readily diffusible drugs and poisons do not escape readily into the cerebro-spinal fluid as they do into ordinary lymph. The difficulty is quite intelligible when we regard the choroidal epithelium as a stalwart barrier of cells which keeps back these materials, and only allows its own normal secretion to escape. This useful work would be undermined and frustrated if the general lining were easily permeable to foreign substance.

Camus found that barium chloride, which is a very active poison to the central nervous system, will kill a rabbit of 2 kg. weight when $\frac{1}{10}$ mg. is introduced into the subarachnoid space, whereas the lethal dose is one thousand times greater when this salt is given subcutaneously. It is well known that anaphylaxis can be produced by smaller doses of proteins administered into the brain than when given elsewhere. The use of salvarsan in locomotor ataxy and similar post-syphilitic affections via the cerebro-spinal fluid has been abandoned, as it is fatal not only to the syphilitic organisms, but also to the patient. It is further known that salvarsan and its homologues are of little or no use in tabes and general paralysis when it is given by the ordinary channels, for in these later manifestations of syphilis the baneful spirochaete has got into a harbour of refuge (which we may speak of as extravascular) beyond the reach of the poison. The stalwart epithelial layer lets none escape, and does not realize how much both doctor and patient would rejoice if it could be made to understand that in this instance at least it did not form such an effective barrier.

May I add, in way of parenthesis, how very desirable it is that chemists and pharmacologists should apply themselves to the solving of this difficulty? The future treatment of tabes and allied conditions should aim at the discovery of some blander arsenic compound which could be introduced straight into the cerebro-spinal fluid and kill the syphilitic organism in its lair without at the same time slaying the host who harbours it.

Is not the very simplicity of the normal fluid suggestive? I remember when I was a student that normal or physiological saline solution was regarded as a physiological fad, for surgeons continued to use sponges—usually dirty ones at that time—soaked in water during operations. What a change has now come over the spirit of their dream! They have realized that water, even clean water, is a protoplasmic poison, and that osmosis is a real force and not a negligible phenomenon. I remember at about the same date witnessing, and in a humble measure assisting, Dr. Sydney Ringer in his epoch-making work on the effects of saline mixtures on living structures. The attitude of

the profession generally in those days was a tolerant one—just the sort of attitude adopted by a grandfather indulgently watching his descendants playing with their toys. But who has not heard of Ringer's solution to-day? Who can write a paper on almost any physiological or pathological subject without mentioning it or alluding to the part it has played in his investigations?

Ringer's fluid is the ideal physiological salt solution; its saline constituents are present in the same proportion as they occur in the natural body fluids, and in that way the normal osmotic pressure is maintained when living structures are bathed in it. Ringer's original solution resembled frog's blood in its saline composition, but since then several modifications have been introduced. The most important of these is the one we owe to Locke, who has altered the proportion of the various salts (increasing, for example, the amount of sodium chloride from 0.6 to 0.9 per cent.), so that the fluid may be employed with success on the living tissues of the mammal. Locke has also added a small proportion of the sugar glucose, and when in use it is kept saturated with oxygen. It is well known that in such a fluid living structures can be preserved in a living condition for hours, or even days and weeks. Locke's most striking results have been obtained with the mammalian heart; this can be kept beating for prolonged periods after its complete isolation from the body if it is perfused with the oxygenated fluid. The salts supply the normal stimulus to the cardiac fibres and maintain their physical integrity; the sugar acts as a source of energy and is consumed as activity continues.

Ringer's fluid, so compounded in the laboratory, is somewhat more than thirty years old. But in reality it is as old as the hills, or rather as man himself. Just as the Venus of Milo existed potentially from past ages in the block of marble from which it was ultimately hewn, so does Ringer's fluid exist in the blood and lymph, although its simple composition is obscured there by admixture with the blood proteins and corpuscles.

Here may I introduce another parenthesis and allude to another physiological puzzle, and that is the significance of the large amount of protein in the blood plasma and lymph? The meaning and use of the blood corpuscles we understand, or at least we think we do, but the meaning of so large a quantity of protein in the blood fluid and the part it plays in nutrition is still hidden from us. The amount of protein necessary for the repair of the tissues is not great, and the modern doctrine of maintenance and growth is that the tissues help themselves, not from proteins directly, but from the various amino-acids which are the result of protein cleavage. The great protein store may be another instance of the prodigality of Nature in providing a large margin for conditions of weakness and stress. However this may be, the presence of protein is not necessary, or it may even be harmful when it is added to Ringer's or Locke's solutions in experiments with perfused organs.

But to resume the thread of our argument. Thanks to Ringer some thirty years ago, physiologists were provided with a suitable fluid for experimental work, but the choroidal epithelium knew the secret of extracting it from the blood for untold ages before Ringer was born. For what, after all, is cerebro-spinal fluid but Locke's modification of Ringer's fluid?

The view I have been led to take is—the nervous mechanism being so sensitive, so easily influenced by anything unusual—that therefore the neurons must be bathed in an ideal physiological saline solution to maintain their osmotic equilibrium; the trace of protein it contains is probably quite sufficient for nutritive processes, and is no doubt the kind of protein particularly suited to repair the small amount of wear and tear which is the result of nervous action. The sugar, just as in Locke's solution, would serve for a supply of energy. The choroidal epithelium, in its wise choice of a suitable circumambient medium for the neurons, is really exercising a protective function. In order to keep out harmful proteins (toxins and the like), the comparatively harmless ones are kept back also, almost completely; all share the same process of exclusion. This protective action applies in addition to the majority of soluble drugs; this, as we have seen, may operate so as to be detrimental in diseased conditions. But we can hardly expect discrimination on the part of the epithelial secreting cells. The non-access of metallic and other poisons to the nervous elements is such a *sine qua non* for their health, that during those periods when such substances are given for the relief of disease, or the slaughtering of parasites, the choroidal cells are unable to change their habits and so do not allow the drugs to get through.

Such, I believe then, is the real significance of the simple composition of this remarkable secretion. But I must allude, in conclusion, to some other possible additional functions which the fluid may exercise.

The late Dr. Gaskell approached the question from the embryological and developmental point of view; he held that the neural tube represents an ancestral digestive canal, and those who adopt Gaskell's hypothesis might conceivably argue that the cerebro spinal fluid is the representative of a primitive digestive juice, and is secreted by an organ which was formerly a digestive gland. However interesting such speculations may be, one can hardly suppose that any one could seriously urge that the cerebro-spinal fluid retains any such functions to-day.

Dendy is one of many comparative anatomists who have not accepted Gaskell's views, and he has suggested that the important function fulfilled by the choroid plexuses is that of an intracerebral gill, and is concerned in respiration. The structure of the plexuses is certainly gill-like, but it is always unwise to argue from mere anatomical resemblances. Mott, who analysed the gases of cerebro-spinal fluid, found the quantity of carbon dioxide there very high (about 60 per cent.), and there is, therefore, something to be said in favour of the respiration hypothesis. It is quite possible that the choroidal epithelium may allow the escape of, or even actively excrete, this catabolic product, and it is unnecessary to point out how severe a poison any undue accumulation of carbon dioxide is in the central nervous system. Coupled with this fact is another I have previously mentioned—namely, that carbon dioxide is one of the most potent means of promoting a flow of the fluid. Just as urea is the best diuretic and bile the best cholagogue, so carbon dioxide is one of the most powerful cerebral lymphagogues.

One further point and I have done. The ependyma is lined by ciliated epithelium. Some doubt exists, I believe, as to whether the cilia are functionally active. But if we admit they are, the question arises—In what direction do they act? This is a question which is hardly susceptible of actual observation in man or the higher animals, but in the Amnocaetes, which Professor Dendy has so largely used in his investigation, he has brought forward evidence which shows that the movement is in a forward direction. I know it is not always wise to draw conclusions from such lowly animals and apply them without reserve to the higher ones. There are certain cases where such deductions are quite impossible; for instance, in some of the humble fishes the central canal of the spinal cord does not terminate blindly at its posterior extremity, but opens out by an orifice into the surrounding tissues.

In this case one can only speculate, and the rapidity of absorption of the fluid in the forward regions in comparison with that in the spinal district appears to favour Dendy's surmise, and the cilia, if they are active, would no doubt further the flow of fluid from the cord region to the large veins at the base of the brain, where it so readily leaves the subarachnoid space by entering the venous blood stream.

There are doubtless other problems in connexion with the cerebro-spinal fluid that demand solution, but my task for this evening is over. My main object has been to present the thesis in which I feel there is, at any rate, some truth—namely, to regard the cerebro-spinal fluid as the perfect physiological medium, more perfect doubtless than the artificial fluids we can make in the laboratory, but in its essential features closely resembling those associated with the names of Ringer and Locke.

I think already I have said finally, or in conclusion, more than once, but will you pardon me if, like the proverbial writer of sermons, I say it a third time, and this is really my concluding sentence? These are days of specialization, but however necessary specialization in medical science may be it has its attendant evils. Particularly regrettable is the divorce between those who pursue their investigations by the bedside and those who work in the laboratory. Neurology specially is a branch of our science in which an attempt should be made to bring about a closer *rapprochement* between the two sets of workers.

Speaking personally, I have derived inestimable benefit from meeting with and hearing here the clinical side of the subject. Those responsible for the management of this section of the Royal Society of Medicine have realized this, and in having elected this year a president who is a laboratory person they have shown that they see the value of the *entente* I have alluded to; and I can only trust that my year of office may not be detrimental to those who form the larger contingent in the Neurological Section—namely, those who pursue more specially the study of disease by the bedside.

INCIDENCE AND TREATMENT OF ENTAMOEBA HISTOLYTICA INFECTION AT WALTON HOSPITAL.

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(Report to the Medical Research Committee.)

Since the beginning of March, 1916, I have made a number of protozoological examinations of the stools of military patients in the New Zealand 2nd General Hospital, Walton-on-Thames. These examinations were made, in the first place, in order to detect carriers of *Entamoeba histolytica*. Detected carriers were then, whenever possible, treated; and during and after treatment I examined their stools at frequent intervals in order to ascertain the results. All the results so obtained, as far as they have any interest, are embodied in this report. It deals with the first 200 men examined at Walton, and five others sent there for treatment—205 cases in all. Upon these I have made more than 800 examinations.

Although I alone have been responsible for the examinations, on which the results here recorded are based, the investigation was only made possible by the cordial co-operation of the hospital staff. To Lieutenant-Colonel Myers, N.Z.A.M.C., now A.D.M.S. to the New Zealand Expeditionary Force, and to Lieutenant-Colonel Mill, N.Z.A.M.C., his successor in command at the Walton Hospital, I am indebted for permission to publish the results, and for the helpful interest they have taken in the work throughout. To Lieutenant Matthews, N.Z.A.M.C., who was directly in charge of the treatment of the cases, I owe the clinical details which he has kindly allowed me to include. The co-operation of Miss F. M. Durham, while acting as assistant pathologist to the hospital, alone made it possible for me to make the examinations at a distance: Miss Durham also most kindly undertook to extract from case sheets, and by personal questioning of patients, such details of clinical history as I am able to give. The work of examining the specimens has all been done at the Wellcome Bureau of Scientific Research. To Dr. A. C. Stevenson and other members of the staff I owe my best thanks for their hospitality and for much kind assistance in various ways. The investigation has been carried on by aid of a grant from the Medical Research Committee. Dr. H. H. Dale, of their staff, suggested the trial of emetine bismuthous iodide (Du Mesnil), of which the successful results are here recorded, and has shown constant interest in this phase of the investigation. To all I gratefully acknowledge my obligations.

The Protozoological Findings.

Examination of the stools of patients at Walton has given the following results:

Number of men infected with		
Entamoeba coli	22	11 %
Entamoeba cysts	84	40.9 %
Giardia (or *Lamblia*) *intestinalis*	40	19.5 %
Chilomastix (or *Tetramitus mesnili*)	16	7.8 %
Trichomonas hominis	5	2.4 %
Iodamoeba cysts	1	0.48 %

It must be explained that the number of cases at Walton infected with *E. histolytica* has been much higher than that given above, because for some time past carriers have been sent there for treatment. These men, of whom there have been altogether about a dozen, were detected as carriers in another series of examinations undertaken by Dr. A. C. Stevenson and myself. Their inclusion in the present series would therefore give a disproportionate value for the percentage of infection with *E. histolytica*. But as 5 of these imported cases have now been treated—forming part of the series of treatments here recorded—I have included them as supernumeraries, and left them out of account in calculating the percentage of men infected with *E. histolytica*. There are thus 27 cases (22 belonging to Walton, with 5 supernumeraries) of *E. histolytica* infection dealt with in this report. The 22 cases were found in the routine examinations of 200 men, and the percentage infected is therefore 11. In considering the infections with other protozoa, however, I have included the infections found in the 5 supernumeraries; so that these infections are calculated from 205 men.

It should be emphasized that the figures given denote the minimal number of men infected. It is not possible to be certain that a man does not harbour any given protozoon unless he has been examined repeatedly. One or two examinations are not sufficient. It is not only possible, but even probable, that of the 178 men here included as uninfected with *E. histolytica*, some at least are really infected, for 29 of these have been examined only once, and 65 only twice. The rest have been examined three or more times. If it had been possible to examine all these cases many times, it is almost certain that all the percentages would have been much higher.

Incidence of Infection with E. histolytica in Men of Different Classes.

All the men examined are New Zealanders who had served, as far as I can ascertain, in Egypt and Gallipoli before coming to England. They have thus all passed from a non-endemic into an endemic, and back again into a non-endemic centre of amoebic dysentery. I have therefore examined whenever possible not only those who entered Walton for dysentery, but also those entering for gunshot wounds and other complaints, since all appear to have been similarly exposed to infection with *E. histolytica*.

Of the 200 Walton men examined, 130 entered hospital for dysentery, enteric, or other intestinal ailments, or for debility following these; whereas 70 were in hospital for wounds or complaints other than intestinal. Of the 22 men infected with *E. histolytica*, 11 belong to the first category, and 11 to the second. Among the intestinal cases 90 entered for dysentery (or debility following) or persistent diarrhoea. Of these, 9 were found infected with *E. histolytica*. There were thus 13 infections among the 110 non-dysenteric patients (including among these many cases of intestinal disorder). These facts may be better appreciated as percentages, as follows:

Percentages of Cases Infected with E. histolytica.	
Intestinal cases	8.2 per cent.
Dysenteric cases	10.0 ,,
Non-dysenteric cases	11.8 ,,
Non-intestinal cases	15.7 ,,

The facts speak for themselves. They clearly show the importance of examining all men, not merely the dysenterics or suspected dysenterics, returning to England from a centre of amoebic infection. Obviously the number of men examined has been small, but it can hardly be regarded as insignificant. On the other hand, exact significance cannot be attached to the percentages, as the probable error in these is large.

I have ascertained that most of the men infected with *E. histolytica* (27 cases) have histories of dysentery, or acute diarrhoea, contracted at some time during their sojourn in the Mediterranean area. At least 2, however, and probably 4, have no such history, and have therefore been regarded as contact carriers—not convalescent carriers like the others. Reliable information on this subject is almost impossible to obtain in many cases, the testimony of the men themselves being all there is to go upon. With this reservation the character of the infection in the 27 cases studied may be stated as follows:

Ordinary convalescent carriers	22 cases
Contact carriers	4 ,,
Acute dysentery	1 case

All these cases were treated at Walton except one (No. II), who was sent elsewhere to be treated for syphilis, and whom I have been unable to follow. Case No. III received special treatments which will be noted separately later.

The remaining 25 cases constitute the main series upon which the treatments now to be described were carried out.

First Series.

Emetine Hydrochloride Hypodermically.

In this series I include all those cases which were originally treated with emetine hydrochloride hypodermically. Each man received 11 to 14 grains of emetine in daily doses of one grain. In some instances the injections were given on consecutive days; in others they were given every day for a week, and then every other day until the full amount had been administered. In several cases which received 13 or 14 grains, two, and in 2 cases more than two, days elapsed between the final injections. In all cases, however, with one exception, not less than 12 grains in all were given.

I examined the stools of all the patients every few days, both during and after treatment, for as long a period as possible. By doing so I found that out of 21 patients treated with emetine hydrochloride no fewer than 14 (that is, two-thirds) had not been cured of their infection. The remaining 7 cases were discharged as cured on the evidence summarized in the following table.

Table I.

Case No.	Treatment with Emetine Hydrochloride.			Consecutive Negative Examinations.	
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No
V	Apr. 1	Apr. 15	12 grains	Apr. 6, 10, 18, 19, 24, 28; May 1	7
VI	Mar. 26	Apr. 7	12 ,,	Apr. 3, 6, 10, 24; May 2	5
VII	Apr. 8	May 2	13 ,,	May 3, 8, 14, 26	4
IX	Mar. 20	Apr. 3	12 ,,	Apr. 1, 3, 4, 5, 6, 7, 10, 12, 24, 26	10
X	May 15	May 26	12 ,,	May 18, 23, 25; June 13, 19	5
XV	May 21	May 31	11 ,,	May 25; June 1, 8, 21	4
XVII	Apr. 1	Apr. 15	12 ,,	Apr. 4, 10, 17, 18, 24, 28	6

Of the 14 cases which were not cured by emetine hydrochloride, 5 showed no improvement whatsoever. These were Cases VIII, XI, XIII, XVIII, XIX, all of which were found to be passing cysts of *E. histolytica* every time they were examined both during and after treatment.

The other 9 uncured cases passed no cysts or amoebae (that is, were negative) for some time during or immemediately after treatment. They then relapsed (that is, were found to be positive—passing cysts or amoebae) at varying intervals of time after treatment. The facts about these 9 cases are given in the following table.

Table II.

Case No.	Treatment with Emetine Hydrochloride.			Consecutive Negative Examinations.		First Positive Examination after Treatment.
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No.	
I	Apr. 9	Apr. 30	14 gr.	Apr. 14, 18, 24	3	May 1
IV	Apr. 27	May 8	12 ,,	May 1, 8	2	May 11
XII	Apr. 13	May 5	14 ,,	Apr. 14, 18, 19, 24, 26	5	May 8
XIV	Apr. 2	Apr. 27	14 ,,	Apr. 10, 11, 14, 15, 18, 24	6	May 1
XVI	Apr. 27	May 8	12 ,,	May 8, 11, 14	3	May 24
XX	May 30	June 10	12 ,,	June 4, 12, 19	3	June 26
XXI	June 13	June 24	12 ,,	July 3	1	July 7
XXII	July 5	July 16	12 ,,	July 17	1	July 20
XXIII	July 5	July 16	12 ,,	July 10, 17	2	July 20

The facts given in Table II clearly show that negative examinations made during and immediately after treatment cannot be relied upon as an indication that a cure has been effected. Nine out of the 14 uncured cases were found negative at this period, the number of negative examinations made on the individuals ranging from one to six. On a system which requires only three consecutive negative examinations to establish a "cure," at least 5 of the infected cases—and probably more, if the examinations had been made more often—could have been discharged.

It will be seen from Table II that the time which elapsed between the end of treatment and the date when a relapse was found to have occurred differs in different cases. These times may be summed up as follows:

Case I had relapsed on the 1st day after treatment.
Case IV ,, ,, 3rd ,, ,,
Case XII ,, ,, 3rd ,, ,,
Case XIV ,, ,, 4th ,, ,,
Case XVI ,, ,, 16th ,, ,,
Case XX ,, ,, 16th ,, ,,
Case XXI ,, ,, 13th ,, ,,
Case XXII ,, ,, 4th ,, ,,
Case XXIII ,, ,, 4th ,, ,,

Such facts as the above will have to be taken into account when considering the *times* when negative examinations are of value for the establishment of a "cure."

The first series of treatments with emetine hydrochloride subcutaneously may now be conveniently summarized.

Altogether, twenty-one men infected with *E. histolytica* were treated. Of these, fourteen were *not* cured of their infection after a course of 12 to 14 grains of emetine. The other seven were discharged as cured after having 11 to 13 grains, followed by four to ten negative examinations extending over a period of at least two to three weeks *after* treatment.

Whether all the seven "cured" cases are really freed from infection or not remains, I think, open to doubt. It is quite possible that some of them at least might have relapsed if they had been examined for a longer time. Circumstances, however, have not permitted this. But on the other hand, what is quite certain, and open to no doubt at all, is that 66.6 per cent. of the cases treated with emetine hydrochloride were definitely not cured. This percentage relates to 14 cases made up as follows:

Convalescent carriers ... ... 11 cases
Contact carriers ... ... 2 ,,
Acute dysentery ... ... 1 case

Second Series.

Emetine Bismuth Iodide.

It was now decided to try whether emetine bismuth iodide would succeed where emetine hydrochloride had failed. The results obtained about this time at the Chichester Military Hospital seemed sufficiently promising to justify hopes of success.[1] Through the kindness of Dr. H. H. Dale, F.R.S., a sufficient quantity of the double iodide was supplied to Walton Hospital by the Medical Research Committee; and thanks to the collaboration of the medical officers at the hospital, a second series of trial treatments was now begun.

For this series the 14 men unsuccessfully treated with emetine hydrochloride formed the material. Of these, 11 were treated at once with a full course of emetine bismuth iodide. The other 3 were each given a second full course (12 grains) of emetine hydrochloride hypodermically, so that they constitute a control for comparison with the cases treated with the double iodide.

The double iodide of emetine and bismuth, which is given by the mouth on a full stomach, was administered in cachets containing 1 grain each, thrice daily, until 36 grains had been taken.[2] Lieutenant Matthews informs me that in a few cases the daily dosage was reduced on account of the vomiting which was produced; but he adds that he has found it best to "persist with the drug in full doses, as tolerance is usually established in a couple of days. Tolerance is not established nearly so early if the dosage is reduced on account of vomiting." "On the whole the drug was well tolerated."

Most of the patients experienced more or less nausea during treatment, but with several it was slight, and in only one case was vomiting frequent and severe. (This was Case XXI, who had previously had two full courses of emetine hydrochloride. Treatment with the double iodide was begun only two days after the second hypodermic treatment, so that it seems not improbable that the severe effects produced were due to emetine poisoning.) All the cases suffered more or less from diarrhoea during treatment, one case (No. XIII) having as many as fourteen to sixteen motions daily. In all cases, however, the diarrhoea

seems to have disappeared after treatment. This effect of the drug is probably beneficial, as the constant emptying of the colon would serve to remove amoebae—both dead and alive—and prevent the accumulation of faecal matter in healing ulcers.

The results of treatment with emetine bismuth iodide far surpassed the most sanguine expectations. Of the 11 men so treated, every one became negative (that is, ceased to pass cysts or amoebae) within a few days of beginning treatment, and all remained negative for as long as I was able to continue examining them. In some cases the examinations have been numerous, and have extended over a considerable period. The results are summarized in Table III:

TABLE III.

Case No.	Treatment with Emetine Bismuth Iodide.			Consecutive Negative Examinations.	
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No.
I	June 27	July 8	36 gr.	June 29; July 4, 7, 12, 17, 20, 25, 27, 31	9
IV	June 27	July 8	36 gr.	June 29; July 3, 7, 10, 12, 17, 20, 23, 27, 31	10
XI	June 28	July 9	36 gr.	July 4, 10, 12, 17	4
XII	June 27	July 8	36 gr.	June 29; July 3, 7, 11, 13, 17, 20, 26; Aug. 9	9
XIII	June 27	July 8	36 gr.	July 3, 7, 10, 12, 17, 20; Aug. 8, 17, 28	9
XIV	June 28	July 9	36 gr.	June 29; July 5, 10, 12, 17, 20, 25, 27, 31	9
XVI	July 8	July 20	36 gr.	July 12, 17, 20, 25; Aug. 2, 7, 11, 15, 17, 23, 25, 29	12
XVIII	June 27	July 8	36 gr.	July 3, 7, 10, 12, 17, 20, 23, 27; Aug. 1	9
XIX	July 24	Aug. 4	36 gr.	July 28; Aug. 1, 4, 8, 11, 15, 17	7
XXII	July 25	Aug. 6	36 gr.	July 27, 31; Aug. 4, 7, 11, 15	6
XXIII	July 25	Aug. 6	36 gr.	July 27, 31; Aug. 4, 7, 11, 15	6

Case XI is the least satisfactory of those given in this table, for he had only four negative examinations, and was last examined on the eighth day after treatment. It is therefore uncertain whether he is really cured. (He is a wounded man discharged from the army. I have not yet succeeded in following him up.) Cases XIX, XXII, and XXIII are also, perhaps, somewhat doubtful; for although they have each had six or seven negative examinations, these cover rather less than a fortnight of the period immediately following treatment. (These cases were then discharged as cured and I was unable to continue examining them.) It may be recalled, however, that Cases XI and XIX had previously remained positive throughout the whole period of their treatment with emetine hydrochloride; whereas Cases XXII and XXIII had become negative for a very brief period, and had then both relapsed four days after treatment ended. The results of treatment of these four cases with the double iodide are therefore, though not conclusive, at all events extremely promising, and very much better than those obtained earlier with emetine hydrochloride.

For the other seven cases treated with the double iodide —namely, Cases I, IV, XII, XIII, XIV, XVI, XVIII—something more than a promising result can, I think, be fairly claimed. Each of these has had a long run of consecutive negative examinations extending over a period of more than three weeks since the end of treatment. The two cases which I have been able to follow for the longest time *—namely, Nos. XIII and XVI—have now remained negative for fifty-one and forty days respectively since they had their last dose of double iodide, or for eight weeks and seven weeks respectively if the period during treatment is taken into account. It may, I think, be reasonably assumed that all these seven men are now no longer infected with *Entamoeba histolytica*.

I would add that all the cases were examined very thoroughly before being pronounced negative—far more carefully and for a much longer time than is possible in an ordinary routine examination. I expected that some at least would relapse, and therefore could not easily convince myself that I was mistaken.

* The last three examinations were made on Case XIII after he had left Walton. I was able to make two of these myself through the courtesy of Captain C. Davies, R.A.M.C., whilst for the third I am indebted to Mr. W. O. Redman King, who kindly made it for me.

THE CONTROL SERIES.

Re-treated with Emetine Hydrochloride.

It has already been noted that 3 of the 14 cases which failed to get cured in the first series of treatments (emetine hydrochloride) were not given the double iodide at the same time as the 11 men just considered. These three men (Nos. VIII, XX, XXI) were given a second full course each of emetine hydrochloride hypodermically (1 grain daily for twelve consecutive days). The results of this second treatment were as follows: Nos. XX and XXI, who had both become negative for a short time during their first treatments, now showed no improvement whatsoever during their second courses. Both were found to be passing cysts every time they were examined during and after treatment. Case VIII, who had previously remained positive throughout his first course, ceased to pass cysts three days after his second treatment had begun; but later, after remaining negative for some time, he relapsed. His record is shown in the following table:

TABLE IV.

Case No.	Treatment with Emetine Hydrochloride (2nd Course).			Consecutive Negative Examinations.		First Positive Examination after Treatment.
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No.	
VIII	June 27	July 8	12 gr.	June 29; July 3, 7, 10, 14, 17	6	July 20

It will be evident from Table IV that a relapse was detected twelve days after treatment had ended. This case is again instructive from the point of view of negative examinations, and the number of them necessary to establish a "cure."

The results of the second series of treatments may now be summarized. Of fourteen men—all of whom had previously been treated hypodermically with emetine hydrochloride—eleven were treated with emetine bismuth iodide per os; whilst the other three received a second full course of the hydrochloride. The men of the first lot (double iodide) are all, more or less certainly, cured; those of the second lot (hydrochloride) were certainly none of them cured.

THIRD SERIES.

Treatment of the Uncured Controls with Double Iodide.

Since the treatment with emetine bismuth iodide appeared to have brought about a cure in every case in which emetine hydrochloride had previously failed; and since the three cases (controls) treated with a second course of emetine hydrochloride had again none of them been cured: it only remained, as a final test of the efficacy of the double iodide, to treat these three still uncured cases with it and to ascertain the results. Unfortunately, one of these three cases (No. VIII) was sent away from Walton before he could be treated; but the other two remained, and were treated at once with the double iodide. I have fortunately been able to examine them both for a considerable time. Their stories are summarized in the following table:

TABLE V.

Case No.	Treatment with Emetine Bismuth Iodide.			Consecutive Negative Examinations.	
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No.
XX	July 25	Aug. 5	36 gr.	July 28; Aug. 1, 4, 7, 11, 15, 16, 18, 21, 22, 23, 24, 25, 28, 29, 30	16
XXI	July 21	Aug. 4	36 gr.	July 25, 27, 31; Aug. 4, 9, 15, 17, 18, 21, 22, 23, 25, 28, 29, 30	15

From the evidence given in this table it appears almost certain that both these men are now no longer infected with *E. histolytica*. In other words, both the cases which two full courses of emetine hydrochloride completely failed to cure, have now been cured by a single course of the double iodide.

Fourth Series.

Fresh Cases Treated with Emetine Bismuth Iodide Only.

After such successful results had been obtained with the double iodide treatment, no further cases were treated with emetine hydrochloride at Walton. As fresh carriers of *E. histolytica* were detected, they were at once treated with the double iodide—in every case with success, so far as could be judged. Circumstances have prevented me from making a protracted series of examinations of these cases after treatment; but I have particulars now of four of them which are worthy of record. They are given in the following table:

Table VI.

Case No.	Treatment with Emetine Bismuth Iodide.			Consecutive Negative Examinations.	
	Begun.	Ended.	Total Quantity Given.	Dates (1916).	Total No.
XXIV	July 11	July 24	36 grains	July 13, 17, 21, 23, 27; Aug. 1	6
XXV	July 22	Aug. 2	36 ,,	July 28; Aug. 1, 4, 8, 11, 15	6
XXVI	Aug. 4	Aug. 15	36 ,,	Aug. 5, 7, 11, 14, 15, 16, 28, 29, 31	9
XXVII	July 31	Aug. 10	36 ,,	Aug. 3, 11, 17, 24	4

Although these treatments appear to have been successful, it will be seen that the longest period after treatment during which any case was followed was only sixteen days (Case XXVI). Nevertheless, as all the other cases which I have been able to follow, after treatment with the double iodide, have consistently remained negative to the last, there are, perhaps, reasonable grounds for regarding these four additional cases as cured and for justifying their discharge, which has now taken place. It may be added that two of the above cases (XXV and XXVI) had never been treated previously with emetine in any form, while the other two (XXIV and XXVII) appear to have had emetine injections about a year previously whilst suffering from dysentery in the Mediterranean area. They were all supposed to be cured and healthy men (except XXVI, who was in hospital for wounds) until I found they were passing cysts of *E. histolytica*.

Additional Notes on the Cases Treated with Emetine Bismuth Iodide.

Several of the cases described in this report present features of interest which have not yet been mentioned. These will now be dealt with as briefly as possible.

Case I.—This man has already figured in the tables as one of those not cured with emetine hydrochloride (Table II) and subsequently cured with the double iodide (Table III). Between these two courses he was treated for syphilis, receiving mercury (liq. hydrarg. perchlor. 1½ drachms daily) from May 6th to June 27th. I examined him several times during and repeatedly after this mercury treatment, and so ascertained that it had had no effect upon any of the protozoa with which he was infected (*Entamoeba histolytica*, *E. coli*, and *Lamblia*). These findings seem worthy of record. I have regarded this case as a contact carrier. He entered hospital for gunshot wounds, has no official history of dysentery or previous emetine treatment, and denies that he has ever had any dysenteric symptoms or even acute diarrhoea.

Case III.—Has not figured in any of the tables. I have not included him in the general series of treatments, because he has been treated in so many ways that it is impossible to ascribe his cure to any one treatment. Before going to Walton he had suffered from dysentery, and been treated repeatedly with emetine injections; but was still passing cysts of *E. histolytica* when I first examined him. His treatments at Walton include more emetine hydrochloride (without success); rectal injections of quinine and tannin; appendicostomy, followed by irrigations of the large intestine; and finally emetine bismuth iodide *per os*. He has now had a long series of negative examinations, and appears to be completely cured; but how far each treatment has been responsible for this happy result can never be decided.

Case IV is the only case of acute dysentery in the series. His treatments have already been given in the tables (II and III). He belonged to the Maori Contingent, and contracted dysentery in Gallipoli. At Walton subsequently (although he did not enter for this) he was found to be suffering from a persistent acute, or subacute, infection with *E. histolytica*. He had six to nine motions daily, often containing blood and large numbers of amoebae. When his condition was detected he was treated with a full course of emetine hydrochloride hypodermically (Table II), this being the first emetine treatment he had ever had. After receiving 12 grains (one daily for twelve successive days) he was found to be passing blood and amoebae again three days after treatment. One often hears that emetine "acts like a charm" in acute amoebic dysentery. In this case it appears to have acted as charms too often act. It certainly did not act like a specific drug.

After this first emetine treatment, the man's condition was no better than before. He continued to have many motions a day—often containing blood, mucus, and amoebae—and complained of severe abdominal pain, for which he was given morphine suppositories (⅛ grain) once or twice daily. Before beginning treatment with the double iodide (Table III) he had been in this chronic dysenteric state for five or six months. He was very ill and depressed, and expected to die. During his double iodide treatment he was strictly dieted. He vomited during the first two days. His stools were not examined on the first day; but on the second I found that all amoebae had disappeared, and no amoebae or cysts have since been found. After treatment, he gradually returned to ordinary diet. His faeces became normal and formed, and he had only one (or two) motions daily. Clinically, he has made a wonderful recovery, and is now quite well and healthy.

This case is of great interest, for it not only demonstrates the great superiority of the double iodide of emetine over the hydrochloride in a particular instance of acute dysentery, but it shows also that there are acute cases which are practically incurable with hypodermic treatment, but which can, nevertheless, be quickly cured with the double iodide.

Cases VII, XVI, and XXIV had suffered from dysentery and been treated with emetine hypodermically before going to Walton. No. XVI is especially interesting because, after his earlier treatments, he had twice previously been discharged from hospital as cured and not a carrier. In addition to emetine, he had also had rectal injections of silver nitrate and morphine; also salol and paraffin. At Walton, however, he was found to be passing large numbers of cysts of *E. histolytica*. (His treatments are given in Tables II and III.)

Cases XII, XIII, XV, XVIII, XXV, XXVI, had all suffered at some time from dysentery; but none of them had been treated with emetine before going to Walton, and some have no record of dysentery in their papers. Case XVIII is specially interesting in this connexion. He has no official history of dysentery, but his real history is that of a common type of convalescent carrier.

Cases V, X, XI, XXII, XXIII, have no history of dysentery, and had never previously had emetine injections. On being questioned, they all said they had suffered more or less from diarrhoea—which was not treated—in Gallipoli. None of them except No. X (enteric convalescent) entered Walton for intestinal disorders.

Information concerning the remaining cases is too meagre or commonplace to be worth recording.

The obvious suggestion is often made that those cases which fail to get cured with hypodermic emetine treatment are those which have previously been treated, and whose amobae have consequently become resistant to emetine. It will be seen from the foregoing notes, however, that in the cases here considered there is no appreciable difference—in the behaviour towards emetine—between those treated and those untreated previously; and all have behaved in precisely the same way towards emetine given as the double iodide.

Emetine Bismuth Iodide a Specific for Entamoeba histolytica.

The effects of the administration of the double iodide upon the protozoal content of the stools—which are the effects that have especially come under my own observation—are truly remarkable. Within four days of the commencement of treatment all stages of *Entamoeba histolytica*, whether amoebae or cysts, have completely vanished from the faeces, and in no single instance have they been subsequently found. When it is remembered that some of the cases had been found to be passing cysts in large numbers almost every time they had been examined previously—for weeks, and in some cases for months—it will cause no surprise when I say that the results of the double iodide treatment have appeared to me astounding.

Many of the men treated with the double iodide were infected with *Entamoeba coli*, *Lamblia*, and *Chilomastix*, and in no case has the treatment removed any of these protozoa. As a rule *E. coli* disappears from the faeces during treatment, but it almost invariably reappears afterwards. *Lamblia* and *Chilomastix* are quite unaffected by the double iodide, though the diarrhoea produced by the drug often causes the appearance of the free flagellates, in addition to the cysts, of these forms in the faeces.

It seems, therefore, that in emetine bismuth iodide we have a specific drug which, whilst unpleasant to the patient, is very deadly to *E. histolytica*, but harmless to the other protozoa of the human bowel.

In conclusion, I add a summary in tabular form of all the cases whose treatment has been described in this report. It will show at a glance, I think, not only all the results obtained, but also the great success achieved in the treatment of *E. histolytica* infections with emetine bismuth iodide at Walton Hospital.

Summary of Treatments.

Infected with *Entamoeba histolytica*: 25 men.

- Treated with emetine hydrochloride: 21 men.
  - 7 men discharged as cured (Table I).
  - 14 men not cured.
    - Treated again with emetine hydrochloride: 3 men. None cured.
    - Treated with emetine bismuth iodide: 11 men. All discharged as cured (Table III).
      - Not treated: 1 man. Still infected.
      - Treated with emetine bismuth iodide: 2 men. Both cured (Table V).
- Treated with emetine bismuth iodide: 4 men. All discharged as cured (Table VI).

It should be noted in the above table "discharged as cured" cannot be regarded as synonymous with "certainly cured." The hospital authorities found it necessary to discharge some of the patients as early as seven or eight days after treatment was finished; whereas I have recorded above cases in which relapse (reappearance of cysts) occurred as late as sixteen days after conclusion of treatment. The shortest negative period after the end of treatment which can safely be regarded as indicating a "certain" cure can therefore be hardly less than about three weeks.

Taking twenty-one days as such an arbitrary limit, and describing cases which have remained negative for this interval or longer after treatment as "certain" cures, we may rearrange the above results as follows:

	Treated with Emetine Hydrochloride.	Treated with Emetine Bismuth Iodide.
Total number of treatments ...	24	17
Number of "certain" cures ...	5	9
Number of uncertain cures ...	2	8
Number of relapses	17	0

REFERENCES.

[1] See Dale, Treatment of Carriers of Amœbic Dysentery, etc., *Lancet*, July 29th, 1916. [2] Cf. Dale, *loc. cit.*; Low and Dobell, Three Cases of *Entamœba histolytica* Infection treated with Emetine Bismuth Iodide, *Lancet*, August 19th, 1916.

NOTE ON SOME EXAMINATIONS AND TREATMENTS FOR ENTAMOEBA HISTOLYTICA INFECTIONS.

BY

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(Report to the Medical Research Committee.)

THE examinations here reported were conducted at the Central Laboratory of the Eastern Command, at the Kitchener Hospital, Brighton, and extended over a period from February to August, 1916. The men examined were 426 intestinal cases invalided home from the Mediterranean Expeditionary Force in October–November, 1915, who had been treated in various ways at other hospitals before coming to Brighton. The clinical diagnosis was given for 357 of them, of these, 153 were dysenteries and 204 non-dysenteries.

The three commonest human intestinal protozoa were found as follows:

Entamœba coli:

Alone	76 cases
With *E. histolytica*	10 ,,
With *Lamblia intestinalis* ...	16 ,,
With *E. histolytica* and *L. intestinalis* ...	8 ,,
	110 cases

= 25.8 per cent. total cases.

Lamblia intestinalis:

Alone	53 cases
With *E. coli*	16 ,,
With *E. histolytica*	4 ,,
With *E. coli* and *E. histolytica*	8 ,,
	81 cases

= 19 per cent. total cases.

Entamœba histolytica:

Alone	11 cases
With *E. coli*	10 ,,
With *L. intestinalis*	4 ,,
With *E. coli* and *L. intestinalis*	8 ,,
	33 cases

= 7.75 per cent. total cases.

These numbers are certainly lower than the actual infections. Although some 1,850 examinations were made on the 426 cases—that is, an average of over four per case—only 280 cases actually had as many as three examinations each, and it is daily becoming more evident that a small number of examinations will not detect these protozoal infections in every case.

The E. histolytica Carriers.

No acute case of dysentery was examined during this period. The carriers were found both among men diagnosed clinically as dysenterics and those invalided for other intestinal disorders; but a considerably larger proportion of the former were found to be infected with *E. histolytica*. The carriers were treated with hypodermic injections of emetine hydrochloride—10 to 12 gr. being considered a full course, given in single daily injections of 1 gr. each—and examined every two or three days during treatment, and for as long as possible afterwards. When possible they were only discharged as cured when examinations for three weeks from the end of treatment had been negative. It is not worth while considering more than twenty-three of the cases in detail, owing to lack of data concerning the others; this will include all those satisfactory from this point of view. Of these, twenty men at the Kitchener Hospital and one officer at the Howard Home, Brighton (No. 15),[1] had full courses of emetine as defined above, and nine of these were discharged as cured on the observations given in Table I.

TABLE I.

Case No.	Treatment. Begun.	Ended.	Amount Given.	Consecutive Negative Examinations. Dates, 1916.	No.
15	May 21	June 1	12 gr.	June 2, 9, 17 (relapsed June 21)	3
	July 6	July 15	10 gr.	July 15, 24, 27, 29, 31	5
18	Aug. 5	Aug. 17	12 gr.	Aug. 10, 16, 19, 23, 25, 28, 30; Sept. 1, 4, 6, 8, 11	12
19	Aug. 5	Aug. 16	12 gr.	Aug. 14, 15, 18, 20 23, 25, 28, 30; Sept. 1, 4, 6, 8	12
29	Aug. 9	Aug. 20	12 gr.	Aug. 16, 23, 25, 28; Sept. 1, 4, 6, 8	8
31	July 24	Aug. 2	10 gr.	Aug. 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 28	11
35	Aug. 5	Aug. 16	12 gr.	Aug. 16, 18, 20, 22, 24, 26, 29, 31; Sept. 2, 5, 7	11
36	Aug. 9	Aug. 25	14 gr.	Aug. 29, 31; Sept. 2, 7, 9, 12, 14, 16, 19, 21	10
37	July 24	Aug. 2	10 gr.	July 31; Aug. 7, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 29, 31	14

* I have cast these results in tables of the same form as those given by Dobell, in order to facilitate comparison.

One other case (No. 14) had been negative for a month after two small courses before his full course of 10 grains, after which he was negative for another month before discharge. The authorities decided to discharge Nos. 15 and 29 less than three weeks after the end of their treatment. No. 15 had only been negative for a fortnight after his second course, and as his relapse was not detected until twenty days after his first course, his cure may be considered exceedingly doubtful. No. 29 was discharged nineteen days after the end of treatment.

Twelve cases relapsed before the end of the three weeks' examination after treatment, as shown in Table II.

[1] I am indebted to Major D. G. Hall, R.A.M.C., for information regarding the history and treatment of this case.

TABLE II.

Case No.	Treatment.			Consecutive Negative Examinations.		Date of Relapse (1916).
	Begun.	Ended.	Amount Given.	Dates (1916).	No.	
12	Aug. 5	Aug. 16	12 gr.	Aug. 5, 7, 9	3	Aug. 8
16	Aug. 5	Aug. 16	12 gr.	Aug. 12, 15, 23, 25, 28, 30	6	Sept. 1
21	Aug. 5	Aug. 16	12 gr.	Aug. 14, 16, 19	3	Aug. 8
23	Aug. 6	Aug. 17	12 gr.	Aug. 22, 26, 29, 31	4	Sept. 2
25	July 24	Aug. 2	10 gr.	July 31; Aug. 1, 5, 7, 9, 11, 13, 15, 19	9	Aug. 21
28	July 24	Aug. 2	10 gr.	July 31	1	Aug. 7
32	Aug. 5	Aug. 16	12 gr.	Aug. 7, 8, 14, 16, 18, 20, 24, 26, 29	9	Aug. 31
33	Aug. 5	Aug. 16	12 gr.	Aug. 14, 16, 19, 21, 23, 24, 25	7	Aug. 28
34	Aug. 5	Aug. 16	12 gr.	Aug. 8, 10, 12, 14, 16, 18, 20	7	Aug. 22
38	Aug. 10	Aug. 21	12 gr.	Aug. 19, 21, 23, 25; Sept. 1, 4	6	Sept. 6
39	Aug. 12	Aug. 23	12 gr.	Aug. 24, 26, 29	3	Aug. 31
40	Aug. 12	Aug. 23	12 gr.	Aug. 17, 18, 21, 23, 25, 28	6	Aug. 30

The other two cases were not given as much as 10 grains of emetine. No. 17 was discharged as cured after seven ½ grain doses, and No. 30 relapsed after a course of 8 grains. Table III gives the records of these two cases.

TABLE III.

Case No.	Treatment.			Consecutive Negative Examinations.		Date of Relapse.
	Begun.	Ended.	Amount Given.	Dates (1916).	No.	
17	June 29	July 8	3½ gr.	June 5, 17, 20, 27; July 3, 8, 14	7	
30	June 25	July 19	8 gr.	July 22, 24, 27, 31; Aug. 7, 8	6	Aug. 10

The authorities found it necessary to discharge No. 17 a week after the end of his treatment, so that his case must remain open. He had a very small infection, which, it is interesting to note, was not detected until the sixth examination; he had been negative again for some time before his treatment began.

After the injection of at least 10 gr. of emetine hydrochloride, then, 12 out of 21 cases—that is, 57 per cent.—were certainly not permanently freed from *E. histolytica*. In one case (No. 12) the drug had no visible effect on the infection, the three negative examinations appearing in Table II probably being one of the natural negative periods often occurring in this patient. In all the other cases the treatment was followed by a longer or shorter negative period, and subsequently a relapse.

TABLE IV.

Case No.	After Emetine.	Day when First Found Negative.	Date of Detection of Relapse after End of Treatment.
15	12 gr.	First after end of treatment	Twentieth day.
16	12 gr.	Eighth day of treatment	Sixteenth day.
21	12 gr.	Tenth day of treatment	Fourth day.
23	12 gr.	Fifth after end of treatment*	Sixteenth day.
25	10 gr.	Eighth day of treatment	Nineteenth day.
28	10 gr.	Eighth day of treatment	Fifth day.
32	12 gr.	Third day of treatment	Fifteenth day.
33	12 gr.	Tenth day of treatment	Twelfth day.
34	12 gr.	Fourth day of treatment	Sixth day.
38	12 gr.	Tenth day of treatment	Sixteenth day.
39	12 gr.	First after end of treatment	Eighth day.
40	12 gr.	Sixth day of treatment	Seventh day.

* Not examined between eleventh day of treatment and this date.

A similar distribution of first negative examinations holds among the cases that did not relapse within three weeks.

The table shows that there may be a good deal of variation in the time elapsing before the disappearance and reappearance of the cysts in the stools. The interval before the detection of the latter must be kept in mind when fixing the criterion for discharge as cured. In only one case (No. 18) were there any troublesome sequelae to the injections. This patient had a fairly severe local swelling and a rash, and complained of feeling sick and giddy. Although rather more than half of the cases were certainly not cured, these results would seem to be good compared with other records of emetine treatment under similar conditions—*cf.* Dobell, where two-thirds of the cases were certainly not cured, and 5 out of the 14 "showed no improvement whatsoever" under emetine treatment.

Permanent clearance of *E. coli* and *Lamblia* was not observed in any case. The latter seems quite unaffected by emetine given hypodermically, and no special treatment was undertaken for its elimination in the absence of any conclusive evidence for its pathogenicity. *E. coli* sometimes disappears during treatment.

Acknowledgements.

In conclusion, I would express my thanks to Captain J. R. Dickson, R.A.M.C., pathologist of the Central Laboratory, for his constant interest in this work, and for the trouble he has taken in making arrangements for the examination and treatment of these cases, finally undertaking the latter himself. I am indebted to Mr. A. G. Thacker for all records since I left Brighton on August 18th. My thanks are due to Dr. C. M. Wenyon (now Lieutenant-Colonel, R.A.M.C.), and to Dr. A. C. Stevenson, of the Wellcome Bureau of Scientific Research, for very kindly allowing me to use the resources of their laboratory, where I have always received the kindest assistance. I cannot sufficiently thank Mr. C. Dobell for the very kind way in which he has always been ready to give invaluable instruction and advice throughout the year, for which I have never hesitated to ask, and without which the shortcomings of this work would have been multiplied exceedingly. My thanks are also due to Lieutenant-Colonel Coutts, R.A.M.C., Officer Commanding the Kitchener Hospital, for his permission to publish this account of the cases in his hospital.

A SEARCH FOR DYSENTERY CARRIERS AMONG SOLDIERS COMING FROM GALLIPOLI AND EGYPT.

BY

J. O. WAKELIN BARRATT, CAPTAIN R.A.M.C.(T.).

THIS investigation was undertaken, at the instance of Colonel Sir William Leishman, with the object of attempting to determine the extent to which men coming from countries in which dysentery is endemic are likely to be dysentery carriers. It is well known that a small percentage of those who have suffered from dysentery act, after convalescence, as carriers, and the possibility of those who have not suffered from an attack of dysentery, but have been in a district in which dysentery is endemic, serving as carriers must also be borne in mind.[1]

The faeces of fifty soldiers who had reached France after service in Gallipoli and Egypt were examined for entamoebae and dysentery bacilli (Table I). The soldiers were chosen at random in the medical wards of the hospital, no attempt at selection being made. Seventeen out of the 50 had not had a previous attack of dysentery; the remaining 33 stated that they had suffered from previous attacks and had been admitted to hospital, passing blood and slime. Nine cases were admitted with a diagnosis of dysentery, and in one of these (No. 33, Table I) it was stated that *B. dysenteriae* (Flexner) had been isolated from the stools. All the patients examined, with a single exception (No. 17, Table I), had been in districts (Gallipoli and Egypt) in which dysentery was known to be endemic.

The faeces obtained for examination were in all except three cases either firm and well formed or semi-liquid and dark brown or yellowish in colour, with or without scybala, the latter resulting from the administration of a purgative—in other words, the faeces presented no abnormal change of pathological import. The exceptions were as follows: Case 31 (diagnosis dysentery), in which

TABLE I.—*Examination of Faeces of Fifty Soldiers in Hospital who had served in Districts in which Dysentery is Endemic.*

No.	Duration of Service. In Gallipoli.	Duration of Service. In Egypt.	Locality in which Previous Attack of Dysentery Occurred.	Diagnosis at Time of Examination.	Pathogenic Organisms Isolated from Faeces.
1	4½ mths.	—	No previous attack	Malaria	—
2	3 ,,	7 mths.	,, ,,	Bronchitis	—
3	3½ ,,	8 ,,	,, ,,	Acute parenchymatous nephritis	—
4	8 ,,	3 ,,	,, ,,	Bronchitis	—
5	1 ,,	7½ ,,	,, ,,	Gunshot wounds	Inagglutinable *B. dysenteriae* (Shiga).
6	4 ,,	6 ,,	,, ,,	Cardiac	—
7	5 ,,	5 ,,	,, ,,	Dysentery (two days' duration)	—
8	—	12 days	,, ,,	Dysentery	*B. paratyphosus* B.
9	—	1 mth.	,, ,,	Diarrhoea	—
10	—	3 weeks	,, ,,	Bronchitis	—
11	—	2 mths.	,, ,,	,,	—
12	—	4 ,,	,, ,,	Influenza	—
13	—	3 ,,	,, ,,	,,	—
14	—	3 ,,	,, ,,	,,	—
15	—	7 days	,, ,,	Diarrhoea	*B. typhosus.*
16	—	4½ mths.	,, ,,	Malaria	—
17	—	—	,, ,,	Dysentery	Inagglutinable *B. dysenteriae* (Shiga).
18	2 mths.	6 mths.	Gallipoli	Shell shock	—
19	1 ,,	9 ,,	,,	Influenza	—
20	4 ,,	10 ,,	,,	Tumour of lung	—
21	1 ,,	3 ,,	,,	Erythema nodosum	—
22	7 ,,	2 ,,	,,	Malaria	—
23	3 ,,	6 ,,	,,	Bronchitis	—
24	4 ,,	6 ,,	,,	Mumps (convalescent)	—
25	3 mths.	5 mths	Gallipoli.	Shell shock	—
26	6 ,,	2 ,,	,,	Malaria	—
27	5 ,,	8 ,,	,,	Pyrexia	—
28	3 ,,	5 ,,	,,	Shell shock	—
29	3½ ,,	22 ,,	,,	Pneumonia	—
30	4 ,,	7 ,,	,,	Pyrexia	*B. dysenteriae* (Strong).
31	3 ,,	5 ,,	,,	Dysentery	—
32	4 ,,	5 ,,	,,	,,	—
33	5 ,,	4 ,,	,,	Dysentery (convalescent)	—
34	—	4 ,,	Egypt	Gastritis and influenza	—
35	—	5 ,,	,,	Bronchitis	—
36	—	6 ,,	,,	Influenza	—
37	—	7 ,,	,,	,,	—
38	—	7 ,,	,,	Myalgia	—
39	—	1 ,,	,,	Influenza	—
40	—	7 ,,	,,	Dyspepsia	—
41	—	7 ,,	,,	Enteritis	—
42	—	3 weeks	,,	? Colitis	—
43	—	5 days	,,	Dysentery	—
44	—	1 mth.	,,	Gall stones	—
45	—	10 days	,,	Influenza	—
46	—	6 mths.	Mediterranean	Dysentery	—
47	—	3 days	,,	,,	—
48	8 mths.	4 mths.	New Zealand	Tonsillitis	—
49	—	5 days	Queensland	Malaria	—
50	2 weeks	7 mths.	Lemnos	Gastritis	—

Remarks.

No. 19: Lambliae present in faeces.
No. 21: Faeces examined on three occasions.
No. 28: Streptococci present in faeces.
No. 31: The discharge from bowel consisted of pus, blood, and slime in faeces; three specimens were examined.
No. 35: *B. dysenteriae* (Flexner) reported isolated from faeces.
No. 34: Streptococci present in faeces.
No. 41: Discharge from bowel consisted of blood-stained slime; three specimens of faeces were examined.
No. 42: Lambliae present in faeces.
No. 46: Streptococci present in faeces. In this case and in Case 47 a previous attack of dysentery occurred in the Mediterranean, two days after leaving Alexandria.
No. 50: Lambliae present in faeces.

the discharge from the bowel consisted of pus; Cases 32 (diagnosis dysentery) and 41 (diagnosis enteritis), in which blood and slime were being passed, and the disease was clinically dysentery at the time of examination; in all these cases there was a history of previous attacks of dysentery. It will be noted that in seven other cases, which had been admitted with a diagnosis of dysentery, no blood or slime was present in the faeces examined; in three of these cases (Nos. 7, 8, and 17) there was no history of a previous attack of dysentery; in four cases (Nos. 33, 43, 46, and 47) a history of previous attacks of dysentery was given.

In none of the cases could entamoebae, motile or encysted, be recognized in the faeces. Encysted lambliae, it may be observed, were found in three cases (Nos. 16, 42, and 46).

The bacteriological examination of the faeces was carried out according to the scheme adopted by Henderson Smith,[2] the cultural characters on nine different media (gelatine, lactose, mannite, glucose, saccharose, peptone, inulin, arabinose, and litmus milk), together with the motility and agglutinative reaction to seven antiserums: *B. dysenteriae* (Shiga), *B. dysenteriae* (Flexner), *B. dysenteriae* Y, *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, and *B. enteritidis* (Gaertner)—being noted.

In no case could an agglutinable *B. dysenteriae* (Shiga) or *B. dysenteriae* (Flexner) be obtained; if these bacilli were present in the faeces examined they must have been in such small numbers, relatively, that they escaped recognition throughout the series. In one case (No. 30) a bacillus probably identical with *B. dysenteriae* (Strong) was isolated.* In two cases (Nos. 5 and 17) an inagglutinable bacillus corresponding in culturable characters to *B. dysenteriae* (Shiga) was obtained; in the first case the patient's own serum agglutinated in a dilution of 1 in 200; in the second no agglutination occurred with the patient's own serum, even in a dilution of 1 in 50.

Other pathogenic organisms were discovered incidentally: in Case 8, *B. paratyphosus* B was isolated; in Case 15, *B. typhosus*; in Cases 14 and 2 bacilli allied to Morgan's bacillus No. 1 and *B. paratyphosus* A respectively were found. The cultural and agglutinative characters of these bacilli are given in Table II, which contains also those of four other allied types, not known to be pathogenic, which were isolated, three (Nos. 9, 21, and 32) being late lactose fermenters.† Table II, it will be observed, exhibits in Nos. 15, 2, and 9 the co-agglutinative power of the serum employed.[3] The serums were used in half the maximum dilution with which agglutination could be obtained.

Streptococci were abundant in the faeces of Cases 28, 34, and 46; the pathological significance of these bacteria is as yet undetermined.

Cases 5, 17, and 30 may be regarded as carriers. No other carriers could be recognized among the fifty men examined (excluding Cases 15 and 8, which, though carriers at the time of examination, do not belong to the

* Agglutination of this bacillus with Shiga, Flexner, and Y serums was obtained in 1 in 50 dilution, but not in 1 in 150 dilution.
† Two of the strains isolated produced gas in inulin, but no acid.

TABLE II.—*Cultural and Agglutinative Characters of Bacilli Isolated from Faeces.*

No.	Bacillus Isolated from Faeces.	Lactose	Gelatine.	Mannite.	Glucose.	Saccharose.	Litmus Milk.	Indol.	Motility.	Inulin.	Arabinose.	Agglutination Tests. Control.	Shiga 1 : 2000.	Flexner 1 : 3000.	Y, 1 : 1000.	Typhoid 1 4000.	Paratyphoid A. 1 : 6000.	Paratyphoid B, 1 : 8000.	Gaertner 1 : 4000.
42	—	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0
14	—	0	0	0	0	0	0, then alk.	0	+	0	0	0	0	0	0	0	0	0	0
5	Inagglutinable Shiga	0	0	0	A	0	A, then alk.	0	0	–	A	0	0	0	0	0	0	0	0
17	Inagglutinable Shiga	0	0	0	A	0	A, then alk.	0	0	–	A	0	0	0	0	0	0	0	0
15	*B. typhosus*	0	0	A	A	0	A	0	+	0	A	0	0	slight	slight	+	0	0	0
30	*B. dysenteriae* (Strong)	0	0	A	A	A	slight A	0	0	0	A	0	0	0	0	0	0	0	0
8	*B. paratyphosus* B	0	0	A G	A G	0	A, then alk.	0	+	0	A G	0	0	0	0	0	0	+	0
2	—	0	0	A G	A G	0	A	0	0	0	A G	0	0	slight	+	0	0	0	0
9	—	A G	0	A G	A G	0	A, late C	0	0	G	A G	0	0	0	0	0	+	0	+
21	—	A G	0	A G	A G	A G	A	0	+	0	A G	0	0	0	0	0	0	0	+
32	—	A G	0	A G	A G	A G	A	0	0	G	A G	0	0	0	0	0	0	0	+

A = Acid; G = gas; C = clot. The concentration of serum employed is of one-half the maximum dilution capable of giving macroscopic agglutination in two to four hours at 37° C.

dysentery group). Neither entamoebae nor dysentery bacilli of the Shiga or Flexner type could be found in the stools of patients 32 and 41, who were undoubtedly suffering from subacute attacks of true dysentery, the dejecta containing abundance of slime and blood during the period of examination.

It would seem that when soldiers who have had dysentery are admitted into a base hospital the condition of their intestinal tract is ordinarily normal or rapidly becomes so, any dysenteric lesions quickly subsiding. The results of the above investigation emphasizes the danger of troops who are dysenteric subjects bringing dysentery into this country by the agency of carriers. The risk would presumably be greater among men leading a more arduous existence, conducing to a recrudescence of their malady, such as obtains in camp life at the front, and it appears desirable that further examinations should be made under the latter conditions.

In conclusion, I desire to express my indebtedness to Major Sidney Rowland for the constant advice and assistance which I have received from him throughout the course of this investigation.

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[1] Ledingham and Arkwright, *The Carrier Problem in Infectious Disease*. London, 1912. [2] The Identification of the Pathogenic Members of the Typhoid-Colon Group of Bacilli, BRITISH MEDICAL JOURNAL, July 3rd, 1915, p 1. [3] *Cf.* H. Chick, The Preparation and Use of Certain Agglutinating Sera, *Lancet*, 1916.

NOTE UPON A CASE OF JAUNDICE FROM TRINITROTOLUOL POISONING.

BY

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BEFORE the war began the attention of the Home Office had already been drawn to the occurrence of poisoning among the men employed in the manufacture of high explosives belonging to the group of the nitro-derivatives of benzene and toluene, and in 1909 the Home Office issued regulations which were to be observed in the manufacture of these compounds. It was not, however, till the extended use of these bodies for war purposes began that it was realized that the handling of the finished product was also dangerous. The poison affects the persons employed in different manners, but it seems to be probable that no one is completely immune. The commonest symptoms are drowsiness, headache, and nausea, and to these are commonly added some degree of cyanosis, due probably to the conversion of the oxyhaemoglobin of the erythrocytes into methaemoglobin. Most of the workers show some of these symptoms in a greater or less degree, but fortunately the majority recover quickly and even gain some tolerance to the poison. Among the severer cases high grades of anaemia, methaemoglobinaemia, and jaundice occur, and of the cases of jaundice a proportion prove fatal. Another group of symptoms, which may be termed local rather than constitutional, is the occurrence on the exposed surfaces of a dermatitis, which has been accurately described by Dr. Prosser White.[1]

The woman whose case is here recorded was aged 24, and was strong, well-developed, and muscular. She had been engaged in munition work for a period of six months, and four months before her fatal illness became an examiner in a munition factory. Her especial duty lay in examining the bags which were filled with the yellow powder, and this involved moving in an atmosphere filled with the dust, "enough," she said, "to make one sneeze." She also complained of the bitter taste which was always present in the mouth, and that all the food which she ate tasted of it. She wore a plate in the upper jaw, and, though she washed this regularly after her meals, she did not do so before eating. One month before her illness she noticed that she was passing dark-coloured urine, but it was not till a fortnight later that she began to feel ill, with loss of appetite and headache. She also had some vomiting after food with much retching. Four days later she felt worse and noticed that she was slightly yellow. This condition persisted, although she was sent to bed, and ten days later she was admitted to St. Bartholomew's Hospital.

She was deeply jaundiced, and the urine was stained almost black with bile pigments. There were one or two small petechiae on the body, but these were faded and did not appear to be of recent origin. The liver dullness began at the fifth rib, the organ could be felt just below the margin of the ribs, and there appeared to be some tenderness in the region of the gall bladder. The spleen could not be felt, nor on percussion did it seem to be enlarged. Her temperature was normal, and, apart from the jaundice and the vomiting, she did not appear to be ill.

On October 4th she was quite free from headache and nausea, but on October 6th she became very drowsy and vomited everything which she took. On October 7th she became very restless, and in the evening delirious, shouting and moaning. On the morning of October 8th she was quite unconscious and wildly delirious, and gradually sank and died in the evening.

At the *post-mortem* examination the chief features were

the exceeding abundance of haemorrhages in the omentum and on the surface of the peritoneum, which were splashed all over with bright red maculae; these were abundant also in the mesentery, especially close to its attachment to the gut. There were a few petechial haemorrhages in the pericardium, especially round the origin of the great vessels, and a few in both the visceral and parietal pleurae. The liver weighed only 29 oz.; it was dark red in colour, mottled with splotches of a yellowish tint, which were slightly raised above the surrounding tissue. Microscopical examination showed that these were patches of degenerating liver cells, and that the darker tissue was composed of connective tissue fibres, débris, and inflammatory cells. The bile ducts were patent and the gall bladder natural. The kidneys were soft and dark in colour, with a slightly yellow tinge; under the microscope they showed an abundance of fatty degeneration.

There were no cerebral or meningeal haemorrhages.

The history and the course of the illness are those of an acute toxaemic jaundice, non-obstructive in character, for her motions contained plenty of bile pigments. In view of the fact that T.N.T. frequently causes anaemia, it is of interest to record that she did not appear to be anaemic, and that her red blood corpuscles numbered 5,000,000 per c.mm. and the haemoglobin was 90 per cent. It is also of interest, in view of the profuse omental and mesenteric haemorrhages, to record that her red blood corpuscles showed an abnormal resistance to solutions of sodium chloride, unlike the abnormal fragility in many cases of haemolytic jaundice. In fact, in this respect her corpuscles behaved just as do those of patients who are the subjects of ordinary obstructive jaundice. Clinically, the most striking feature of the case was the suddenness of the onset of the fatal symptoms; less than two days before her death she seemed to be in good condition, without any serious symptoms pointing to a grave prognosis. Yet it is obvious from the condition of her liver at the time of the *post-mortem* examination that the toxaemia had already robbed her of any chance of survival.

REFERENCE.

[1] *Lancet*, February 19th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HEXAMINE IN ACUTE ANTERIOR POLIOMYELITIS.

IN the JOURNAL of September 30th Dr. Douglas Guthrie records two cases of meningitis in which hexamine was given. He comes to the conclusion that the administration of the drug by the mouth is useless. The following sporadic case of poliomyelitis is interesting with regard to this point.

A. B., aged 11, went to bed quite well on the night of July 8th, 1914. Next morning he complained of much difficulty in walking and slight pain in the legs. I saw him about midday; he was then acutely ill, with a temperature of 104°. There was marked weakness of both legs but no affection of the joints. Hexamine, in 10-grain doses every four hours, was prescribed. On July 10th the temperature was lower but the paralysis was more marked, the patient being quite unable to move the left and only very slightly the right leg. When seen on July 11th there was a distinct improvement in the paralysis and the temperature was normal, but in the evening, after 150 grains in all of hexamine had been given, haematuria with considerable strangury occurred. The hexamine was stopped and an alkaline mixture given. By July 14th the paralysis had completely cleared but the renal symptoms continued, finally disappearing in about another week.

Here, I think, there is an example of hexamine being of value, particularly if it be remembered that complete recovery in sporadic cases is extremely rare.

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A SIMPLE ASEPTIC WAY OF PERFORMING VACCINATION.

IT is common to see patients suffering from a so-called "bad arm" after vaccination. The various degrees of inflammation, from a mildly septic arm to those serious cases, fortunately rare, of septic poisoning, are so well known that a description is unnecessary.

The following is a simple method that I have employed with good results on recruits:

1. The patient's arm is first thoroughly rubbed by an orderly with methylated spirit to disinfect the skin.
2. A tube of calf lymph is taken and one end broken off; the broken end is held for a moment in the flame to sterilize it, as it may touch the patient's skin during the operation. A lighted match is then applied to the other end of the tube of lymph, which always contains an air bubble. The heat of this causes the air to expand, and, if held over the patient's arm, it blows the lymph on to the arm.
3. A needle is taken with a point that has been slightly blunted, and held for a moment in the spirit flame to sterilize it. The lymph is spread from the drop on the patient's arm with the sterile needle to as many points as it is desired to vaccinate, usually four. The skin is then scratched by the needle sufficiently to draw a little of the patient's lymph but not sufficiently to draw blood.
4. A pad of sterile white gauze is immediately and firmly strapped on in the following way:—A towel wrung out in 1 in 40 carbolic is spread out on a table, and on it is a roll of sterile gauze ten yards long. A piece of gauze is cut off and folded twice or three times, and applied to the patient's arm in such a way that the inside of the gauze comes next his skin, and no part which has been touched by the operator's fingers lies near the vaccination wounds. Then a strip of 1 in. self-adhesive plaster is wound round and round the arm over the dressing to keep it secure.
5. The patient is told on no account to let the dressing get loose, and to have it dressed immediately should it show signs of slipping. He is ordered light work not necessitating using his arm, and he is directed to come up in five days. The second and any subsequent dressings are of boric lint.

The results were as follows: Of the first eighty-five patients eighty-one took; no really bad arms were observed; four slightly inflamed arms became normal after one or two boric fomentations. It appeared that the gauze had been used rather too sparingly, and the strapping had in some cases only been put on in strips instead of being wound round the arm, and in some cases the dressings had got loose.

In the next batch there were forty-five men. In these rather more gauze was used as a dressing, and the strapping was carefully wound round and round the arm over the gauze; out of these, forty-four took. Not a single case needed a boracic fomentation.

This method sounds rather laborious, but with a little method it is not so. The 180 men took 231 minutes to vaccinate, or well under two minutes each. Each roll of gauze ten yards long sufficed for from twenty-five to thirty men, so that the expense was not great.

The conclusions drawn are that every bad arm following vaccination is really a septic arm, that these simple aseptic precautions are effective, and that they do not prevent the arm taking properly.

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Reports of Societies.

SANITATION OF CAMPS.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on October 27th, Lieutenant-Colonel Sir SHIRLEY F. MURPHY, R.A.M.C., in the chair, Captain C. G. Moor, City of London Sanitary Company, R.A.M.C.T., read a paper on army sanitation at a base camp. After describing the organization of a sanitary section, Captain Moor dwelt upon certain aspects of sanitary work at a base. In the case of water supplies he advocated double sterilization, the source of supply being treated, in co-operation with the civil authorities, and the water bottles of the men being also systematically dealt with. In the disposal of manure he had found that the most satisfactory plan was to construct a narrow gauge tram line to the yard, a convenient gauge being 18 in., and the weight of rails 12 lb. to 18 lb. Sleepers should be placed not more than 2 ft. apart, and properly packed. By this method manure could easily be removed to a distance of a mile or a mile and a half from the camp. When, as often happened, it was necessary to burn the manure, this was best carried out by means of a cross trench incinerator. A good method of keeping down flies from collections of manure accumulated under conditions rendering either burning or close packing impracticable

was to run fowls on the dumps, as they devoured large numbers of larvae. It was necessary, in order to keep flies from latrines, to provide a close-fitting lid to the buckets, and also to ensure by instruction and inspection that the lids were replaced immediately after use. Fly wires made from the wires of hay bales and smeared with a mixture of two parts by weight of powdered resin and one part of castor oil (melted in a saucepan and applied hot) were very efficacious.

At the conclusion of Captain Moor's paper Major H. S. Fremlin, officer commanding the City of London Sanitary Company, exhibited a large collection of diagrams illustrating the various devices employed by the sanitary sections in the field. In the subsequent discussion Lieutenant-Colonel Copeman, F.R.S., emphasized the value of the method of close packing manure as a means of stifling the fly pest at its source, and also referred to the excellent results achieved by the chemical treatment of sullage water. Mr. Bacot, entomologist to the Lister Institute, called attention to the danger of applying results obtained with fly sprays at ordinary temperatures to tropical or subtropical conditions. Lieutenant-Colonel Kenwood hoped that many of the simple and effective devices invented under the stress of war conditions would be utilized in civil public health work in rural districts. Captain Hartley gave an interesting account of his experience with a sanitary section at the front and called attention to the danger of allowing wastage in the sanitary ranks to be replaced by untrained men.

THE VALUE OF HYPOCHLORITE SOLUTIONS FOR THE TREATMENT OF WOUNDS.

At a meeting of the Surgical Section of the Royal Society of Medicine held on October 31st, Colonel Charters J. Symonds, Vice-President, being in the chair, Dr. Sherman (Pittsburg, U.S.A.) read a paper on the method followed by Carrel for the sterilization of wounds. The antiseptic employed was Dakin's solution, prepared according to a formula suggested by Daufresne.

With chloride of lime (bleaching powder) having 25 per cent. of active chlorine, the quantities of necessary substances to prepare 10 litres of solution were: Chloride of lime, 200 grams: sodium carbonate (dry), 100 grams; sodium bicarbonate, 80 grams The chloride of lime was put into a 12 litre flask with 5 litres of ordinary water, shaken vigorously for a few minutes, and left in contact for from six to twelve hours. At the same time the carbonate and bicarbonate of soda were dissolved in another 5 litres of water. The salt solution was then poured into the flask containing the chloride of lime, and the mixture being well shaken was allowed to stand so that the calcium carbonate might fall. After about half an hour the liquid was siphoned off and filtered through a double paper to render it clear. It should then be kept in a dark place.

In the treatment of wounds the solution was led to them from a glass container by means of several rubber tubes in which holes were cut at frequent intervals. These were insinuated into the wounds, or laid upon them in such a way that every part of their surfaces and recesses was irrigated. Gauze lightly adjusted around the tubes assisted in retaining them in position and in bringing the whole area into contact with the solution. The wounds were flushed intermittently. With this method even serious and deep wounds soon became free from pus and covered by healthy granulations, and before many days could be sutured or brought into apposition by strips of plaster, union then occurring rapidly. The degree of infection of the wound was determined regularly by smears in each case, and by this means the rapid decline in numbers of the bacteria could be noted and the time when suturing was permissible determined. His contention was supported by photographs, radiograms, and lantern slides.

Sir W. Watson Cheyne said that the illustrations depicted results such as had not been obtained before. The paper coincided with his view that the only likely way to obtain good results was by the use of antiseptics. A great difficulty in the universal application of the method was the impossibility of keeping patients continuously under the care of the same doctor.

Mr. Jocelyn Swan held that the mechanical effect of the treatment was largely responsible for its success. He thought that the best results followed a combination of the treatments by hypochlorite solution and hypertonic salt solution used alternately. His experience was that the progress of wounds which arrived in England after having been sewn up in France was unsatisfactory. Not infrequently they had to be reopened. Much had still to be learnt of the method of application and action of each antiseptic used. An important point was that after this form of treatment fractures could be plated. He thought that it was safe to plate after the wounds had been freely opened and drained and subjected to hypochlorous acid.

Colonel Charters Symonds took the view that the method advocated was not new but had been well established for some time. He thought that better results could be obtained by hypochlorite solution than by using pure saline. When wounds were superficial they could be easily sterilized. He hesitated to ascribe all the benefit to the hypochlorite solution. Many other antiseptics would accomplish the same thing—for example, permanganate and mercury perchloride, but the hypochlorite method might be quicker. He thought that full credit should be given to it for the improvement which had been depicted in cases of compound fracture. The results were better than those obtained in other ways at the base in such cases. Much depended upon the enthusiasm and ingenuity of the man who was treating the patients. He was satisfied that intermittent was better than continuous application of antiseptics, but had found it more satisfactory to vary the antiseptic than to keep to one solution.

Dr. Sherman, in reply, contended that the method should be regarded as new, and laid stress on the particular virtue of the antiseptic employed—Dakin's solution.

Reviews.

SIR HENRY ROSCOE.

When a leading man of science has completed his life-work and passed away, a review of his work by a competent hand is always interesting and profitable, and it is now a usual practice among scientific bodies for a memorial lecture, dealing with the work of a lately deceased scientist, to be delivered by a worker in the same field. Owing to the high degree of specialization which prevails in so many departments of scientific work, and certainly not least in the province of chemistry, any such review is often fairly complete while including very little of a biographical nature. This, however, is not the case with the subject of the memoir here reviewed, and Sir Edward Thorpe has done well in expanding to a biographical sketch,[1] now published as a volume, the obituary notice on Sir Henry Roscoe which he prepared at the request of the councils of the Royal and Chemical Societies. Roscoe's published papers, recording original work, were numerous, but he was no specialist; at the time of his greatest activity organic chemistry, with its many branches of purely specialized work, was only beginning to enter on its present vast development, but in any circumstances or at any time Roscoe's breadth of view and well balanced nature would have prevented his becoming a mere specialist. He was essentially a teacher, and by his direct teaching and the indirect teaching of his books had an influence on the development of chemistry in Greater Britain which it would be hard to exaggerate.

Sir Edward Thorpe commences his biographical sketch with a brief outline of the careers of Roscoe's grandfather and father, which show that his abilities were no sporadic outcrop, but such as were to be expected from his heredity. It was fortunate that as a boy he was sent to a school in which elementary science was taught and which was furnished with a laboratory—a more exceptional case in 1842 than now—and he was provided with a room at home in which to carry out experiments. On leaving school he entered University College, London, and learnt chemistry under Graham and Williamson; having graduated with honours in chemistry he went to Heidelberg and worked with Bunsen, with whom he formed a life-long friendship, and whose influence was undoubtedly strong in shaping his career as a university professor. The Germany of

[1] *The Right Honourable Sir Henry Enfield Roscoe, P.C., D.C.L., F.R.S.* A biographical sketch. By Sir Edward Thorpe, C.B., F.R.S. London: Longmans, Green and Co. 1916. (Demy 8vo, pp. 216. 7s. 6d. net.)

those days—the eighteen-fifties—was very different from the Germany of to-day, and Roscoe says:

As to any feeling antagonistic to England and the English existing in the minds of the many Germans with whom I became intimate, I never found a trace, for Treitschke I did not know. All with whom I ever came in contact expressed a feeling that England was the old home of freedom, that she had led the van in securing that freedom by gradual and peaceable measures, and, in short, that the path in which the Englishman trod was that in which they wished to follow.

Soon after his return to England Roscoe succeeded Frankland as professor of chemistry in the newly-founded Owens College, Manchester, and held the appointment for the next twenty-eight years, during which time the struggling college developed into a great and important university. His influence on its development was profound; at the time when he took up his duties the students numbered only thirty-five, of whom fifteen were working in the chemical department; when he resigned his professorship in 1885 on being elected to Parliament, the Victoria University, as the college had become, contained one of the leading schools of chemistry in the country, over 2,000 men had passed through the courses of chemical instruction there, and 235 original communications had emanated from its laboratories; no similar place in the kingdom could show such a record of contributions to chemical knowledge. The development of Owens College and Yorkshire College, Leeds (now Leeds University), is outlined in some interesting chapters by Sir Edward Thorpe, who himself played a considerable part in it. Roscoe's share in the work was by no means confined to the able and efficient discharge of his duties as teacher; he was one of the leading spirits in the government and development of his college.

As an author of textbooks of chemistry, Roscoe had a far wider circle of pupils than those who came under his personal tuition; his *Lessons in Elementary Chemistry* (1866) and *Chemistry Primer* (1870) went through a long succession of editions and were translated into nearly a dozen foreign languages; probably through the medium of these and subsequent larger works from the same hand a greater number of existing chemists in Britain owe part of their education to Roscoe than to any other one man.

It is impossible in a short notice like the present even to enumerate the many other capacities in which he rendered admirable service to the cause of education and science; as a member of Parliament his sound scientific and practical knowledge made him a most useful member of numerous committees and Royal Commissions; he was president of the Chemical Society, vice-president of the Royal Society, vice-chancellor of London University, a member of the governing body of Eton College, and in numerous other capacities played a leading part in the educational and scientific life of the country. Medicine is directly indebted to him for the important part he took in founding the Institute of Preventive Medicine, now the Lister Institute, of which he was treasurer for twenty-one years. Many of his activities are touched on in this biographical sketch, but the full record of them would be quite impossible in any moderate sized volume. In an interesting chapter an article is reproduced which he contributed not long before his death to the German review, *Nord und Süd*, on "Germany and England." It expresses clearly and forcibly the views of one who writes, as he says, "neither from the point of view of a diplomatist nor of a politician, but simply as a scientific man who, being a *Menschenfreund* and *Deutsch-gesinnt*, and anxious to see differences between the nations as between individuals disappear, asks himself the questions, Who are the people who are stirring up all this discord? What do they mean? What do they want? What is their power?" This is followed by extracts from an article by a German writer which followed it, in which is set forth a saner view of what should be the relations between the two countries than that which unfortunately gained the ascendancy with the rulers of Germany.

Sir Edward Thorpe is in error on one small matter. He says:

Roscoe now (about 1850) elected to follow chemistry as a career, somewhat to the dismay of his relatives, who, he tells us, could not be reconciled "to open a shop with red and blue glass bottles in the window," such being the external indications of the calling of "a chemist in this country. And no wonder they were perturbed, for any one not being registered as a pharmaceutical chemist or as a chemist and druggist who should presume to style himself a chemist was punishable with a fine. Liebig was not altogether well informed of the facts when he wrote to Berzelius that the English chemists were ashamed to call themselves such because the apothecaries had appropriated the name. It was not so much that they were ashamed, as they were actually prohibited by law. Although nearly two generations have passed since those days, it may be doubted whether even now the public mind has quite grasped the distinction between a chemist properly so-called and an apothecary.

But the facts are that the first restriction in title was by the Act of 1852, which only restricted the titles "pharmaceutical chemist" and "pharmacist," and it was not till 1868 that the titles "chemist" and "chemist and druggist" were restricted. Probably if there had been more chemists, in Roscoe's sense, in Great Britain in 1850, the public would have distinguished clearly enough between chemists and pharmacists, and the title chemist would never have been legally restricted to the latter.

BACILLARY DYSENTERY.

The Bacteriology of Dysentery in Malaya is the title of No. 13 of the Studies from the Institute for Medical Research, Federated Malay States.[2] In this report Dr. FRASER, Director of the Institute of Medical Research, deals with the variety of organisms producing bacillary dysentery. It is interesting to record that from no case of amoebic dysentery in the series was a strain of the dysentery bacillus cultivated. Of non-amoebic cases 67 were studied. In 41 no dysentery bacilli were obtained; failure in some of these cases possibly depended upon defects in technique. In the other 26 cases different types of dysentery bacilli were found, from only 2 cases was the *Bacillus dysenteriae* (Shiga) isolated, while in the remaining 24 mannite-fermenting strains of dysentery bacilli were cultivated. The details of these are given in the paper. The chief conclusions drawn from the inquiry are that the mannite-fermenting bacilli were not separable into varieties or types, and that as the reactions of the mannite-fermenters on maltose, saccharose, and dextrin are subject to great variations the results should not be used either for classification or for the creation of types. Dr. Fraser considers that the dysentery bacillus of Flexner, the bacillus "Y" of Hiss and Russell, and Strong's bacillus are not distinct types, and suggests that these names should be abolished, as their retention can only perpetuate confusion. As an alternative, the name "mannite-fermenting dysentery bacilli" is suggested. Comparisons by means of sugar reactions of freshly isolated strains of mannite-fermenting dysentery bacilli with those isolated for some time, or with those isolated by other workers, are condemned as unsound. Finally, as the disease associated with mannite-fermenters does not differ from the disease associated with the *B. dysenteriae* (Shiga), the term "pseudo-dysentery" should, he considers, be abolished. The paper shows evidence of careful and accurate work, and is worthy of study by bacteriologists interested in the subject.

NOTES ON BOOKS.

DR. HENRY O. MARCY contributes to the *Transactions of the Southern Surgical Association*[3] for 1915 a memoir entitled The Surgical Service of the Civil War Then and Now, relating the progress effected in fifty years, which will interest our readers for the same reason that two other papers and an instructive discussion (begun by Dr. T. S. Cullen, of Baltimore) on military surgery will claim their attention. Dr. Marcy relates two amusing anecdotes of Surgeon-General Gorgas, whose name is associated with the discovery of the part played by *Stegomyia fasciata* in the etiology of yellow fever. The first is that, when engaged in his studies on that disease, he was summoned one night in great haste by a practical joker to attend to a case of serious fracture of the shoulder-joint. On promptly responding to the call he found that the "patient" was one

[2] *The Bacteriology of Dysentery in Malaya.* By H. Fraser, M.D.Aberd. Studies from the Institute for Medical Research, Federated Malay States. No. 13. Singapore: Kelly and Walsh, Ltd. 1916. (Demy 8vo, pp. 44. 3s. 6d.)

[3] *Transactions of the Southern Surgical and Gynecological Association.* Vol. xxvii. Twenty-seventh Session held at Ashville, North Carolina, December 15th, 16th, and 17th, 1914. Edited by W. D. Haggard, M.D. Nashville, Tenn.: Published by the Association, 1915. (Med. 8vo, pp. 674; Illustrated.)

of his mosquitos with a broken wing. The other is of the commission appointed from Washington to report on the value of his laboratory studies. Just as the commission was imparting to Gorgas its conclusion that his deductions were sheer nonsense, an assistant entered and said to him, "Colonel, the infected mosquitos in one of your cases have broken loose"; the members of the commission immediately departed in such frantic haste that they actually took the side of the tent with them.

The Michigan Agricultural College has recently issued a *Laboratory Manual of General Microbiology*,[4] that aims at familiarizing the student with the general outlines of bacteriological work. It is to serve as an introduction to the subject; its authors do not wish to compete with books already in existence devoted to the special bacteriology of the dairy, the soil, water supplies, or medicine. It is divided into three parts. The first deals with general morphological and cultural methods, detailed in a series of fifty-three lessons. Moulds, yeasts, and bacteria are taken up in the order of their comparative sizes, and studied from the points of view of morphology and culture. The second part, containing thirty-three lessons, covers the ground of the physiology of microbes. The third part has to do with the applied microbiology of the air, water, sewage, the soil, the dairy, the diseases of plants, and animal diseases and immunity; it contains forty exercises. The book is well arranged, clearly written, and contains a number of excellent illustrations; plenty of references are given to the literature, and more particularly to standard European textbooks. The book is one for use in the laboratory; the various authors responsible for its production are to be congratulated upon the skill and success with which they have done their work.

A note on the anatomy of imperfectly descended testes by Dr. A. C. Wood of Philadelphia, a report by Dr. Gardner, of Buffalo, on priapism associated with chronic lymphatic leukaemia, and a decided active discussion on a monograph by Dr. Douglas Bissell on the surgical treatment of the tuberculous ureter in the female, are among the chief features of interest in the new volume of the *Transactions of the American Association of Genito-Urinary Surgeons*,[5] which also contains some good photogravures of renal and prostatic diseases.

[4] *Laboratory Manual of General Microbiology.* Prepared by the Laboratory of Bacteriology, Hygiene, and Pathology, Michigan Agricultural College. First edition. New York: J. Wiley and Sons, Inc. London: Chapman and Hall. 1916. (Post 8vo, pp. 434; 73 figures. 10s. 6d. net.)

[5] *Transactions of the American Association of Genito-Urinary Surgeons.* Twenty-ninth Annual Meeting, White Sulphur Springs, May 18th-20th, 1915, and a combined meeting of the Association with the American Gynaecological Society. Vol. X. New York: F. H. Hitchcock. 1915. (Med. 8vo, pp. 351; 18 plates.)

MEDICINAL AND DIETETIC PREPARATIONS.

Emetine Bismuthous Iodide.

THE value of this salt is referred to in Mr. Clifford Dobell's paper published at p. 612, and also in an article on p. 626. The compound used in the first investigations of its clinical value in this country was, we understand, prepared by Messrs. Burroughs, Wellcome and Company. It is now supplied by that firm as tabloid emetine bismuthous iodide grain 1, keratin-coated. It is also supplied by the firm of W. Martindale, either in powder or in stearettes, so called because coated with a material containing stearic acid.

THE TYPHUS EPIDEMIC AT GARDELEGEN.

REPORT BY THE GOVERNMENT COMMITTEE.

A WHITE PAPER recently issued contains a report on the typhus epidemic at Gardelegen by the Government Committee on the Treatment by the Enemy of British Prisoners during the spring and summer of 1915. The Committee, the chairman of which is Mr. Justice Younger, have now obtained from Major P. C. T. Davy, Captain A. J. Brown, and Captain Scott-Williams, R.A.M.C., detailed accounts of their experiences in the camp. The facts appear to the Committee, with their painful experience of German methods, to be typical of much that may under similar conditions be expected to recur "unless those in authority are constrained by the pressure of neutral condemnation, if for no more worthy reason, to make it certain that they shall not."

Major Davy says the overcrowding, when the epidemic broke out, was such as he had never imagined anywhere. Men of all nationalities lived, slept, and fed in huts without tables or stools. They walked over each other in passing in and out; they lay there sick, and in many cases died there cheek by jowl with their fellow prisoners. The atmosphere by day, and still more by night, was indescribably fetid. The prisoners had to subsist on the food supplied by the camp administration, which was bad in quality and insufficient to keep an adult in a normal state of nutrition. From the beginning of April, 1915, the British, and still more the French, lived to an ever-increasing extent on what they received from home. The Russians received hardly any parcels, and Captain Brown says it was no unusual sight to see a crowd of them on their hands and knees in the pit in which potato peelings were thrown, struggling to find a stray potato or a piece of rind with a little more potato than usual. The vast majority of the British had their overcoats taken from them when they were made prisoners, and they were never returned. Yet there was a quantity of khaki service kit in the camp store, which the commandant first neglected and finally refused to distribute. The provision for heating the barracks was totally inadequate. The sanitary conditions were deplorable. The task of emptying the latrines into tubular tank carts was especially allotted to the British till sickness had so much reduced their number that a fatigue party of sufficient strength in one company could not be obtained. Many men had been three months in the camp without having been able to get a bath. The result was that by the end of February, 1915, "lice swarmed in every garment the men wore, and in every blanket they slept in." During this period the prisoners were treated by their guards with the utmost harshness. At the daily roll-call men were driven out of their barrack-rooms with kicks and blows.

By the beginning of February the authorities, becoming afraid of an epidemic, brought from their places of internment elsewhere a body of British, French, and Russian medical officers. On the morning after their arrival they were told by the commandant, Colonel Brunner, that if they did their work without complaining they would be well treated, otherwise they would be punished. He then left Dr. Wenzil, who had been in medical charge of the camp, to assign to the officers their respective duties. Under him was a staff of German nursing orderlies, and assisting him was a third or fourth year medical student named Boas. The hospital contained 200 beds, although there was not proper space for more than 90. Dr. Wenzil explained that it was merely a detention hospital for light cases, severe cases being transferred to the town hospital. This, he said, accounted for the very meagre supply of drugs and dressings, which comprised "a very small amount of the common drugs, such as 4 oz. of Epsom salts and three to four dozen tablets each of quinine, aspirin, and calomel. There were also a dozen or so of bandages, an armful of gauze and lint dressings, and a very small case of surgical instruments." Soon the sick rate rose rapidly, and the hospital overflowed. Some barracks were emptied of prisoners and used as an annexe.

The cases up to this time were mostly mild and atypical, and their nature, although suspected by the British medical officers, was not clearly established. Very soon, however, a commission of German doctors arrived, amongst them a professor from Magdeburg. After a visit of less than an hour the commission left the camp. Within half an hour of their departure there was a stir amongst the German guards. They were packing up and preparing apparently for a hasty retreat. In two hours there was not a German inside the camp. Herr Boas, whom Major Davy was to meet and go over some cases with, was absent; he was never seen again. Every German hospital orderly had gone; the sick were left quite unattended. In the hospital there remained only a few British, French, and Russian prisoners employed on fatigue duty. The prison kitchens were empty, the German women formerly employed there having departed.

Before leaving, the sentries had unlocked the gates between companies, and the whole prison population roamed freely about the camp, and the result was that the epidemic became general. In the afternoon the British, French, and Russian doctors were summoned to the outer barbed wire, where the commandant told them that the camp was in quarantine, that a sanitary cordon had been drawn round it, and that the sentries had orders to shoot any one attempting to leave. Colonel Brunner is described as a man of extremely violent temper, always brutal to the captives, whom, whatever their nationality, he treated not as prisoners of war, but as men who had deserved and

were to receive rigorous punishment. In the annexe the state of things was appalling.

The sick had to be dumped down anywhere, for there was not at first a sufficient number of attendants to cope with the work. There were no beds for them; they had to lie on their shaving-filled bags. There were no bedpans or urine bottles, and the state of the patients and the floors was indescribable. There were no feeding-mugs or even small cups or bowls—nothing but the large bowl which formed part of each man's equipment. No milk, or eggs, or other invalid fare was forthcoming. It was ordained that the sick were to continue on exactly the same rations as they had been receiving—the same soup, the same black bread, the same weekly raw herring for each—a diet "tragically grotesque," says Major Davy, "for a man in the middle of an acute illness."

The doctors grappled vigorously with the situation. The number of British in the camp was relatively small, so that the sick among them formed only a small part of the British officers' care. They shared with the French doctors the care of the French and Belgian sick. It is not possible, says the report, to acquit Dr. Wenzil of responsibility for neglect of the most elementary sanitary precautions, for the unsuitable and insufficient diet provided for the patients, and for omission to supply in anything like sufficient quantity the barest medical and surgical necessities. He himself sickened shortly after the quarantine had been declared, and died of typhus in the town. Three or four days after the isolation of the camp a new medical officer appeared, but he never came inside. The doctors asked for milk and eggs for the sick, for a more plentiful supply of drugs, and for gowns and rubber gloves for themselves and the orderlies. Nothing came of the requests. The new German medical officer remained only a few days, and was succeeded by a third, who came fairly often to the camp, but never entered it. He was, however, more responsive than his predecessors. Two weeks elapsed, however, before any gowns or rubber gloves were issued, and then only for a few of the doctors. To that neglect, says the report, was doubtless attributable the infection caught by so large a number of the medical officers and orderlies, and the deaths of so many of them. No milk was supplied by the German authorities, but it was procured from the town by a friendly under-officer, who received a small commission, and it was paid for by the medical officers themselves. As the result of their exertions the bare necessities were obtained from home.

Towards the end of March Dr. Kranski arrived. He devoted himself to improving the sanitation, leaving the treatment of the sick in the hands of the other officers. But he was in the hands of the commandant and could not do all that it is certain he would have wished to do. Owing to the want of dressings, an enormous number of extremely bad sores, several cases of gangrene, many large ulcers, and every form of extensive suppuration had supervened. Major Davy and Captain Brown never ceased to ask Dr. Kranski for a further supply, but he could not get it, the refusal being based on the pretext that there was not a sufficiency to be obtained in Germany.

The Committee think it impossible to find any justification or palliation for the conduct of the German administration in this matter. The epidemic lasted about four months; before it came to an end over 2,000 cases were dealt with out of about 11,000 prisoners. The mortality was approximately 15 per cent. of those attacked. The type of disease was milder than in other German camps. By the end of June the typhus had died out and the camp was looking forward with misgivings to the return of the Germans. It seems to the Committee to be one of the most painful incidents in a dismal record that the deliberate abandonment of helpless men to their fate when danger threatened was to the prisoners themselves a positive relief.

We have more than once hinted that neutral visitors to prison camps are sometimes hoodwinked by the Germans. An edifying example is given in the report. In the course of a conversation about food Dr. Ohnesorg, of the American Embassy, said he had seen several carcasses of mutton outside a kitchen. Captain Brown, who had never seen mutton in the camp, inquired into the matter, and found that the meat had been taken away after it had served its purpose of deceiving Dr. Ohnesorg, whose visit had been expected.

Of the sixteen doctors in the camp, twelve contracted the fever and two died. The work of Major Davy, Captain Brown, and Captain Scott-Williams is spoken of in the highest terms, and these officers speak with enthusiasm of the devotion of Dr. Saint-Hilaire and their other French colleagues. Twenty-two of the orderlies were British; twenty of them caught the disease, and two died.

In conclusion, the Committee point to the startling parallel between the occurrences at Gardelegen and those at Wittenberg. They say that many similar features are to be found in the administration of the camp at Langensalza.[1] As a contrast, they refer to the Göttingen camp, where the administration was more enlightened and humane. That, however, was a bright exception. A note is appended to the report to the effect that it is understood that there have been no British prisoners at Gardelegen for some time past.

COMMENTS ON DR. ZUM BUSCH'S ACCOUNT OF "THE BRITISH TREATMENT OF INTERNED CIVILIAN ALIENS."

BY

LIEUT.-COL. RONALDSON CLARK, M.B., M.R.C.P.,

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THE majority of the attacks made by German writers on British treatment of interned civilians bear so plainly on themselves the evidence of falsity that it is unnecessary even to contradict them; but when a writer enters the lists whom it has been our habit to regard as a scientific man, whom the *Koelnische Zeitung* lauds as "a trustworthy personality" whose *ipse dixit* "is surety for the literal truth of the facts he relates," and declares that from the facts one must realize that "German civilians interned in England are in exactly the same case as the English civilians interned at Ruhleben," one must needs examine the evidence on which he bases this conclusion. On examination it will be found that this evidence is mostly hearsay, and Dr. zum Busch, in his article in the *Deutsche medizinische Wochenschrift* of July 27th, has apparently been so eager to get at statements of ill-treatment that he has accepted any story without examination. Nay, more: when facts were wanting and statements failed, he has not hesitated to invent facts and to ginger up statements to suit the palate of his audience.

The space at my disposal is too limited to go into each and every one of Dr. zum Busch's assertions, but one or two of them placed side by side with the results of my investigations cannot fail to convince any impartial reader of the actual facts. His article comprises a general stricture of our medical treatment of interned civilians, a particular censure of our arrangements, both medical and general as well, at the Stratford camp, where he himself was interned, and a lively tirade against the attitude both of the British public and of the American Embassy towards the interned civilians and their sufferings. With reference to the last of these points the writer can only say that he himself has seen a good deal of the work of the American Embassy; that it seems to him to be most thorough and painstaking, and to show a deep concern for all the complaints of prisoners; and that the patience of the British public is wonderful when one sees the truculent and insulting demeanour of gangs of German interned civilians towards their guards and even to the ordinary passers-by when they are working on the roads. As to Stratford, Dr. zum Busch commences by telling us that the interned civilians' "living room was a former jute factory which had been shut up for several years owing to its unhygienic condition," while the owners of the factory (Messrs. Ritchie and Son) inform us that they gave up the manufacture of jute in Stratford because they found they could do it more profitably elsewhere, and that in their opinion the sanitation of the site was most satisfactory. "The floor of the sleeping room," Dr. zum Busch says, "is of stone flags, and here at every rainstorm (and how many such are there in London?) great puddles of water are collected." As a matter of personal observation I can vouch that there is not a stone flag anywhere in the floor of the sleeping room. It is of concrete and wood in alternate strips each about 6 ft. broad, so that Dr. zum

[1] For particulars as to the epidemic in this camp see BRITISH MEDICAL JOURNAL, March 18th, 1916, p. 421, where a summary of Dr. Leonetti's account is given.

Busch's account of the great puddles of water which are collected between the stone flags must be entirely imaginative. The feeding of the interned civilians is strictly in accordance with the War Office scale, which provides:

Bread 1½ lb., meat 8 oz., tea ½ oz. or coffee 1 oz., salt ½ oz., sugar 2 oz., pepper $\frac{1}{7}$ oz., milk (condensed) $\frac{1}{20}$ tin (1 lb.), vegetables (fresh) 8 oz., margarine 1 oz., peas, beans, or oatmeal 2 oz., fish (salt) ¾ lb. (an adequate dietary). The cooking is done by some of the interned civilians who have been chefs or cooks in first class hotels or on board passenger ships, and the meals which I have seen at the many surprise visits I have paid to the Stratford camp have all been sufficient, well cooked, and appetizingly served. I have inspected the meat and fish before they were cooked both at Stratford and at other camps, and can certify that they are both of excellent quality and quite as good as, if not better than, the ration meat which is served to our troops in the field. Zum Busch's statements about "poor quality tasteless white bread, small pieces of frozen meat, and insufficient vegetable rations" are nothing more or less than mischievous lies. Such also must be the case with his "reign of terror" established by Colonel Lambert, the former camp commandant, with "his continual punishments by imprisonment with bread and water," as we find that only fifty such punishments have been inflicted since the commencement of the camp to the present time, a period of twenty-three months, during which the average daily population of the Stratford place of detention has been just under 400, and that the majority of these cases were given only twenty-four hours' detention on bread and water. Dr. zum Busch's culminating tale of the horrors of our English internment camp at Stratford is, however, that of the 16-year-old ship's boy "who had been arrested in the Suez Canal, and kept in Malta in the company of many Arabs, who had misused him and infected him with syphilis," but the sting is taken out of the story when we learn, as I did, from the boy himself, in the presence of unprejudiced witnesses, that the men who infected him were not Arabs, but elderly Germans, who were with him in a tent in Malta. Zum Busch's complaint, too, that the boy was "absolutely without treatment at Stratford for ten weeks, and that, through the neglect of ordinary precautions by the Stratford medical authorities, the remainder of the prisoners were placed in danger of infection," is rather discounted when we find from the Stratford hospital books, which are kept consecutively and so cannot be falsified, that the boy was admitted to hospital the day after his arrival at Stratford, that long before Dr. zum Busch arrived there he was undergoing both general and local treatment, and that special directions were issued shortly after his admission to hospital with regard to his segregation from the other prisoners of war in eating, sleeping, and washing.

At this point, not for want of material but for lack of space, I must leave the Stratford camp and go to Dr. zum Busch's general tirade against our methods and their results. Here zum Busch's statements are even wilder and more wanting in a foundation of fact. Thus he says that the death-rate in the camps is low because all the bad cases are "often unluckily too late shoved into hospitals where so many of them have laid down their lives." The total number of deaths, however, among the interned civilians in Great Britain, including the deaths in hospitals and even those which occurred in transit to the place of embarkation, have been 200 only, which out of 37,000, the total number of aliens who have been interned, works out to the very satisfactory figure of 5.40 per mille; while his allegations that a great number of suicides and also of brain diseases "have been the result of our internment of civilians" is similarly controverted by a review of the actual figures of the cases in question. The number of suicides which have occurred among interned civilians since the beginning has been four only, while the number of interned civilians who have had to be confined in lunatic asylums amounts to 146, or 254 sane prisoners to each lunatic, which contrasts not unfavourably with the latest figures available for lunacy in Germany, being higher than that found in some, and lower than that found in other provinces.

An examination of a few of the cases he mentions as having been treated at the German Hospital during the time he was allowed to remain there, will show that with regard to them also Dr. zum Busch in his zeal for the cause of Prussian Kultur has placed at a discount the reputation for veracity given him by the *Koelnische Zeitung*. I will take two of these where I have been able to satisfy myself that they are undoubtedly the cases referred to, and to verify their residence in the other hospitals referred to. The first is that of a German lady whose case zum Busch uses to illustrate the general English attitude even towards German women and children. His account is as follows: "For this last reason I operated shortly before Easter on a German lady for uterine myomas who had been fully prepared and shaved in an English hospital but left it on the evening before the operation because she could no longer bear the continual irritations and insults of the other patients and even of the staff." The patient (one C.W.) was in the gynaecological ward of a large London hospital. She had been seen privately by the specialist in charge of the ward, admitted by him as his private patient, and for this reason, if for no other, was given special privileges and attention by the sisters and nurses of the ward. "The other women in the ward," so the hospital authorities tell me, "finding C. W. was lonely and out of touch with her surroundings, were very attentive to her, made her little presents from their private stores of biscuits and jam, and tried to reconcile her to her surroundings," but to no purpose. The operation proposed by the specialist was that of hysterectomy, but on the day before it was to be performed C. W. left of her own accord after she had been completely prepared and shaved, saying that she would be operated on at home. Next day (October 25th, 1915) she was admitted to the German Hospital, where Dr. zum Busch curetted her, and she was discharged on November 4th. The curetting apparently did no good, for she had to be readmitted to the German Hospital on April 21st, 1916, when the operation suggested at the first London hospital was performed, and she was again discharged on May 13th. From Dr. zum Busch's account one would think that the shaving and preparation took place shortly before Easter and not the previous autumn, and this is just an illustration of how he perverts the facts in order to make good his story, and to fill the German people with righteous indignation over the iniquities of the English "hypocrites."

Space will permit me to quote only one more instance from the writings of this "trustworthy" personality, so I will take one on which I have been able to obtain the evidence of Dr. von Osten, one of the interned civilians, who assists the medical officer of the internment camp at Douglas, Isle of Man.

Dr. zum Busch gives the following account: "Another man in reduced circumstances suffered from very serious destruction of the hard and soft palate, so that he had to be fed with the pharyngeal tube; when he came to us he had been taken sick in camp, and had remained entirely without treatment. He also was cured by us." From the German Hospital I obtained the case papers of this man. He was one M. S., and was admitted from the Douglas camp on January 15th, 1916. It is absolutely untrue that he was taken sick in Douglas and remained entirely without treatment. On the contrary, Dr. von Osten showed me the hospital books, which are kept consecutively, and could not have been falsified. These show that M. S. was admitted sick to the Douglas camp on March 10th, 1915; that he was either an out-patient or an in-patient in the hospital there during the whole of his stay in Douglas; that during the last three months of his stay he was treated entirely as an in-patient; that he was fed there with the pharyngeal tube, and latterly also with rectal injections; and that he received special treatment throughout, which necessitated Dr. von Osten's constant and close attention and the obtaining of special apparatus for giving him inhalants, etc., in addition to the ordinary routine treatment of such cases. In conclusion, Dr. von Osten says: "In spite of all the efforts of von Heycke and myself, M. S. remained discontented and ungrateful; although von Heycke devoted his constant attention to him, he was never pleased; in fact, he was one of the patients whom one could never satisfy, and I was glad when Dr. Marshall at last consented to get rid of him."

British Medical Journal.

SATURDAY, NOVEMBER 4TH, 1916.

TREATMENT OF CARRIERS OF AMOEBIC DYSENTERY.

ATTENTION has frequently been drawn in our columns to the importance of the problem presented by chronic carriers of *Entamoeba histolytica*, owing to the fact that this form of infection, whether following an acute attack of dysentery or discovered apart from any history of dysenteric symptoms, has, in a considerable proportion of cases, proved resistant to treatment by the hypodermic injection of emetine, which has been found so efficacious in acute dysentery by all who have used it since Sir Leonard Rogers published his first papers on the subject in the JOURNAL on June 22nd and August 24th, 1912. The paper by Mr. Clifford Dobell, published at p. 612, affords evidence of the frequency with which contact carriers, as well as convalescent carriers, occur among those who have been exposed to infection in an endemic area, and fully confirms the fact that the ordinary treatment by the hypodermic injection of emetine often fails to free such persons from infection. Just two years ago Du Mez, of the school of pharmacy of the University of the Philippines, suggested the use of a double salt of emetine and bismuth—emetine bismuthous iodide—and gave an account of its mode of preparation and constitution.[1]

It is a brick-red powder, insoluble in water, or water acidulated with hydrochloric acid, and stable in air. According to Du Mez's calculations it contains 58 per cent. of iodine and 12 per cent. bismuth, with 29 per cent. emetine. Insoluble salts of bismuth are converted into bismuth sulphide after passing the pylorus, and in all probability the reaction is very slow, taking place as the compound is spread out over the wall of the intestines. Three grains of the double salt, containing about 1 grain of emetine, seems to be a good average daily dose, and twelve such doses may be given in succession. In the recent trials of the drug recorded by Mr. Dobell the double salt was given in cachets containing 1 grain each, until 36 grains had been taken. Vomiting, if it occurred, usually did not come on until some time after the dose had been taken, indicating probably absorption from the intestine and not from the stomach. It is recommended that the dose should be given after a full meal, when the stomach contents will be certainly acid, and on the whole the drug was well tolerated. Lieutenant Matthews, who had clinical charge of the cases, states that he has found it best to persist with it in full doses, as tolerance is usually established in a couple of days, and more quickly than if the dose is reduced on account of the vomiting.

Mr. Dobell gives an account of a systematic investigation of this double salt used in a military hospital in the hope of freeing carriers of the infection. The investigation has had the enthusiastic co-operation of the hospital staff, and the laboratory work has been carried out with the thoroughness to be expected from a protozoologist of his authority. The conclusion to be drawn is that, making all allowance for uncertainties, due to the limit set to observation by practical considerations, there seems no room for doubt that an advantage is to be gained by administering emetine in the form of this double iodide in these chronic cases of amoebic infection. Other reports on isolated cases, and some interim accounts of further systematic trials have come to hand; and on the whole the results are similar to those recorded by Mr. Dobell. There have, indeed, been groups of cases showing less completely favourable results. Inquiry into some such cases raised a doubt as to whether the patients had really taken the drug; in others the full course had certainly not been given; but when due allowance is made for these sources of error it has to be admitted that a residuum of apparent failures remain. There is, however, no evidence from any source to weaken the conviction that the chance of curing a carrier of *Entamoeba histolytica* with the double iodide is very much greater than with emetine given as any other salt or as ipecacuanha. The curative results have, indeed, been far beyond the original expectation.

On the other hand, the hope that the relative insolubility of the double iodide would prevent vomiting, which was so tiresome a complication of the old ipecacuanha treatment, has not been altogether fulfilled. The vomiting has, in not a few cases, been troublesome; and it would appear that some medical officers have been so discouraged by it as to abandon the treatment. It may be suggested that they exaggerate the importance of an admittedly unpleasant symptom; for those who have persisted in spite of it report, with remarkable unanimity, that in most cases the patient becomes tolerant after a dose or two, and that the improvement the treatment effects in the general health is as striking as, and doubtless dependent on, the disappearance of the amoebic infection. Some detail of administration may, it is hoped, soon be discovered which will remove the difficulty due to nausea and vomiting. Meanwhile, it may be hinted that this effect of the double iodide, as now given, causes in some patients a natural reluctance to swallow the dose, and imposes a special duty on the medical officer, who desires to cure his cases, of seeing that it is actually taken. Cases have been reported in which keeping the men in bed during the treatment, instead of handing them the dose and allowing them to leave the hospital building, has improved the results in a significant manner. It is to be hoped that a relatively trivial drawback will not be allowed to obscure the duty of using every available means for rendering those who have had the misfortune to acquire a chronic infection with *Entamoeba histolytica* free from the danger which this condition entails on themselves and on others, more especially under the conditions of hardship and improvised sanitation inseparable from a military campaign.

It is not to be expected that experience from all centres will show so complete a success with emetine bismuthous iodide as that which Mr. Dobell's paper records. But the resources of treatment are not exhausted when it fails. Some favourable reports have been made of a combined treatment with emetine hypodermically and ipecacuanha by the mouth; it seems likely that replacement of ipecacuanha by the double iodide in this combination might be even more effective. There are other remedies again, such as the Chapparo amargosa of Texas, of which favourable reports come from America, especially for cases of the semi-acute type which have resisted emetine. If the magnitude and importance of the problem created by these

[1] The paper was published in the *Philippine Journal of Science*, January, 1915 (Vol. x, Sec. B, No. 1, p. 73).

carriers are kept clearly in view, and the duty grasped of doing all that is possible to restore them to health and safety before they become distributed into civil life and lost to observation, a satisfactory solution should not be beyond reach.

It should be noted that treatment by emetine bismuthous iodide is useless in infections by *Lamblia* and *Chilomastix*, and that, as a rule, *Entamoeba coli*, which is believed to be a harmless parasite, though it disappears during treatment, almost invariably reappears afterwards.

THE CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

The report of the Conference of Local Medical and Panel Committees on October 19th, convened by the British Medical Association, is concluded in the Supplement for this week. It deserves careful consideration not only by panel practitioners and those interested in the working of the insurance scheme, but by all members of the profession. The outstanding feature of the Conference was that it made even more evident than before the desire of the members of the profession actively engaged in the working of medical benefit to make it as successful as possible. So strong was this feeling that the Conference showed itself willing to accept certain conditions, to which some panel practitioners have been disposed to take exception, rather than run the risk of appearing to throw obstacles in the way of adequate medical provision being made for the health of the community under the special strain of war.

The chairman of the Conference and the chairman of the Insurance Acts Committee were able to give an assurance that the new Regulation 3 was only intended to meet the emergencies arising out of the war, and the Conference eventually adopted a resolution accepting the Regulation, with the proviso that "for the year 1917 the new part of Article 3 should be confined to the case of provision for treatment of venereal disease and treatment of disabled soldiers." It requested the Insurance Acts Committee of the British Medical Association to prepare and issue to Local Medical and Panel Committees schemes to include all steps reasonably necessary to be taken by a panel practitioner in order that insured persons may derive full advantage from any service provided under Article 3, and adopted a resolution impressing upon all Local Medical and Panel Committees the supreme importance of preserving the initiative in their own hands.*

With regard to the remuneration of medical practitioners, the memorandum explanatory of the system, which was published in the Supplement to the Journal of October 14th, together with the explanations given to the Conference by Mr. Anderson on behalf of the Commissioners, went far to set at rest many of the doubts that have from time to time been expressed as to the method of distribution of the medical benefit fund. At the same time expression was given to the feeling that the extra work entailed on panel practitioners by the effects of the war constituted a claim for extra remuneration. The attitude of the Conference on this matter was eventually defined by a motion, opportunely made on behalf of the Middlesex Panel Committee by the Chairman of the Insurance Acts Committee, placing on record the opinion of the Conference that, owing to the great increase in the cost of living, insurance practitioners have a claim to an increase of remuneration, and that if such claim be not pressed at the present time this must be considered to be a contribution to the national cause, and without prejudice to the consideration of remuneration after the war.

Many other matters of importance were discussed by the Conference; among them may be mentioned the question of the remuneration of practitioners in munition areas, raised by a motion from Birkenhead. It was alleged that doctors in busy munition areas, though more occupied than they had ever been before, and at greater risk, were not receiving corresponding extra remuneration, but the Commissioners appear to consider that the existing arrangement is not unjust. The Conference, as will be seen, adopted a resolution expressing its opinion that the influx of insured persons in munition areas demands the consideration of the Commissioners with a view to such equitable distribution of funds available for practitioners as will secure to munition areas credits commensurate with their insurance liabilities.

Another matter upon which the Conference expressed a definite opinion was as to the inadvisability of the proposals for the establishment of what is called a State medical service. As representing the practitioners who are working the Insurance Acts the Conference affirmed that the formation of a State medical service would meet with their strongest opposition.

The question of the propriety of establishing a medical trade union, in which some members of the medical profession see a panacea for the difficulties it is encountering and will encounter in the future, did not come directly before the Conference, but it was raised at one point and led to a brisk discussion, which, however, did not do more than disclose the strong difference of opinion already known to exist.

What may, perhaps, turn out to be the most important resolution of the Conference was that in which it reaffirmed the position taken up by the Conference held in 1915 in regarding the British Medical Association as the mouthpiece of the Local Medical and Panel Committees in central negotiations with the Commissioners, and placed on record its appreciation of the work done by the Association for insurance practitioners during the present year. The Association has sometimes had good cause to complain that many members do not study official documents issued to the Divisions and published for general information, and fail to make themselves acquainted with the real facts of any position until it is too late to take effective action, when they turn round and accuse the Association of doing nothing for them. The real fact is that the Association is vigilant in watching their interests, but it is constantly handicapped by the apathy of so many of its members, even on matters which nearly touch their individual interests.

TYPHUS IN GERMAN PRISON CAMPS.

It has seemed desirable to publish an abstract of the report of the Government Committee, of which Mr. Justice Younger is Chairman, on the typhus epidemic which occurred during the spring and summer of 1915 among Russian, French, Belgian, and British prisoners confined in the camp opened by the German authorities at Gardelegen in November, 1914, because there are many evidences that the German Government and the docile medical profession in Germany are trying to persuade neutral and even belligerent

* The conditions for the treatment of venereal disease as defined in the Order of the Local Government Board of July 12th were published in the Journal, July 22nd, 1916, p. 111. Those for Scotland were issued to local authorities and hospitals on October 31st. Although the matter is on a somewhat different footing, it may be well here to call attention to the Order of September 19th, 1916, in which the Local Government Board defined the conditions for carrying out the domiciliary treatment of insured persons suffering from tuberculosis; the operative part of the Order was published in the Supplement last week (p. 123).

public opinion that the official statements proving the mismanagement of prison camps in Germany are either untrue or at least greatly exaggerated. Any medical reader, however, must have concluded from the introductory part of the paper on the clinical aspects of typhus fever, founded by Major Davy and Captain Brown on observations of some 2,000 cases in the camp at Gardelegen,[1] that the most charitable construction to put on the incident was that the administrative arrangements had totally broken down. The only other explanation which has been offered is that the German authorities deliberately set out to bring about conditions under which they knew typhus fever was almost certain to arise. The shivering fright into which they fell when the epidemics did in fact break out discredits this hypothesis, and the more probable explanation is that the outbreaks occurred owing to want of foresight and defective powers of organization, and that when they had thus allowed the evil to raise its head the German authorities were terrified by the spectre threatening their own civil population. When the facts with regard to these outbreaks of typhus fever in the camps in which the Germans herded their prisoners first became known we ventured to assert that the admitted facts were proof of the breakdown of the boasted German organization. Nevertheless, many newspapers in this country continue to speak of the wonderful German organization and the wonderful German foresight. Mr. Curtin, in one of his letters in the *Times*, says that this same belief prevails in the United States, and adds: "My experience of their organization is that it is absolutely marvellous—when there are no unexpected difficulties in the way." He instances what the German newspapers themselves describe as the hopeless muddle about the food regulations, but it may be said without fear of contradiction that the occurrence of typhus fever on any large scale is proof positive of ignorance or muddle. As the German medical profession cannot be assumed to be ignorant of the conditions which lead to the dissemination of typhus fever the outbreaks must have been due to muddle. Of the cowardly abandonment of the sick by which so many German doctors disgraced their profession it is not worth while to say anything. It is not likely that the facts will be allowed to become known in Germany, but the abstract of the report of the Government Committee and the comments by Lieutenant-Colonel Ronaldson Clark on the lucubrations of Dr. zum Busch, late of London, on the British treatment of interned civilian aliens may perhaps afford some enlightenment to the editor of the *Deutsche medicinische Wochenschrift*, who has made himself very active in endeavouring to deny the facts of German mismanagement and cruelty and in inventing charges about the treatment of German prisoners in Great Britain. Mrs. Karen Bramson, a Danish writer, has published a report, quoted in the *Daily Telegraph*, on the conditions prevailing in the prisoners' camp at Gastrow from the end of September, 1914, to the middle of February, 1915. It is founded upon the signed statement of a French army surgeon who was himself a prisoner in the camp. In the stampede every day to get a plate of soup or a morsel of bread, "old men, civilian prisoners, were thrown down and trampled on. Some, too weak to walk, crawled out in the mud to lap out what soup had dropped out of plates. German warders belaboured them with sticks, and sometimes stabbed them with bayonets." The so-called chief surgeon of the camp was a medical student named Dekker, who was in charge of some 20,000 prisoners. Six or eight litres of milk were allowed for 150 patients in the shed which served as a hospital, and the supply of dressings for wounds had run out.

It is added that, as always in Germany, the worst treated prisoners were the English. They had to sell bit by bit every scrap of clothing to obtain food, and when literally naked were taken to the shed called a hospital, where dying men lay on rotten straw eaten up by vermin. The *Frankfurter Zeitung* recently stated that the treatment of English prisoners has now been improved, and this seems to be in accord with the information, as to certain camps at least, received by the British Government through official sources.

[1] BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 757.

LEGISLATION AGAINST QUACK REMEDIES FOR VENEREAL DISEASE.

WE understand that, on the advice and with the assistance of its president, Lord Sydenham, the National Council for Combating Venereal Diseases is taking steps to ensure the introduction into the present or the earliest possible session of Parliament of a bill having as its object the prevention of the sale or advertisements of quack remedies for these diseases and for the treatment of them by unqualified persons. It realizes the fact that this is an extremely difficult and thorny subject, and it has asked and obtained the co-operation of the British Medical Association in the matter. A subcommittee, consisting of the Treasurer (Dr. Haslip), Dr. Jenner Verrall, Dr. Biggs, and Mr. Bishop Harman, was appointed by the Council of the Association at its meeting last week to work conjointly and in harmony with the National Council, and measures are being taken by means of conferences and otherwise to bring every party which might be affected by the provisions of the proposed bill as far as possible into harmony with the object which it is wished to attain.

MEDICAL CERTIFICATES FOR MUNITION WORKERS.

THE Council of the British Medical Association, at its meeting last week, had before it a letter from the Minister of Munitions stating that it had "on several occasions been brought to his notice by firms engaged on munitions work that some difficulty is experienced in dealing with applications from workmen for leaving certificates, owing to the fact that medical certificates recommending a change of employment for such workmen are in many cases issued by medical practitioners with what would appear to be insufficient consideration." The letter proceeded to point out the extreme importance of the matter from the point of view of munitions work, and asked the Council of the British Medical Association to use its influence with the profession and to draw the attention of medical practitioners to the importance of exercising every care before issuing medical certificates to workpeople engaged on munitions work. The Council at once adopted a resolution urging on all medical practitioners the necessity for the exercise of the greatest care by members of the profession in dealing with applications from workers in munition factories for leaving certificates. We had occasion to mention this matter rather over a year ago. It was then stated that the fact that a doctor might often be placed in a very difficult position when a munition worker who complained of illness applied for a medical certificate was fully appreciated, but the opinion was expressed that the doctor should take care not to allow himself to be used merely to enable a worker to procure a holiday which he might otherwise find it difficult to obtain. The fact that the Minister of Munitions has considered it necessary to call attention to the matter again seems to show that there

must be some practitioners who have not yet fully recognized their responsibility in this respect. This responsibility is very grave, not only to the profession but to the nation at large, which has so intense an interest in the maintenance of the output of munitions of war. In these circumstances we feel bound to call attention to the fact that five years ago the General Medical Council issued a special warning with regard to the giving of medical certificates; a number of examples of such certificates was set out and the warning notice stated "that any registered medical practitioner who shall be shown to have given any untrue, misleading, or improper certificate, *whether relating to the several matters above specified or otherwise* [the italics are in the original], is liable to be adjudged by them to be guilty of 'infamous conduct in a professional respect,' and to have his name erased from the *Medical Register* under section 29 of the Medical Act, 1858." It would be very mortifying to the general body of the profession should the authorities find it necessary to appeal to this pronouncement of the General Medical Council.

MEDICINE IN ROUMANIA.

In the *Chronique Médicale* of November 1st Dr. Severeano of Bukarest gives a brief survey of medical development in Roumania. The first beginnings go no further back than 1847, when a school for surgical assistants was organized by M. Nicolas Cretzulescu, a descendant of the old Roumanian nobility, and a former pupil of the medical faculty of Paris. Owing to the state of the political atmosphere the school had a short existence. In 1853 the Roumanian Government, having need of a medical man to direct the sanitary service of the army, asked the Paris Faculty to recommend a young doctor for the post. In response to this request Dr. Davila was sent. In 1855, in view of the total lack of medical practitioners, he induced the Government to establish a school of surgery. In 1859 this was raised to the rank of a secondary school of medicine, and in 1869 was transformed into a full faculty. A second faculty was founded later at Jassy. Up to that time the practice of medicine in Roumania had been in the hands of foreigners, very few of whom had the degree of doctor; the others had the title of "Magister," corresponding to the French *officier de santé*. But the Roumanian public placed its trust mostly in bonesetters and quacks. There were specialists for fractures and dislocations, for hydrophobia, for eye troubles, for diphtheria, for stone, for sores and wounds, and for headache. For this trephining was done, the operator sometimes making as many as ten holes in search of the collection of blood which he said caused the pain. Jaundice was treated surgically by removal of a small strip of skin from the dorsum of the nose. Vaccination was well organized; it was performed by the arm to arm method by official operators who handed on the function from father to son. According to Dr. Severeano, medicine has made great progress in Roumania. Illegal practice has disappeared, and all official posts are occupied by Roumanian doctors. The exercise of the medical profession is open to all holders of a regular diploma authorizing them to practise in the country where it was obtained. Besides the two faculties of medicine there are an institute for the training of army doctors, a school of pharmacy, several schools for midwives and sanitary officials, and a veterinary school.

"DOCTORS AS MEN OF ACTION."

In an article under this heading which appeared in the British Medical Journal of September 30th (p. 462) the name of Dr. Affonso Costa, the present Portuguese Minister of Finance, was included among the medical men who have in recent years played a prominent part in politics. Dr. H. L. Gordon, of the British Hospital, Oporto, informs us that Dr. Affonso Costa is not a doctor of medicine, but of law, and that he practised as a lawyer in that city. Our correspondent adds to the names given by us that of Van Riebeck, a ship surgeon in the service of the Dutch Company who founded the first colony at the Cape of Good Hope in 1652. It was more or less a medical settlement established for the purpose of combating scurvy, then a scourge of ships making the voyage between Europe and the Indies. It would be easy to extend the list of medical men of action. Joseph Hume, who, though a bore, undoubtedly did much for financial reform, was originally a surgeon in the East India Company service. Sir John Spencer Login, who had achieved considerable distinction as a doctor in the same service held high political offices in the Forties and Fifties; in 1848 he was appointed Governor of Lahore and guardian of the young Maharajah, Duleep Sing. Thomas Henry Wakley, founder of the *Lancet*, and known in the House of Commons as the "Member for Medicine," was an active politician. Lord Ilkeston's political career is within the memory of most of us. Sir James Mackintosh, author of the *Vindiciae Gallicae*, a reply to Burke's famous denunciation of the French Revolution, political philosopher and professor of law, was, like Sir Robert Finlay, originally a doctor. Going further back, there is Johann Friedrich Struensee, the German physician to Christian VII of Denmark, who was the lover of the unhappy Queen Caroline Matilda, and was for a time dictator of Denmark, ending his meteoric career on the scaffold in 1772. Jean Paul Marat, who played a sinister part in the French Revolution, is not a man the profession has reason to be proud of, but he had certainly been admitted *in nostro docto corpore*. Carlyle speaks of him as a "horseleech, once in d'Artois's stables," but he really had been physician to the Guards of the Comte d'Artois, afterwards Charles X, and in 1775 the University of St. Andrews conferred on him the degree of M.D.

DAMPNESS AND COLD.

The physiological bearings of atmospheric humidity are numerous and important, as might be anticipated in view of the wide variations which it undergoes at short intervals. Changes in the hygrometer probably account for far more aches and pains than those of the barometer. In our temperate zones the limits of atmospheric humidity may be taken to be between 45 and 70 of saturation. At the latter figure perspiration is hindered, with consequent impairment of the skin functions and diminution of the excretion of water vapour in respiration. This throws additional work on the kidneys, of which renal patients are apt to be acutely conscious, and the discomfort is enhanced when a low temperature aggravates the "damping" effect on cutaneous elimination. In polyuric subjects micturition is more frequent and the night's rest proportionally more disturbed thereby. The same malevolent influence aggravates the pains of sufferers from rheumatic arthritis and neuritis. Epithelial accumulations, such as corns and cicatricial tissue in general, are somewhat hygroscopic and swell under the action of the humidity, causing increased tenderness and pain. Cold winter air is usually proportionately damper than summer air, though the absolute water vapour content is less, but when the cold air is warmed it becomes uncomfortably dry, and therefore irritating to the bronchial tubes, and this may account for the prevalence of "colds" during the cold season. The dry east wind, which is invigorating to a robust constitution, owes its searching qualities to the fact that its dryness enhances evaporation from the skin, and as heat is absorbed in the process of the transformation of water into vapour a disagreeable feeling of cold may be caused. This feeling of cold cannot be wholly guarded against even by thick clothing, because it is not only the low temperature of the wind that offends, but also the desiccating influence of its dryness, which makes itself felt through the thickest clothing.

DIET AND MENTAL DISEASE.

A recent article by Dr. Charles Mercier in the *Journal of Mental Science* draws attention to the great importance of diet as a factor in the causation of mental disease. With respect to mental disease, the attribution of cause has been, he says, chiefly determined by fashion. Time was when the only causes attributed were sexual excess and syphilis. These were followed by heredity; heredity gave place to toxins, and toxins were followed by repressed complexes on Freudian lines. Dr. Mercier argues that articles of diet should influence the mental health no less profoundly than they influence the physical health, quoting alcohol as a body capable of producing mental disease when it is taken into the stomach. Cretinism and myxœdema may be regarded as instances in which the defect of certain constituents of the blood may cause mental disease. The vitamines, whatever their chemical constitution may be, are essential to the maintenance of both the physical and the mental health. These and other considerations lead Dr. Mercier to conjecture that investigation might discover, in the antecedents of some cases of mental disease, some error in diet that might have a causal connexion with the disease. In his paper he quotes thirty-five cases occurring in his practice in a period of about three years, in which the existence of this connexion appeared more than probable. Only one of these patients could be certified as insane; the other thirty-four were victims of unsoundness or disorder of mind, but not mad, and all came to him seeking relief from mental disease. The peculiarities in diet that preceded and accompanied the mental disorder in these patients were mainly of two kinds—deficiency of meat, or excess of fat, starch, or sugar. Fourteen of the patients were seen by Dr. Mercier only once, and the progress of their malady remains unknown to him. All but one of the remaining twenty-one recovered or very greatly improved when their diet was rectified, and to this rectification Dr. Mercier attributes, with good reason, as he shows, the recovery or improvement. Excess of fat in the diet seems often to lead to severe headache, as was pointed out years ago by Dr. F. Hare, and such excess was present in all those of Dr. Mercier's patients who complained of headache. In addition it gives rise to confusion of mind, and often to severe depression and forgetfulness. It is also to be noticed that the mental symptoms due to excess of fat, sugar, or starch in the diet, which are relieved by diminishing these constituents, are almost always worse in the morning hours clear up towards afternoon, and are often absent in the evening. Dr. Mercier makes it quite plain that he does not hold every case of mental disease to be due to deficiency of meat or excess of fat in the food. In only a small proportion of the cases does he find any definite fault in the diet. His paper is written with all his customary *brio*, and will be read with pleasure and advantage by very many medical men.

WASPS AND FLIES.

It has been a matter of common observation that the number of wasps seen during the past summer and autumn has been much fewer than usual, and probably most of us have looked upon their absence as an unmixed blessing. Some recent correspondence in *Nature*, while confirming the belief that there was a great scarcity of wasps during the late summer and autumn throughout England, and at least the southern part of Scotland, puts a rather different complexion on the matter. It is stated that there an unusually large number of queen wasps were seen in the early spring, but the cold wet weather which then ensued either killed them or caused the nests to be very weak. The interesting point is that some observers of the natural history of wasps foretell an unusual prevalence of flies next year, because they believe that the wasp is a great enemy of the common fly. One observer seems to think that the young queen wasps, which come out in early spring too soon for nectar from flowers, live chiefly on flies, and another states that he estimates the number of flies brought into one nest on a bright summer day at two thousand. In a paper read at the last meeting of the British Association, Miss O. C. Lodge said that the best bait for house-flies was a mixture of casein, banana, any sweet substance, and water; and that formalin in water, about 1 in 13, was the best poison, excluding scheduled poisons. She also stated that the best bait for blow-flies was liver, brain, and fish already attacked by maggots, and thus rendered more attractive.

Medical Notes in Parliament.

War.

MESOPOTAMIA.

Statement by Lord Derby.

IN the House of Lords, on October 31st, the Earl of Derby, Under Secretary of State for War, made a statement with regard to the present condition of affairs in Mesopotamia. They had, he said, greatly improved since the War Office took over the task, and he read an optimistic telegram received by the Colonial Office from Sir Godfrey Collins at Basra, dated October 29th. It stated that the last five steamships cleared in twelve days, that each troopship emptied on arrival, that the supply situation was well in hand, and that there was no necessity for anxiety. The difficulty, Lord Derby said, had been to get supplies up the river from the base to the advanced posts. Though what had been accomplished fell far short of perfection, such orders had been given and such preparations made as would, when they had been executed, bring matters as near to perfection as was possible in such a region. General Maude had reported that a dockyard had been established at Abadan for putting barges together, but that the square-ended barges sent out had proved practically useless as they could not pass the Narrows. Barges were what was most wanted, and recently two stern-wheelers and some barges had arrived from Singapore. More barges were on their way and a steady stream of supplies had begun to arrive. On July 20th, the date on which the War Office took over control, the average tonnage carried daily up the river was 222 tons; on October 9th it was 680 tons, and it was expected that by October 31st it would have reached 860 tons. The troops were now getting full rations with few exceptions, but there was a shortage in alternative supplies and consequently the men could not be afforded a choice between one article of diet and another. At present the force was being given fresh meat, but arrangements were being made for supplies of frozen meat. A large additional quantity of motor transport was available and would be sent out if assurances were received that it could be used. As far as was known all the horses required were in Mesopotamia. Clothing had been sent out to meet the needs of British and Indian troops during the winter.

Medical Arrangements.

The fleet of hospital craft had been considerably augmented by using some passenger steamships, and it was now possible to transport the sick and wounded without delay and in reasonable comfort; the number of these vessels was being increased as rapidly as possible. Large floating plant for purifying water was under construction and would be sent out as early as possible. Some barges with ice-making plant and workshops had already been sent out, and more were being constructed. The ideal had not been reached, but all that could be done to expedite matters was being done.

Early in February the Commander-in-Chief in India was informed that the War Office was fully prepared to afford every assistance in regard to medical supplies and establishments in Mesopotamia or elsewhere. This led to an immediate demand for one hundred officers and a number of assistant surgeons. Forty officers were sent at once from Egypt and sixty from England; all available

surgeons were sent and also non-commissioned officers and men of the R.A.M.C. Further requirements followed, and there had been sent in the form of hospital units to Mesopotamia from that date to the present five general hospitals, five stationary hospitals, one casualty clearing station, three Indian general hospitals, one Indian stationary hospital, one Indian field ambulance, three motor ambulance convoys—a total of 323 officers, 500 nurses, and 2,885 other ranks. In addition, there had been sent 509 R.A.M.C. officers and 1,387 of other ranks, 52 assistant surgeons, 153 native medical personnel, 32 dental surgeons, 22 dental mechanics. Six hundred other ranks of the R.A.M.C. were awaiting embarkation, and 50 medical officers, an additional stationary hospital, and some dispensaries were being sent.

Since the War Office assumed its responsibility large quantities of medical stores had been sent to Mesopotamia, including a base dépôt and medical stores weighing 41 tons, and outfits for the treatment of cases of cholera, and dental, æ-ray, and pathological outfits. A large quantity of fully-equipped medical units also were sent, with 50 tons of medical stores and 150,000 pairs of special goggles, which were very much in demand there. To facilitate still more the supply of medical stores to Mesopotamia, a base dépôt of double the ordinary size, with over 80 tons of medical supplies, was being dispatched to Bombay.

It was extremely difficult to give any trustworthy figures as to the numbers of the sick. During the period April 27th, 1916, to July 29th, 1916, the admissions of British troops to hospital were said to have averaged 2,739, the deaths 108, and the number evacuated 1,048 a week; but these figures were admittedly incomplete. From August 5th to September 23rd the complete figures of the weekly averages were: Admissions, 1,705; deaths, 39; and numbers evacuated, 738.

The Future.

He was not at all satisfied at present, but hoped that in a very short time he might be able to give a more satisfactory account of the actual delivery of the description of boats urgently required for the transport of the sick. A railway board had been formed, which would act in co-operation with the Indian Engineering Association, to expedite the supply of staff, plant, and material. Although all that was necessary had not yet been accomplished the War Office was determined to put matters on a proper footing. A debt of gratitude was due to Sir Alfred Keogh for the way in which he had met the medical requirements, and to Quartermaster-General Sir J. Cowans and his department, who had shown unceasing activity in putting the force in Mesopotamia in regard to food and supplies in a similar happy position to that which the army in France enjoyed. In conclusion he said that as far as possible entire units in Mesopotamia were being relieved by fresh troops.

The Statutory Mesopotamia Commission, under the chairmanship of Lord George Hamilton, has held further meetings in private. The witnesses examined have been in the main officials and officers concerned with supply and transport. It is stated that it is not anticipated that the taking of oral evidence will be finished before the end of the year.

Military Pensions.—The Prime Minister stated on October 26th that the Cabinet had approved the appointment of a Pensions Board, with a Cabinet Minister at its head. The question of setting up a single pension authority, he said, could not be determined without regard to the distinction existing between pensions and grants which arose only in consequence of the war, and the long service pensions earned both in peace and war, the administration of which might be regarded as part of the regular business of the naval and military departments. The bill which would have to be introduced in order to give effect to the proposal to establish the Pensions Board would be brought in at an early date, but its terms had not yet been finally settled. It would deal, among other matters, with the relation between the new Board and the Statutory Pensions Committee. It is generally believed that Mr. Arthur Henderson—who last August resigned the office of President of the Board of Education to become labour adviser of the Government, and as Paymaster-General to preside over the Board of Chelsea Commissioners—will be the first minister of pensions. Some indication of the magnitude of the work which will come within the scope of the Ministry of Pensions is afforded by the experience of the United States of America, of which we gave some account a few months ago (April 1st, 1916, p. 498). The estimated total number of individuals enlisted on the Union side during the Civil War was a little short of two millions and a quarter; more than half of these were awarded pensions. The number pensioned on account of disability incurred during the war was 565,000, the remainder were pensioned under various Acts of Congress which did not require that in order to obtain a pension the disability must have been incurred directly in the execution of military or naval duty. The Civil War in America came to an end in 1865, but for the fiscal year ending June 30th, 1915, the number of disability pensions in respect of the Civil War was 45,611 and the amount disbursed 16,500,000 dollars. Four years earlier the number of pensions was 113,469, and the amount disbursed 32,000,000 dollars.

Treatment of Disabled Soldiers.—On October 31st Lord Henry Cavendish-Bentinck asked the Secretary of State for War to state whether the duty of restoring the disabled soldier to complete recovery, so far as medical and surgical science could do so, would be undertaken by the War Office. Mr. Lloyd George said that the War Office was charged with establishing an organization for the training and treatment of the disabled soldier, but this would be done by means of a civil organization. The matter was receiving the most careful consideration, but it had not yet been quite definitely decided whether the civil organization would be under the new Pensions Board or separate.

Uncertifiable Discharged Soldiers.—Mr. Forster stated on October 25th that the total number of men discharged from the army owing to the effects of uncertifiable loss of balance was 396, excluding cases in no way due to war service.

Home Hospital Reserve.—The Financial Secretary to the War Office stated in a written answer (October 26th) that the men of the Home Hospital Reserve joined originally for service in hospitals at home. Many of them, however, volunteered for service with armies in the field, and of these a considerable number have been drafted for service overseas in some unit of the R.A.M.C. Those who did not volunteer have been retained at home.

Detained Women (German and British).—Information given by the Home Secretary, in reply to questions in the House of Commons on October 25th, showed that some 12,350 German women with their children had left this country since August 11th, 1914, and that of these 11,200 were returning to Germany. Any German woman now in this country might apply for a permit to return to Germany, and with the exception of five interned under the Defence of the Realm regulations no German woman had been refused permission to return. Lord Robert Cecil said that the attention of the German Government had long since been drawn to the fact that the British Government had arranged for allowances to be paid to the British-born wives of interned German civilians, notwithstanding the fact that the German Government refused relief to the German-born wives of British subjects interned in Germany. It was believed that the number of British women detained in Germany and Austria-Hungary against their will was small, and repeated representations had been made to the German Government as to their refusal for many months to allow British women to leave the occupied districts of France and Belgium. So far as was known, no British women were detained in Bulgaria. Large numbers of women and children of British nationality had left the Ottoman Empire since the beginning of hostilities, and negotiations were proceeding for the release from Turkey of civilians of both sexes.

Indian Prisoners in Germany, Switzerland, and Turkey.—The Financial Secretary to the War Office said that 12 Indian native officers and 667 of other ranks were prisoners in German hands; of these, 2 officers and 7 of other ranks were in Switzerland; 8 Indian native soldiers had been exchanged; 199 Indian native officers and 654 of other ranks were in Turkish hands, and there were, in addition, a considerable number of Indian native soldiers of the Kut garrison of whom no definite news had been received; 6 officers and 1,139 men had been exchanged.

Convictions for Drunkenness.—The Minister for Munitions has circulated the following return of the convictions for drunkenness in the areas under the Central Control Board,

compared with the figures for the corresponding period of last year:

District.	Weekly Average January to September, 1915.	Weekly Average January to September, 1916.
ENGLAND.		
Greater London	1,055	546
Liverpool	155	116
Manchester	83	51
Newcastle	61	39
Birmingham	44	26
Leeds	26	12
Sheffield	22	11
Middlesbrough	30	17
Gateshead	21	12
Total	1,497	830*
SCOTLAND.		
Edinburgh	114	80
Glasgow	505	326
Dundee	60	49
Aberdeen	43	31
Total	722	486†

* A reduction of 44.6 per cent. (males 46.9 per cent., females 38.7 per cent.).

† A reduction of 32.7 per cent. (males 35.3 per cent., females 27.1 per cent.).

Mr. Montagu stated also that in Carlisle the convictions for drunkenness in the fourteen weeks since the middle of July, about which time the Board's scheme of direct control began to be put into effective operation, numbered 183; for the immediately preceding fourteen weeks the total was 380. He also stated that in England up to October 21st the Board had taken possession of 127 licensed premises; 21 of these had by that date been closed for the sale of intoxicants, and 106 were being conducted under the direct control of the Board. In Scotland the corresponding figures were 42, 16, and 26.

Cocaine for Dentistry.—On October 25th Mr. Raffan asked the Home Secretary whether it was in contemplation to extend the general permit enabling unregistered practitioners in dentistry to obtain solutions containing not more than 1 per cent. of cocaine for purposes of anæsthetics beyond October 31st, and, if so, to what date. Mr. Samuel replied as follows: "As the hon. member is aware, I had the advantage of discussing this matter yesterday at a conference with a number of members who are interested in it. As a result of the discussion, I promised to appoint a small committee to make further inquiries as to the use of cocaine by dental practitioners, and I hope to be able to issue an announcement in a few days. Pending these inquiries, the temporary permits issued to unregistered dental practitioners will be extended for a short time."

Tri-nitro-toluol-Poisoning.—Mr. Brace stated on October 25th that the number of reported cases of tri-nitro-toluol poisoning for the nine months ending September, 1916, was 95, and the number of deaths 28.

Experiments with Chlorine.—Sir George Greenwood, on October 24th, asks a series of questions with reference to experiments on poisoning by chlorine gas performed by Dr. Flack in the laboratory of the Medical Research Committee, as reported in the BRITISH MEDICAL JOURNAL of December 4th, 1915. In the course of a general reply, Mr. Charles Roberts, speaking for the Insurance Commissioners, said that the experiments were paid for out of moneys provided by Parliament out of the general taxation of the country under the Insurance Act, and that they had been correctly reported in annual returns to the Home Office. The work was sanctioned as a piece of research which was necessary for the solution of certain medical questions of immediate national urgency, in the war conditions of July, 1915, when it was carried out, and was also likely to produce knowledge of the greatest value in medical work for the civil population. The accounts were audited by the Auditor-General, and had been published.

Nurses' Registration.—The Prime Minister has stated that as a bill for nurses' registration on similar lines to that submitted to him by the Central Committee for the State Registration of Nurses would be a highly controversial measure, he could not at present undertake to introduce it.

THE WAR.

THE CONTROL OF VENEREAL DISEASE IN AUSTRIA.

AT a meeting of the Medical Society of Vienna on March 31st, 1916, Professor Finger[1] admitted that there had been a considerable increase of venereal disease owing to the war. Among civilians this increase was first observed in married women of every class, infection coinciding in many cases with the return of the husband on leave. There was also a noticeable increase of the number of unmarried women and girls attending hospital for venereal disease. Again, among lads of 15 to 18 venereal disease had become far more frequent owing to high wages and lack of supervision by their parents. The following table shows the proportion at a hospital of lads to men in 1,000 cases of venereal disease before the war and in another 1,000 during the war.

Age.	Peace Time.	War Time.
15	1	8
16	3	9
17	11	26
18	27	68

A relative increase in the number of extragenital chancres and of cases of vulvo-vaginitis in infants has been noted during the war. Professor Finger believes this to be due to the saturation of the population with venereal disease which was conveyed to children in various ways long before they could acquire it by sexual intercourse. While in peace only 1.8 to 2.1 per cent. of the German army suffered from venereal disease, 6.2 per cent. of the Austrian army were infected. It had been estimated that Austria had mobilized about seven million men, and that from 700,000 to 800,000 soldiers must be suffering from venereal disease. At least a third of these men were married. It had been officially estimated that 80 per cent. of these patients were infected in the interior, while only 20 per cent. were infected on the lines of communication. With regard to the 80 per cent., the problem was one with which the civil authorities had to deal.

By the spring of 1915 epidemics of other infectious diseases had been got under control, but venereal disease was still on the increase both among soldiers and civilians. On July 5th, 1915, the Minister of the Interior summoned a conference, at which measures for the suppression of the disease, to be taken by the civil and military authorities respectively, were settled. It was agreed that the most important measure was the supervision of secret prostitution and the detection and treatment of venereal disease in this particular class of prostitute. In practice the effectiveness of this measure was largely nullified by the lack of detectives attached to the sanitary police (Sittenpolizei). While Berlin employed 200 such officers, Vienna employed only eight; and even these eight were practically useless, for hospital accommodation for the patients discovered by the detectives was totally inadequate. After a few days' arrest infected prostitutes were again let loose on the streets, the only treatment available being ambulatory. On November 5th, 1915, the need of additional hospital accommodation for women was recognized, and in many large Austrian towns it was provided. It was not, however, until April, 1916, that a large hospital in Vienna was to be opened for infected women, with 560 beds, to be increased to 800 in time. The military authorities were urged to examine every soldier for venereal disease before giving him leave and before demobilization, and to hand over those found infected to the army medical service for treatment. On the ground that, though the symptoms of syphilis disappeared under treatment the disease usually relapsed and again became infectious, it was urged that soldiers after discharge from the military hospitals should be kept under civilian supervision at home, in connexion with their medical clubs. The military authorities took action in December, 1915, but it was found that legislation was required to give the civil authorities adequate powers over discharged soldiers subject to relapses of venereal disease.

To show how effective purely educational measures can be, Professor Finger cited the case of a military school, in

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[1] *Wien. klin. Wooh.*, April 13th, 1916.

which the incidence of venereal disease fell from 2.8 per cent. in 1899 and 1900 to 0.5 per cent. in 1903. During the same period a second military school in the same district showed no fall in the incidence of venereal disease. The striking improvement in the first school was due to its medical superintendent, Dr. Schwarz, who gave the young men a systematic course of instruction in sexual hygiene.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

Surgeon-Probationer A. L. Strachan, R.N.V.R.

H.M.S. Genista, a minesweeping vessel, was torpedoed and sunk on October 23rd; all her officers and 73 men were lost, and only 12 men saved. Among the six officers was Surgeon Probationer Alexander L. Strachan, R.N.V.R., the elder son of the late Mr. Alexander L. Strachan, chemist, of Aberdeen. He entered Marischal College, Aberdeen, as a medical student in the summer of 1913; in his third year he volunteered for service on the call for surgeon probationers for the navy, and was appointed to H.M.S. *Genista*. On his way to join his ship he arrived in Dublin in the middle of the rebellion, and had to take charge of a hospital there. He was the recipient of a special letter of thanks and presentation by the officers and crew of a ship which was found in a sinking condition a few months ago.

ARMY.

Killed in Action.

Captain A. T. Logan, R.A.M.C.

Captain Alfred Thomas Logan, R.A.M.C., whose name appeared in the casualty lists as missing on September 16th, has subsequently been reported to have been killed on that date, aged 28. He was the second son of Thomas Logan, of Strathbungo, Glasgow, and was educated at Glasgow University, where he gained the Dr. Gibson bursary, and graduated M.B. and Ch.B., with distinction in surgery, on April 1st, 1915. On April 7th, 1915, he took a commission as lieutenant in the Special Reserve of the R.A.M.C., went to the front with the Grenadier Guards in July, 1915, and was still attached to that regiment when he fell. He had recently been mentioned in dispatches.

Captain W. R. Pagen, R.A.M.C.

Captain Wilfrid Robert Pagen, R.A.M.C., was killed in action on October 7th. He was the son of the late Mr. William Pagen, of Whitehaven, and was educated at St. Bees School, Durham University, and the London Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1905. After acting as medical officer of the workhouse at Cockermouth, Cumberland, he settled in practice in that town, where he was medical officer of No. 1 District of Cockermouth Union. He joined the R.A.M.C. as a temporary lieutenant on December 15th, 1914, and was promoted to captain on completion of a year's service. On October 1st he was wounded in the forehead by a piece of shrapnel (British Medical Journal, October 21st), but remained at duty, and was killed six days later.

Captain G. Mowat, S.A.I.

Captain George Mowat, South African Infantry, was killed in action on October 12th, aged 43. He was the youngest son of Mr. Robert Mowat, J.P., Cambuslang, Glasgow, and was educated at Garnethill School, Glasgow, and at Glasgow University, where he graduated M.B. and C.M. in 1895. He served as a civil surgeon in the Boer war, being twice mentioned in dispatches, and gaining the South African medal. After the war he settled in practice in South Africa. When the present war broke out he joined the Pretoria Regiment as a lieutenant, served in it through the campaign in German South-West Africa, and came to Europe with the South African contingent as a captain in the South African Scottish Regiment.

Died of Wounds.

Captain C. M. Nicol, R.A.M.C.

Captain Charles Mill Nicol, R.A.M.C., died of wounds on October 23rd, aged 28. He was the second son of the late Mr. John Nicol, of Greenock, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1909. He entered the R.A.M.C. as lieutenant on July 31st, 1909, and was promoted to captain on January 31st, 1913.

Wounded.

Captain J. J. Field, R.A.M.C. (temporary).
Captain F. Hitchcock, New Zealand Medical Corps.
Captain H. B. Mustard, Canadian A.M.C.
Captain M. J. Rees, R.A.M.C. (temporary).
Captain R. R. Scott, R.A.M.C. (S.R.).

Prisoners of War.

The casualty lists published on October 30th give the names of a large number of prisoners taken in the surrender of Kut last April, including seventy Indian officers and the following seven members of the Indian Subordinate Medical Department, of whom the two last have been released on exchange: Assistant Surgeons T. Holt, A. Phanre, H. A. T. Wells, F. Aquino, A. Paes, A. L. Gomes, N. P. Shemain.

Deaths among Sons of Medical Men.

Alderson, Alexander George J., Second Lieutenant Machine Gun Corps, youngest son of the late Dr. Alderson of Bournemouth, accidentally killed at bombing practice in the East Midlands, on October 19th, aged 36. He was educated at Epsom College, and at Jesus College, Oxford, where he was an exhibitioner, took second-class honours in the mathematical tripos in 1903, and rowed in his college boat. He was ordained in 1904, and acted as a master at Glenalmond, Bradfield, and Sherborne schools successively. He got a commission as lieutenant on the unattached list on June 13th, 1914, to serve with the Sherborne O.T.C., joined the Duke of Cornwall's Light Infantry as lieutenant in September, 1915, and rose to be captain, but reverted to second lieutenant on joining the Machine Gun Corps.

Clay, Vivian Hastings, Captain Wiltshire Regiment, younger son of Dr. Challoner Clay, of Fovant, near Salisbury, killed on October 18th, on his 24th birthday, after leading a successful attack on the German trenches. He was educated at Epsom College and at Durham University, where he graduated as B.A. in 1914, was in the O.T.C. at both school and college, and afterwards commanded a company of Boy Scouts at Plymouth. He got a commission in the Wiltshire Regiment on April 15th, 1915, was transferred from the reserve to the regular army last May, and promoted to Captain on August 27th. He had been mentioned for conspicuous gallantry in the field.

Corbin, Charles Robert Peel, Second Lieutenant Worcestershire Regiment, elder son of the late Dr. E. E. St. Clair Corbin, of Beckenham, died of wounds on October 21st, aged 23.

Greenwell-Lax, Anthony William, Captain Royal Garrison Artillery, only son of Dr. Greenwell-Lax of West Kensington, killed on October 11th, aged 23. He was educated at St. Paul's School and at Woolwich, and got his first commission on July 19th, 1912. He was in Jamaica when the war began, came home in November, 1914, went to the front with a siege battery in July, 1915, and was promoted to captain in August, 1916.

Lloyd-Williams, Kelyth P., Second Lieutenant Welsh Regiment, only son of Dr. Lloyd-Williams of Llwynbrain, Carnarvon, killed recently. He got his commission on February 26th, 1915.

Menzies, Alexander Laurence, Second Lieutenant, youngest son of the late Surgeon-General Menzies, A.M.S.(retired), of Hawke Bay, New Zealand, died of wounds on September 21st, aged 28.

Montgomery, Edward, Second Lieutenant, son of Dr. Montgomery of Mallow, killed recently.

Palmer, John Stanley, Second Lieutenant Durham Light Infantry, died on October 18th of wounds received four days earlier, aged 26. He was the youngest son of Mr. Thomas Palmer, of East Sheen Avenue, S.W., was educated at King's College, Wimbledon, and entered Guy's Hospital in 1910. He qualified as L.D.S. of the Royal College of Surgeons in 1913, afterwards acting as dental house-surgeon at Guy's. He had served for five years in the Artists Rifles, entered Sandhurst in May, 1915, was gazetted to the Durham Light Infantry in October, and went to the front last May. There he had served as sniping and intelligence officer, and was acting as adjutant when killed.

Robertson, Norman M'Leod, Lieutenant Flying Corps, son of Dr. Robertson of Hamilton, has been killed in action. Prior to the war he was assistant manager in the Philippine Islands to a firm of East India merchants; he came home in July, 1915, and obtained a commission in the Royal Field Artillery, from which he was transferred to the Royal Flying Corps three months ago.

Wallis, Edward Percy, Captain Royal Sussex Regiment, son of Dr. E. P. Wallis, of East Grinstead, killed on October 18th. He was educated at The Wick, Brighton, at Marlborough, where he was for four years in the O.T.C., and at Clare College, Cambridge. He got his commission in September, 1914, became lieutenant on January 7th, 1915, and captain in September, 1916. He went to the front in July, 1915.

Watt, Robert John, Sergeant South African Infantry, only son of the late Dr. T. M. Watt, of Hovingham, died of wounds on October 18th.

Webb, Cyril Gwynne, Lance-Corporal Royal West Kent Regiment, elder son of Dr. Cholmondeley Webb of Margate, killed October 9th, aged 18.

Williams, S. Mervyn, Second Lieutenant Sherwood Foresters, only son of the late Dr. R. H. Williams of Pembroke Dock, killed October 15th, aged 19. He was educated at Llandovery, Plymouth, and St. George's College, Kingsway, entered Sandhurst in January, 1916, got his commission on August 15th, and went to the front on October 4th.

Wilson, Robert Archibald Scarlyn, Second Lieutenant Seaforth Highlanders, elder son of Dr. Scarlyn Wilson of St. Leonards, killed October 12th. He was educated at Hill House, St. Leonards, and at Lancing College, where he was in the O.T.C., and got his commission in August, 1915.

HONOURS.

THE *London Gazette* of October 26th announces the grant of fifteen Victoria Crosses, two of which are bestowed upon medical officers of the Territorial Forces:

Captain William Barnsley Allen, M.C., M.B., R.A.M.C.

For most conspicuous bravery and devotion to duty. When gun detachments were unloading H.E. ammunition from wagons which had just come up, the enemy suddenly began to shell the battery position. The first shell fell on one of the limbers, exploded the ammunition, and caused several casualties. Captain Allen saw the occurrence, and at once, with utter disregard of danger, ran straight across the open, under heavy shell fire, commenced dressing the wounded, and undoubtedly by his promptness saved many of them from bleeding to death. He was himself hit four times during the first hour by pieces of shell, one of which fractured two of his ribs, but he never even mentioned this at the time, and coolly went on with his work till the last man was dressed and safely removed. He then went over to another battery and attended a wounded officer. It was only when this was done that he returned to his dug-out and reported his own injury.

Captain William Barnsley Allen is the only son of Mr. Percy Allen of Scarborough, formerly of Sheffield, where Captain Allen was born. He was educated at St. Cuthbert's College, Worksop, and at Sheffield University, where he gained a gold medal in 1913, and graduated as M.B. and Ch.B., with second class honours, in 1914. After a few weeks' work at the Sheffield Royal Hospital, he joined the 3rd West Riding Field Ambulance as a lieutenant on August 8th, 1914, a few days after the beginning of the war. On September 26th last he was awarded the Military Cross for acts of gallantry on August 14th and 20th. He is at present at home on leave, recovering from wounds. His name appeared in the list of wounded in the BRITISH MEDICAL JOURNAL of October 14th.

Captain Noel Godfrey Chavasse, M.C., M.B., R.A.M.C.

For most conspicuous bravery and devotion to duty. During an attack he tended the wounded in the open all day, under heavy fire, frequently in view of the enemy. During the ensuing night he searched for wounded on the ground in front of the enemy's lines for four hours. Next day he took one stretcher-bearer to the advanced trenches, and under heavy shell fire carried an urgent case for 500 yards into safety, being wounded in the side by a shell splinter during the journey. The same night he took up a party of twenty volunteers, rescued three wounded men from a shell hole twenty-five yards from the enemy's trench, buried the bodies of two officers, and collected many identity discs, although fired on by bombs and machine guns. Altogether he saved the lives of some twenty badly wounded men, besides the ordinary cases which passed through his hands. His courage and self-sacrifice were beyond praise.

Captain Noel Godfrey Chavasse is a son of the Bishop of Liverpool, and a well known athlete, having represented Oxford against Cambridge in the university sports in 1907 and 1908. In the former year he ran a dead heat with K. G. Macleod in the hundred yards race. He graduated as M.A., M.B., and B.Ch. at Oxford in 1912, also taking the M.R.C.S. and L.R.C.P.Lond. in the same year. He was resident medical officer at the Royal Southern Hospital, Liverpool, before the war. He joined the 10th (Scottish Territorial) battalion of the King's Liverpool Regiment as lieutenant and medical officer on June 2nd, 1913, and was wounded a little over two months ago (BRITISH MEDICAL JOURNAL, August 26th). On January 14th last he received the Military Cross.

Flight Lieutenant Colin Roy Mackenzie, R.N.A.S., second son of Dr. and Mrs. Mackenzie, of Bath, was last week awarded the D.S.O. in recognition of his skill and gallantry in destroying a German kite balloon on September 7th under a very severe anti-aircraft fire. It was a large captive balloon on the coast, and was protected by numerous anti aircraft guns. Travelling at a height of over 13,000 feet, Mr. Mackenzie dived to about 1,500 feet above the balloon, and brought it down a burning wreck. For this exploit, and for accomplishing other dangerous missions for the French, he has also received the Croix de Guerre.

GERMAN PRISONERS' CAMPS.

The King has been pleased to award the Distinguished Conduct Medal to the following non-commissioned officers and men of No. 22nd Field Ambulance, R.A.M.C., in recognition of great devotion to duty and eminent services rendered by them when prisoners of war, during epidemics of cholera and typhus fever at the prisoners of war camps in Gottingen and Ohrdruf respectively: No. 12402 Staff Sgt. T. E. Rendell, No. 170 Actg. Cpl. D. M. Newall, No. 4686 Pte. A. Hazell, No. 8482 Pte. H. Blackman, No. 8663 Pte. J. Canty, No. 2372 Pte. J. I. Robertson.

NOTES.

FEDERATED MALAY STATES HOSPITAL.

THE military hospital maintained at Blackmore End, Kimpton (Herts), by public subscriptions from the Federated Malay States for sick and wounded soldiers has been enlarged by the addition of a new ward containing forty-four beds. This brings the total number of beds available to over 200. A large recreation room is in course of construction. The hospital is under the charge of Captain G. D. Freer, R.A.M.C.(T.), formerly Principal Medical Officer, Selangor, F.M.S. Miss Willis, late of the Royal Free Hospital, is matron.

Ireland.

CLASSES of instruction in child hygiene, directed by a doctor assisted by experienced lecturers, are being organized by the Women's National Health Association, under the Department of Agriculture and Technical Instruction. While the syllabus has apparently been drafted with a view to the training of the volunteers working under approved child welfare schemes, the course should also be useful to the nurse.

The Irvingstown guardians, by eighteen votes to five, have decided to close their workhouse and hospital, and board out the paupers and patients. The saving, after paying full superannuation, is estimated at over £1,000 a year, and it is thought that there would be no poor rate after the amalgamation, the agricultural grant more than covering the cost of the union.

OPENING OF THE WINTER SESSION IN BELFAST.

The winter session was opened in the large hall of the King Edward VII Memorial Buildings of the Royal Victoria Hospital, Belfast, on October 19th, by an address from Professor James A. Lindsay. Sir John W. Byers, chairman of the medical staff, occupied the chair, and there was a large attendance of the medical and surgical staff and of students. Dr. Lindsay welcomed the students to the wards, and observed that the nation was calling for doctors in greater and greater numbers. He emphasized the importance of observation, of hope, of clearness of thought, of steady work in the wards; and drew apt illustrations from the words and deeds of many great men. If students early realized that they were treating not an imaginary entity called "disease" but diseased human beings they would make the better medical men, as their knowledge of human nature and their sympathies would be broader and deeper. When a man came to the end of his working days there was no reward comparable to being able to look back upon a life well spent in the service of his fellow men, and the medical profession offered this opportunity to all who entered it.

Sir John Byers, in thanking Professor Lindsay, on behalf of the staff and students, for his admirable address, said that the Belfast school had endeavoured to do its duty. Of past students who had been traced 180 were on military service, 8 had been killed or died in service, 18 had been mentioned in dispatches, 9 had received the Military Cross, 2 the D.S.O., 1 the C.M.G., 1 the C.B., and 1 the V.C. If more were called for, those at home would do their best to discharge the increased duties laid upon them.

WAR HOSPITAL SUPPLIES.

That the Irish War Hospital Supply Dépôt is doing good work is shown by the demands for its products. One order from Salonica alone—"500 of everything, and how soon can you repeat it?"—swallowed up three months' work at a gulp. Demands are now so pressing that the output will have to be tripled. The dépôt was started in December, 1915, and is affiliated with the joint British, Red Cross, and St. John Dépôt. The head quarters are in Dublin, and there are already more than sixty subdépôts in various parts of Ireland. Practically every penny subscribed goes to purchase raw material, while the articles made are those called for by medical officers. There are four main sections of the work in Dublin—the making of bandages, pneumonia jackets, "treasure bags," slings, cushions, pads, carbolic shirts, etc.; the making of sphagnum moss dressings, the construction of wooden splints, bed rests and so on; and the making of metal splints and other surgical appliances. Nearly two hundred ladies attend at the Dublin central dépôt daily. At the top of the house is the storeroom. Next to this is the room where the garments and other articles are cut out; other rooms are used for sewing these garments, rolling bandages, and making various articles, such as gloves for wrist-drop. From the various departments the completed articles go to the ground floor, where they are put into packages and done up in bales; all this work is done by women. The

house is also a clearing dépôt for articles made in other parts of the city and at the subdépôts in the country.

The work of preparing sphagnum moss dressings is carried on by women in the Royal College of Science. From thirty-four subdépôts in various parts of Ireland come consignments of moss, picked by voluntary helpers, some of them school children. The moss is divided into two qualities, picked to rid it of foreign matter, and then sewn up into packets of different sizes. The wooden cases for dispatch are made by the College Men's V.A.D. Other dressings and bandages are also prepared, and more than half a million swabs, bandages, and dressings have already been made.

Wood-working is done both during the day and evening in the stables of the central dépôt, and here splints, crutches, bed rests, and tables. Many of the tools have been lent by the Department of Agriculture, and the timber and building trade firms have been most generous. Yet another model factory on a small scale is to be found in a doctor's workshop where the metal surgical appliances are constructed. The output from this workshop is already valued at more than £200. Nearly half the material turned into splints is metal that is the waste of the sheet metal trade and damaged wings, panels, and mudguards of motor cars, old baths, carbide drums, and galvanized tanks. A notable feature of the men's work is that some of it is done by men who have been engaged all day earning their living at metal or wood-working trades, which argues considerable self-sacrifice. More practical workmen are needed, but some of the work is within the capacity of those who have some acquaintance with the use of tools and a ready intelligence to grasp the processes going on in the workshop.

Scotland.

A dairyman was convicted at the Midlothian Petty Sessions on October 24th for failing to notify the police before disposal of the carcasses of two cows which had died on his dairy premises. Both were taken to the Dalkeith slaughter-house, where they were condemned, and it was declared that one of the animals had died of anthrax. A fine of £5 was imposed.

At a meeting of the Lothians Branch of the National Herb-growing Association it was stated that it now had 2,000 members, and although originally started for the purpose of collecting medicinal plants it was prepared to extend its work to the gathering of other herbs, should it be shown that there was sufficient demand. The main difficulty is the problem of drying; a drying shed is to be erected in London, but it is hoped that similar sheds will be erected in other centres. Mr. Guyer pointed out that the work should be done systematically and methodically, and suggested that school children, properly trained and supervised and paid, might be employed in it.

In the report presented by Dr. Maxwell Williamson, M.O.H. to the Public Health Committee of the Edinburgh Town Council, he states that since the outbreak of war the Public Health Department has co-operated with the military authorities in examining billets, in seeing to sanitary arrangements, and looking after men who had returned to Edinburgh on leave suffering from or convalescent from some infectious disorder. The number of soldiers admitted to the City Hospital suffering from infectious disorder was 1,040, and of sailors 60. Most of the cases were scarlet fever or diphtheria. After removal of the patient the house, as well as his personal kit and bedding, were disinfected, and 1,347 wards, rooms, and huts had been so dealt with. In addition, 1,683 disinfecting baths had been given, the clothing being disinfected and cleaned at the same time.

Manual Curative Workshops.

King Manoel of Portugal visited Aberdeen on October 29th, and inspected the Oldmill Military Hospital, particularly the orthopaedic department, which is under the charge of Dr. Chalmers. His Majesty was accompanied by Colonel Robert Jones, of Liverpool. After the inspection Colonel Jones said 70 or 80 per cent. of the casualties which had occurred in this war required orthopaedic treatment, and it was necessary therefore to have some scheme whereby they could have every facility that modern methods could provide. In all parts of the country the idea of the institution of orthopaedic centres had met with a real welcome. He did not think any one would ever know how much this scheme owed to the foresight and constant attention of King Manoel. The King then said he had been appointed by the Red Cross Society to be their representative in regard to orthopaedic work, and he had been working for many months in co-operation with Colonel Jones. The question of manual curative workshops was easy to settle because the only difficulty was to establish them at the places where they were needed, for the Red Cross was willing to instal them and to give the money required to put them at work. If the War Office promised to maintain them, the Red Cross would supply the different hospitals with workshops. It would be an enormous advantage to men discharged from the army or those who went back to active service if in the different places—and he spoke specially of Aberdeen—they could find people ready to give help. At the London Military Orthopaedic Hospital, Shepherd's Bush, although the workshops were not completely installed, more than 300 men were being instructed, and even better results were being obtained, both from the moral and the physical point of view, than had been expected. King Manoel afterwards visited Glasgow and Edinburgh on the same mission.

England and Wales.

Treatment and Training of Disabled Men.

Major Robert Mitchell, director of education at the Polytechnic, Regent Street, and honorary director of technical studies at Queen Mary's Hospital, Roehampton, read a paper on the problem of the disabled soldier at the London School of Economics on November 1st. He declared that the State must take immediate steps, and read a letter from Sir Alfred Keogh as follows:

> You are quite at liberty to say that the Secretary of State for War has relegated to me the problem with which you are dealing in your paper. Next, as president of the Association of Technical Institutions, I know that these institutions can be charged with the training and that, indeed, nothing can replace them. Furthermore, since training and treatment must go on together, this postulates a necessity for unification of the authorities of the technical institutions and of the local hospitals to produce an efficient working system. Since, too, as you have pointed out, the problem varies with the locality, each such combination should work out its own local problem in its own way. Thus a combination of doctors, trainers, employers, employees, and municipal or civic authorities is the first step to be taken, and the sooner that is done on their own initiative the better, so as to be ready when a few details, now awaiting the decision of the Secretary of State for War, are settled.

The disabled man, Major Mitchell said, would need medical advice as to the vocation most suitable for him. When a man had selected a course of training it should not be left to him to decide whether he still needed medical assistance. He should be required to report regularly to his medical officer. No disabled man should be discharged from the army or navy until he was again ready to take his place as a productive unit in the economic system, and in this connexion the claims of young officers who had often given up responsible positions should not be overlooked. They should be helped to qualify as administrators, directors of commerce, and managers of estates. Training and medical committees, working in conjunction with the local authorities and hospitals and technical institutions, should be formed without delay. To these committees should be delegated the power of military control over the men during their training, and the men should be selected and classified for various courses of training by them. The cost of maintenance and training should be borne by the State, and should be regulated by responsible officials appointed by the Secretary of State for War.

The Prince of Wales's Welsh Hospital for Maimed Soldiers.

The Prince of Wales has become the patron of the hospital for maimed soldiers just established at Cardiff, and it will be known by his name. The trust deeds were formally handed over last week, and were received by Commander

Lord Tredegar, R.N.V.R., on behalf of Wales and Monmouthshire. The presentation was made by Mr. J. P. Cadogan on behalf of the donors, and through the generosity of members of the Howell family, who owned the original house, in giving some adjoining property, and of Lord Tredegar in giving the freehold, the site and the buildings on it will come into the possession of the trustees free from all encumbrances. A vote of thanks to Colonel Robert Jones and Colonel Lynn Thomas for the great interest they had taken in the founding of the institution was moved by the Principal of the University College for South Wales and Monmouthshire, and duly acknowledged. Mrs. Gwynne Holford, honorary secretary of the Queen Mary Hospital for Limbless Soldiers and Sailors at Roehampton, also spoke, wishing the Welsh Hospital every success.

NEWCASTLE SCHEME OF MEDICAL REFEREES.

The annual meeting of the referees appointed by the Newcastle-on-Tyne Panel Committee was held on September 28th, and a report was presented by the Secretary (who is the clerk of the Insurance Committee) as to the first year's working of the scheme. The referees meet at the office of the Insurance Committee and patients are examined there, patients living in one area of the district being examined by a referee practising in another area. Any panel practitioner, on filling up forms provided for the purpose, may have any of his patients examined and any approved society on paying a fee of 10s. 6d. may also send any of its members for examination, all fees thus received being put into a separate account and distributed at the end of the year amongst the referees. Practitioners or societies receive a report of the referees as to patients sent by them. The report of the first year's working of the scheme states that copies of the scheme were sent to all the panel practitioners and approved societies having members in the city, but it appeared that the larger societies had already made their own arrangements for referees. The Panel Committee provided a urine testing outfit and a practitioner in the city gave a screen and couch. The Insurance Commissioners have asked for information as to the working of the scheme but intimated to the Insurance Committee that no part of the expenses incurred could be borne by that Committee. When females had to be examined it was arranged that a nurse from the tuberculosis dispensary should be present. During the year seven doctors submitted altogether 41 patients, of whom 13 were reported as fit to resume work, 2 fit for light work, 9 unfit for work, 1 too ill to appear, 11 did not appear, and 5 were not asked to appear. In addition four approved societies submitted cases to the total number of 5, of whom 3 were reported as unable to work, 1 was too ill to appear, and 1 was at a convalescent home. The total fees received from societies amounted to £1 11s. 6d., and regret is expressed in the report that more cases have not been submitted by societies. It was resolved to recommend that the scheme be continued for another year.

Correspondence.

MERALGIA PARAESTHETICA.

SIR,—Having read Dr. Rutherfurd's paper (BRITISH MEDICAL JOURNAL, October 28th, 1916, pp. 583–4) with much interest, permit me to add a few further observations on this little known condition.

It was first described by Dr. M. Bernhardt (*Neurologische Centralblatt*, Leipzig, 1895, pp. 242–4) in 1895, and is hence often known as "Bernhardt's disease." According to Sharkey (*Injuries of Nerves and Their Treatment*, 1908, pp. 289–90) "it is most common in males, and usually arises as the result of injury," though of the three cases I have met with, in none was there a history of injury, and two were in females.

The first occurred in a girl 10½ years old, and was bilateral. The pain was worse when she lay down, and kept her awake at night. There was loss of epicritic and protopathic sensation over the area of skin supplied by each external cutaneous nerve. (Is not Dr. Rutherfurd in error when he states the protopathic sensibility is not affected?)

The second case was in a woman of 25. In her also the condition was bilateral, but was worse on one side than the other; the pain which came on during walking was described as excruciating, and was only relieved by sitting down. The third case was my own, and I can fully corroborate Dr. Rutherfurd's description of the pain, "As though an invisible hand had grasped the thigh and were screwing round a handful of the flesh." The only treatment I have found of any avail is rest and warm clothing. —I am, etc.,

London, W., Oct. 30th. PAUL BERNARD ROTH.

SIR,—Cases like Captain Rutherfurd's meralgia paraesthetica (BRITISH MEDICAL JOURNAL, October 28th, p. 583) are much more common in this neurotic age than formerly. It is difficult to assess the neurotic factor with nerve pains. One will run about and work with an occipital neuralgia and other neuralgias, while another will lie down and expect instant death!—I am, etc.,

London, W.C., Oct. 31st. J. REID.

THE COST OF FOOD.

SIR,—One remedy, where possible, for the present high price of bread is home baking. The *Modern Home Cookery Book* says:

> On the whole it will be found far cheaper and better for health, when possible, to bake at home. The saving in the bread bill is enormous, and the gain in health is also great.

Miss May Byron in her *How to Save Cookery* says:

> The making of home-made bread, from the wholesome nourishment point of view, is the chief economy one can possibly effect. Home-made bread is the best foundation for health—not to mention comfort; and there is no mystery nor difficulty about it as lots of people seem to think.

Three pounds of flour costing 8d. makes a 4 lb. loaf costing 9½d., but there are other advantages—(1) you know what the bread is made of, (2) there is no question of short weight, (3) being less handled the bread is cleaner.

No doubt it is cheaper to manufacture by machinery on a large scale, but it is the object of trade combines to see that the consumer does not get the benefit of this. The consumers' combine is the State, and if we have State public-houses, we might also have State bakeries and dairies; good bread and pure milk are as important as good beer and pure whisky. The State might also control the distribution of wheat; but the fixing of maximum prices would not seem to be of use. Such a law was passed in France in May, 1793; but in spite of an excellent harvest, prices rose to famine height, and throughout the bitter winter nights great queues of shivering citizens huddled in front of the bakers' shops in the hope of securing in the morning a miserable pittance of bad bread. The next year the law was repealed.

A man is said to be at his best on a daily diet containing 4¼ oz. of proteins, 3½ oz. of fats, and 11½ oz. of carbohydrates (sugars and starches); more than this is waste of food, less loss of efficiency: 2 lb. 14 oz. of bread will give the right amount of proteins, but there will only be ¼ oz. of fats and 13 oz. too much of carbohydrates. If, however, we take 2 lb. 2 oz. only of bread, 5 oz. of cheese, and 1½ oz. of butter, we shall get the proteins and fats just right and the carbohydrates only 4½ oz. too much. By the aid of Miss Margaret McKillop's excellent little book on food values, recently reviewed,[1] any one can draw up dietaries. Take, for example, a proprietary school, with eighteen children averaging 12 years of age and a resident staff of four women; together they would correspond to fourteen men, and would require each week 25 lb. of proteins, 21 lb. of fats, and 70 lb. of carbohydrates. These may be obtained in many ways, amongst others the following:

Bread, 50 lb.	Potatoes, 20 lb.
Flour, 10 lb.	Green vegetables, 10 lb.
Oatmeal, 12 lb.	Herrings, 4 lb.
Meat, 40 lb.	Other fish, 6 lb.
Milk, 32 quarts.	Cheese, 4½ lb.
Eggs, 2 doz.	Butter, 5 lb.
100 bananas.	Cocoa, 6 lb.
Haricot beans, 4 lb.	Sugar, 4 lb.
Peas, 12 lb.	

One must think twice before saying food values are of no concern to a practical house-keeper. Mr. E. O. Wathen

[1] *Food Values: What they are and how to Calculate them.* London: Routledge and Sons, Ltd. (Price 1s.) Reviewed in BRITISH MEDICAL JOURNAL, August 5th, 1916.

has written a small handbook on poultry keeping called *Winter Eggs;* there is a preface by the Principal of the Royal Agricultural College, Cirencester, which says the book is a thoroughly practical guide. Now, this book contains a great deal about balanced diets, and how to work them out; it would not be right that children should be less wisely fed than chickens.

It will be agreed that it is the province of the housekeeper to see that the meals are suitably composed, skilfully cooked, and invitingly served.

The cost of dietary is not calculated, partly because a great deal of the food would come from the garden, which every school should have; even at Dotheboys Hall there was a garden. The solution of the ventilation problem lies not in cubic feet or electric fans but in open-air life. If goats are not kept, cow's milk will have to be bought; in that case to kill any tubercle bacilli present it should be heated to 140° F. and kept at that temperature for twenty minutes; this will not injure the milk, nor, unfortunately, spore-bearing microbes.—I am, etc.,

London, W. J. S.

THE CLERGY AS HEALTH MISSIONARIES.

SIR,—I feel that I must take some exception to your statement that the clergy, as a body, do not display much interest in health problems.

In the city of Durham, where there is much slum property, the Dean and Chapter paid a good sum for an inspection of the slum property of the town by an expert. The report he drew up was presented to the corporation, who ignored it for many years.

The late Canon Body worked hard amongst all classes in the city and county of Durham when small-pox was rife. He also threw himself into every movement for the improvement of the conditions of the working classes, and was president of a Citizens' League, which provided a lady health visitor, years before the Durham Corporation would undertake such work. The Archdeacon of Durham has always interested himself in social matters, especially in the need of better houses for the working classes. It is only a few years ago that a very long and comprehensive report on the housing question was brought before the Durham Diocesan Conference, when Canon Moore Ede (now Dean of Worcester) was an energetic member of that body.

The late Bishop Tucker of Uganda, when a curate in Durham city, knew much of its slums. Coming back to Durham as a canon, he threw himself into every movement for doing some good to the slum property, and was president for a few years of the Citizens' League. Canon Cruikshank succeeded Bishop Tucker as president of the league, and he had done much good in securing better dwellings for the working classes in the city of Winchester before coming to Durham. I think that Canon Carnegie can know nothing of the work done in the county of Durham, or he would not have condemned the clergy in the manner stated.—I am, etc.,

Ruislip, Oct. 29th. EDWARD JEPSON, M.D.

SOLDIERS AND VENEREAL DISEASES.

SIR,—During the past two years the Liverpool Medical Institution has distributed over 160,000 copies of pamphlets especially written in plain non-technical language for soldiers, warning them of the dangers and disabilities incurred by contracting these avoidable diseases. The army authorities in Egypt have reprinted the tract for their own use. We desire to enlist your support by the insertion of this letter, and invite inquiries for specimen copies from commanding officers, medical officers, chaplains, social workers, and others interested in our soldiers, addressed to the Librarian, The Medical Institution, Liverpool.—I am, etc.,

CHARLES J. MACALISTER,
November 1st. President.

THE young farmer who shot Dr. Glyn Jones of Llansawel has been found guilty of murder but insane.

DR. THOMAS BUXTON, of Fazeley, Tamworth, left estate valued at £24,173. Subject to several life interests, the whole property is left in trust for the building, endowing, and furnishing of a block of buildings to be known as "Buxton's Homes of Rest."

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE number of medical students who have entered Cambridge this year is 25, showing a further falling off from the 41 who entered in 1915, the 64 in 1914, and the 116 in 1913.

UNIVERSITY OF EDINBURGH.

GENERAL COUNCIL.

SIR J. ALFRED EWING, the Vice-Chancellor, presided at the statutory half-yearly meeting of the General Council of the University on October 27th. Mr. J. B. Clark conveyed to the Vice-Chancellor the Council's hearty congratulations on his appointment as Principal, and Sir J. Alfred Ewing, in his reply, took occasion to refer to the University Court, the Senatus, and the General Council as the Three Estates of the University realm, the Council, or Third Estate, being in a sense the most democratic and certainly the most comprehensive.

Among the matters of general interest in the report of the Business Committee was an allusion to the death of the Lord Rector (Lord Kitchener) and to that of the Rev. Canon Hoernlé, M.B., for more than eighteen years a member of the Business Committee; to the Roll of Honour, from which it appeared that over 5,000 men were now serving King and country and 250 had given their lives *pro patria;* to the number of matriculated students (1,811 for 1915–16), which showed the reduction due to the war; to the admission of women to the medical classes, it being stated that, up to October 16th, 176 women had matriculated; to the action which had been taken regarding the Preliminary Examination Ordinance; and to the Ordinance for the degree of Bachelor of Education, the University of Edinburgh being the second British university to institute such a degree. There were two other matters of special medical interest. One was the institution of the Lauder Brunton Prize in Pharmacology and Therapeutics open to senior students of medicine and to graduates of medicine of not more than five years' standing. The other was the presentation of the report of the Business Committee anent the foundation of a chair of tuberculosis in the University, and the draft Ordinance framed by the University Court in connexion therewith. The Council approved the action of the Business Committee and accepted the report.

It was stated in reply to inquiries that the question of the age limit for principal and professors was still being considered by the Senatus and would be by the Business Committee. Committees were also appointed to consider the question of providing a chapel for the University, and to report on the development of the University after the war in respect of finance, research, new degrees, training in social service, relation to the allies (exchange of students and professors), etc.

On the recommendation of the Senatus, it was resolved that the suspension of class prizes other than those specially endowed should be continued during 1916–17.

UNIVERSITY OF GLASGOW.

GENERAL COUNCIL.

AT its half-yearly meeting the General Council approved the report of the Joint Committee on the ordinance relative to the foundation of a Chair of Ophthalmology, endowed by a sum of £25,000 bequeathed by Dr. Gavin Paterson Tennent for this purpose. The Vice-Chancellor, Sir Donald MacAlister, said that the benefaction, which to the Western Infirmary and the university amounted with accumulations to nearly £40,000, was designed by the trustees of the university for post-graduate teaching, not for under-graduate teaching, it being recognized that to make an ophthalmic surgeon special study was required after the ordinary medical degree had been taken. If the scheme came to fruition Glasgow would have the opportunity of creating a special school of ophthalmology for practitioners who proposed to become specialists. To accomplish this it would be necessary to have a head, a man of high distinction, and a laboratory, and also to utilize all facilities for clinical study, not only in the Western Infirmary but in all the infirmaries in Glasgow. It would be necessary also to have teachers of subsidiary subjects, and the fund would be able to provide salaries for them, since the amount it would yield would be double that proposed for the professor's salary. In reply to Dr. Leask, he said that a diploma in ophthalmology might well be established later.

At the same meeting a report from the Business Committee was received, expressing general approval of the ordinance for a degree of Bachelor of Education, but suggesting certain modifications.

The same committee reported that the number of graduates and members of the university serving in the military forces of the Crown was 2,806, of whom 1,359 were graduates; 2,243 were commissioned officers, and the honours gained included 13 D.S.O.'s, of which 12 were awarded to members of medical units, and 38 Military Crosses. The losses had unfortunately been heavy—247 killed, 294 wounded, 12 missing, and 4 prisoners of war. Of the women graduates, no fewer than 684 were registered as willing to undertake war work; all save 30 had been employed, and the demand continued.

NATIONAL UNIVERSITY OF IRELAND.

THE following degrees were conferred on October 16th:

M.B., B.Ch., B.A.O.—*T. J. X. Canton, †R. A. Keane, †M. Cooney, M. J. Burns, V. C. Ellis, B. Lagan, J. MacDermott, P. Magner, P. D. Murphy, J. J. O'Brien, J. A. O'Tierney, T. J. Richardson, A. P. Spelman, Teresa J. Walsh.

M.Ch.—H. L. Barniville.

* Passed with first class honours.
† Passed with second class honours.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on October 26th, when Dr. Frederick Taylor, the President, was in the chair.

Admission of Members.

The following candidates, having passed the required examination, were admitted Members of the College; Edgar Douglas Adrian, M.B.Camb., James Froude Flashman, M.D. Sydney, and Charles Putnam Symonds, L.R.C.P.

Licences.

Licences to practise physic were granted to eighty-nine candidates who had passed the necessary examinations.

Resignation and Election of Censor.

A letter was received from Dr. Pasteur resigning the office of Censor, as he was about to proceed to France on military service. Dr. Sidney Phillips was elected Censor.

Venereal Diseases.

The following resolutions were passed:

(*a*) That in the opinion of this College administrative measures for the diagnosis and treatment of venereal diseases will only attain their maximum effectiveness in protecting the public health when the treatment of such diseases by unqualified persons is prevented by law.

(*b*) That it is desirable that the recommendations (No. III) of the Patent Medicines Committee of the House of Commons, endorsed by the Royal Commission on Venereal Diseases, should at once be carried into effect.

(*c*) That a copy of the above resolutions be sent to the Prime Minister, to the Home Secretary, and to the President of the Local Government Board.

Anniversary of the College.

The President drew the attention of the College to the fact that the 400th anniversary of the foundation of the College will occur in 1918.

Reports.

A report dated October 3rd was received from the Committee of Management, which announced (1) that the Grammar School, Ilkley, had been added to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics; (2) that the University of Allahabad had been added to the list of universities recognized by the Examining Board in England, and that graduates in medicine of the university be admissible to the Final Examination of the Board under the conditions of Paragraph IV, Section III, of the Regulations.

UNIVERSITY OF LONDON.

A CORRECTION.

IN the paragraph announcing the award of Entrance Scholarships to the London Hospital Medical College (JOURNAL, October 28th, p. 607), an unfortunate error occurred. The "Price" Science Scholarship awarded to Mr. R. A. Madgwick was of the value of £100, not £50 as printed.

Public Health AND POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this association was held at the offices, 9, Copthall Avenue, E.C., on October 20th, when Dr. Napper was in the chair.

The Honorary Secretary reported that a provincial member who held a commission in a Territorial regiment had complained that the War Office proposed to deduct from his military pay the salary he was receiving as workhouse medical officer because his infirmary had been taken over by the military authorities although he was still attending to certain "scattered homes," attendance on which formed part of the duties for which the said salary was paid. The Honorary Secretary had brought the matter before the Central Medical War Committee, and was happy to report that the War Office had decided to permit this member the full benefit of his Poor Law salary.

From communications received with regard to the dispute between the local profession and the Burnley Guardians it appeared that Dr. Campbell, who had been working for the guardians, was about to be called up for military service. The local profession had expressed its willingness to arrange that Dr. Campbell's duties should be carried out provided the guardians reinstated the old district medical officers and public vaccinators, and had undertaken that one half of all the emoluments were to be paid to Dr. Campbell according to the Burnley war scheme, the arrangement to continue for the duration of the war. It was thought probable that the guardians would accept the arrangement.

In reply to his inquiry a medical superintendent of a large provincial infirmary had been informed that the Poor Law orders did not provide for a holiday, but that sick leave could be claimed if necessary. He had also been informed that he could not claim extra remuneration for soldiers admitted to the infirmary in the place of sick paupers, but that he had the right of appeal to the Local Government Board as to the propriety of their admission.

A case was considered in which a Poor Law medical officer who had been called up for war service had been refused superannuation or even the return of his contributions. The Honorary Secretary had pointed out that the length of time for which he had held office did not entitle to superannuation, but that the guardians had power to return his contributions. While approving this advice the council expressed the opinion that it was a hardship that resignations in such circumstances should be regarded as voluntary, since a Poor Law medical officer was practically compelled to resign in order to serve his country.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C., over eighteen months' foreign service, now in charge of corps troops, desires exchange with M.O. on home station. London or home county hospital preferred. Address No. 4199, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O., Cyclist, Field Ambulance in Kent, desires exchange (base hospital England or France, or R.M.O. France).—Address No. 4350, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

DR. H. V. HICKMAN died on October 16th, aged 54, at his residence in Wanstead, Essex, where he had practised for twenty-five years. He was educated at the City of London School and at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. in 1890, and the degree of M.B. Lond. in 1891. At Guy's he held the appointments of house-physician and obstetric resident and was subsequently ophthalmic assistant for two years. He represented his hospital at many cup-ties in the three-quarter line and held the second for the mile at the inter-hospital sports. He was a member of the British Medical Association and had held the office of chairman of the Walthamstow Division. At the time of his death he was anaesthetist to the Walthamstow Hospital and medical officer to the 5th Battalion Essex (Volunteer) Regiment, in the work of which he took the warmest interest. A man of fearless honesty and intense kindness of heart his death is a very keen sorrow to his colleagues and patients.

WE regret to announce the death of Dr. JOHN THOMAS KNOWLES-JONES which occurred at Bournemouth on October 25th. He was for many years in active practice in Brixton and was much respected by all who came in contact with him. He received his medical education at Guy's Hospital, where he was an obstetric assistant. He took the diplomas of M.R.C.S. and L.S.A. in 1868 and that of M.R.C.P.Irel. in 1899; he graduated M.D.Durh. in 1893. Before settling in Brixton he for some years helped his father in his native town of Llanfyllin, Montgomeryshire. He was senior surgeon to the Brixton Dispensary. He retired from private practice some years ago and spent much time in foreign travel. He continued, however, to take an active interest in his profession and was well versed in the topics of the day. He had recently gone to reside at Bournemouth. He was a staunch Unionist in politics, a keen sportsman, a genial companion, and had a happy power of making friends. As a Welshman he was true to the Principality, as evidenced by his activities in many ways, especially in the Cymmrodorion Society and as one of the governors of the Ashford Schools. He was twice married and leaves a widow. His only son, Dr. Orford Jones, died some years ago in New Zealand.

THE death is announced of Dr. JAMES DUNBAR-BRUNTON, well known in the sporting world for his work *Big Game Hunting in Central Africa* and his *Sportsman's Guide to N.E. Rhodesia*. He was the son of the late Mr. John

Stenhouse Brunton, of Ladhope and Hiltonshill, Roxburghshire, and a nephew of the late Sir Lauder Brunton, Bt. He was educated at the University of Edinburgh, where he took the degrees of M.B., C.M. in 1889 and of M.D. in 1910. After practising in England for a few years Dr. Dunbar-Brunton was sent by the Government to N.E. Rhodesia, where he was appointed district surgeon. It was in Africa that he investigated sleeping sickness and became famed as a big game hunter. In 1912 he set up in practice in Heliopolis, near Cairo, and a few months ago went to France to undertake duties at a base hospital. Unfortunately he was stricken with illness and died in the Lariboisière Hospital, Paris, on September 24th, leaving a widow and one son.

Dr. Emile Lagrange, who died at Leeds on October 4th at the age of 92, had for the last two years of his life been an honoured guest of the St. Chad's Belgian Refugees' Committee. He came of an old Flemish family, and was born at Ypres in 1824. After taking his doctor's degree at Louvain he practised his profession in his native city till the German invasion compelled him to leave. He was on the staff of the Ypres hospital for fifty years, and for his public services during an outbreak of cholera he received the Croix Civique; later the knighthood of the Order of Leopold was conferred upon him. During his long life he has been able to watch the whole course of the development of modern Belgium, and as his faculties remained unimpaired till the end his conversation was most interesting. Dr. Lagrange was an enthusiastic botanist, and he cheered the days of his exile by studying the wild flowers in the neighbourhood of Leeds which were brought to him by his English friends.

Dr. Louis Verrey of Lausanne, one of the leading ophthalmologists of Switzerland, who died some time ago, was born at Melun in 1854, and received his preliminary education at Lausanne. He studied medicine first at Erlangen and afterwards at Leipzig, where he took his doctor's degree in 1877. He obtained the federal diploma at Basel in 1879, and studied in London for eighteen months, being admitted a member of the Royal College of Surgeons. On his return to Switzerland he practised for two years at Lausanne, where he was assistant in the Asylum for the Blind. Deciding to devote himself to ophthalmology, he worked under Frederic Homer at Zürich, and then returned to Lausanne, where he got an appointment on the staff of the hospital for diseases of the eye. He qualified as *privat-docent* in 1892, established a clinic, and gained a large private practice, not confined to Lausanne, but extending to Vevey, Yverdon, Fribourg, Vallorbe, Pontarlier, Dôle, and Valence. Such hours as he could snatch from his professional labours he devoted to social and philanthropic work and to music. He was the author of numerous writings on subjects within his special province of practice.

Deputy Surgeon-General Charles Robertson, M.D., Madras Medical Service (retired), died at Bridge of Allan, Stirling County, on September 13th, aged 83. He was born on April 16th, 1833, entered the I.M.S. as assistant surgeon on August 4th, 1856, became surgeon on August 4th, 1868, surgeon-major on July 1st, 1873, and brigade surgeon on August 5th, 1884, retiring with a step of honorary rank on December 31st, 1885. He served in the Persian war of 1857, and also in the Indian Mutiny, when he took part in the advance on Allahabad and Cawnpore, the actions of Fatehpur, Pandu Nadi, Cawnpore, Unao, Basiratganj, Manglawar, and the relief of Lucknow, the second defence of Lucknow, the defeat of the Gwalior rebels at Cawnpore, the capture of Lucknow, and the campaign in Oudh.

Dr. Friedrich W. K. von Ilberg, laryngologist to the Kaiser, died in Berlin on July 9th.

Professor Adolf Weil died on July 25th, aged 68. His most famous contribution to medicine were his studies on infectious jaundice, now commonly referred to as Weil's disease.

Medical News.

A statue to Robert Koch was recently unveiled in Berlin. It shows him in his working dress.

The Prime Minister has stated that the number of British civilians killed, drowned, and wounded by the enemy is—Killed or died of wounds or shock, 589; drowned, 3,410; injured, 1,693.

Mr. Gilbert Barling of Birmingham and Dr. W. Pasteur of London are proceeding to the British Expeditionary Force in France in the course of reliefs of consultants.

Dr. William Allan Jamieson, a former president of the Edinburgh College of Physicians, left personal estate in the United Kingdom valued at £25,077.

A discussion on maternity and child welfare will take place at a meeting of the Royal Sanitary Institute at the County Council Chamber, Durham, on Saturday, November 11th, at 11 a.m. It will be opened by Dr. Harold Kerr, M.O.H. Newcastle.

It is stated in the *Journal of the American Medical Association* of October 7th that operations for sterilization have been performed on thirty inmates of the State Home for Feeble-minded, Chippewa Falls, Wisconsin, by Dr. Alfred W. Wilmarth, head of that institution, under the direction of the State Board of Control.

A commission for the treatment and study of infantile paralysis has been formed at Harvard University. The chairman is Dr. Robert Williamson Lovett, Professor of Orthopaedic Surgery, the other members being Dr. M. J. Rosenau, Professor of Preventive Medicine and Hygiene, and Dr. F. W. Peabody, Assistant Professor of Medicine.

The council of Epsom College Royal Medical Foundation invite applications for a "Christie" pension of £45 a year, and for two "France" pensions of £30 each a year. Candidates must be members of the medical profession who are not less than 60 years of age, and whose income does not exceed £60 a year. Further particulars and forms of application can be obtained from the Secretary, at the office of the College, 37, Soho Square, W.

The dearth of medical men in Poland has become so great that their ratio to the rest of the population is as 1 to 40,000. More than half the medical men previously practising in Poland have been called up for military service, and to remedy the resulting deficiency the German authorities have offered various inducements, such as free quarters and bonuses, to medical men willing to settle in the districts where their services are most needed.

In Germany the stringent army regulations against all forms of quackery have drawn piteous protests from unqualified practitioners of every class. Saxony, the happy hunting ground of the nature healer and the "people's physician," has been flooded with protests against the restrictions on the activities of this motley crowd. In a journal devoted to one of these unqualified specialities it is admitted that even among the "unqualified medical experts" there may be swindlers, but that by the wholesale suppression of unqualified practitioners, the general public is bound to suffer, particularly during the war, which is responsible for the present shortage of qualified practitioners.

The council of the Incorporated Society of Trained Masseuses (157, Great Portland Street, London, W.) states that it has no connexion with the new Institute of Massage and Remedial Gymnastics recently formed in Manchester. The council expresses its regret that a new examining body in massage should have been established, and that the endeavour of three medical members of the society's advisory board to arrange a conference in Manchester with the committee of the Manchester Institute failed. The Incorporated Society of Trained Masseuses was founded in 1894, and states that it has the active assistance of medical men and women in conducting its examination. The examination in medical electricity instituted by the society since the outbreak of war is entirely conducted by members of the medical profession, who also take part in the other examinations in massage, remedial exercises, and for teachers' certificates. The written part of all examinations is held at local centres, and for years a practical examination has been held in Dublin, and more recently, in response to demands, in Liverpool and Manchester.

We are informed by the Lord Mayor's Armenian Refugees Fund that Mr. George F. Gracey of Belfast, who has worked in Armenia under the American Mission for many years, was able to organize the retreat of 25,000 unarmed civilians during August from the zone of danger by Lake Van, to a region of safety 150 miles distant, at

Igdiah. During the spring Mr. Gracey had been entrusted by the Russian authorities with the resettlement of the vilayet of Van. The city of that name, which had 80,000 inhabitants, had lost 95 per cent. of its dwellings, and it was while he was engaged in relief work that the Turkish advance to Mush took place. The only available line of retreat was through the Pass of Berki-kala; as this was not guarded by the Russians, Mr. Gracey armed 250 volunteers with rifles, and the pass was seized. The Russians at Van then drew a cordon across the route, and 1,000 refugees were allowed to pass every two hours. The march continued for five days, the average distance covered by the 25,000 refugees, with their 6,000 cattle, being thirty miles a day. The rations were flour and sugar. The final stages of the march lay through waterless plains, but Dr. Maccallum and Mr. Backhouse, acting for the Lord Mayor's Fund, arranged for the refugees to be met with soup, bread, water and fodder. The refugees are being resettled in Alexandropol, Erivan, and other districts, now occupied by the Russians.

THE scheme for perpetuating the memory of Nurse Edith Cavell by the establishment of homes of rest for nurses has made progress since we last referred to it. A large council has been formed, and an appeal—the text of which will be found in our advertisement columns—signed by Lady Haig, Lady Jellicoe, Miss Florence Scott Cavell (sister of Miss Edith Cavell), Viscount French, Lord Beresford, the Hon. Arthur Stanley, M.P., and Sir William R. Robertson, has been made for donations. The object of the institution is stated to be the establishment of a home or homes of temporary rest for practising trained women, nurses, and probationers who are, or have been, employed in civil or military hospitals, or in connexion with war, or in any other capacity, and have become temporarily in need of mental or physical rest. A freehold house has been offered at Coombe Head, near Haslemere, which would deal with the needs of about a hundred nurses. It stands in about three and a half acres of good garden and lawn land, about 700 ft. above sea level. It is estimated that the annual maintenance cost will be £1,000, and for the purpose of supplying a permanent income of that amount, and a sum sufficient to convert the building into a home of rest a sum of £30,000 will be required. The chairman of the council is Sir Richard Temple, Bt., C.B., and the treasurer is Mr. C. C. McLeod. Contributions may be sent to the honorary secretary of the Edith Cavell Homes of Rest for Nurses, 25, Victoria Street, Westminster, S.W. We believe there is room for such an institution as Miss Edith Cavell hoped to establish. The life of a nurse is very exacting, and the circumstances of very many of them are such as make it difficult to take much-needed holidays.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and *Journal* are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Articulate, Westrand, London*; telephone, 2651, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocre, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

W. A. raises a novel and interesting point. Last year he "closed" his practice, "getting a neighbour to look after his interests," and applied for a commission but was rejected. He then took a post as assistant, on the advice of the Central Medical War Committee, and the Revenue authorities claim that he is assessable (1) for two months on his old return and (2) for ten months on his salary as assistant. W. A. claims to deduct his continuing expenses in connexion with his home where his practice was formerly situated, on the ground that they are not expenses in connexion with his present earnings.

*** W. A.'s position as assistant breaks the continuity of his average, and he is assessable on his actual receipts and is not entitled to deduct therefrom his private expenses elsewhere. The position with regard to the "closed" practice is more difficult. Some of our correspondent's remarks suggest that he may, in a sense, still be carrying on that practice through the medium of his neighbour, who has apparently made no profit for W. A. but is looking after his interests. In that event, if W. A. makes an average loss for the three years 1914, 1915, 1916 on that practice, he can set it off against his liability as an assistant. On the other hand, if the ground of claim—that is, that he is still in fact if not in name carrying on a practice—be well founded, he might be liable on an average profit (it all depends on the figures) for twelve months instead of two. On the whole, W. A. may be advised to accept the contention advanced by the Revenue.

LETTERS, NOTES, ETC.

MR. T. A. R. AIYAR, L.R.C.P., L.R.C.S.Edin., L.F.P.and S. Glasg. (Sitiawan, Lower Perak, F.M.S.), writes to state that he has obtained good results in acute pulmonary tuberculosis from the administration by the mouth of two grains of sodium cacodylate thrice a day. Toxic symptoms were not observed in any case.

AGENTS' CHARGES.

LOCUM writes protesting against the demand, which he says is now being made by agents from locumtenents, of 5 per cent. upon the salary received, paid monthly. The agent's fee, he states, used to be a guinea or half a guinea, or at most 2½ per cent. Locum suggests that those who seek posts or who require locumtenents should advertise their wants in the medical journals.

A WARNING.

A CORRESPONDENT who has had an unfortunate experience suggests that it would be well to warn medical practitioners engaging locumtenents to insist upon recent references.

CIGARETTE SMOKING AND IRRITABLE HEART.

DR. PHILIP G. BORROWMAN (Edinburgh) writes that his limited experience leads him to believe that the great majority of young men who suffer from irritable heart have for some months been in the habit of smoking a large number of cigarettes, and that on stopping the habit, or even reducing the number of cigarettes, the symptoms disappear. He suggests that the point is worth investigation by medical officers of military hospitals for heart cases.

TREATMENT OF LARYNGEAL TUBERCULOSIS.

MEDICUS writes: In your issue of September 30th I see that Dr. E. Prest expresses the opinion that my case is "a good example of one of the ways in which tuberculin may do harm." I am no expert, and in my original letter I simply gave my own experience. Perhaps a few additional notes as to after-history and present condition may be of interest. I kept rigid silence for nine months, of which four were spent in Madeira—January to June. No treatment of any kind except open air. At the end of the nine months pain and dysphagia having gone, and objective signs being favourable, I was allowed to use my voice in a whisper. The voice remained a whisper for two years. I then, on the advice of my specialist, saw an expert in voice production. A year previously I had been told that I ought to get back some kind of voice, and that my aphonia was then due in a measure to nervousness and disuse, that if I had a fire in the house and had to shout for assistance I would find my voice. I was doubting Thomas, but I saw the voice expert. Whether it was due to his technique, or hypnotic powers, or both, I know not, but in half a dozen lessons he did give me a voice of sorts which has remained with me since. Only those who have been deprived of voice can know what it means to regain it so as to be able to hold communion once more with the kindly race of men.

GASTRO-ENTERITIS DUE TO BACILLUS AERTRYCKE VEL SUIPESTIFER: A CORRECTION.

DR. J. W. MARTIN (Dumfries) calls attention to an error which occurred in his note under this heading in the JOURNAL of October 28th (p. 608). The case there reported was treated six weeks before—that is, during this autumn—not six months, as printed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Remarks
ON
"PYREXIA" OR "TRENCH FEVER."

Based upon Twelve Months' Experience with a Field Ambulance.

By JOHN MUIR, B.Sc., M.B., Ch.B.Glasg.,
Captain, R.A.M.C.(T.).

Much has yet to be ascertained regarding the nature, cause, and means of spread of the numerous cases of short fever—as yet undefined, therefore unnamed—which have occurred and are occurring, amongst the troops on our Franco-Belgian front. Until more is known about the cause of the disease the question of its nomenclature had better be left in abeyance, but already several names have been applied despite our ignorance regarding many points concerning the disease. This may at first seem a very trivial matter, but a hastily-accepted "label" may seriously prejudice the consideration and study of later cases.

It is unnecessary to go into detailed description of the cases to which I refer, since that has been done recently in a most interesting and valuable contribution to the subject by Captain J. W. McNee and others in the British Medical Journal of February 12th, 1916. In so far as their conclusions are based solely on observation of cases admitted to a casualty clearing station, there will be found later in these notes some criticism of their views and difference from their opinions, since a large percentage of the cases which occur never reach a casualty clearing station.

The object of publishing the present notes is to put on record the special experience gained regarding those cases as seen in a field ambulance, and to register some deductions from the incidence of the disease in a division during twelve months of active service in the north of France.

In the ambulance concerned we have commonly classed the cases as "pyrexia," either unqualified or "of uncertain origin" (P.U.O.). We were quite aware that we thereby laid ourselves open to the charge of the old army days that "to make a diagnosis of pyrexia is a confession of ignorance"; indeed, that is largely why we make it.

The symptoms met with in practically all the cases are precisely those classically grouped as a definition of "pyrexia" from any cause, and nothing more. There is the general feeling of lassitude, headache, pains in back and limbs, flushed face, coated tongue, and, later, free perspiration; there is loss of appetite with constipation, at times very obstinate; pains are commonly most severe behind the eyes and in back of head and neck; the somewhat characteristic "shin pains" generally occur later; there is usually slight congestion of the pharynx, but little or no discomfort from it.

At one time—in August, 1915—a considerable number of cases developed severe urticaria, but this was probably an accidental coincidence. Absence of complications or sequelae other than atonic muscle (heart and other) has been a striking feature throughout.

Thus the symptoms are those of "pyrexia," and so far no other diagnostic, much less pathognomonic, feature has been pointed out.

The diagnosis or "label" is admittedly provisional and has at least the merit of being non-committal.

Before any case is thus classified as "pyrexia" or "P.U.O." careful search must of course be made for other signs or symptoms that may be present. If such are found and still no definite diagnosis be arrived at, the case would rightly be classed as "N.Y.D." (not yet diagnosed), or a provisional diagnosis made and qualified by an interrogation. To class any case as "pyrexia" without any such attempt at definite diagnosis, or in presence of additional signs or symptoms, is quite unjustifiable.

A certain percentage of error is unavoidable and must be allowed for in estimating total number of cases, such errors arising from hurried "labelling" or from the appearance of diagnostic symptoms after the case has left the field ambulance. So far as we have been able to ascertain such percentage of error is a very small one.

In the present notes no deduction is made from the total number of cases, but much stress is laid on the incidence of the cases relative to other factors affecting the troops. The import of the numbers being thus proportional, the deductions drawn are unaffected by a possible percentage error common to the series.

At first, before we became familiar with those cases, the majority came to us labelled "influenza," on account of their superficial similarity to some cases of that heterogeneous group previously met with in civil practice, and commonly, though very loosely, spoken of as "influenza." Some medical officers in charge of units still send in the cases so labelled, and a few advocate retention of the name.

Such nomenclature is, however, worse than "confession of ignorance": it expresses a bald error in diagnosis, for there are marked, if not very obvious, distinctions between these cases and true cases of influenza—a classical entity.

The two principal features differentiating the cases from influenza are (1) the absence of any symptoms of catarrh in the respiratory tract (or elsewhere), and (2)—probably allied to (1)—the absence of all complications such as so commonly follow attacks of influenza. In the early months of 1916 many cases came in with catarrhal symptoms in nasopharynx and bronchi, but those symptoms were, in practically all cases, pre-existent and the "pyrexia" was superimposed—a point to be remembered in considering the etiology of the disease.

In the article already referred to Captain McNee describes "two clinical types of the disease: (*a*) A short fever of about a week's duration, followed frequently after a few days by a short single relapse; (*b*) a longer illness, characterized above all by the number sharpness, and periodicity of the relapses."

Of the latter ("long") type we have, owing to our circumstances, practically no experience. In a very few cases relapses occurred while with the field ambulance or after return to duty, but on this occurring those cases were at once evacuated to a casualty clearing station, so that we had no opportunity to observe them further. Such relapses in cases treated with ordinary care have been extremely rare; although, as noted later, a relapse is readily provoked during several days immediately following the return of the patient's temperature to normal.

On the whole the cases treated to a conclusion in the field ambulance are of shorter total duration than cases of the "short" type as described by McNee. The range of temperature is commonly lower. McNee says "the fever varies in intensity, ranging up to 103° F. or 104° F. in the first day or two." Such a high range of temperature is altogether exceptional in our cases, 102° F. being the maximum in the vast majority of cases and 101° F. in a large proportion.

Both of these differences are probably due to the fact that the cases reach the field ambulance at an earlier stage and are saved the disturbance of the further transport to the casualty clearing station. A field ambulance in ordinary circumstances must maintain its mobility, and the retention or evacuation of a case is decided according to the prospect of an early or delayed recovery and return to duty. In certain circumstances of stress, existing or anticipated, all cases of sickness are evacuated at the earliest opportunity; but when circumstances allow an option, the milder cases likely to recover more quickly are retained with the ambulance, while cases threatening to be of longer duration are evacuated to the casualty clearing station without delay. Conversely, the casualty clearing station, unless in times of stress, will receive few of those milder and shorter cases.

At times, as when the division is in rest, all cases so far as possible are treated to a conclusion in the field ambulance; only specially prolonged cases or cases with serious relapse being evacuated. It is thus evident that experience at a casualty clearing station does not by any means embrace all the cases that occur.

As regards the course of the disease in any given case, much depends upon how soon the patient comes under treatment—that is, how soon he is admitted to a place where he can rest in comparative comfort. The longer a man is going about after his temperature has risen above 99° F. the longer will be the duration of his fever after treatment begins; and any disturbance during the early

days of his illness, or within the first few days after his temperature has become normal, will cause marked exacerbation or relapse of his temperature and accompanying symptoms.

This feature, common in a degree to most illnesses, is strikingly marked in this disease, and should be remembered when considering later the factor of fatigue in relation to the incidence.

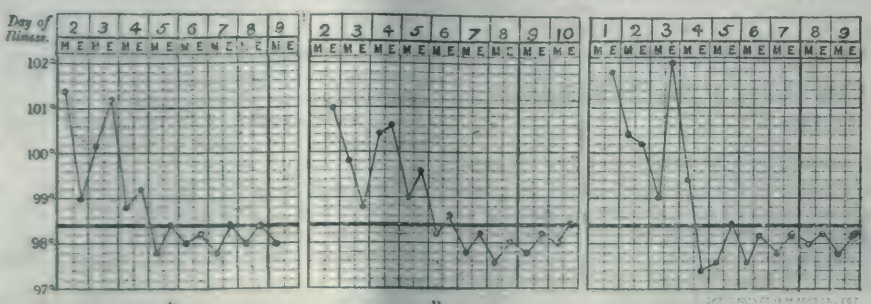


CHART 1.

McNee's suggestion that "the duration of the malady with its relapses may be inversely proportional to the severity and duration of the initial attack" is not borne out by experience of cases treated in the field ambulance. Amongst the "short" cases so treated without disturbance the probable duration of the attack may safely be estimated as directly proportional to the severity of the initial attack. This, of course, is not the whole question raised by McNee, but, so far as has been noted, relapses are not more common in cases with shorter and less severe initial attacks. The evidence on such a point is, however, admittedly incomplete, owing to considerations already stated, and it is with hesitation that even the above negative statements are made.

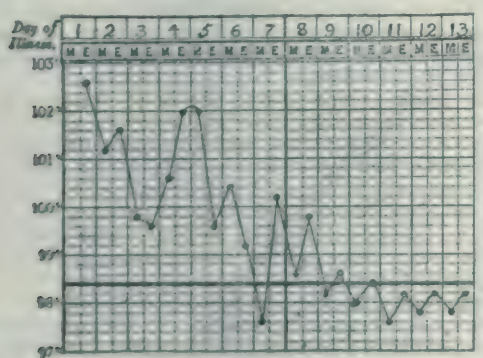


CHART 2.

Charts 1 A, 1 B, and 1 C show typical cases as treated in a field ambulance: A and B are from cases admitted in early stages from infantry battalions; C from field ambulance personnel, therefore from first onset. The characteristic remission of temperature is shown on the third and fourth day, after which the temperature rapidly falls to normal again. After two normal evening temperatures such cases are usually allowed up for a little, in more severe cases proportionately later. For several days the temperature is registered morning and evening while the patient is allowed progressively more liberty, and usually about seven or eight days after admission the patient is transferred as convalescent or discharged to "light duty" if the circumstances of his unit are such as to render that possible in more than name.

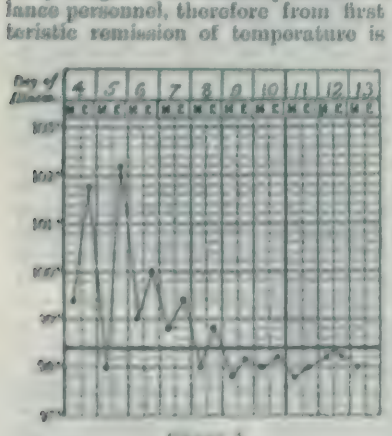


CHART 3.

Chart 2 is from a more severe case in a R.A.M.C. orderly—registered from the first day of illness.

Chart 3 is from the case of an infantry private admitted later in the course of the disease (fourth day of illness). The period of pyrexia is lengthened, and in such cases a longer convalescence is necessary before return to duty.

As already explained, owing to circumstances of local military significance affecting the mobility or capacity of the field ambulance, many mild cases have to be evacuated sooner or later to a casualty clearing station, where they constitute the "short" type, described as occurring there, along with a smaller number occurring amongst the R.A.M.C. personnel. The point to be remembered in comparing the type of cases seen in the two places is that the additional movement of the case, even in the comparative luxury of a modern motor ambulance, affects the course of the illness, directly aggravating the temperature and symptoms, and prolonging the total duration of the case. This doubtless accounts for the discrepancy of experience mentioned above.

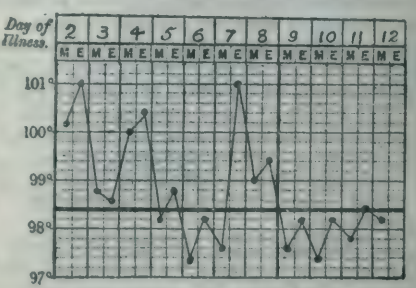


CHART 4.

Chart 4 shows the effect on the temperature chart of a patient moved with the field ambulance within two days of his temperature falling to normal after the typical remission. This is a common experience, and, to avoid it, such patients are preferably handed over for a few days to the relieving field ambulance.

Chart 5 shows a relapse due to the patient injudiciously, and owing to a misunderstanding, taking a bath too soon. This is no isolated case, but a typical result of too early exertion on the part of the patient.

Treatment.

Treatment mainly consists of rest and attention to the bowels, which are almost invariably constipated, sometimes obstinately so. Phenacetin, phenazonum, sod. sal., and acid. acet. sal. have been used to relieve pains in the head and limbs, and at times they have proved helpful in varying degree and order of preference. For the later shin pains, most troublesome at times, 10 grains acet. sal. at bedtime, and repeated if necessary two hours later, has proved a useful measure in most cases.

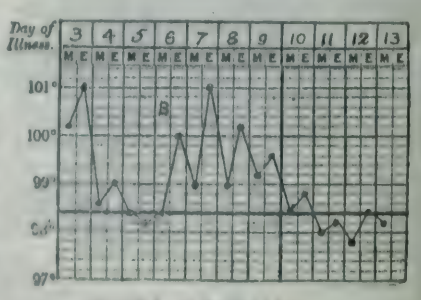


CHART 5.—B, Bath at 2 p.m.

In cases seen at, or very soon after, the onset of illness the period of pyrexia has frequently been cut short and the patient's discomfort diminished by the administration of two powders, each consisting of morphine acetate gr. ¼, caffeine citrate gr. j, phenacetin gr. 8; one given immediately the patient gets to bed and the second two hours later.

This is admittedly mere symptomatic treatment and not reliable in every case, but its effect has been observed over several series of cases with parallel series of control

cases not so treated, and the beneficial effect is beyond dispute.

Charts 6 A and 6 B show the effect of this treatment on

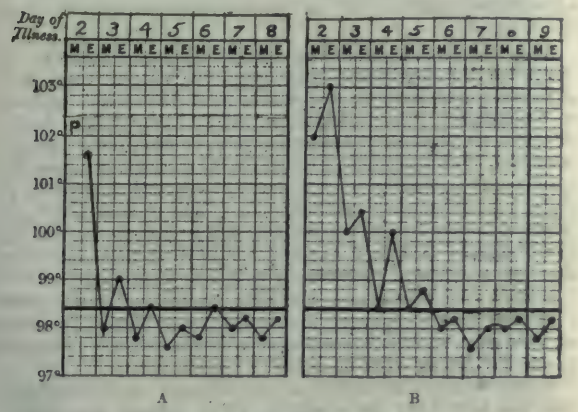


Chart 6.—P, Powders containing morphine acetate, caffeine citrate, and phenacetin administered.

the temperature. In 6 A, from a comparatively mild case, the typical remission is not apparent, although the case was otherwise true to type; in 6 B, from a more severe case, the remission is slight and the after-course accelerated.

The patients themselves were in no doubt as to the beneficial effect of the treatment—evidence worthy of some consideration when so little can otherwise be done to relieve the patients' discomfort.

Prophylaxis.

It is astonishing to realize the total number of days of unfitness that have been caused during twelve months in one division by this comparatively mild disease, and prevention of even part of this would repay much time and labour. In the army it ought to be the first duty and aim of all the medical service to "keep the men fit." Towards that end the observations here recorded have been focussed while striving to get a clearer understanding of the disease and particularly of its etiology.

As a possible step towards elucidation a record has been kept of the incidence of the disease in the personnel of a division during a period of twelve months—March, 1915, to March, 1916.

By analysis of the "Admission-and-Discharge" books of each of the three field ambulances of the division the total number admitted from the division as suffering from the disease during each week of the above period has been obtained. From these figures a chart or graph has been constructed (Fig. 7). Its main interest appears when it is considered in relation to the disposition and occupation of the troops of the division at different periods.

For the first two months of the twelve under consideration there was a relatively low incidence of the disease, even if allowance be made for a percentage of cases escaping true classification. During that time the division was variously employed—in sections undergoing instruction, in reserve, or taking part in several so-called "small shows"; but it was not until June that the division was kept as a whole in the trenches for any length of time.

After those early months, however, on looking at the completed graph one's attention is arrested by the successive maxima of incidence occurring in July–August, October–November, and January–February, with the marked intervening minima.

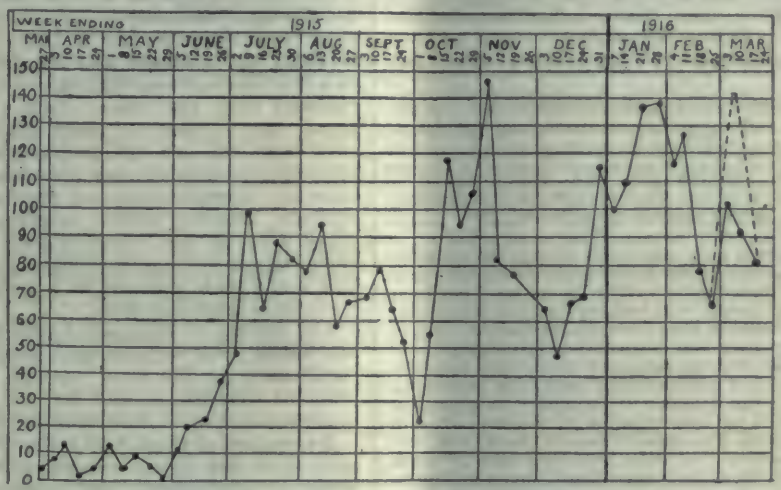


Chart 7.—Weekly numbers of cases of "pyrexia" admitted to the three field ambulances of a division for a period of twelve months.

The first climax is not so marked; this is to be accounted for by the fact that periods of stress and rest were not at that time so clearly defined and separate. Despite that modification, however, this early and protracted maximum agrees in its features with the two later which are sufficiently striking in character.

Each of these maxima of incidence is found to correspond to the later days of a prolonged and trying spell in the trenches. The division in each case had been depleted in numbers by casualties during the earlier weeks of the spell, and increasing strain was thus thrown on the remaining effectives, who became progressively more fatigued as the time passed.

The marked and rapid decrease in incidence which succeeds each maximum corresponds to the withdrawal of the division into "Corps Rest Area," an area occupied by troops during such time as they are withdrawn from the trenches. During that term the men were placed in comparatively comfortable billets; and though they were not exactly allowed to remain idle, they were removed from the constant strain and exposure of the further advanced positions.

There is no evidence whatever of the influence of any special type of weather conditions on the incidence. During the period leading up to the first maximum, the weather was very hot, dry, and dusty; during the second period rain fell almost daily, usually in torrents; during the third period it was wet and cold in the earlier weeks and later dry and frosty. Severe weather of any kind would have some influence by increasing the effects of the exposure to which men were subjected, but only thus indirectly. The only factors common to the three periods were the extreme strain and exposure in the trenches or of other activities necessarily associated with "holding the line."

At first sight this might seem to justify the term "trench fever" as applied to the disease in question, but from later notes the fallacy of this assumption will be realized.

The incidence in the last period of "Corps Rest," in February–March, 1916, is most interesting in this connexion. During that period the first week "in rest" shows the expected drop in the curve, but this is not maintained, and the appearance of the unexpected rise is explained by the following circumstance.

After the first week a scheme of "Brigade training" was entered upon, and each brigade went in turn for a week to a training area where a strenuous course of manœuvres was carried through. This involved heavy marching and other special exertion on the part of officers and men, and this work was carried out in very severe weather, with frequent—almost daily—snowstorms.

The combined graph shows for the division during this period an increased incidence as compared with former periods of "rest," but the increase is really greater than the graph makes evident, for each brigade was affected separately and successively; thus the increase due to the

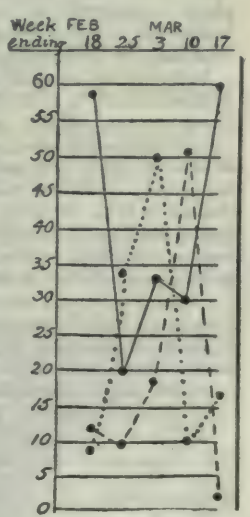


Chart 8.—Number of cases for each brigade separately during week of "training."

one cause acting in each case for a week is shown spread over three weeks. Each brigade having had one ambulance attached to it for the period of rest, it is possible to record the incidence for each brigade separately, as in Fig. 8. Each brigade shows a distinct maximum of incidence whilst it was under the strenuous training.

From former periods of "rest" a normal average incidence may be assumed; a third of this number will represent the average for each brigade. If for the period in question the excess of actual incidence in each brigade over this average be calculated and the three excesses be combined, a figure will be obtained which would represent the excess of incidence over the average for the division had the three brigades been affected simultaneously.

This estimated maximum is shown in broken line on the larger graph (Fig. 7), and shows in true proportion the effect on incidence of the conditions under which the troops were at the time.

The billets had not been occupied by troops recently, so that endemic infection was very improbable.

The increased incidence corresponds exactly to that observed when the division was "in the trenches," and yet the men were completely away from the trench area. The conditions common to the two situations were those of extra exertion and exposure, jointly productive of fatigue, but most of the special conditions of trench life were absent from the training area.

This demonstrates the fallacy of applying to the disease the term "trench fever." The term would imply that the disease depended upon some virus indigenous to the trenches, and that the disease was endemic there, or that it depended upon conditions inherent to the trenches and limited to that area.

The term thus expresses a generalization that is far from absolutely true and suggests a limitation of incidence that is very misleading, as will be further shown in the following notes. In Captain McNee's article, already quoted, it is stated regarding distribution of the disease, that from casualty clearing station experience:

> The cases have been met with, curiously enough, only among two classes of men, namely, those direct from the trenches, or at least from near the trench zone (artillerymen, etc.), and men of Royal Army Medical Corps. On looking into our records no real exception can be found to the above generalization. Thus, in our experience, only those who have actually lived in or near the trenches, and those who by reason of their work are constantly in contact with sick and wounded men from the firing line, have suffered from the disease. This seems important in searching for the means of transmission of the malady, and shows, at any rate, that the name "trench fever" is not without some justification. No case has been met in units such as ammunition columns, ordnance, head quarters troops, etc., which, although in the army area, are situated at some distance from the lines.

Unfortunately for the inferences drawn, the experience upon which they are based is an incomplete one, and the above statement of the limitation of the disease is not borne out by the more inclusive experience of cases as seen in a field ambulance.

It must be remembered that practically all cases are first admitted to a field ambulance, but that not all such cases are sent on to a casualty clearing station. From the "Admission and Discharge" books of the field ambulances of a division it is found that only 55 per cent. of the cases admitted are so evacuated. The experience in the clearing station is thus confined to a percentage only of the total cases, making it a somewhat risky datum upon which to base a sweeping generalization, and the selection of cases as explained below makes it more than risky.

Attention has already been drawn to the circumstances governing such selection, but repetition may be excused to explain its bearing on the point in question. Whilst a division is in action the field ambulances are situated so as to serve most conveniently all the various troops which may be scattered over a somewhat large area.

One of the three ambulances (possibly two) is placed as far forward as safety and convenience allow, the primary duty of this ambulance being to receive and deal with wounded from the trenches and other advanced positions.

If only one ambulance be "up," a second is placed conveniently to receive and treat sick from the various units of the division. If two ambulances be "up," each will receive its share of sick as well as wounded.

The third ambulance is held "in reserve"—more or less literally according to circumstances, but normally it will be "open," at least partially, to receive sick transferred from the more advanced ambulances, and direct from units situated further behind the firing line—in the area sometimes spoken of as the "reserve area" of the division.

The advanced ambulances, concerned mainly with wounded, do not retain any cases for longer than a few days at most, and, on account of the uncertain incidence of casualties, accommodation must always be held in reserve, so that as a rule very few, if any, sick cases are retained, but are transferred at the earliest convenient opportunity, usually to a casualty clearing station or possibly to the reserve ambulance. The remaining ambulance, situated further from the firing line, is, on the other hand, mainly designed for and concerned with the reception of sick, and receives its cases from units in the "reserve area" of the division, precisely those units—"ammunition columns, ordnance, head quarters troops, etc."—from which the casualty clearing station is reported to receive no cases of so-called "trench fever."

From such units cases of the disease under consideration are admitted in numbers by no means negligible in comparison with the strength of the units concerned, though the proportional incidence is probably lower than in units situated further forward in what may from this point of view be termed the more strenuous area.

On account of the situation and correspondingly more elastic accommodation of this reserve ambulance, there is not the same necessity for immediate or wholesale evacuation, and consequently a large number of the cases received are retained and treated till fit for discharge to a convalescent rest station or to light duty. The cases received from the nearer units—those of the "reserve area"—are, further, the most likely to be retained, since such cases are, as a rule, proportionately milder on account of earlier admission and the shorter and less fatiguing transport necessary to reach the field ambulance. That a casualty clearing station receives very few cases from those units in the "reserve area" is explained by the above circumstances, although it seems hardly possible that many such units are in a position to state that "no cases have been met with."

The fallacy of the quoted generalization is obvious, and this takes away all strength from the suggested plea of justification for the term "trench fever." The term has inherent drawbacks, and its use seems, on the whole, inadvisable, despite its convenience.

To venture a short way towards hypothesis, it may be said that the disease would seem to be due to some infecting agent ubiquitous in its distribution, and most probably borne on or in the human person (naso-pharynx ?), the determining factor of incidence being the condition of the individual as affecting his power of resistance.

Hence towards the end of a long spell in the trenches, with its inevitable fatigue and exposure, the men individually and collectively tend towards a condition favourable to the onset of the disease. The factor of defence is the deciding factor, not so much that of attack. Such effect is cumulative, for as earlier cases are evacuated greater strain is thrown on the men remaining, and the incidence rises to a climax, as well shown in the graph in Fig. 7.

This cumulative effect is increased further by the fact that, as in similar cases, the virulence of the virus becomes accentuated by its success, and contagion becomes more probable and widespread so long as the other conditions remain unchanged.

Change of those external conditions by removal of the men to a less exacting and more comfortable environment is at once followed by a marked decrease in the incidence of the disease.

Where cases are aggregated, as in the wards of a medical unit, the contagion is correspondingly concentrated; hence the cases amongst R.A.M.C. personnel, and also accidentally at times amongst patients admitted for other ailments.

At first sight this high incidence in the trenches and decrease on withdrawal of the men from the trenches might seem to justify the name of "trench fever," but as pointed out, the disease undoubtedly occurs amongst men who are practically never in the trenches, and the increased

incidence may appear under suitable conditions far removed from the trench area.

As to conveyance of the disease there is much to suggest, and nothing to contraindicate, direct contagion from man to man, the most probable route being nasopharyngeal, although no direct positive evidence of this has as yet been produced.

Flies or parasites may convey the infection, and lice have been specifically blamed, or rather suspected, by many competent observers. Much experimental work, however, of a far-reaching and exhaustive nature has yet failed to produce positive evidence of conveyance by any of these means.

As regards lice, these pests are unfortunately so ubiquitous among the troops that it is difficult to settle the question by direct observation. In a small percentage of cases the absence of lice was practically certain, so that unless, and until, positive evidence be produced of the conveyance of the disease by this means it is certainly most inadvisable to employ a term, such as "lice fever," which, to say the least, definitely assumes an uncertainty.

If a temporary name were necessary for the disease, the term "fatigue fever" might fit the facts so far as known, but as that term was employed by Sir William Aitken many years ago it might be misleading.

In corroboration of this suggestion it is of great interest to quote a report recently submitted by the medical officer of a battalion in a division separate in its activities from the division in which was gained the experience upon which the foregoing remarks are based. The report was drawn up on a request to explain the excessive incidence of sickness in the battalion towards the end of a long spell in the trenches. Among other points of minor interest the R.M.O. reports:

(*a*) Chief ailments—Fever N.Y.D. (not yet diagnosed), 75 per cent.
(*b*) In my opinion excessive incidence is due entirely to overwork, excessive strain and exposure, and lack of rest.

At times such excessive strain, exposure, etc., is doubtless inevitable, and at such times the excessive incidence of this disease may be the necessary price to be paid under present conditions of warfare. It is well, however, that the fact should be recognized even though it may remove possible prophylactic measures from the immediate sphere of the medical services.

Conclusions.

There is little to summarize in the foregoing remarks, as they are discursive in nature, and distinctly contributory in intention rather than conclusive; but attention may be focussed on the following points:

1. The nature and mode of conveyance of the infective agent producing the numerous cases of "short fever" met with in our troops are still unknown, and merit further observation and research.

2. The term "trench fever" is distinctly misleading, and is not justified by analysis of the total number of cases which occur in the various units of a division and under varying conditions. Cases occur in considerable numbers in units situated outside the "trench area," and markedly increased incidence is met under suitable conditions whilst the troops are far removed from the trenches.

3. Such inclusive experience can only be gained in a field ambulance, as all cases are primarily brought there, and many (about 45 per cent.) are not transferred to any other medical unit.

4. The name "lice fever" is also objectionable, since it assumes as a fact a possible means of conveyance which at present is merely a hypothesis.

5. The infective agent is probably a widespread virus borne on the persons of men concerned (nasopharyngeal?) normally of low virulence.

6. Incidence of the disease depends upon the condition of the men, whose defence against the infection is specially lowered by exposure and fatigue.

Thanks are due for facilities and assistance in compiling the above notes to Colonel Ferguson, D.S.O., A.M.S., and to Lieutenant-Colonel Jerman, Lieutenant-Colonel Dawson, and Major Rutherford, R.A.M.C.T.

This does not imply their acquiescence in the views expressed, which, in any case, are entirely tentative.

The writer is keenly aware of the incompleteness of the observations, but is prevented by an unfortunate accident from pursuing them further. In the hope, however, of stimulating discussion, however adverse, the notes are published.

A CASE OF ACUTE MYELOBLASTIC LEUKAEMIA.

BY

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The following case of acute myeloblastic leukaemia presents some points of interest.

A naval officer aged 40 came under my care on August 9th with the following history. As a child he had been delicate. Some years ago after joining the service he had malaria, and in 1913, whilst living in South Africa, had haematuria. He rejoined the service at the outbreak of war, and had fair but not robust health until the onset of the illness which was the cause of death. Towards the end of July, 1916, he consulted his dentist about a tooth which was troubling him, and on July 28th the tooth was extracted and some pus was evacuated from the socket. There was no excess of haemorrhage from the socket, but the same day diarrhoea commenced with motions every three or four hours, the stools being very offensive, and containing at first bright red blood, and later blood of a dark brown colour. The diarrhoea, though later not so urgent, continued until August 8th. On August 6th vomiting set in, and lasted until August 8th. When first seen by me, on August 9th, the patient was very weak and markedly anaemic. There was nothing of note in the condition of the heart, lungs, or nervous system. The abdomen was much distended, but there was no tenderness. The liver extended 5 in. below the costal margin in the right nipple line, and the spleen could be felt 1 in. below the costal margin at the end of inspiration. The teeth had many gold crowns, the gums were clean but pale. The urine was acid, specific gravity 1014, and contained a trace of albumin, but no sugar, albumoses, casts, cells, or blood. The glands in the right posterior triangle of the neck were about the size of haricot beans. Those in the left posterior triangle, in the groins, and in the axilla were just palpable. There were no swellings about the long bones, nor was there any tenderness on percussion. Examination of the blood gave the following results:

Red cells, per c.mm.	1,670.000
White cells, per c.mm.	431.000
Haemoglobin	40 per cent.
Colour index	1.1
Differential count of 500 leucocytes:	
Polymorphonuclears	2.2 per cent.
Small lymphocytes	1.8 ,,
Large lymphocytes	0.6 ,,
Eosinophile myelocytes	0.4 ,,
Myelobasts	95 ,,

The red cells showed little alteration in size or shape. A few nucleated reds, a few Riedel cells, but no mast cells, could be seen. The cells which I have designated myeloblasts were large mononuclear cells with a purple-staining nucleus (Leishman), the structure of which was loose, many containing two or three nucleoli. The cytoplasm stained blue, and was distinctly granular.

No vomiting or diarrhoea occurred after the patient came under my observation, and a normal-looking stool was passed after the administration of an aperient. The temperature varied between 99.2° and 102° F. from August 9th until death. Considerable oozing into the subcutaneous tissues followed a hypodermic injection.

At 9.30 p.m. on August 12th epistaxis commenced, and lasted until 10.15 p.m. About midnight the patient gradually became unconscious, the breathing became stertorous, the epistaxis recurred, and at 2.15 a.m. on August 13th he died.

Post-mortem Examination.

Lungs.—Both were united by thin filmy adhesions over the whole of their external surfaces to the surrounding structures. On section they were pale in colour, but otherwise apparently normal.

The *thymus* was atrophied.

Heart.—Was slightly enlarged. Beneath the serous covering of the heart, especially over the ventricles, were multiple plum-coloured petechial haemorrhages. On opening the cavities much pale-coloured clot was found. Beneath the endocardial covering of the walls of the ventricles were many small haemorrhages, more especially in the right ventricle. The muscle was paler than usual. The valves and aorta were normal.

Liver.—Was united by filmy adhesions to the anterior abdominal wall and diaphragm. Weight 90 oz. On macroscopic section it was somewhat pale and had a slight nutmeg appearance.

Spleen.—Weighed 13½ oz. It was united by filmy adhesions to surrounding structures, and on the convex surface was an area 3 in. in diameter of marked perisplenitis uniting the spleen to the diaphragm. On section the Malpighian bodies seemed unduly prominent.

Intestines.—The appendices epiploicae of the transverse colon were swollen and haemorrhagic. The mesentery contained many calcareous masses as large as small haricot beans. The lymphatic glands were not enlarged. The presacral haemo-lymph glands were enlarged.

Kidneys.—Weighed 7 oz. each. On section they were pale in colour and in the pyramidal portion of each kidney were two pale-green areas about the size of a large pea. The other abdominal organs were apparently normal.

Marrow.—The shaft of the tibia contained marrow of a pale yellow colour with complete absence of any red coloration; that in the head of the tibia was pale yellow. The marrow of the ribs and sternum was greyish-brown in colour.

Microscopic Examination.

Heart.—The spaces between the muscular bundles were infiltrated with leucocytes of the myeloblastic type.

Liver.—The periphery of the lobules was packed with cells with the appearance of myeloblasts. Much free brown-coloured pigment was present towards the periphery of the lobules.

Kidney.—A section through one of the pale-green areas mentioned above revealed a mass of cells resembling myeloblasts closely packed together, with atrophy of the uriniferous tubules. Other portions of the kidney were almost entirely free from blood cells.

Spleen.—The Malpighian bodies were apparently normal. In the pulp were many myeloblasts and much free brown pigment.

Marrow.—Smear. Almost all the cells were myeloblasts. No nucleated reds or polymorphonuclears could be seen.

Section (after hardening). The bulk of the cells seen were myeloblasts. A few eosinophile myelocytes, an occasional normoblast, and an occasional giant cell, but no polymorphonuclears, were to be seen. On attempting to stain a hardened section of the marrow from the shaft of the tibia the section almost completely dissolved in the xylol, leaving only amorphous débris.

In conclusion, I should like to express my best thanks to Deputy Surgeon-General H. W. G. Doyne, R.N., for his kind permission to publish the case, and to Staff Surgeon S. F. Dudley, R.N., for his ungrudging work in preparing the sections and much valuable advice.

GRAFTING WITH FROG SKIN.

BY

H. W. M. KENDALL, CAPTAIN R.A.M.C.(T.C.).

THE idea of grafting granulating surfaces with frog skin was put into practice by me as far back as 1886–7 in India, at Chunar, Bengal, where some of the men were affected by ulcer of the legs more or less indolent in character. I cannot say certainly now how I got the theory, but think it was suggested through some native source. At any rate, as frogs, ulcers, and time were plentifully at my disposal, I experimented, with satisfactory results to the patients, gratification to myself, and the least possible inconvenience and injury to the frogs. My reason for recalling the matter is that being quartered in France, where demand and supply of material are both abundant, I have been enabled to reapply the method with again the same gratifying results. The large number of open granulating wounds, caused chiefly by shrapnel, which are slow in healing and in which a contracting scar is likely to give possible inconvenience later on account of position, friction, etc., induced me to resort again to this method of grafting. During the past month I have collected fourteen cases as follows:

1. Sgt. W. S. Shrapnel wound, left thigh, July 14th, Contalmaison. Graft applied August 6th. Unsuccessful. This wound was suppurating profusely and the graft did not adhere. Another was applied August 17th; healed August 30th.

2. Pte. A. G. Shrapnel wound, right thigh, July 7th. Grafted August 27th; healed September 2nd.

3. Pte. H. J. Arm grafted August 5th; healed September 2nd.

4. Cpl. G. D. Shrapnel wound, left arm, July 15th. Grafted August 3rd; healed August 25th.

5. Pte. J. S. W. Shrapnel wound, right arm, July 24th, Beaumont Hamel. Grafted August 6th; healed August 17th.

6. Pte. W. B. Bullet wound, left upper arm, High Wood. Grafted August 3rd; healed August 19th.

7. Sgt. A. P. Bullet wound, right upper arm, July 18th, Longueval. Grafted August 3rd; healed August 20th.

8. Lce.-Cpl. F. R. Shrapnel wound, left arm, Thiepval Wood. Grafted August 3rd; healed September 2nd.

9. Gnr. F. S. Wounded by bomb, July 3rd, Aveluy. Grafted August 20th; healed September 2nd.

10. Pte. A. E. M. D. Bullet wound across left breast, July 25th, at Pozières. Grafted August 26th; healed September 8th.

11. Pte. G. F. H. Bomb wound left buttock, July 20th, Armentières. Grafted August 24th; unsuccessful.

12. Pte. E. E. T. Shrapnel wound, back, July 25th, Ypres. Three grafts applied August 17th; healed August 30th.

13. Pte. A. T. M. Gunshot wound, back, July 25th, Festubert. Two grafts applied August 17th; healed August 30th.

14. Pte. R. I. S. Shrapnel wound, side, July 4th, Pozières. Three grafts applied August 26th; one successful, healing well at date.

The above wounds varied roughly from 1½ in. to 4 in. in length by ½ in. to 1½ in. in breadth. No. 1 was unsuccessful on account of the condition of the wound at the time of grafting, the profuse suppuration washing off the graft. In No. 11, the wound being on the buttock, dressings were difficult to keep in position, and in No. 14 two out of the three grafts failed to adhere for the same reason.

The ideal wound to graft is flat, without much suppuration or excessive protuberant granulations. The rapidity with which the wound commences to heal after the graft has successfully adhered is in marked contrast to its sluggishness before the operation.

The wound having been gently cleaned without antiseptics and as gently dried, the loose skin on the inner side of the frog's thigh is carefully pinched up in a pair of dressing forceps, snipped off with scissors, spread out and applied by its under surface to the wound. A strip of gutta-percha tissue smeared with some mild and soft non-irritating emollient is then placed over it, fixed in position at its ends by adhesive plaster, and a dry dressing applied over all. The whole is gently removed in three days, when the site of the graft will be noticed as a purplish spot branching outwards to the periphery of the wound. A similar dressing is again applied for two days to avoid unnecessary interference, after which the wound may be dressed daily, without the gutta-percha tissue, with some simple, non-irritating ointment, such as boracic, until healing is completed.

The gap in the skin's continuity is by this process filled up and unsightly or inconvenient contraction avoided.

I have tried frog skin grafting once only in this interval of thirty years, in New Zealand, after a radical mastoid operation, but have no knowledge of the ultimate result as the patient left, I believe, for her home in Germany shortly afterwards.

In addition to leaving a supple scar this method has the advantage of transplanting skin free of hair, and is free of diseases possibly conveyed in human skin. My reason for not using antiseptics is to avoid destroying the delicate epithelium formed from the graft in the same way that injudicious antisepsis may render a vaccination inert.

I think the method would prove useful in many kinds of slowly healing sores, varicose ulcers with or without a tendency to adhere to the bony tissues beneath, burns after the acute stages have passed, large abrasions or ulcerating surfaces on the face or exposed parts or in mastoid cavities where transplantation of skin is indicated.

THE USE OF GLYCERINE AND ICHTHYOL IN THE TREATMENT OF SEPTIC WOUNDS.

BY

MAJOR THOMAS W. A. DAMAN, R.A.M.C.(T.F.).

IN the case of some wounds more or less septic it does not seem to matter much what kind of dressing they receive. They will heal, and nothing, so to speak, in the way of wet or dry dressing will prevent their healing. Those in which the circulation has been originally extensively interfered with, or where extensive induration has taken place in consequence of sepsis and of the blocking of vessels, will not heal readily under the ordinary methods of dressing.

At the Military Hospital, Lincoln, under Major Duggan, remarkable and altogether surprising results are the rule, especially in cases of severe suppuration and sloughing accompanied by oedema and induration of the surrounding tissues. The immediate results are rapid reduction of swelling and induration, and almost instant easing and removal of pain. Rapid cessation of sepsis and of purulent discharge follows, accompanied by the quick formation of

healthy granulation tissue and equally quick production of a covering of skin, and, finally, complete healing by cicatricial tissue, the cicatrix invariably being a good one. It is, of course, taken for granted that any foreign body, such as dead bone, clothing, or piece of metal, has been removed, or is not present.

Continual irrigation with saline solution, as again suggested by some surgeons, I remember being used with success for extensive and severe forms of sepsis when I was attending hospital practice at Edinburgh. Boiled boracic and boiled saline solutions were then employed. This method I also followed when senior house-surgeon in the Lincoln County Hospital in cases of severe injury with much sepsis. It is a clean method, though possessing, one would imagine, only feeble osmotic action. Threads of woollen skein or lint formed the siphon. There is also the saline bath and boracic bath for arm or leg, which method is clumsy and gives very slow, painful, and uncertain results; hot moist dressings ease pain but make the tissues soft and boggy. These methods seem to me to fail to do the one thing necessary towards healing—that is, the calling up of a better blood supply to the injured surface, which can only occur after the barrier of induration is broken down.

A good blood supply brought to an injured part by an uninjured artery has its beneficial effect very much restricted if there is little or no chance of its being carried on to the seat of injury, as is the case when a more or less dense and impervious barrier exists, in which the smaller vessels, arterioles, capillaries, and venules are pressed upon by the swollen tissues and so occluded. It is evident that in such a state of affairs only a very sluggish supply of the healing serum, if any, can reach the injured surface, and repair, when taking place only from the proximal side of the barrier, must be a much slower process than when the aid of an osmotic action produced at the surface or distal side of that barrier is received coincidentally. The period of stagnation or stasis in the smaller vessels is shortened and the danger of the occurrence of more or less chronic fibroid changes is diminished, while the eventual cicatrization will take place more rapidly and with a reduced tendency to deep scarring and deformity.

The happiest results would appear likely to be attained if the osmotic action of a glycerine preparation could be set up at the earliest possible moment after the wound had been received, in order to prevent absorption of toxins and to destroy and throw off invading germs whose irritating presence gives rise to subsequent oedema and induration.

To prove how the absorption of toxins is lessened and prevented by this method one only has to watch the constitutional disturbance of the patient as evidenced by the temperature, which falls in from two to five days, unless there happens to be any pocket of pus present which has escaped observation, and when this has been set free the temperature never again rises.

It follows that Major Duggan's method of using glycerine immediately assists nature's healing process, attacking as it does the swollen indurated and septic tissues, from the wound surface, by means of a quickly established and free osmosis. This not only commences to break down the barrier from the distal surface, but at the same time greatly aids the natural evacuation of débris and prevents further sloughing and destruction of tissues.

Most of the usual modes of dressing fail entirely to do these things or lend only a feeble aid to nature, and some must even retard healing to a greater or less extent. Take, for instance, the action of some of the strong irritant and corrosive lotions sometimes employed—1 in 20 and 1 in 40 carbolic, corrosive sublimate, etc.—which by their destructive action may tend even to determine the death of portions of wounded tissues which apart from their action might have lived. This class of dressing has also to be changed frequently, and each dressing will destroy embryonic granulation tissue and newly-formed skin cells, however carefully it is removed. The more frequent the dressing the more local damage is done, and in addition to this the multiplication of painful dressings must cause increased suffering to the patient and so debilitate him, to say nothing of disturbing his hours of sleep.

The glycerine and ichthyol dressings need, at the most, be applied night and morning, and in many cases one dressing in the twenty-four hours is amply sufficient.

One more point is that osmosis ensures the calling up of a supply of blood serum to those tissues which need repair, which is good, but what is better, of a supply of an autogenous serum full of antibodies, which have been called into existence by the infecting germs themselves, and can be used in the annihilation of those germs.

To Edwart Hort we owe a great debt for his demonstrations of the healing effect of normal horse serum when applied to surface wounds and ulcers, as well as to ulcers of the stomach and duodenum. To Major Duggan we now owe a second debt, for he has demonstrated how by osmosis we can use the patient's own serum over the wound surface, and so obtain a rapid healing.

One of the best dressings now in use in some of the military hospitals is a solution in water of magnesium sulphate with the addition of glycerine. Magnesium sulphate would help osmosis, but the added water would appear to be likely to lessen the osmotic effect of the glycerine, and to this extent diminish its usefulness. This is a later method than Major Duggan's plan of treatment, and though an enormous stride in the right direction, and in every way superior to the usual methods employed, it lacks the intenser osmotic power of the pure glycerine, and in this way is inferior to the method which we are now considering.

Major Duggan uses a mixture of ichthyol and glycerine in varying strengths; and the results are satisfactory and the method well worthy of employment in every case of an open wound, accompanied by sepsis, induration, and pain.

MEMORANDUM ON TETANUS.

BY

THE WAR OFFICE COMMITTEE ON THE STUDY OF TETANUS.

The following notes on the prophylaxis and treatment of tetanus have been compiled with the authority of the War Office Committee for the Study of Tetanus, and are to a great extent based on experimental and clinical evidence which has become available since the beginning of the present war.

The memorandum was first issued in August, 1916, but as a good many questions have been asked in regard to various points, it has been thought better to issue a revised edition.

The Prophylactic or Preventive Treatment of Tetanus.

The prophylactic value of injections of antitetanic serum is beyond all question, but there is strong experimental evidence that in about ten days the immunity conferred by the primary injection is to a great extent lost.

It is, therefore, the general opinion that a second subcutaneous injection should be given in all cases of septic wounds, and in order to anticipate the total disappearance of the antitoxin from the body the second injection should follow the first at an interval of seven days.

In cases of long-continued septic wounds, particularly those caused by shell or bomb, third and fourth injections at seven-day intervals are recommended.

It is self-evident that if it is considered necessary to give a second injection, then it is equally necessary to give a third or fourth or more prophylactic injections, as the passive immunity conferred by the antitetanic serum is of short duration.

It may be definitely stated here that the danger of anaphylactic shock is negligible when prophylactic doses of 500 U.S.A. units contained in 3 c.cm. of horse serum are given subcutaneously, whatever the interval after the preceding injection.

Dosage in Prophylactic or Preventive Treatment of Tetanus.

The primary injection should consist of 500 U.S.A. units, and the second and following injections should be, for the present, of the same amount.

The primary injection is given as a rule at a dressing station or field ambulance as soon as the wounded soldier is removed from the firing line. The second and following injections will most frequently be given at home hospitals. The ordinary phial usually contains 1,500 units of tetanus antitoxin. One-third of a phial should therefore be injected into each wounded man. There is no necessity to sterilize the syringe after each injection; the serum is aseptic, and moreover contains an antiseptic; it will be sufficient if a freshly sterilized needle is used for each case.

Precautions to be Taken Before Operating on Wounds.

When operations are performed at the site of wounds, even if they are healed, a prophylactic injection of serum

should invariably be given if the operation be performed at a greater interval than seven days from the last injection. Cases have occurred in which the performance of simple operations has been followed by an attack of tetanus, although in many cases the primary wound had been healed several weeks before the operation.

This precautionary injection may consist of a single subcutaneous injection of the ordinary prophylactic dose of 500 units, given when possible two days before the operation.

It is better to give it two days before the operation, as it takes some forty-eight hours for antitoxin to be fully absorbed after subcutaneous injection. Injected intramuscularly, the absorption is quicker—said to be about twelve hours—so that this method could be used if time were pressing.

Of course a larger dose than 500 units may be injected if thought advisable.

Antiseptics which may be of Use in the Preventive Treatment of Tetanus.

The group of oxidizing antiseptics, such as hydrogen peroxide, potassium permanganate, chlorine water, and solution of iodine, are particularly unfavourable to the anaërobic growth of the tetanus bacillus. They have the power of rendering toxin non-toxic.

Diagnosis.

The classical symptoms of tetanus as described in the majority of the textbooks refer to a phase of the disease when treatment has already lost much of its value. With many medical men, tetanus is not tetanus until the symptoms of risus sardonicus and lock-jaw are present.

In those who have been protected by prophylactic injection of antitoxin, trismus and general symptoms practically never occur, and the manifestations of tetanus are confined to local spastic rigidity of the wounded limb, which may persist for weeks.

The early diagnosis of tetanus is of the greatest importance. All clinical and experimental evidence tends to show that the chances of successful treatment diminish rapidly with the length of time after the first symptoms are observed.

Tetanus toxin reaches the motor nerve cells by travelling up the nerves. It is not directly conveyed to the central nervous system by the blood. In a large number of cases the toxin appears to reach the spinal cord primarily by the nerves which are in connexion with the seat of the injury, and hence the motor nerve cells governing the muscles round about the wound will be the earliest affected, such affection showing itself in the form of spasticity and increased reflex excitability of the muscles near the wound. In some cases these symptoms may precede other symptoms of tetanus by many hours. It is, therefore, desirable that the muscles in the vicinity of the wound should be examined whenever dressings are removed, and the occurrence of rigidity or twitchings, or local increased reflex response to gentle tapping or pressure, immediately reported to the surgeon in charge.

All nursing sisters engaged in dressing wounds, should be warned to give the alarm if the muscles round the wound are harder or more rigid than the muscles of the uninjured limb or side.

Other early symptoms of diagnostic importance may be anxious look, pain in back or neck, sore throat, general restlessness, unreasonable outbursts of temper, insomnia, violent headache, excessive yawning, complaints of spasm or stiffness in injured limb, stiff neck or difficulty in swallowing without recognizable cause, stitch in side, profuse local or general sweats, and difficulty in micturition.

It is very desirable to obtain the co-operation of medical officers in the endeavour of the Committee to formulate the early symptomatology of this disease, and to confirm or add to the above.

Any brief account of early symptoms noted both in the major and in the minor forms of the disease will be of great value, and officers are requested to forward any such observations to Surgeon-General Sir David Bruce, Chairman of the Tetanus Committee, at the Royal Army Medical College, Grosvenor Road, London, S.W.

Therapeutic or Curative Treatment of Tetanus.

It cannot be too strongly emphasized that time is the all-important element in the treatment of tetanus. As short a time as possible should be allowed to elapse between the diagnosis and the commencement of active treatment. A delay of an hour may make all the difference between success and failure.

It is on this account that the early symptoms are of the greatest importance. In almost every case of tetanus there are found local manifestations of the disease, very often hardness and rigidity of the muscles round the wound, and these signs can be seen or felt for days or even weeks before the occurrence of trismus. In a case on record these local symptoms had been present for three weeks before the trismus showed itself and before tetanus was suspected. One medical officer is reported to have said that symptoms of tetanus were present in a case but were not sufficiently severe to justify the use of antitoxin. According to present ideas it should no longer be permissible to wait for the occurrence of lock-jaw before pronouncing the word tetanus; 5,000 units of antitoxic serum are of more avail at the very beginning, when the disease is still localized, than 50,000 when the symptoms have become general. The moment, then, any local manifestation of tetanus is observed, it is recommended to proceed at once to vigorous specific treatment.

The treatment of tetanus may be divided into specific and symptomatic:

1. *Specific.*—Specific treatment consists in the giving of tetanus antitoxin, which has the power of rendering the tetanus toxin with which it comes in contact non-poisonous. From what has been said above about the injurious effect of delay, it is obvious that it is necessary to give antitoxin by the method which enables it to produce its effect most quickly. Subcutaneous injections of serum are absorbed very slowly, forty-eight hours may elapse before a dose is fully absorbed; hence little can be expected from this method at the beginning of treatment.

Experimental and clinical evidence has shown that the best results are attained by intrathecal injections of serum.*

This direct attack on the toxin in the neighbourhood of the central nervous system should be supplemented by intramuscular injections in order to neutralize any toxin in the blood, and thus prevent any more of it being taken up by the nerve endings in muscle. Absorption of antitoxin from muscle is rapid, reaching its maximum in about twelve hours.

In addition to the intramuscular method, subcutaneous injection can be practised at any time, and is particularly useful in the later stages in keeping up the antitoxic quality of the blood. Absorption reaches a maximum in two or three days.

It is recommended that intravenous injections should not be made, as the risks of anaphylactic trouble occurring are greater when serum is given intravenously than when it is given by any other route.

Dosage in the Therapeutic or Curative Treatment of Tetanus.

When given curatively antitoxic serum must be administered in very large doses.

In a case of tetanus the first thing to do is to give an intrathecal injection of antitoxin.

The amount of cerebro-spinal fluid which can be withdrawn will, as a rule, not be more than 20 c.cm. It is usually held to be undesirable to run in more serum than will replace the cerebro-spinal fluid drawn off, and in the cases when little or no fluid can be withdrawn, it is not wise to inject more than 20 c.cm. of serum, *and this very, very slowly.*

If the serum used be of the ordinary strength of 150 units in 1 c.cm., the patient will then receive a dose of some 3,000 in 20 c.cm.

If the serum be of higher potency—say, 800 units to the c.cm.—the patient will then have received 16,000 units. For intrathecal injections this high potency serum, if procurable, should by all means be used. At the same time, 5,000 to 10,000 units should be injected intramuscularly, and 3,000 to 5,000 may also be given subcutaneously.

The intrathecal injections may be repeated daily for three to five days, when they should as a rule be discontinued. The intramuscular and subcutaneous injections may be continued daily or oftener, according to the severity of the symptoms. When the disease shows distinct signs of abating the size of the dose may be gradually decreased, the interval between the doses lengthened, and the serum given only subcutaneously.

* A description of the method of performing an intrathecal injection is given as an appendix.

The following may be given as an example of the serum treatment which has been successfully employed in early, but well marked, tetanus:

Day.	Subcutaneous.	Intramuscular.	Intrathecal.
First day	—	8,000	16,000
Second day	—	8,000	16,000
Third day	—	4,000	8,000
Fourth day	—	4,000	8,000
Fifth day	2,000	—	—
Seventh day	2,000	—	—
Ninth day	2,000	—	—

2. *Symptomatic.*—Symptomatic treatment consists in the exhibition of sedative drugs. Perhaps the most suitable is morphine in ¼ grain doses, and administered every four hours; potassium bromide, chloral, chloretone, paraldehyde are also given by the mouth or rectum.

Carbolic Acid.—There is no convincing evidence that the carbolic acid treatment of tetanus has any curative effect whatever, or any action upon the course of the disease.

Magnesium Sulphate.—Treatment by sulphate of magnesium has no effect upon the disease itself. The cessation of spasm which follows an injection is only temporary, and is purchased at the cost of risks which are far from negligible. It is very doubtful if any real advantage is gained by its use.

Surgical Treatment of the Wound.

There is a general impression that it is of advantage to excise the wound or amputate the limb in cases of tetanus. The matter is one upon which there is considerable difference of opinion. From the clinical experience of many observers it would seem that these procedures are of little avail, and may actually accelerate the course of the disease. Animal experiment, so far as it goes, also suggests that operative measures are useless.

While more evidence is required before any dogmatic statement can be made, it appears safer to abstain from surgical interference with the wound until the ordinary treatment for tetanus has been carried out, unless there exist other and imperative reasons for immediate operation.

The irrigation of the wound with oxidizing agents, such as hydrogen peroxide, when this can be done without undue disturbance and without opening up the wound, is to be recommended.

Reporting and Care of Cases.

In every Command one or more officers with special knowledge should be detailed by the D.D.M.S. to visit and assist in treatment of cases of tetanus. These officers should be at the general hospitals of the district, and their names and telephonic addresses should be communicated to the officers and medical practitioners in charge of subsidiary and V.A.D. hospitals.

On occurrence of a case of tetanus the appointed officer will be immediately informed, and he will at once proceed to visit the case and offer assistance in the carrying out of such treatment as has been suggested in the present memorandum. He will if necessary assist in the operation of lumbar puncture and intrathecal injection. This will seldom be necessary, as from what has already been said as to the danger of even an hour's delay this intrathecal injection will usually have been done before his arrival, unless the distance to be travelled is short. He will make careful inquiry into the case in order to ascertain if any early symptoms had been present and had escaped notice. He will note what prophylactic injections had been made, and if omitted, why they were omitted. When visiting the hospital where the case has occurred he will ascertain if the other wounded men are receiving prophylactic injections. He should see that sufficient notes of the case are being kept in order that the tetanus form can be filled up as fully as possible. For example, it is very seldom that the distinguishing marks on the bottles of serum are reported. If serum trouble arises it is evident that this information would be useful. He will forward an inspector's report to Surgeon-General Sir David Bruce, with as little delay as possible. The ordinary tetanus report will be filled in by the medical officer in charge of the case.

Officers in charge of hospitals will be responsible for the administration of the second and following prophylactic doses of antitoxin to all wounded under their care, unless reasons exist for withholding them. The administration of antitoxin will be recorded on the case-sheet. They will also, as heretofore, inform Surgeon-General Sir David Bruce, by telegram, of the occurrence of a case of tetanus, and on the death or recovery of the case forward the usual tetanus report in accordance with War Office instructions.

Any abnormalities of behaviour of antitetanic serum should be carefully noted and reported.

As the Tetanus Committee was appointed for the purpose of studying tetanus, it is greatly to be desired that every medical officer will co-operate in a collective investigation, and submit any evidence in his possession which may add to our knowledge of the disease and its treatment.

War Office, S.W.,
October 25th, 1916.

APPENDIX.

THE METHOD OF PERFORMING AN INTRATHECAL INJECTION.

The patient should preferably be under general anaesthesia, but the operation can be performed with local anaesthesia. The skin over the area of the fourth and fifth lumbar spines should be painted with iodine or cleansed with soap and water followed by an antiseptic. A spinal needle and 20 c.cm. syringe should be boiled in normal saline, *and the surgeon must observe throughout the most rigorous aseptic precautions.*

The patient is bent head to knees, so as to present as fully a curved back to the operator as possible, and the position of the fourth lumbar spine ascertained by drawing an imaginary line between the crests of the ilia.

The tip of the finger is placed on the supraspinous ligament connecting the summits of the spinous processes of the fourth and fifth lumbar vertebrae. The needle is inserted about three-eighths of an inch to one side of the middle line and directed forwards and slightly upwards and inwards. If the needle strikes the bone it should be withdrawn and a fresh attempt made. The canal is reached at a depth, on an average, of about 2½ inches. The trocar is withdrawn and about 20 c.cm. of cerebro-spinal fluid allowed to flow out into a measured vessel. The syringe is then fitted to the needle and the serum injected.

It is important that the serum be heated to the temperature of the body and the injection made very slowly.

The canal can also be reached by pushing the needle through the supraspinous ligament in the middle line half-way between the two spinous processes.

If several injections have to be made, it is well to choose fresh sites.

Blocking of the flow of the cerebro-spinal fluid by a blood clot may be overcome by reinserting and withdrawing the trocar.

The bed should be tilted at the foot and the pillow removed for an hour or two after the injections.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TWO CASES OF ACUTE ILLNESS IN OLD MEN WITH VALVULAR DISEASE OF THE HEART.

A MAN aged 85, who was in the habit of taking frequent "nips" of any drink in which his friends would join him, was taken ill with pneumonia. Dr. Russell, of Birmingham, saw him with me in consultation on the fifth day of the attack, and we agreed that he had no chance of surviving, but the crisis came on the twelfth day, he made an uninterrupted recovery, and lived for two years afterwards. The patient had had a loud systolic bruit at the apex of the heart ever since I had known him, which was about eight years.

A man, aged 93¾, was operated on at the age of 79 for strangulated inguinal hernia, but his condition at the time was too serious to admit of a radical cure being performed. Latterly he omitted to wear a truss, with the consequence that the hernia again became strangulated. I was unable to reduce it after the application of an icebag, so I operated; I found about 10 in. of small intestine in the sac, and one coil was adherent to the lower part of the sac by a band about the thickness of the little finger. The intestine was of a dusky red colour, but not gangrenous; it was returned without resection. This patient also made an uninterrupted recovery. I do not know whether this constitutes a record, but I should think it did. He also has a loud systolic bruit at the apex of his heart.

The interesting point about both cases is the fact that both had a loud systolic bruit, and I think that probably

this had much to do with their recovery, as the arteries in both cases were very elastic, and there were no signs of high arterial tension.

Stratford on-Avon. WILLIAM F. BOX, M.B.Lond.

AN UNUSUAL CAUSE OF DUPUYTREN'S CONTRACTION.

I RECORD this case as it may be useful and instructive from more than one point of view.

The patient, a miner of about 40 years of age, had had asthma and bronchitis for over fifteen years to my knowledge. For the last five or six years the asthma attacks have been very severe—so bad, in fact, that he has not done any work for the last three years.

His chest is typically emphysematous (barrel-shaped) on account of the expiratory dyspnoea, and he has to bring all his extraordinary muscles of respiration into play. In order to do this he requires a fixed point to work from, which he gets by pressing his hands firmly on the bed. This pressure on the hands has caused the absorption of the palmar fat and the subsequent adhesion of the skin and fascia.

I have never seen a case of Dupuytren's contraction in a miner, although I have practised among them for the last fifteen years. These cases are common, I know, among carpenters, electricians, etc. For the asthma, I tried the usual remedies without much success, but the patient got most relief from potassium iodide and creosote mixture, together with an indiarubber jacket (the first was made out of the inner tube of a motor tyre), perforated, and put on tightly next the skin to assist expiration.

Wigan. ROBERT GIRDWOOD, L.R.C.P.Edin.

Reports of Societies.

THE CARE OF PREGNANT WOMEN.

AT a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on November 2nd, the President, Dr. G. F. BLACKER, being in the chair, Dr. S. G. MOORE M.O.H Huddersfield, opened a special discussion on the need for improvement in the care of pregnant women. The subject, he said, was of national importance, and should be dealt with on national and not local lines. In child bearing, discomfort, disease, and death were, strictly speaking, abnormal. There were substantial reasons for the belief that part of the reduction of the birth-rate resulted from a fear of them. An average of 3,500 deaths occurred from childbirth each year in England and Wales. A far greater number endured preventable suffering and disablement. A compilation of the entries in the returns of deaths connected with pregnancy for Huddersfield from January, 1906, to October, 1915, showed that eclampsia caused 30 deaths; albuminuria and eclampsia, 3; albuminuria, 36; septic absorption, puerperal fever, and pneumonia, 32; *post-partum* and *ante-partum* haemorrhage and retained placenta, 24; conditions connected with parturition, Caesarean section, etc., 11; embolism, pulmonary and cerebral, 10; and intractable vomiting, 2; other causes connected with pregnancy accounted for only inconsiderable numbers. Some of the women with albuminuric conditions would not have died if they had been under proper care for two months; deaths from septic causes were entirely eliminable; how far deaths could be diminished in the remainder was uncertain. As a means of securing improvement of the conditions of pregnant women he advocated notification of pregnancy, since the majority did not come under a doctor's care until abnormal conditions had had time to become serious. He could see no objection to notification, since it was an honourable state which could not be concealed. On the receipt of the notification the woman could be examined and her surroundings considered by a duly qualified medical practitioner. The sanitary authority should take no action, but each case should be referred to the family doctor. Such a scheme had been in operation at Huddersfield during the present year, a fee of 2s. 6d. being paid to doctor or midwife for notification, which was only permissible with the woman's consent. All cases were referred to the family doctor. Help was obtainable from voluntary organizations, not from the sanitary authority. From January 1st to October 31st 1,536 births had been notified, and 156 pregnancies—that is, about 10.1 per cent. Of the pregnancies, 130 were uncomplicated, and 26 accompanied by complications. There were varicose veins in 7, exanthemata 6, vomiting 2, albuminuria 2, phthisis 2, serious domestic difficulties 2, haemorrhage 1, chicken-pox 1, diphtheria 1, sepsis 1, and prolapse 1. The birth-rate was declining alarmingly; the death-rate had also fallen considerably, but could not be reduced much more. Not only had the deaths of the mothers and children to be considered, but the soundness of the surviving children. Steps must be taken to prevent the great wastage of maternal and infant lives if we were to avoid becoming a subject race.

Dr. AMAND ROUTH said that he agreed with almost everything contained in a recent paper by Dr. A. Donald (BRITISH MEDICAL JOURNAL, July 8th, 1916, p. 33) except his conclusions. Supervision of all pregnant women was not an unnecessary trouble, for experience had shown that women needing treatment did not present themselves voluntarily. The results attending such supervision were not likely to be small, since emergencies for Caesarean section and others with eclampsia continued to be admitted to hospitals. At Queen Charlotte's Hospital the number of cases of albuminuria admitted during 1914 was 557. With regard to the statement that there were much more important causes of fetal death, such as abortion and stillbirths during delivery, than the diseases of pregnancy, he would ask why were there 3 per cent. of stillbirths, and why were there so many macerated fetuses if stillbirths were so dependent upon delivery? During 1914 at Queen Charlotte's Hospital there were 100 stillbirths, of which 26 were of macerated fetuses. The large majority of macerated fetuses were due to syphilis, and Dr. Mott had indicated the prominent part which syphilis played in stillbirths and abortions. Spirochaetes were found in the placentae in the former, but not in the latter, yet women believed to be infected often had both abortions and stillbirths in a series of pregnancies. There had been no systematic antenatal work before 1911. Midwives should be encouraged by the Midwives Board to extend their care to the unborn child. The death-rate of unborn infants was probably greater than after birth when it was considered that there were 3 stillbirths to 100 ordinary births. More interest was now being taken in the unborn child, and there were now about 750 centres established in Great Britain and Ireland. The general practitioner must be able to supervise efficiently his patient, for with due supervision many conditions might be discovered and proper treatment applied. Prematernity beds were necessary in every hospital. He did not think that compulsory notification could be carried out at present because of ignorance and resistance on the part of the mother, who would postpone notification until the last minute. Research work was necessary, and pathological facilities should be provided. *Post-mortem* examinations should be made on stillborn children, and the *Spirochaeta pallida* should be looked for. Every pregnant woman should be seen by a doctor, and should then have such supervision as the condition required.

Dr. COMYNS BERKELEY said that the question of the "maternity centre" first came prominently before the medical profession on the passing of the Notification of Births (Extension) Act, 1915, when the Local Government Board addressed a circular to the county councils and sanitary authorities pointing out, among other things, that Section 2 of the Act enabled them to make arrangements for the care of pregnant women, and that the Government had agreed to finance any such scheme up to one-half of its cost by means of annual grants. The Board was careful to state that it would expect medical advice, and where necessary treatment, to be continuously and systematically available to the pregnant mother, and that to enable this to be done efficiently the local authorities must start maternity centres in populous districts. Every doctor and midwife would agree that a pregnant woman had a right to the greatest possible care and to the best possible treatment that medical science could give her during this important and trying time of her life, and this not only for her own sake but also for the sake of the nation and of her child. The British Medical Association had passed a resolution to the effect that it was entirely in favour of any scheme which would encourage prospective mothers to arrange in advance for their nursing and medical

attendance during the period of pregnancy, but evidently it was doubtful as to whether the scheme suggested by the Local Government Board was the best means of securing it. That scheme proposed that the staff of the maternity centre should consist of medical men or women and non-medical women, working under the direction of the local M.O.H. The Local Government Board seemed to consider that the best possible medical officer to have charge of such a centre would be a whole-time paid official. This impression had led to the conclusion "that there would be a tendency under such a scheme to the formation of a class of practitioner who would be wholly concerned with the treatment of disease in expectant mothers and in young children, and that almost the whole of actual practice among such patients may be withdrawn from the general practitioner." Further, "if the medical and surgical treatment of the public is to continue to be (as it should be) in the hands of general medical practitioners, aided by suitable opportunities for consultative and pathological assistance, the effect of this must be seriously detrimental to public and profession alike." The Local Government Board was very anxious that medical practitioners and midwives should co-operate in its scheme, and with this object suggested as alternatives that the head of the maternity centre should be a practitioner from another district, or—and this was the arrangement it considered least satisfactory—a rota of practitioners from the neighbourhood. It agreed that the work of the maternity centre would be more effective if it secured the co-operation of the midwives of the district and of the medical practitioners who should be consulted in its organization. According to the scheme of the Local Government Board, the doctor at the centre would make a careful examination of the heart, lungs, and kidneys of the expectant mother, and, when considered necessary, would measure the pelvis. If serious organic disease were detected, the patient would be advised to have medical aid at home; failing this, arrangements would be made to send her into a hospital. Any immediate treatment would be given at the centre, or by the private doctor of the patient, or by the hospital, and no responsibility would be undertaken at the centre for continuous treatment. As the work of the centre could only succeed in producing the best results when combined with home visiting, health visitors, or in some cases special visitors appointed for this work, would visit the homes of the patients to see that the advice given had been thoroughly understood, and was being carried out. It would therefore be necessary for the health visitor to have been present at the medical consultation at the centre. This scheme of the Local Government Board, unless properly safeguarded, would in the long run vitally alter the status of the profession and the relation between doctor and patient, to the detriment of both. Such a scheme would have a tendency to eliminate the "family doctor," the best person to give advice to his patients and to treat them. Again, the tendency of the Insurance Acts to provide every worker with medical attendance on the lines of private practice might be interfered with. About 50 per cent. of the total number of pregnant women, and 75 per cent. of working women, engaged midwives to attend them, and this scheme might affect the midwives more than the doctors. The chief cause of the opposition of the midwives to it was the proposal to take their supervision out of the hands of the councils and county boroughs and transfer them to the borough councils. The midwives seemed very certain that this would be a move backward. Such a transference of supervision had been tried, but proved so unsatisfactory that the counties which had delegated their powers had to revoke their delegation. Moreover, a Departmental Committee, which met to consider the working of the Midwives Act, expressed the "emphatic opinion of the Committee that this power (of delegation) should be withdrawn, and that in cases where it is still exercised it should be revoked." It was a great advantage for a midwife to be responsible to one inspector only, whereas under the proposed scheme a midwife working in London, for instance, might be responsible to the inspectors of as many as five or six borough councils. Midwives were to be encouraged to accompany their clients to a centre or to send a note to the doctor concerning them. But who was to pay the midwives for this extra work? The work at the maternity centre would be primarily one of examination, but, supposing a pregnant woman was examined by her doctor, as she should be, would she not be very likely to resent a further detailed and somewhat prolonged examination? Dr. Comyns Berkeley then explained a scheme proposed by the British Medical Association in lieu of that advocated by the Local Government Board. At the Representative Meeting in 1915 the two following resolutions were passed:

A. That in the public interest the employment of private practitioners would be the best system for adoption.

B. That such a system would be beneficial and attractive to the medical profession itself, and therefore its adoption would not only be the best in the public interest, but would also be the line of least resistance.

The scheme proposed was as follows:

1. General supervision, including responsibility for records and statistics and the following up of cases to ensure that adequate treatment is obtained, to be undertaken by a supervising authority, preferably the medical officer of health, assisted by nurses or health visitors.

2. Attendance at a centre, or at such places as may be arranged for the purpose of (*a*) giving advice and (*b*) deciding if treatment is necessary, and the treatment at this centre of such selected classes of cases as may be determined upon by the local authority. This work to be undertaken by all those local practitioners who are prepared to do it. Such practitioners would be required to attend at the centre or arranged place for a specified time on certain days at fixed intervals.

3. Treatment of all cases requiring ordinary medical attendance, to be undertaken either at the centre, at the doctor's surgery, at the patient's house, or at an institution.

4. All persons referred to the centre to be allowed to choose whichever doctor on the list they prefer to consult.

The work of this rota of doctors would consist in the examination and advice to expectant mothers, and the keeping of such records and the giving of such treatment as is included within the scope of the scheme.

The midwives also suggested that the practising midwife should be included in either scheme. Those who spoke on their behalf pointed out that the practising midwife would get in touch with the pregnant woman earlier than any official, that she was often the only confidant of the single pregnant woman, and that such knowledge was of very great importance in regard to the question of abortion. Midwives were now trained to recognize conditions requiring medical advice, and by the rules of the Central Midwives Board were bound, when they discovered that the patient was in need of such advice, to refer her to a doctor. It was more than probable that if suitable arrangements could be made with the doctors a more educated class of women would become midwives. At present, a large number of the women who passed the examination of the Central Midwives Board, and who would be most suitable for midwives, did not practise as such. Proper antenatal care of the poorer pregnant women would not be secured until the midwife was made to feel her full responsibility. Many practitioners were in favour of the voluntary notification of pregnancy, and there were some against, but at the present time the vast majority of practitioners in the United Kingdom were dead against "compulsory notification." Although the Local Government Board was at pains to indicate that it did not approve of compulsion, and distinctly stated that such notifications should not be made unless the express consent of the expectant mother had been previously obtained, a large number of doctors, with the recollection of what had happened before under somewhat similar circumstances, could only see the thin end of the wedge in this insistence on the advantages of voluntary notification. Their fears in this respect were not allayed by the action of the authorities of the city of Nottingham, which was issuing to the midwives in its district formidable looking documents, surmounted by the arms of the city, asking the midwives to notify upon these documents the names of their pregnant patients, and also the answers to a number of questions of a very personal and private nature concerning them. These documents had apparently been regarded by some midwives as a demand; they could be returned through the post, unsealed, for the cost of a halfpenny. Again, the Huddersfield authorities, by offering half a crown to the doctor or midwife for each patient notified, did not intend to let the grass grow under their feet. Expectant mothers used to make the necessary arrangements for their confinement much earlier in pregnancy, but since the advent of the maternity benefit, because they knew this money was coming in, the present tendency was for them to put off engaging their attendant till, on the

average, about two months before the confinement. There were those who believed that the notification of pregnancy, if compulsory, would postpone the necessary arrangement being made for the confinement to an even later date. Many women would consider the visits of the health visitor resulting from notification as an intrusion, and would, on that account alone, delay engaging a doctor or midwife till the last moment. Until notification became compulsory single women would certainly postpone engaging an attendant till the last possible moment, and in many cases they were the very women who ought to be got hold of. The Local Government Board had professed a platonic respect for the proposal that the general practitioner, wherever possible, should be used in the antenatal schemes; past experience, however, inclined the practitioner to believe that the Board would practically give its weight to the whole-time scheme. In the London school clinics such a method as that proposed by the British Medical Association had been a great success, but no local authority had yet given this method a trial with respect to antenatal clinics. The Local Government Board thought that a rota of doctors was the least satisfactory method of dealing with the subject, but the British Medical Association's proposal did not imply a rota in the strict sense of the word. The word "rota" had a sinister meaning, giving the impression that patients seen at one visit by one doctor might very well be seen at the next by another. The British Medical Association's plan meant nothing of the sort. It aimed at these men serving for stated periods which should be long enough for them to become expert at the work. They must attend regularly once or twice a week at a stated place, and the patient on her return visit would be seen by the same doctor. Such a scheme would have the great advantage that within a certain time all the younger medical men in a locality would have passed through the maternity clinics, to the great advantage of the community and to themselves. It was not true to say that general medical practitioners were hostile to the proposed scheme of the Local Government Board, but it was hostile to any attempt to apportion to whole time officials work which it believed could be done as well or better by the general practitioner. As to the guarantee of the competency of the members of the medical staff, it must not be forgotten that many so-called specialists in tuberculosis, for instance, were youths and maidens, with a high qualification, perhaps, but with an experience that in many cases extended to only a few months in the subject in which they posed as specialists. The highly specialized members of the profession were not doing their duty to their profession or to the community unless they interested as large a number of general practitioners as possible in such a scheme as that suggested by the British Medical Association. General practitioners, like medical officers of health and consultants, were good, bad, and indifferent, but it behoved those who had the interests of the nation at heart to try to improve their position and insist on their taking a part in these communal schemes, not only because they were members of the medical profession, but because the community could not dispense with that experience or that knowledge of human nature which they acquired by virtue of their daily work.

Lady BARRETT said that the central factor of any scheme was the mother, and all plans must conform with her wishes. Three activities were necessary—medical, educational, and social. The medical needs were three—supervision during pregnancy, attention during labour, and supervision during lactation. An obstetric specialist should be available for every mother. There was also the educational need. Matters appertaining to a healthy pregnancy and delivery and healthy infancy must be taught over and over again in the home after a first instruction at a centre. The social need included the provision of suitable houses and environment for parturition. Hospital conditions were necessary if the home provided no single room which could be set aside for the delivery and lying-in period. Nursing for the mother, cooking, and household work had also to be arranged; much of the household work done by an expectant mother was far worse than the much-abused outside work. To obtain these desiderata there was need for closer co-ordination between existing agencies and an extension of activities. The maternity centre was a focus around which these activities could crystallize. Two types of institution were involved—the hospital centre and the local centre. Three principal forms of work were concerned: (1) That of sanitation, by the medical officer of health and the public health committee; (2) medical, including a centre in a hospital; (3) educational and social, which gave scope for voluntary workers. The hospital centre should include out-patient consultation clinics for maternity cases, infants, and children up to school age, as well as pre-maternity beds and provision for pathological investigation. The Poor Law infirmary maternity work would then cease to exist, to the benefit of both mother and child. Small local centres were needed to supply the needs of the poor mother, and these should include also infants' consultations and dental clinics. The mothers should be referred to the doctor who would attend them at delivery. The health visitors needed special training, and for them a uniform qualification should be established. The mother would be referred by the health visitors or midwives to the local centres, where they would be seen either by a whole-time medical officer or by a rota of the local practitioners. Such measures would secure the same end as compulsory notification, which was repugnant to the mother.

Professor MUNRO KERR said that those who required to be cared for included all pregnant women, and could be constituted into three groups. First, those who were well off, and would probably be efficiently looked after in any case. Secondly, a large body of the lower middle class containing women who often drifted into a serious state; the conditions of this group could readily be made satisfactory. Thirdly, the lowest class in the social scale. Appeals to this class were absolutely futile, and legislation was alone useful. An intimation of pregnancy to their own doctors should be made compulsory, and, after the confinements, this intimation should be forwarded by the doctors to the medical officer of health. The penalty for failing to intimate should be a reduction of the maternity benefit. The Glasgow scheme included a senior clinic, and in touch with it smaller maternity centres in the different districts.

Professor H. BRIGGS said that the one need for a successful scheme which would work without difficulties was co-operation by all parties interested.

Dr. KRIVSKY (Petrograd) gave an account of the maternity needs in Russia. In the fifty central provinces of European Russia the birth-rate had declined from 49.9 per 1,000 (1894–96) to 43.1 per 1,000 (1913), and the death-rate from 36.3 per 1,000 (1892–95) to 27.4 per 1,000 (1913). The natural increase in the population was 15.7 per 1,000. The mortality among children under 1 year was 27.2 per cent., as compared with Sweden 7.1 per cent., and Norway 6.7 per cent. From 5,249,677 births in 1913 there were 870,000 miscarriages and stillborn children. Russia needed 37,000 beds for lying-in women, and 60,000 midwives, instead of the present number of 14,361. In 1912, 7,033,507 children had been born alive—25,240 in lying-in hospitals; 95 per cent. of the confinements occurred without any obstetrical help whatever.

Miss ROSALIND PAGET, speaking from the point of view of the midwives, said that four things were needed—early booking, up-to-date instruction of the midwives, facilities for medical treatment, and the securing of the right kind of midwife. Early booking would be prevented by notification as it had been by the maternity benefit. The midwives would co-operate and needed only to be told how this might best be done. She urged that they should not be excluded from any scheme for antenatal care.

The PRESIDENT mentioned that a scheme fulfilling almost all the recommendations of the Local Government Board was working at University College Hospital, and advocated its application to other hospitals.

MASSAGE OF THE HEART.

AT a meeting of the Section of Anæsthetics of the Royal Society of Medicine on November 4th, Mr. GEORGE ROWELL, President, being in the chair, Mr. W. M. MOLLISON read a paper on a successful case of heart massage following heart failure under an anæsthetic. The patient, a healthy but slight boy, aged 6, after due preparation, was given a mixture of two parts of chloroform to three parts of ether for removal of tonsils and adenoids, considered advisable

as a treatment for asthma and bronchitis. During the removal of the second tonsil some struggling occurred and was followed by shock, the pupil dilating and respiration ceasing. After the throat had been swabbed out, artificial respiration by the Sylvester method and stimulants were employed without improvement. Pituitary extract (0.5 c.cm.) was injected subcutaneously, and later into the heart, but evoked no response. The heart sounds could not be heard. An incision was then made through the abdominal wall, accidentally cutting into the liver, and the right hand inserted between the liver and the diaphragm. Between this hand and the other applied to the precordium the heart, which had ceased beating, was massaged at the rate of ninety movements a minute. At first respiration began and the pupil contracted, but the heart failed to respond; 1 c.cm. of pituitrin was injected into the heart and the massage renewed, and after about twenty movements the heart beat strongly. It was almost certain that the time during which the heart stopped was between thirteen and twenty-four minutes, and probably about twenty minutes. The whole episode lasted about thirty-five minutes. When taken back to bed the patient's condition was still very poor and saline infusion was employed. One hour later the boy was restless and developed choreiform movements, during which his intestines protruded through the abdominal wound, which had been hurriedly stitched up. These were put back later when consciousness returned. For seven days he was more or less unconscious: then consciousness gradually returned with relapses back to unconsciousness. During the second week there were periods of rigidity, tetany, and screaming, which was almost continuous for thirty-six hours. He was violent, and there was incontinence of both urine and faeces, and he presented the picture of severe cerebral irritation. At the end of fourteen days he had much improved, and eventually made a perfect recovery, his mentality becoming equal to the standard for his age. Of thirteen recorded cases of successful or partially successful heart massage which Mr. Mollison had collected, in nearly all a short time only had elapsed from the cessation of the heart's beat until the procedure was begun. The partially successful cases were most interesting, for in them similar unconsciousness, rigidity, cramps, and incontinence had subsequently occurred. The same phenomena accompanied cerebral anaemia, to which they could be ascribed in these cases. A study of his case and of the records seemed to indicate that heart massage should not be postponed too long, and ought always to be performed through an abdominal wound.

Dr. J. Blomfield agreed that this was an instance in which heart massage was essential, but it was doubtful whether the same could be said of many other recorded cases. It was difficult to determine how long to wait before employing it. This case was in favour of delaying where children were concerned, for adults the delay must be shorter. Although justifiable and needful in the present case, it would be a serious matter if it became customary to resort to it as a routine measure when the heart stopped under anaesthesia.

Dr. M. S. Pembrey said that the fact that artificial respiration could be of no use in the absence of circulation was often overlooked. It had been shown that the human heart could be revived by perfusion, and made to start beating again some hours after death. The cerebral irritation certainly indicated that there had been cessation of the circulation for a considerable period. Children withstood a lack of oxygen better than adults.

SHELL SHOCK AND TRAUMATIC EPILEPSY.

At a meeting of the Harveian Society on November 2nd, the President, Dr. Edmund Cautley, being in the chair, Dr. E. Farquhar Buzzard read a paper entitled "Warfare on the brain," dealing chiefly with shell shock and traumatic epilepsy. Shell shock, a much abused and unfortunate term, covered, he said, a number of groups of cases: (*a*) cases of pure exhaustion; (*b*) cases in which exhaustion had excited inherited neuropathic and psychopathic tendencies into activity; (*c*) "martial misfits," who passed as normal individuals in civil life but were quite unable to bear the strain of military service; in these groups direct exposure to shell explosion might be absent, or at most was merely a culminating factor in the production of symptoms; (*d*) normal individuals affected by close shell explosion who showed symptoms similar to those following a blow on the head. In making a diagnosis care must be taken to exclude the presence of organic changes in the skull or brain. The symptoms of mutism, etc., were hysterical, and signified mental disorder and not a localized cerebral injury. In traumatic epilepsy the principle underlying surgical interference was not to cure the epilepsy, but to restore the injured part of the brain as far as possible towards the normal; where operation would have the opposite effect it was contraindicated. The treatment of the epilepsy itself was medical, and the prophylactic use of bromide in cases of head injury was of great importance. The problem of the treatment of the large numbers of these cases occurring at the present time was of national importance.

TREATMENT OF PLACENTA PRAEVIA.

The first meeting of the Leeds and West Riding Medico-Chirurgical Society for the Session 1916–17 was held at the Leeds General Infirmary on October 27th, when the President, Dr. W. R. Bates was in the chair. Professor J. B. Hellier read a paper on the treatment of placenta praevia, in which he discussed the place of Caesarean section in dealing with this condition. He said that when there had been one well-marked haemorrhage modern opinion was strongly in favour of terminating the pregnancy without delay. Given a patient who was not in labour and whose genital canal was uninfected, Caesarean section by a man accustomed to abdominal surgery might be strongly recommended. He quoted three cases in point. In one a lady who had a severe attack of flooding had been treated expectantly and a second attack of flooding had proved fatal before she could be delivered by version. In two other cases, after the first haemorrhage he had performed Caesarean section and had saved both mothers and children. He recommended that such cases should be transferred to a nursing home or hospital after the first haemorrhage for treatment by hysterotomy. He did not say that all cases of placenta praevia should be treated by Caesarean section, and many would still be treated by version, but he strongly insisted on the importance of not waiting after version had been performed till the uterus expelled the child by natural efforts.

Reviews.

MINERS' PHTHISIS IN SOUTH AFRICA.

In the Milroy lectures for 1915 Dr. E. L. Collis gave an admirable account of the industrial pneumoconioses, or disorders of the lungs following the inhalation of dust, to which the workers in certain trades are exposed in this country. The Home Office has its eye on these trades, and "dust phthisis," as it is sometimes called, or the disorganization of the pulmonary tissues by the inhalation of siliceous particles with or without a superimposed infection with tubercle bacilli, does not nowadays add very considerably to the death-rate of Great Britain. In South Africa, however, affairs are otherwise. Here silicosis of the lungs, or "miners' phthisis" as it is confusingly termed, is of great importance as the cause of a high mortality amongst men employed underground in the Rand mines. Its clinical and pathological aspects have recently been made the subject of a report by Drs. Watt, Irvine, Johnson, and Steuart, published by the Miners' Phthisis Prevention Committee[1] in South Africa. "Miners' phthisis" is defined as a general term applied all the world over to cases of chronic disease of the lungs occurring amongst metalliferous miners, and traceable to occupational conditions. It includes cases of uncomplicated silicosis (or impregnation with siliceous dust) of the lungs, and also cases of silicosis complicated by infective processes of which the most common is tuberculosis. The presence of silicosis is the pathological condition upon

[1] *Silicosis (Miners' Phthisis) on the Witwatersrand.* By A. H. Watt, M.B.Edin., F.R.C.S.E.; L. G. Irvine, M.A., M.D., B.Sc.(Pub.H.)Edin.; J. P. Johnson, M.B.Lond., M.R.C.S.Eng., B.S.Lond., D.P.H.Oxon.; and W. Steuart, M.R.C.S., M.I.E.E. Pretoria: The Government Printing and Stationery Office. 1916. (Demy 4to, pp. 130; 30 figures.)

which the inclusion of a case as one of "miners' phthisis" rests. The silica reaches the lungs by inhalation; a vast amount of very fine siliceous dust is produced by the operation of blasting in the Witwatersrand, and it is calculated that a cubic metre of the dusty atmosphere produced by blasting may contain half a gram of dust, in the form of some 86,000 million particles 12 μ or less in diameter. The drilling of the rock may also produce large quantities of fine dust. It is satisfactory to know that the amount of air-borne dust produced by both blasting and drilling can be kept down to a small fraction of the original amount by the use of efficient water jets at the seat of operation. In all mine dusts from 95 to over 99 per cent. of the dust particles in the air are below 12 μ in diameter; the particles actually reaching the workers' lungs are mostly less than 1 μ in diameter, and none of them appear to be more than about 10 μ in length. It is thought that very little harm is done to the workers or their lungs in actual practice by inhalation of the carbon monoxide and nitrous fumes generated by blasting in the mines. The risk of infection with tubercle bacilli in the mines appears to be considerable. Thus 15 per cent. of samples of sputum obtained underground, chiefly from shafts and main travelling ways, showed the presence of tubercle bacilli, as against only 2.5 per cent. of samples collected in the living rooms or places of resort of white and native mine workers on the surface. The tubercle bacillus will survive for at least two months in acid mine waters. It is argued that the control of tuberculosis—the segregation of phthisical persons and the prohibition of spitting—must constitute a most important part of any policy aiming at the reduction of mortality and disablement by "miners' phthisis."

As regards the incidence of silicosis in the Witwatersrand, the different classes of mine workers are affected in proportion to the amount of exposure to dust their work entails, and the duration of that exposure. No doubt, too, certain individuals are more prone to develop silicosis than others. In 1911, out of 3,136 white underground miners actually at work, 32 per cent. were found to show the signs of pulmonary silicosis. The disease was found to fall most heavily on machine-drill miners; 48 per cent. of them were affected, and it was more rapid and more regularly progressive among them than among any other group of underground workers. But even the supervisory staff was not exempt from the risk of silicosis. Since 1911 the systematic use of dust-laying appliances in the mines has become general and much more thorough, and "miners' phthisis" is now much less general than it was five years ago. Describing the pathological anatomy of the condition, the authors of the report define "early silicosis" of the lungs as a discrete fine fibrosis resulting from dense aggregation of dust particles along the small blood vessels and bronchioles, and in the interalveolar, interlobular, and subpleural tissue to a less extent. To the naked eye the lung appears almost normal, but for scattered pigmented areas. The x rays show a slight increase in the opacity of the lung, which is a little mottled and unduly streaky. The next stage of silicosis is described as "intermediate silicosis," and is a diffuse fine fibrosis, with a reactive proliferation of the connective tissue of the lung generally. To the naked eye the pleura is a little thickened; the lung tissue is tough and mottled, the cut vessels and bronchioles stand up from the cut surface, the pigmented areas are larger and more palpable than normal, and small silicotic nodules can be both seen and felt. Advanced pulmonary silicosis consists in the development of nodular and massive fibrosis throughout the lung tissue. Such a lung feels like a bag of small peas, with larger dense areas here and there. The bronchial glands are definitely enlarged. Under the x rays these lungs present what is called a "snowstorm" appearance. The areas of massive fibrosis or fibroid consolidation in such lungs may be due either to the coalescence of fully developed silicotic nodules, or to a massive increase of a diffuse fine fibrosis, or, and most often, to a chronic tuberculous infection of the silicotic lung.

As regards the signs and symptoms, it is stated that in early silicosis the patient is a little short of breath on exertion and has recurrent bronchial colds, but the working capacity is not noticeably impaired, perhaps for many years. In intermediate silicosis definite shortness of breath on exertion, morning cough, a marked tendency to bronchitis, and pleuritic pains appear; the general health often remains quite good. The patient's chest shows, on examination, an emphysematous shape, impaired note on percussion and diminution in the breath sounds. In advanced pulmonary silicosis the cardinal symptoms are great shortness of breath, cough, expectoration, loss of weight and strength, and great emphysema with breathing that is almost wholly diaphragmatic. The cough is typically a cough of irritation; in typical silicosis the chest is dry, with few adventitious sounds till late in the disease. Death may occur after short illness from oedema of the lungs, heart failure, or intercurrent disease. Pleuritic sounds are common in intermediate and late silicosis. Tuberculosis may complicate silicosis at any stage, usually towards the end: often the course is rapid, with fever, wasting, streaky haemoptysis, pleurisy, and excavation of the lungs. The prognosis is not bad in early silicosis, and good practical recovery may take place even in late medium silicosis; it is certain that no man with definite pulmonary silicosis should continue to work underground. Full details of the skiagraphic appearances of the lungs in silicosis are given in the report, with photographic reproductions. There are also excellent coloured plates showing the naked eye appearances, and a number of microphotographs.

FLEAS.

MR. J. WATERSTON has contributed to the Natural History Museum's series of economic pamphlets an extremely readable account of the *Fleas*,[2] a group of insects with which he is fully qualified to deal. The external anatomy is described in some detail, in order to give the reader an understanding of the characters on which fleas are classified. This is followed by an account of the internal anatomy, and of the mechanism whereby the flea transmits the plague bacillus. The view is adopted that infection does not usually take place by contamination with the faeces of the flea, but that it is produced because the flea's stomach is blocked completely by a plug of multiplying bacilli; when, therefore, the flea sucks the blood of an uninfected man or rat the blood is regurgitated into the wound because it cannot pass beyond the gizzard; it is this regurgitated blood which produces infection. The *Bacillus pestis* has never been found in the salivary glands of the flea. The life-history and habits are dealt with at some length because a knowledge of these is the only rational basis for efforts at control. The eggs are deposited quite loose among dust and organic refuse, and it is in such surroundings that the larva lives. The larvae, which are very small and difficult to detect, can be found in the baskets of not a few dogs and cats moving in very high circles. The larva passes into the pupal stage within a minute silken cocoon which it spins. It would appear that powdered naphthalene is noxious to fleas over a considerable area; that its odour is only repellent to lice when they are in immediate proximity to it has lately been shown by Mr. A. Bacot. A select bibliography is appended to this excellent little work.

NATIONAL INSURANCE LAW.

THE Commissioners have just issued a compendious volume, extending to nearly 700 pages, containing all the statutes, regulations, and orders relating to National Insurance which were in force on September 30th last.[3] It was inevitable at the beginning of such a huge scheme that there should be quickly made a multiplicity of regulations and orders dealing with all its various branches, and it was practically bound to happen that many such regulations and orders would sooner or later have to be revised or revoked in the light of further experience. As a result it had become an extremely difficult matter for officials of societies, insurance committees, and others engaged in the administration of the Acts to unravel the tangle of documents which soon existed, and for some time there has been an urgent demand for some consolidation into codes. That also was impossible so long as there was every

[2] *Fleas as a Menace to Man and Domestic Animals: Their Life History, Habits, and Control.* British Museum (Natural History) Economic Series. No. 3. London: The British (Natural History) Museum. H. Quaritch, and Dulau and Co., Ltd. 1916. (Demy 8vo, pp. 22; 6 figures. Price 1d.)

[3] *The Statutes, Regulations, and Orders Relating to National Health Insurance, with Notes, Cross references, and an Index.* Published by authority. London: Wyman and Sons. Edinburgh: H.M. Stationery Office. Dublin: E. Ponsonby, Ltd. September, 1916. (Pp. 679. 2s. 6d., or post free 3s.)

prospect that it would be necessary to issue a rapid succession of fresh regulations and orders, but apparently the time has now arrived when the consolidation now presented will have a chance of not being very seriously disturbed for some time. If this view be correct we may now expect that we have at length arrived at something like a firm basis of administration instead of the hitherto constantly shifting ground,

The volume gives all the Acts of Parliament relating to National Health Insurance in full, including not only the Insurance Acts but also parts of the Finance Acts of 1911 and 1912, the Government War Obligations Act, 1915, the War Loan (Supplementary Provisions) Act, and the Local Government (Emergency Powers) Act, so far as these relate to insurance. Convenient footnotes are given under the proper sections of the principal Act of 1911, showing the effects of amendments by later Acts. Next follow tables of regulations and orders made by the Joint Committee and the four bodies of Commissioners, and in part 3 is given the text of all the regulations now in force throughout the kingdom. Where the regulations issued by the four bodies of Commissioners are substantially in the same form, only one of the four regulations is given, any variations in the other three being shown in footnotes, but where substantial differences occur, as for example, between the medical regulations for England and those for Scotland, both are printed in full. The regulations are grouped under thirteen different heads, according to the subject dealt with or the administrative body concerned. Part 4 contains the orders relating to health insurance, and is arranged in the same manner as the regulations. In each case notes, cross references, and references to subsequent amending orders are given, and the parts of the United Kingdom to which each regulation or order applies are shown in heavy type at the head of each page. The volume will undoubtedly be warmly welcomed by all engaged in any branch of administration of the Acts, who have often been in doubt as to whether later modifications of the regulations might not be overlooked. It will not serve as a complete guide to the working of insurance, as it does not contain many of the rules which are in force—for example, a careful search fails to reveal the important rules of medical certification—but so far as it goes the book will certainly, as Mr. Charles Roberts hopes, supply a real want, and it is to be desired that the proposal to re-issue it from time to time in order to keep it up to date will be carried out. It is to be noted that though it only professes to give the regulations and orders in force on September 30th, it gives in full the new medical regulations for 1917, without any amendment such as suggested by the conference of Panel Committees.

NOTES ON BOOKS.

Drs. J. and P. Fiolle have brought together into a small compass a summary or outline of the treatment required by modern gunshot wounds.[4] The book is designed to be the stay and support of the young surgeon confronted with the complex horrors of the wounds produced in the trenches. It contains eighteen chapters, each devoted to trauma of some special part of the body, or to special forms of infection, such as gas gangrene and tetanus. It is clearly written, and contains the fruits of an obviously wide experience, gained in the trenches, dressing stations, casualty clearing hospitals, and hospitals at the base It is stated in Professor Jacob's preface that one of the authors was killed early in July while dressing a wounded man in an advance. The book may be cordially recommended on its merits to the attention of all who have to deal with wounded soldiers, whether at the front or at home. It is thoroughly practical.

First Aid for the Trenches,[5] by Captain Hastings, R.A.M.C.(T.F.), gives a short and concise account of what to do in cases of emergency—wounds, fractures, unconsciousness, burns, and the like—arising in the trenches. It is well written, but noticeable chiefly for the excellence and artistry of the numerous photographs with which it is illustrated; they could hardly be better. The book is meant for the layman, and may be recommended.

In *Efficiency in First Aid*,[6] Dr. N. C. Fletcher has attempted to provide senior students of first aid to the injured with a reasoned account of what it is they are trying to learn and how they should set about learning it. His motto is "efficiency," and the five chapters of his manual show how students may attain this in study, diagnosis, treatment, and before the examiners. Without doubt the book should be of great service in the training of those for whom it is designed. It will teach them to think before they act. With this little volume the publishers issue a folded paper entitled *Home Nursing in Few Words*, wherein are summarized the rudiments of nursing. In this folder the proteins are called "proteids," and the carbohydrates are called "hydrocarbons."

[4] *Précis-résumé de chirurgie de guerre.* Par J. Fiolle et P. Fiolle; préface de M. le Prof. Jacob. Paris: F. Alcan. 1916. (Cr. 8vo, pp. 152. Fr. 2.)

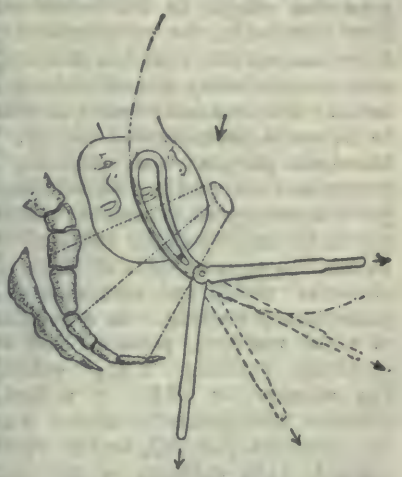
[5] *First Aid for the Trenches: Some Simple Instructions for Saving Life that Every Soldier Should Know.* By S. Hastings, M.S.Lond., F.R.C.S.Eng., Captain, R.A.M.C (T.F.). London: J. Murray. 1916. (16mo, pp. 63; 38 figures. 1s. net.)

[6] *Efficiency in First Aid: A Manual of Aids for Senior Students of First Aid.* By N. Corbet Fletcher, B.A., M.B., B.C Cantab., M.R.C.S., L.R.C.P.Lond.; together with a folder, *Home Nursing in Few Words*, by J. M. Carvell M.R.C.S., L.S.A.Lond. London: J. Bale, Sons, and Danielsson, Ltd. 1916. (16mo, pp. 200; 1s. net; Folder 3 × 4½, 2d.; cloth 4d.)

MEDICAL AND SURGICAL APPLIANCES.

Midwifery Forceps with Mobile Blade.

Dr. Charles A. Beck (Barton-on-Humber) has designed a forceps in which the cephalic portion of the blades become mobile by turning a key placed at the bottom of each handle. By this arrangement one or both can instantly be either fixed or liberated. In the high operation, a rigid forceps, when seizing an asynclitically placed head at the brim, will tend to pull it down in this position at the expense of much unnecessary force. Mobile blades, in such cases, favour a gradual correction which the uterine contractions are endeavouring to establish. Tarnier's axis-tractor forceps with their jointed lever arrangement enabled the fixed blades to rotate whilst traction was employed. This freedom of the forceps to follow the movements of the head constituted the great advantage of his instrument. The present forceps, with their mobile blades, will favour a natural rotation in practically any line of traction; the blades when free will automatically adapt themselves to the sacral curve. By the fixation or liberation of one or other blade with light traction an occipito-posterior or mento-posterior position may be made to rotate anteriorly. To sum up, the advantages are:



1. The movable blades allow the head to mould and adjust itself to the larger pelvic diameters of the parturient canal without the resistance of the ordinary fixed forceps.
2. Traction need only be a straight pull—not necessarily backward (in high operations)—hence no undue stretching of the perineum and lacerating of the soft parts.
3. By the liberation of one or other blades, the head in an O.P. or M.P. position may be made to rotate anteriorly.
4. They combine the advantages of an axis-tractor without the complicated lever mechanism and its difficult application.
5. The blades can rarely slip—even when faulty traction is applied.

The instrument is well and strongly made by Messrs. Weiss and Son; the whole fixation mechanism can be instantly removed for sterilization by liberating the screw. All sharp corners and edges have been rounded off.

On October 7th a bust of Dr. Emile Reymond was added to the Galerie des Bustes of the French Senate. Reymond was surgeon to the hospital of Nanterre and Senator for the Loire. He was said to have had a greater influence than any other man on the development of military aviation in France. He found a hero's death in making a reconnaissance in Lorraine at the beginning of the war. The bust is from the chisel of Alfred Boucher.

British Medical Journal.

SATURDAY, NOVEMBER 11TH, 1916.

DIET AND WORK.

THE Health of Munition Workers Committee is continuing to issue memorandums which, when next some enterprising author sets to work to compile a handbook on diet and work, will provide him with an easily-worked mine of highly practical, soundly scientific, and, for the most part, novel material. It has just issued an account[1] of an investigation of workers' food and suggestions as to diet, by Professor Leonard Hill. As might be expected from its authorship, it is one of the most informing; not only is it full of facts carefully ascertained and recorded, but in spite of the circumstance that it contains many tables which at first sight may repel, it is written in a most interesting and suggestive way. Food reformers of various kinds are never tired of telling us what to eat and what to avoid. They usually demand that we should make radical alterations in our customary diet, but the late Sir William Roberts, who was a very wise physician, more than once observed that not to give due weight to the habits and customs of mankind founded on the experience of unnumbered generations was not only rash but unscientific. Professor Hill seems, consciously or not, to have had this advice in mind. He does not present us with model diets made to fit some preconceived theory. He has examined the diets popular with workers, male and female, young and old, and has tested them primarily by their yield in energy as expressed in calories. In the first place, he examined the value of certain meals, taken at random as specimens of those served in canteens, students' clubs, and restaurants. The difference in price is very striking. In a popular restaurant a meal of steak pudding, potatoes and cabbage, and syrup pudding, yielding 1,344 calories, cost 1s. 5d. (79 calories for 1d.). In a factory canteen under amateur management a dinner of steak pudding, peas, and potatoes, jam roll, and rice pudding, cost 5d., and yielded 1,433 calories, or 288 calories for 1d. The cheap 5d. meal was not made cheap by cutting down the protein, for it actually contained over 10 per cent. more protein than the meal that cost 1s. 5d.; moreover, it contained the same amount of fat and rather more carbohydrate. Such a result must give the domestic housekeeper much food for thought. Taking the canteen dinners generally, it appeared that they were good, yielding an energy value of about 1,000 calories, well distributed among the amounts of protein, fat, and carbohydrate. Inspection showed that meat, vegetables, and pudding were made of good materials and well cooked. The meals brought in by workers were also examined, and were found to vary a good deal more than the canteen meals. One man who brought rabbit and vegetables in a basin got only 683 calories; another man who brought sausage roll, bread-and-butter and ham, and cheese, got 1,448 calories; and a boy aged about 15 got 1,719 calories out of a dish of potatoes, tomatoes, and bacon, a jam puff, a cake, bread-and-butter and jam; but, as Dr. Hill hints, while this meal illustrates the effect of growth and work in producing appetite, the boy was probably over-eating himself if his other meals were on the same scale. The food of women workers was, on the whole, less satisfactory than that of men and boys, and the yield in calories was probably, in most cases, insufficient. A restaurant meal of roast mutton, potatoes, cabbage, and syrup roll, yielded 687 calories and cost 6d.; another in a teashop, consisting of a roll, butter, milk, sugar, stewed prunes, and syrup, yielded 397 calories, and cost 7d. A meal, brought from home, of roast pork, Yorkshire pudding, potatoes and cabbage, yielded 590 calories; but another, consisting of roast beef, potatoes, cabbage, and haricot beans, yielded only 295. Whether deficiencies in the meal taken during the working period are made up by more liberal meals at home, or whether these meals are also deficient, could not be ascertained, but, says Dr. Hill, "even if the home meals are more liberal the distribution of the day's eating is on the wrong lines." He considers that in a long day's work there should be a good meal in the longest break if the efficiency of the worker is to be maintained for months and years. Experience, he says, "indicates that for a large class of workers home meals are hurried, and, especially for women workers, too often consist of white bread and boiled tea. A worker starting the day with a bread and tea breakfast, and walking or travelling for an hour or more to work, cannot remain for long an efficient worker," and he thinks it probable that much broken time and illness arise from this cause. He accepts the estimate of numerous investigators that the energy required by a man engaged in fairly light munition work is about 3,500 calories of food as purchased, but where calculations are based, as in his report, on food as eaten, the minimum canteen diet should be taken to be about 3,000 calories, although for a man engaged in a sedentary occupation as little as 2,200 may suffice. An investigation was made of the diet supplied at a well-managed hostel where each worker might eat as much as he or she desired. Four meals were supplied—breakfast, dinner, tea, and supper. Bacon or sausage, or both, were served at breakfast, either meat or fish at dinner, and either meat or ham, and cheese at supper. The calorie values varied between 3,847 and 3,913. This should satisfy the requirements of factory workers unless very heavy work is being done, and could perhaps be reduced somewhat if facilities for getting extra food were afforded to any one who wanted more. Five sample daily dietaries are suggested, yielding from 2,956 to 3,252 calories. Any one of them would seem to most town livers an ample dietary; thus that which yielded the lowest number of calories consisted of a sausage and a rasher of bacon, with two slices of bread, sugar and milk, for breakfast; roast beef, potatoes, peas, and currant pudding for dinner; two slices of bread, butter, and jam, sugar, milk, and a piece of cake for tea; and two slices of bread-and-butter, ham, and cheese, for supper. It is interesting to note how Professor Hill distributes his calories during the day. In three of his five diets the largest number is provided for midday dinner, the yield being 1,346, 1,102, and 1,003 respectively. In the two others the yield provided from breakfast is a little higher than that from dinner. In all diets the yield from supper is lower than that for dinner, and in all but two lower than that for breakfast.

The memorandum contains some general observations; it is, for instance, pointed out that for the relief of monotony an important factor is a change in surroundings during the meal, while a short walk before partaking of it may be desirable. For those

[1] Health of Munition Workers Committee. Memorandum 17. Investigation of Workers' Food and Suggestions as to Dietary. By Leonard Hill, M.D., F.R.S. H.M. Stationery Office. Cd. 8370. Price 1½d.

reasons, and also because it is important to ventilate the workshop so that the air may be fresh when the workers return, the custom of eating meals within the workshop should be discontinued, and all food taken in a canteen, restaurant, or in the open air. The importance of fatigue in causing indigestion is also touched upon. Fatigue, it is said, prevents the proper digestion of food, and one of the earliest symptoms of overwork is some form of digestive derangement. Further, since nervous energy is required to control the work of the digestive organs, nervous fatigue, as well as physical fatigue, is followed by digestive disturbance. Thus some persons will benefit more from a brief rest, physical as well as nervous, before a meal than from a short walk. Food, it is added, should be taken regularly and not hurriedly, and the energy so taken should be distributed fairly evenly over the day in the manner indicated in the model dietaries referred to above. In this way strength is maintained and the digestion at no time overloaded. One more remark may be noted: it is that "food should not be taken between meals or at frequent intervals, because a good digestion depends upon a keen appetite."

STATE PROVISION FOR THE TREATMENT OF VENEREAL DISEASE IN SCOTLAND.

Under date of October 25th there has been issued by the Local Government Board for Scotland a Memorandum and Regulations entitled "The Public Health (Venereal Diseases) Regulations (Scotland), 1916."[1] The document is addressed "to all local authorities in Scotland and to all others whom it may concern." The significance of this mode of address will appear later. There is much in it.

The corresponding regulations and circular for England and Wales were issued under date of July 12th last, and the documents were summarized and criticized in the issue of the Journal of July 22nd. Comparing the two sets of documents it will be found that there is a close agreement in the form which the orders take. The Scottish regulations require every local authority to prepare and submit for approval a scheme (*a*) for enabling any medical practitioner in the area to obtain, at the cost of the local authority, a scientific report on any material submitted from a patient suspected to be suffering from venereal disease; (*b*) for the treatment at and in hospitals or other institutions or in their homes of persons suffering from venereal disease; (*c*) for placing at the disposal of medical practitioners such skilled assistance in the treatment of venereal diseases as may be required; and (*d*) for supplying medical practitioners with salvarsan or its "substitutes" or other drugs for the treatment and prevention of venereal disease.

In the Memorandum it is made plain that the work is to be done so far as is possible in existing institutions; and it is written: "In the negotiations with the managers of a hospital or other medical institution it should be made clear that, subject to the fulfilment of essential conditions, neither the local authority nor the Local Government Board desire to interfere with the internal administration of the hospital or other institution." To the cost of approved schemes the central authority will make grants amounting to 75 per cent. of the local authority's approved net outlays under the scheme.

These provisions are on all fours with those made in the English regulations. But when we come to read the directions issued in the Scottish Memorandum for the initiation of the schemes in each locality we find a divergence, and the change is all to the good. That there is this difference must stand to the credit of the British Medical Association, and the impression that the action of this Association has made on the central authorities.

Before the English scheme was issued the Association interviewed the officers of the English Local Government Board to urge on the Board the primary necessity for engaging the active sympathy of the local medical profession in all parts of the country with the scheme. That sympathy, the Association maintained, could only be secured by enlisting the participation of the medical practitioners in the formation of the local schemes. The Board ignored these representations. The English documents were addresses to the "councils of counties and county boroughs, governing bodies of hospitals, and boards of guardians," and throughout the documents there was no word of direction to the local authorities to ascertain the views of the local practitioners on the practicability of any tentative arrangements they might formulate. The Council of the Association insisted on the necessity for medical representation or collaboration with the local public health committees. The Representative Meeting of July endorsed this view and sent a deputation to the President of the Local Government Board, with the result that a supplementary circular[2] was isssued by that Board advising local authorities to invite the assistance of local medical representatives in the formation of schemes. The issue of that circular was a feather in the cap of the Association, particularly as it acknowledged by name the origin of the representation on which it was made. But the Scottish documents are a veritable triumph for the principles advocated by the Association, for the full tale of the demands made upon the central authority are incorporated in the Scottish directions to the local authorities. Section III, "Approval of Schemes" (page 5) reads: "Before approving a scheme the Board must be satisfied on the following points. . . . (*d*) That the medical officer of health, in framing a scheme for submission to his local authority, has taken the best available means to confer with the medical opinion of the district. (*e*) That, in order to secure the support and co-operation of the medical profession, the local authority, through their medical officer of health, have submitted their proposed scheme for the observations of the medical schools and colleges, the Local Medical Committee under the National Insurance Acts, and any other medical organizations operative in the district. The submission of a draft scheme in this way to the various branches of the medical profession will enable the local authority to make the technical details of the scheme known to all branches of the medical profession, and at the same time to obtain practical suggestions for the working of the scheme. In submitting the scheme for the Board's approval the local authority should also submit any suggestions and criticisms made by the medical authorities concerned."

Here at last the central authority has recognized that the success or failure of this great scheme must rest on the assistance of the medical practitioners. For this reason, if for no other, the Scottish documents are wisely addressed to "All whom it may concern." Alas, that the English authority was so unimaginative as to be unable to judge the situation, or so timid that it dared not grasp a difficulty boldly

[1] H.M. Stationery Office, 23, Forth Street, Edinburgh.

[2] Supplement, September 2nd, p. 77.

and direct the local authorities in the way they should go!

We can be sure that in Scotland the local profession will do all in its power to further the aims of the Government. In England there is still much room for improvement. Local authorities go their several ways: a few have asked for representatives of local medical bodies to assist them in the constructive work; others have nominated medical men to assist them—good men, let it be said, but they do not assist as representatives of their colleagues; for the most part, however, any co-operation such as is needed in this great work is lacking. Let us hope that when local schemes come up to the central authority for England for approval the spirit of these Scottish directions will be acted upon, so that no scheme will be approved unless and until there is evidence that the general body of the profession has been able to examine the proposals and give their help in their shaping.

The success of this really bold attempt to grapple with these scourges of humanity can be assured if the whole-hearted sympathy of the medical profession be enlisted from the beginning. That active good-will is to be had for the asking.

MEDICAL WAR ARRANGEMENTS IN INDIA.

SOME of our contemporaries appear to be puzzled to understand the respective duties of the Director-General of the Indian Medical Service and of the Director of Medical Services in India, the latter an office hitherto always held by an officer of the British Army Medical Service, although the regulations do not necessarily require that this should be the case. The Director-General of the Indian Medical Service is essentially a civil surgeon-general, who has only an indirect relation to military arrangements in the field. Practically his duties in this respect are confined to calling up the military medical reserve from civil employment and supplying the military medical authorities with the drugs and certain parts of the equipment they ask for. With regard to drugs and equipment, he has to see that the medical store dépôts in India are kept full and to appoint medical storekeepers. These store dépôts supply the civil hospitals in India, but must also be prepared to meet any military emergency. The personnel he must supply in response to the demand of the military are officers of the Indian Medical Service drawn from civil employment, and the war reserve of military assistant surgeons and sub-assistant surgeons; he must also take measures to recruit temporary medical men from civil for military work, and must keep up the cadres of the Indian Medical Service, the military assistant surgeons and the sub-assistant surgeons. The Director of Medical Services, India, is directly responsible for the Army Bearer Corps, consisting of Indians of all castes, except sweepers; and the Army Hospital Corps, for station hospitals for British troops, made up of sweepers, cooks, dhobis (laundrymen), and bhistis (water carriers). The divisional medical stores and medical stores for station and regimental hospitals he obtains from the Director General, Indian Medical Service. The ambulance tongas, hospital clothing, petty supplies, and menials for mobilized hospitals, Indian troops, he obtains from the supply and transport department. His tentage he must get from the ordnance, and furniture from the military works department. These complicated arrangements do not seem to be ideal, and it may be that the Mesopotamia Statutory Commission now sitting will make recommendations on this head with a view to simplifying the method now followed as it has been settled between the War Office and the Government of India. The Secretary of State for War told the House of Commons recently that the War Office was now responsible for all arrangements, including those for supply and the treatment and transport of the wounded in Mesopotamia. Earlier in the war the Indian Government had, we believe, four military general hospitals in this country, and there is a suspicion that they might have been more fully employed had they been sent last year to Mesopotamia, where there was a dire need for them, or to Egypt or Africa. At that time several other hospitals had been established in this country, staffed by retired members of the Indian Medical Service, which provided a large number of beds and every facility for treatment of native Indian soldiers.

THE WAR OFFICE AND THE DISABLED SOLDIER.

THE question of what should be done for the disabled soldiers is still undecided. The Prime Minister announced a fortnight ago that it was the intention of the Government to set up a Pensions Board with a Cabinet Minister at its head. On November 8th he stated that this Minister would be Mr. Arthur Henderson, and that it was hoped to introduce the bill to give effect to the Government's policy very soon. On the previous day the War Minister had stated in the House of Commons that before coming to a decision with regard to the treatment of the disabled soldier he was awaiting the result of an investigation by "a very competent person," who was examining the whole of the matter with a view to practical suggestions being put forward. In the meanwhile the number of disabled men steadily increases. Some of them are so slightly disabled that there is good reason to hope that by surgical or medical means they may, after a reasonable period in a command dépôt or convalescent camp, be restored to the army again in some capacity. But there are a great many, constituting probably the majority of those in military hospitals at home, who require prolonged treatment, surgical or medical, and in their case there can be no certainty that they will be again available in any capacity for military service, although there may be a reasonable certainty that if their treatment is completed many of them may become useful members of the community. The army, owing to the foresight of Sir Alfred Keogh, has provided admirable hospitals for orthopaedic, heart, and nervous cases, where those men can be nursed and trained back to health; but constantly hanging over their heads is the possibility that at some date determined not necessarily by their physical conditions and their progress towards recovery, but by the demand for hospital accommodation for new cases, they may be discharged from the army with a pension which may serve to keep them out of the workhouse, but without the benefit of any definite organization charged with the duty of completing their medical or surgical treatment and training them to a trade. The matter is engaging, as is known, the anxious consideration of the War Office and also of the Cabinet. The Secretary of State for War received a deputation on November 3rd, representing the Central Pensions Statutory Committee, the medical profession, and the Unionist War Committee. The spokesmen were Mr. Astor for the Unionist War Committee, Mr. Cyril Jackson for the pension authorities, and Dr. Verrall, chairman of the Central Medical War Committee, and Sir Clifford Allbutt, president of the British Medical Association, for the medical profession. No official report of the conversation which took place has been issued, and it may be concluded that the War Minister was not then in a position to make any definite statement. On November 8th the Labour party adopted a resolution calling on the War Office to retain disabled soldiers until all that medical and surgical science could

do for them had been done, and to begin their training in suitable trades in collaboration with the Statutory Pensions Committee before their discharge from the army. The War Office, from its point of view, is perhaps not unnaturally indisposed to retain in the army and under military discipline men who can in all probability never again be of service to it; but the army owes a great debt to these men and to the nation—a debt which it can never discharge by sending them out of the army at the earliest moment that may suit its convenience. Sir Alfred Keogh said the other day that he felt sure that the resources of the army, which were very large, would all be placed at the disposal of the discharged soldier for as long as might be necessary, just as if he were a serving soldier. We think that the scheme then outlined by Sir Alfred Keogh may be taken to mean that the Army Medical Department is willing to grant to men who have been discharged the advantage of treatment at the military orthopaedic and other hospitals as out-patients. Any such scheme will encounter a good many administrative difficulties, and remembering the enormous amount of work that already has to be done by the Medical Department of the War Office, it seems clear that it will be necessary to establish a separate section of that department for dealing with this matter. The Army Medical Service has shown itself supremely competent to meet every call made upon it by the war, and for this purpose has appealed and has received the assistance of the civil medical profession and also of the Indian Medical Service. We cannot think that these resources are exhausted; on the contrary, there is good reason to believe that there are now available members of the medical profession of long experience in medical administration who have had many opportunities of proving their ability in organizing medical relief for the sick and wounded. As at present advised, we can see no reason for selecting any person who does not possess this experience, and in particular we think that a matter, the medical side of which is paramount, should not be placed in the hands of any official who has not had medical training and experience. In selecting an officer for the head of this department, should it be constituted, it would not be necessary to discriminate between officers of the Army Medical Service and the Indian Medical Service. Both have responded with equal zeal to the demand the war has made, and both should at the present time be looked upon as one service when the needs of the nation have to be met.

DISCIPLINE IN MILITARY CONVALESCENT HOSPITALS.

One of the objections that have been made to retaining under military control disabled men still needing treatment is that there is "no discipline in military hospitals." As this surprising statement appears to be gaining credence we would point out that it is quite inaccurate. There may be instances in which discipline has been allowed to become lax, but this is a defect for which the commanding officer should be blamed. It is no more difficult to enforce discipline in a military hospital or convalescent camp than in any other military unit, and it is habitually enforced. In a paper published recently[1] Lieutenant-Colonel Netterville Barron, M.V.O., R.A.M.C., in speaking of discipline in a military convalescent hospital, says that the utmost possible freedom may be allowed to all ranks, and as the actual training is over by the dinner hour, they may have the afternoons and evenings to themselves "provided the discipline is good." In the military convalescent hospital which he describes "if a man be brought up before the officer in charge he is reverted to hospital rules, which means that he cannot leave camp," and it is added that there has been practically no trouble with discipline. The four essentials of physical training are, he says, pleasure in the training, exercise, balance, and rest. The last means mental and physical relaxation, and during compulsory hours, between réveille and dinner time, should be taken under orders. The men, when first admitted, are put into divisions of 500 each for administrative purposes; they are then examined by the medical officers and posted to a section. In the first section the worst cases are placed—those likely to require six or more weeks' training; in the second section, cases which, although in better health, will yet take a month or six weeks to train; in the third section, men requiring only three or four weeks' training; and in the fourth, men who are practically well, but not hard. At the periodical medical examinations a man may be moved from one section to another, and he cannot be dischared to furlough until he has passed through section 4. The sections are divided into subsections commanded by patient N.C.O.s; the sections are commanded by staff N.C.O.s. Patients requiring massage or electrical treatment are not advanced beyond section 2 until the treatment has ceased to be necessary. All efforts are directed to producing a hard and fit man in the shortest possible time. This, it is stated, is best done by gradually but rapidly increasing the speed of his work, omitting apparatus work altogether, and reducing the amount of time spent on route marching. Provided the feet are properly hardened, a man trained on this system will, it is said, always outlast the ordinary marcher. Very special care is given to the feet and to the detection of any tendency to flat-foot, which is particularly liable to begin while convalescent from frostbite or rheumatism. It is pointed out that a man who has been bedridden while recovering from any disease or from wounds is very prone to develop flat-foot when he gets up. Skipping exercises in shoes are found to strengthen the arch, and boys should not be exercised in stockinged or bare feet, nor should running barefooted on the sands after sea-bathing be allowed. Cases of trench feet are required to attend daily at the central dressing station, where the feet are thoroughly dried, and rubbed with a lotion consisting of equal parts of belladonna liniment and tincture of iodine. Dry socks are then put on, and the men are directed to dry their socks frequently. For patients too old for very fast work special subsections are formed.

[1] *Journal of the Royal Army Medical Corps*, October, 1916.

DISCHARGED SOLDIERS AND INSURANCE.

The Insurance Commissioners have issued a leaflet addressed to discharged soldiers who have been insured during their service. In the term "discharged soldier" is included men transferred to the Army Reserve or Territorial Force Reserve. The leaflet points out that a soldier who has been insured in the army is, subject to certain conditions, entitled after his discharge, provided he remains insured under the Acts, to medical and sanatorium benefit. He is entitled to sickness and maternity benefit if he has been insured for 26 weeks and has paid 26 weekly contributions, but does not become entitled to disablement benefit until he has been insured for 104 weeks and paid 104 weekly contributions. The soldier should receive on discharge certificate Army Form O 1845 (buff postcard), which is a certificate showing that he was insured in the army and stating the period of his service. If he does not receive it he should at once apply for it to the officer by whom he was last paid—the paymaster of the soldier if discharged; the company commander if transferred to the reserve. If benefit is urgently required before the receipt of the discharge postcard O 1845, he should take his army discharge certificate (B 2079), or certificate of transfer to the reserve, to the office of the Local Insurance Committee, and, if a member of an approved society, should also take his discharge certificate or certificate of transfer to the local representative of his society. A discharged soldier who is a member of an approved society should complete and sign O 1845 and forward it to the secretary or local agent of his approved society, and he should ask the secretary or agent

for a contribution card, and arrange for a medical card to be sent him at once. On receipt of the medical card he should take it to the panel doctor from whom he wishes to receive treatment when he is ill. If not a member of an approved society he should complete O 1845 and send it to the Insurance Commissioners, Maida Hill, London, W. If discharged from the army on account of wounds, sickness or disease, he will become a member of the Navy and Army Insurance Fund, but if discharged on account of some minor ailment, he may be required, as a condition of continued membership of the fund, to satisfy the Commissioners that his health would prevent him from obtaining admission to an approved society. The Commissioners will then send him an insurance book and arrange for the issue to him of a medical card, which he should at once take to the panel doctor from whom he wishes to receive treatment in case of illness. If discharged from the army otherwise than on account of wounds, sickness or disease, he should at once apply to an approved society for admission as a member. A man who is granted a pension for total disablement will, as a condition attaching to the pension, have his normal rate of sickness benefit reduced by 5s. a week, and will not be entitled to disablement benefit. No reduction is made in the case of a partial disablement pension, or of pensions other than those granted in consequence of the present war. Medical, sanatorium, and maternity benefits are not affected by the receipt of a total disablement pension. The regulations apply to Ireland, except so far as medical benefit is concerned.

TREATMENT OF TETANUS.

THE memorandum prepared by the War Office Committee for the Study of Tetanus (published at p. 647) will be read with much interest by medical practitioners, and more especially that part of it in which curative treatment by tetanus antitoxin is discussed. It has not hitherto been easy to form a sound opinion upon the value of tetanus antitoxin as a therapeutic agent as distinct from its well-recognized use as a preventive measure, and the profession will, we believe, generally be grateful for the guidance afforded in the memorandum. It emphasizes the great importance of allowing as short a time as possible to elapse between the diagnosis of the presence of the infection in any case and the commencement of active treatment. It follows from this that early diagnosis is essential. The memorandum points out that spastic rigidity of the wounded limb is probably the earliest symptom, but those who have to deal with cases are asked to note carefully any concomitant symptoms, since if these are carefully recorded and studied, further help towards an early diagnosis may be obtained. It is advised that at the very earliest stage treatment by intrathecal injection of large doses of antitoxic serum should be at once begun. If 20 c.cm. of cerebro-spinal fluid is the amount withdrawn by lumbar puncture, then the injection of 20 c.cm. of serum of ordinary strength will give the patient a dose of some 3,000 units, but by using a serum of higher potency as large a dose as 15,000 units may thus be given; at the same time 5,000 to 10,000 units may be injected intramuscularly. The advantage of intramuscular injection over subcutaneous injection is that whereas the serum in the latter case is absorbed very slowly, probably not completely until the end of forty-eight hours, by the intramuscular route it is believed that the whole is absorbed in about twelve hours. The intrathecal injections should be repeated daily for three to five days, and should be supplemented by intramuscular injections; finally, when the disease shows distinct signs of abating, the serum may be given subcutaneously. Of carbolic acid it is said that there is no convincing evidence that it has any curative effect, and of treatment by magnesium sulphate that not only has it no effect upon the disease itself, but has risks of its own which are far from negligible.

AN ANTITYPHUS SERUM.

TYPHUS FEVER is due to a living virus that can be transmitted from one experimental animal to another, but cannot yet be grown on any artificial culture medium or in the test tube. It has been known for some time that the serum of human beings or experimental animals that have survived a recent attack of typhus fever will protect other experimental animals against inoculations with the virus. Such serums, however, have no curative action. Drs. C. Nicolle and L. Blaizot have published an article[1] in which they detail the success with which they have prepared an effective antityphus serum—or experimental anti-exanthematic serum as they prefer to call it—that has a definitely curative action when injected into human beings suffering from typhus exanthematicus. The serum is derived from two animals, a horse and an ass, that have been immunized against the virus of typhus by a long course of intravenous injections of first the leucocytes and later of the pounded spleen and suprarenal glands of guinea-pigs experimentally infected with the disease. The other tissues of the guinea-pigs could not be used for the purpose, as it was found that their injection gave rise to signs of anaphylaxis. The ass was immunized by a series of 114 of these injections in fourteen months, the horse by a series of ninety-one in the course of about ten months. All the immunizing injections were tolerated well. Two viruses were employed—one from Algiers, the other from Morocco. They have been propagated by passage from one guinea-pig to another for more than two years at the Pasteur Institute in Tunis. Drs. Nicolle and Blaizot found that their antityphus serum when injected into either Chinese bonnet monkeys or guinea-pigs exercised both a preventive and a curative action when the animals were infected with the virus of typhus. They have accordingly applied their serum to the treatment of human beings with typhus fever. Up to the present time Dr. Potel has treated with it thirty-one patients at Sidi Abdallah, and Dr. Poirson seven at Medjez el Bab. Twenty-two of the patients were French, nine Tunisians, and seven Serbians. Only one of the thirty-eight died, a tuberculous Frenchman, who was convalescent from typhus but succumbed to a series of abscesses resulting from injections of camphorated oil. No general statistics of the mortality of the disease in similar patients not treated by the new antityphus serum are given, but it is noted that Dr. Potel had two deaths out of three French patients treated for typhus before the serum came to hand. Dr. Potel gives an account of the general effects of the serum; he finds that it lowers the pyrexia and makes it irregular, that it may cut the pyrexial period short (as in six out of thirty-one cases), that it lessens the severity of the nervous symptoms (delirium, stupor) very considerably, that it improves the patient's general condition very much, and that it lessens the frequency of the complications so common in typhus. Dr. Potel advises that the antityphoid serum should be exhibited as early in the disease as possible. From 10 to 20 c.cm. should be injected hypodermically every day until the fever is at an end. The patient should meanwhile receive a copious fluid diet, stimulants, and cardiac tonics. Dr. Poirson comes to very similar conclusions as to the efficacy of the serum; the temperature charts of all the patients are reproduced, with brief clinical details in each case. In every instance the louse was believed to have been the agent of infection. It is notorious that the mortality of typhus fever varies with such things as the season of the year, the period in the course of an epidemic of the disease, and the physical condition and, perhaps, the nationality of the patient. The new antityphus serum appears to have been in use from the middle of November, 1915, to the middle of April, 1916—that is to say, at a season when the mortality of typhus fever is commonly high.[2] The results of the more extended use of Drs. Nicolle and Blaizot's

[1] *Annales de l'Institut Pasteur*, Paris, 1916, xxx, 446.
[2] See BRITISH MEDICAL JOURNAL, 1916, i, 621.

antityphus serum will be awaited with great interest by all who have to do with the disease; for the present it is enough to say that they appear to be highly promising.

ANTERIOR POLIOMYELITIS AND THE RAT.

In the British Medical Journal of October 14th, p. 532, reference was made to a theory recently propounded by Dr. Mark W. Richardson of Boston, formerly secretary of the Massachusetts State Board of Health, that anterior poliomyelitis is transmitted through the agency of the rat flea. The Women's Municipal League of Boston has started a scheme for the destruction of rats in that city. It proposes to form "rat clubs," the members of which will be instructed by competent ratcatchers in the best methods of extermination. In this work the league has the hearty support of the mayor and the co-operation of the City Board of Health. Whether Dr. Richardson's theory be true or not, it is certain that these destructive vermin are in many ways a menace to the health of the community and a danger to buildings. It is said on their behalf that they are efficient scavengers; but there are other means of keeping a city clean, and there can be no doubt that the rat population might be kept down with great advantage. The number of cases of anterior poliomyelitis reported in New York for the week ending October 8th was 80. On that date there were 1,537 patients with the disease in the hospitals of the city. A report issued by the Department of Health of the City of New York shows that the total number of suspected cases put under quarantine by the Board up to October 17th was 9,209; of these 250 were found not to be cases of poliomyelitis, leaving a total of 8,927 true cases. The total number of deaths recorded by the department was 2,362, a fatality of 26.24 per cent. From August 21st to October 13th 2,058 cases were discharged from the hospitals of the department; of these 66 per cent. showed evidences of paralysis of some degree; in 18 per cent. paralysis had wholly disappeared, and in 15 per cent. no paralysis had been manifested. Of 2,715 cases followed up in the patients' homes, it was found that 1,885 had serious paralysis of one or both lower limbs and were unable to walk; 530 more were partially paralysed in the lower limbs, although still able to walk; 273 had one or both arms totally paralysed.

FEES OF PHYSICIANS AND SURGEONS.

We have received from Sir Ronald Ross, chairman of the British Science Guild, a note of its recent activities. Among them was the consideration of a letter written by the late Sir Lauder Brunton shortly before his death. It contained the following paragraphs: "The whole question of the remuneration of the medical profession and of its various branches will naturally give rise to much discussion. For example, I have of late years frequently been consulted in regard to abdominal operations. The question, Shall an operation be performed or not? has been left entirely in my hands, and on the correctness of my answer the life of the patient has depended. Yet for my advice I received the fee of three guineas. If an operation was necessary the surgeon received 100 guineas. This enormous disproportion between the values of mere mechanical skill and trained brain work holds in other branches also. These high surgical fees are one of the causes why some kind of co-operative hospital is becoming urgently needed. Before the war began I was working with Lady Henry at the establishment of some kind of insurance for officers' families against sickness or operation. The officer himself was insured, but if one of his family got appendicitis the operation and incidental expenses might run away with the united income of the officer and his wife for a whole year." The chairman of the British Science Guild invites correspondence on this subject addressed to him at 199, Piccadilly, London, W.

PRISONERS OF WAR IN SWITZERLAND.

The *Revue des Deux Mondes* for September 1st contains an article by the well known Swiss writer who signs herself "Noëlle Roger" on French prisoners interned in Switzerland. The repatriated civilians and the *grands blessés* on their way through Switzerland told the familiar tale of the miseries of the German camps and of the sufferings of the wounded in the early days of the war. During the first winter the conditions in the camp were very bad. The Belgians and French from the occupied territory received no parcels. The famished Russians raked up with their hands soup spilt in the mud, and scraped disgusting garbage out of refuse heaps. They were so weak from hunger that they fell down when at work, and some of them died where they fell. In the reprisals camp things were still worse. Again, we have the French testifying that the Germans were less brutal to them than they were to the British. A pregnant hint is conveyed in the statement that the commandant, when he learnt that his son was a prisoner in France, changed his ways entirely. The prisoners are unanimous in declaring that there is now less misery in the camps than there was in the beginning. Organization is better, and hygiene is improved. Everywhere baths and douches have been installed. The plague of lice which caused so much suffering in the first year seems to be checked. These improvements were often due to visits from neutrals, especially Americans and Swiss. The feeling of pity aroused by these statements of the prisoners led to the proposal that those not hopelessly incurable should be interned in Switzerland. The Federal Council undertook negotiations with the belligerents. Thanks to the intervention of the Pope these were brought to a successful issue at the end of 1915, and on January 25th, 1916, the first convoy of French and Belgian sick reached Leysin. In the following weeks other convoys arrived at Leysin, Montana, Montreux, and at various places in the Oberland. The interned French, Belgian, and English are distributed in hotels according to nationality. In each they are under the command of an interned N.C.O., the *chef d'établissement*. All the establishments of a district are under the orders of a *chef de secteur*, who is responsible to the Swiss medical officer, and Colonel Hauser, Physician-in-Chief of the Swiss army, directs the whole service. In each place the prisoners are allowed to walk about within a radius of several kilometres; beyond that limit a permit is necessary. A circulating library has been established, and lectures are to be delivered in the winter. Interned students are admitted to the universities. Colonel Hauser recommends the establishment of bright and comfortable club rooms, where soldiers from the different hotels may meet and read, and where non-alcoholic drinks are supplied at the lowest prices. Those sufficiently recovered can, if they wish, find work in the fields and in gardening. At Leysin four workshops have been opened, where men do light work, such as toy-making, two hours a day. The first batch of British prisoners arrived at Zürich on May 29th, and one party went to Chateau-d'Oex, where, according to Twells Brex (*Daily Mail*, October 25th), the senior officer has established workshops for carpentry, tailoring, bookbinding, and basket-making, while several men find employment in the local sawmills and electric light works. A school has also been established where French, geography, arithmetic, and history are taught, but there is still need for a club house with provision for amusement for the men during the long winter evenings.

TREATMENT OF BRITISH PRISONERS OF WAR.

The Government Committee on the Treatment by the Enemy of British Prisoners of War was appointed by the Home Office in September, 1915, to collect, verify, and record information as to the treatment of British subjects, military or civil, who have been prisoners in the hands of

the enemy. The members of the Committee, which includes representatives of the War Office, Foreign Office, and Home Office, and has its head quarters at the Office of Works, Storey's Gate, S.W., are Mr. Justice Younger (Chairman), Sir Louis Mallet, G.C.M.G., Sir Reginald Acland, K.C., Colonel Anstruther, Mr. Percy Lubbock, Adeline Duchess of Bedford, Mrs. Pope Hennessy, and Mrs. Darley Livingstone (Honorary Secretary). Facilities are given to the Committee for the collection of information as to the prison camps in enemy countries, and from that information reports are compiled from time to time. Evidence is obtained in order that material may be available from which, after the war, a complete history of the treatment of British soldiers and civilians by the enemy during the war may be prepared. Meanwhile the Committee aims at improving the lot of the prisoners by keeping the Government Departments informed of their condition so far as it is known, in order that, when it is thought fit, representations may be addressed to the German Government through the good offices of the United States. In reply to a question in the House of Commons on November 7th, the Government spokesman, Mr. James Hope, renewed the expression of the deep debt of gratitude of this country to the United States Ambassador at Berlin, Mr. Gerard, and his staff, for the admirable work they had done. The approximate number of official reports on visits of inspection by United States representatives to internment camps in Germany received during the current year was, Mr. Hope said, 200, including reports on parent camps, working camps, and hospitals.

Medical Notes in Parliament.

War.

Volunteers: Medical Arrangements.—The Financial Secretary to the War Office stated, in reply to Mr. Hogge, on November 1st, that a scheme for the formation of a medical service as part of the volunteer organization had been prepared and would, he hoped, be published very soon, but certain details remained to be settled.

Army Medical Corps (Silver Badge).—On November 1st Mr. Watt asked the Secretary of State for War whether the silver war badge for service is refused to medical men who have served for a year or over in the Royal Army Medical Corps if they have not relinquished their commissions on account of old age, or physical infirmity arising from wounds, or sickness caused by military service; whether he was aware that this regulation worked out unfairly to many medical men who had left the service only on the urgent call of duty to the civilian population; and whether he would alter the regulation accordingly. Mr. Forster replied: "The silver badge was introduced specifically for distinguishing those who, having served with His Majesty's forces since August 4th, 1914, have relinquished their commissions or appointments, or have been discharged on account of age, wounds, or sickness. It is not a commemorative medal for service during the war. If a medal is granted for the present war, the claims of those persons whom the honourable member mentions will be considered with all others who have served in the war."

Army Dental Treatment.—Mr. Forster, in a written answer on November 2nd, said that there were no fixed regular scales of dental personnel or equipment laid down for the army. Provision for dental treatment had been made, and all demands had been met. The equipment had been standardized with the advice of dental experts.

Medical Appeal Boards.—In reply to a question by Mr. Anderson as to the number of medical appeal boards set up, the Financial Secretary to the War Office said that one special medical board had been set up in London. Men who, after being passed fit for service by a recruiting medical board, conceived that they had not received fair treatment, could produce evidence to that effect before the tribunal. If the tribunal conceived that the man had not been correctly classified by the recruiting medical board, and the case went to the special medical board in London, arrangements were made for his travelling and subsistence during the period he was away from home. This arrangement applied to Scotland.

Discharged Soldiers (Infection).—In a written reply to Sir Charles Nicholson, on November 1st, the Financial Secretary to the War Office said that no soldier was discharged (except for misconduct) into civil life while still in an infectious condition owing to any illness, and particularly any venereal disease. Such soldiers were retained under treatment until all danger of infection to others had passed.

Nerve-shattered Soldiers.—Colonel Yate asked, on November 7th, whether any steps had been taken by local committees acting under the Central War Pensions Statutory Committee to provide convalescent homes free from suspicion of connexion with lunacy to which ex-soldiers suffering from uncertifiable nerve strain might go temporarily. Mr. Hayes Fisher said that the Statutory Committee had been making inquiries into this difficult question, and had under consideration a scheme under which appropriate cases would be treated and trained in an institution or institutions in which cases of ordinary wounds or illness other than mental would also be received. He was anxious to bring the matter to a speedy termination, but there was a good deal of conflict of opinion as to the best treatment for these cases.

Doctors of Military Age (Ireland).—The Chief Secretary for Ireland, Mr. Duke, has stated in a written answer to Mr. Kilbride that the Local Government Board in Ireland had declined to sanction the appointment of Dr. M'Kenna to the position of temporary medical officer of the Monasterevan district, because he was of military age and was eligible for employment in the army. In the opinion of the Board the temporary arrangement made some time ago for the medical care of the district was both adequate and satisfactory.

Military Hospitals in Ireland.—In reply to a question on November 7th the War Minister said that the small military hospitals at Omagh, Enniskillen, Armagh, and Dundalk had been found unsuitable for the reception of sick and wounded from overseas, as they were not equipped for the purpose. They were only used for cases which did not require serious medical or surgical treatment. On the other hand, the county hospitals had experienced surgeons and suitable staff, and had expressed a desire to receive sick and wounded from overseas. All parties had much appreciated the new arrangement and the scheme was working very satisfactorily at a lessened annual cost to the State. The authority to decide questions of opening or closing hospitals was the General Officer Commanding-in-Chief, Irish Command.

Allowance to Widowed Mother. — On the motion for the adjournment, on November 1st, Mr. Pringle called attention to the fact that under existing regulations the widowed mother of an undergraduate who had enlisted and was killed was not entitled to a dependant's pension, whereas, had her son at the same age been engaged in some remunerative occupation, she would have been entitled. The difference is due to the theory of pre-war dependency, the undergraduate not being in a position to make any contribution towards the family expenses. It might, he pointed out, have been supposed that the Statutory Pensions Committee could have remedied this injustice, but it appeared that in the case of a soldier who died in Mesopotamia it was unable to make any grant. The Financial Secretary to the War Office replied that the matter had been settled by the House itself, and the War Office could do nothing unless the House itself made an alteration in a state of affairs which he did not believe it ever intended to bring about.

Men and Dependants not Eligible for Pensions.—Mr. Finney, on November 1st, called attention by a question to the fact that there were circumstances in which certain soldiers and sailors who had been discharged as medically unfit, and the dependants of men who had died after joining the forces, were not in receipt of any amount from the Government, and that in many such cases soldiers and sailors or their dependants were becoming chargeable to the Poor Law, their application for pensions having been refused. Mr. Finney further suggested that the support of such cases should not be a local charge, but that as the men were examined and passed as fit by a medical board, and died or became incapacitated in the country's service, the responsibility for the support of such men or their dependants should be a charge on the National Exchequer. The Prime Minister replied that the matter was receiving most careful attention.

Milk Supply.—Mr. MacCallum Scott asked, on November 1st, whether the advisability had been considered of prohibiting the sale of milk until it had been cooled or refrigerated, by which means towns could get their supply once daily, instead of twice or thrice, thus obviating the necessity for excessively early hours and leading to economy in working expenses. Mr. Long said that the Milk and Dairies (Consolidation) Act, 1915, enabled the Local Government Board to make orders regulating the cooling, conveyance, and distribution of milk intended for sale for human consumption, but the operation of the Act had been suspended in consequence of the war. In a large number of cases cooling was now practised, and the possibility of taking further action would be considered.

Income Tax Abatement.—An odd point was raised by Mr. Crooks in the House of Commons, on November 2nd, when he asked whether a man assessed for income tax can claim a reduction in respect of an artificial hand which enables him to earn his taxable income, and which costs him £14 a year for upkeep. The Financial Secretary to the Treasury did not specifically answer the question, contenting himself by stating that, under the Income Tax Acts, allowance was only made for expenses incurred wholly and exclusively for the purposes of the employment. The implication would appear to be that, as a man would use his artificial hand for other purposes than his employment, he would not be able to claim an allowance.

THE WAR.

GAS GANGRENE.

We are glad to welcome as an interesting and informative contribution to the literature of war surgery a monograph on gas gangrene by Dr. Fr. Guermonprez.[1] Dr. Guermonprez, Professor of Therapeutics at Lille, who is acting as a surgeon-major in the French Army Medical Service at Calais, has had much experience of this dread complication of wounds since the beginning of the war, and seems to be thoroughly conversant with all the communications of his compatriots on the subject. He is able to bring a discriminating judgement on the various conflicting views of wound treatment, and on the controversies which have been as acute among French as among English surgeons and investigators. In the four little volumes comprising the monograph most of the matter is quoted from other writers, and much valuable material is brought together that would otherwise be lost to the ordinary medical officer, who, owing to the exigencies of military service, cannot have access to the numerous papers that have been written. The author seldom obtrudes his own views, but works out from paper to paper the advancement of our knowledge on the subject.

Although the complication of gas gangrene was one of the great surprises of this war to all the combatant armies, a calamity before which modern surgery, tutored in the simplicity of asepticism, was at first well-nigh impotent, yet it was, under other names, as old as the hills. The former generations knew it, or at least one of its forms, as hospital gangrene. Ambroise Paré, in the sixteenth century, knew it well and laid down principles for its treatment that can be copied with advantage even to-day. In wars of modern times it has not bulked large owing to the difference of conditions. We had been too much inclined, perhaps, to regard an infection as the result of some single "specific" organism, forgetting that many infective processes identical clinically may be due to different causal agencies, and conversely that the same bacterium produces various clinical manifestations. Dr. Guermonprez insists strongly on the point that in military surgery it is necessary to treat a wound on broad lines in advance of, and frequently without the aid of, the pathologist.

Gas gangrene is not a simple infection due to one organism. It is not frank in its onset, nor unvarying in its behaviour. It is most often sudden, unexpected, rapid, and calamitous. It appears under protean forms. We all recognize now that its prevalence was due to the conditions of trench warfare. The soil through which the trenches run, manured for intensive cultivation and polluted by the necessity of continuous occupation, clings to the clothing of the soldier, and is carried by the shrapnel fragments into the lacerated soft tissues. Here is a favourable medium for the propagation of bacteria. The necrotic and stunned tissues are unable to react to the invader, and the infection goes on apace. Two fundamental ideas have to be established—first, that we have to deal in all cases with a polymicrobic invasion consisting of aërobes as well as anaërobes, showing itself in a clinically polymorphous infection; and, secondly, that the development of the disease is favoured and the virulence of each infecting agent is exaggerated by the association of several. Some observers, indeed, have held that gas gangrene is a specific infection, a special disease characterized by a collection of local and general symptoms always the same, though developing differently according as the causal organism is the *Vibrion septique* or the *Bacillus perfringens*. The other organisms which are almost invariably found in association are supposed by these authors to play but a secondary part. There is a school in France, led by Delbet, which from the results of pyoculture claims to be able to say when immediate amputation should be done, and when conservative measures should be adopted. In Germany, Fraenkel gives a method whereby one may differentiate a diseased condition due to what most Germans call Fraenkel's organism (really Pasteur's) from a clinically identical condition of better prognosis, but the procedure takes at least sixteen hours, and Dr. Guermonprez points out that these precious hours may determine a fatal issue. The general consensus of opinion is that no one organism can be held as specific; at one time it is *B. perfringens*, at another *Vibrion septique;* perhaps, too, Vincent's fusiform bacillus, the *B. coli*, and many more, but generally it is a microbic association—a syndicate of bacteria—that causes the trouble. Not much is to be gained by bacteriological studies as far as treatment is concerned, and all shrapnel wounds are to be looked upon as potential foci of gas gangrene.

Some cases show gangrene without gas formation, and some give gas without gangrene. The emphysema may travel very rapidly by the connective or muscular tissues, and is certainly in advance of the bronze erysipelas which is an evidence of subcutaneous necrosis.

As regards the period of incubation, Professor Guermonprez considers that the graver forms start twenty-four to forty-eight hours after the wound, whilst the slow forms begin on the fourth day. Beyond that again there are some cases with a long latent period, apt to be ignored, and exploding very late when the daily change of dressings is discontinued. The symptoms of onset vary from case to case; the only subjective symptom that arrests attention is a great fear on the patient's part of surgical interference. Sometimes there are violent pains in the affected limb, and the neighbourhood of the wound becomes swollen. The temperature is not usually high, the pulse is raised above 100. A yellowish-brown, bronze, greenish, or greyish colour with mottling shows on the surface, and there is frequently oedema. The presence of gas can be detected by the finger. There are signs of a general septicaemia, and the conditions may spread with alarming rapidity. Not infrequently quite localized forms are met with. Many divisions and subdivisions of the conditions have been made, and a comprehensive description of the signs is impossible. When it is in full course the diagnosis is no longer in doubt, and more or less heroic measures have to be taken to combat it. The rapidity of evacuation of wounded from the trenches to the bases, and the early change of dressings, have much diminished the incidence of the disease.

When a limb is infected, amputation will generally have to be done—either under the guidance of pyocultural results or on account of the rapid spread of the condition, and the rules are, roughly, to amputate through perfectly healthy tissues some distance above the visible limits of invasion, the tourniquet being avoided if possible. Many local treatments have been tried with varying degrees of success, and these are set forth in the book. The results of Carrel's method of employing Dakin's hypochlorite solution are discussed at length. It does not seem to meet with universal praise amongst French surgeons. Dressings with iron perchloride, quinine hydrochloride, ether, camphor, and many other substances, have, in the hands of some, given good results. Dr. Guermonprez is favourably impressed with the results of alum compresses, and especially with the use of saturated ethereal solutions of camphor, and advocates a more extended trial. A review of this monograph must fail to give an indication of the wide range of observations recorded—so diverse and yet so closely associated—but the book ought to be in the hands of every one interested in the treatment of wounds in general and in gas gangrene in particular.

[1] *Gangrene Gazeuse Pendant la Guerre de 1914-1916.* Par Fr. Guermonprez, Prof. et médecin-major. Tomes I-IV; 2me édition. Refondue. Paris: J. Russet. 1916. (Post 8vo, pp. 299, 312, 380, 416.)

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Captain G. V. Bogle, N.Z.A.M.C.

Captain Gilbert Vere Bogle, New Zealand Army Medical Corps, whose death in action was recorded in our issue of October 7th, was the second son of Mr. and Mrs. James Kennedy Bogle of Hawkes Bay, New Zealand. He was educated at the Napier High School, where he took several scholarships, and later at Victoria College, New Zealand University, where he graduated. He was a leader in all athletic sports, and captain of the college Rugby football team. He studied medicine at Edinburgh University, where he graduated with distinction in 1912, and yet

found time to gain his blue at Rugby football, athletics, and cricket. He also represented Edinburgh in the Scottish University sports. In the vacations he went into training as a territorial, and got his commission as an artillery officer in the O.T.C. Returning to New Zealand in 1913 he began practice as a doctor in Waipukurau. Early in 1915 he volunteered for military service, and became medical officer of the 1st Battalion of Lord Liverpool's Regiment, now the 3rd Rifle Brigade, New Zealand Division. Captain Bogle married, in August, 1915, Margaret Richmond Fell, second daughter of Dr. Walter Fell, Captain R.A.M.C., and Mrs. Fell, and granddaughter of the late Mr. Justice Richmond, of the Supreme Court of New Zealand. In October of the same year he left with his regiment for Egypt, where he was on active service at Mersa Matruh during the Senussi rising. In April, 1916, he was moved with his regiment to the Somme front. When the New Zealand division attacked on September 15th, Captain Bogle set up his regimental aid post in a depression close behind Flers, and there he worked under heavy shell fire continuously for forty-eight hours; on September 17th, while at work with his wounded, he was struck by a shell and killed instantaneously. His fellow officers speak of his loss as irreparable. From the day he joined his regiment up to the time of his death the comfort and well-being of his men was his one absorbing thought. To his men he was a real friend, trusted and beloved and appealed to in every difficulty. No day's work was ever too long for him, no duty was ever irksome. Where all men were heroes, his courage shone conspicuously. One of his fellow officers who had often played football with him, wrote this of him: "He was a very fine player, and was the mainstay of our backs, besides captaining the team. He was one of the finest gentlemen and one of the fairest and cleanest players that it has ever been my good fortune to meet. His name is added to that long, long list of brave men who have given their lives that our homes might be safe." Major Bell, 1st N.Z.R.B., writes of him: "His capable and untiring work, his patience, and his invariable cheerfulness have been the admiration of us all. He always seemed so absolutely part of the battalion—in the mess, on the march, and in the field—and was always so helpful to everybody, that there is no one who could be so missed by officers or men."

CAPTAIN B. J. L. FAYLE, R.A.M.C.

Captain Barcroft Joseph Leech Fayle, R.A.M.C., was reported as killed in action in the casualty list published on November 2nd. He was educated at Cambridge, where he graduated as B.A., and at the University of Bristol, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1913. He entered the R.A.M.C. as lieutenant on July 31st, 1914, and was promoted to captain on March 30th, 1915.

CAPTAIN F. HITCHCOCK, N.Z.A.M.C.

Captain F. Hitchcock, New Zealand Army Medical Corps, reported as killed in action in the casualty list published on November 4th, had previously been reported as wounded in the list of October 30th.

CAPTAIN T. C. KIDNER, R.A.M.C.

Captain Thomas Clatworthy Kidner, R.A.M.C., was reported as killed in action in the casualty list published on November 4th. He was educated at Middlesex Hospital and at the Royal Dental Hospital, London, took the L.D.S. diploma of the Royal College of Surgeons, England, in 1912, and those of M.R.C.S. and L.R.C.P.Lond. in 1914. He was in practice at Stoke Holy Cross, Norwich, before the war. He joined the Special Reserve of the R.A.M.C. as lieutenant on August 31st, 1914, and was promoted to captain six months later. He was attached to the Middlesex Regiment.

LIEUTENANT W. C. E. BOWER, R.A.M.C.

Lieutenant William Charles Ernest Bower, R.A.M.C., was killed in action on October 20th. He was educated at University College Hospital, London, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900, had recently taken a temporary commission in the R.A.M.C., and was attached to the Newfoundland Regiment when killed.

LIEUTENANT S. A. WALKER, R.A.M.C.

Lieutenant Stanley Arthur Walker, R.A.M.C. (temporary), whose death in action we announced in our issue of October 28th, was born in 1899, and was a graduate of the University of Toronto. He was transferred from the Canadian Army Medical Corps to the Royal Army Medical Corps on November 23rd, 1915.

Died of Wounds.

CAPTAIN H. MATHEWSON, R.A.M.C.

Captain Hamilton Mathewson, R.A.M.C., is reported to have died of wounds received in action at the age of 35. He was the son of the late Mr. A. Mathewson, of Newtown-Stewart, co. Tyrone. He took the degrees of M.B., B.Ch., B.A.O. of Queen's University, Belfast, in 1910, and had held the office of assistant medical officer of the Portsmouth Infirmary. He joined the R.A.M.C. as a temporary lieutenant in September, 1915, and went abroad shortly after as medical officer of a battalion of the Yorkshire Regiment, and was subsequently transferred to the Northampton Regiment. He was promoted to captain after a year's service. Captain Mathewson was slightly wounded about six weeks ago and again severely on October 23rd.

CAPTAIN M. J. REES, R.A.M.C.

Captain Morgan James Rees, R.A.M.C., died on October 30th, aged 41, of wounds received on October 22nd, while attending to the wounded under fire. He was the younger son of the late John Rees, of Stepney, and was educated at the City of London School, at the University College of Wales, Aberystwyth, and at Guy's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902, the D.P.H. of the London Colleges in 1904, the degrees of M.B.Lond. in 1902, and M.D. in State Medicine in 1906. After filling the posts of assistant medical officer of the Brook Hospital of the Metropolitan Asylums Board, and assistant medical officer of health to the county borough of Reading, he became medical officer of health and superintendent of the isolation hospital for Aberdare urban district in 1906, and in 1911 was appointed one of the medical inspectors of the Local Government Board. He was a Fellow of the Society of Medical Officers of Health, and of the Royal Society of Medicine, and a member of the Royal Sanitary Institute. He took a temporary commission in the R.A.M.C. a little over a year ago.

Died on Service.

LIEUTENANT-COLONEL E. HUDSON, I.M.S.

Lieutenant-Colonel Ernest Hudson, Bengal Medical Service, died at Allahabad on October 14th, aged 57. He was born on April 9th, 1859, the youngest son of Henry Lambard Hudson, late of Harleston, Norfolk; was educated at University College, London, and took the diplomas of M.R.C.S. and L.S.A. in 1882, and the F.R.C.S. Eng. in 1886. He entered the I.M.S. on April 1st, 1886, as surgeon, becoming surgeon-major on April 1st, 1898, lieutenant colonel on April 1st, 1906, and being placed on the selected list on April 7th, 1911. He served on the north east frontier of India in the Chin-Lushai campaign of 1889–90, when he was mentioned in dispatches in G.C.O. No. 677 of 1890, and received the medal with a clasp; and on the north-west frontier, in the Chitral campaign of 1895, when he took part in the action of the Malakand Pass, and in the relief of Chitral, receiving the medal with a clasp. Most of his service, however, had been spent in the gaol department of the United Provinces, and at the time of his death he was superintendent of the Naini central prison at Allahabad.

LIEUTENANT F. WHITAKER, R.A.M.C.

Lieutenant Frederick Whitaker, R.A.M.C., who died of dysentery at Alexandria on October 28th, was the second son of Mr. Joseph Whitaker, J.P., of Halifax. He was born in 1874, and was educated at Rugby and Trinity College, Cambridge, whence he proceeded to St. Bartholomew's Hospital. He graduated M.B., B.C.Camb. in 1903, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in the same year. In 1897 he represented Cambridge successfully against Oxford in the featherweights, and acted as cox for his hospital. He rendered invaluable service as house-surgeon to the Halifax Infirmary from 1903 to 1906, after which he was appointed

one of the honorary surgeons to that institution. He confined his practice to consultative and operative surgery. His skill as a surgeon and his genial and kindly disposition earned for him the high esteem of his professional brethren as well as of the public. He responded to the appeal of the army although over 41 years of age, and received his commission as temporary lieutenant on October 18th, 1915. He became one of the surgeons of the 29th Hospital at Salonica, where he did important work. He did not enjoy robust health, but had unbounded energy for work, and this may have rendered him a more easy prey to that scourge of the East—dysentery, which has claimed so many victims. He married in 1909 Jessie Milroy of Glenluce, Wigtownshire.

Wounded.

Captain K. Burgess, R.A.M.C. (temporary).
Captain G. L. Jones, R.A.M.C. (temporary).
Captain H. B. Low, R.A.M.C.(T.F.).
Captain J. M. Mackenzie, M.C., R.A.M.C. (temporary).
Captain A. E. Quine, R.A.M.C. (temporary).
Lieutenant G. MacI. Dale, R.A.M.C. (temporary).
Lieutenant R. Younger, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Atkinson, Guy Cheselden Reuell, Second Lieutenant East Lancs Regiment, aged 26, elder son of Dr. T. Reuell Atkinson, of Chadwell Heath, died on October 30th of wounds received on October 24th. He was educated at Chigwell School, and soon after leaving school he went to British Columbia, acquired a little land, and there built himself a house. On the outbreak of war he boarded up his shanty and started off for home and enlisted with his younger brother in the 18th Battalion Royal Fusiliers, U.P.S. They were sent to France and served all last winter in the trenches. He rose to the rank of corporal, and in the spring of this year was sent home for a commission. After some months at Balliol College, Oxford, he was gazetted with his brother to the East Lancs Regiment, and at the end of September he was once more sent out to France. Whilst taking a trench he was severely wounded in thighs and buttocks, and died, after five days, of gas gangrene, having had two operations performed on him.

Banks, Charles James, Private Seaforth Highlanders, eldest son of Major Banks, R.A.M.C., of the Head Quarters Staff, Cairo, killed October 12th.

Blair, H. S. Penney, Lieutenant Duke of Cornwall's Light Infantry, elder son of Charles Blair, F.R.C.S., of Richmond, died of wounds recently, aged 26. He was educated at Cambridge, where he had graduated B.A.

Chessall, Arthur Roland H., London Regiment, second son of the late Dr. Chessall, of Horley, Sussex, killed October 7th, aged 28.

Davidson, Ralph I. M., Lieutenant Manchester Regiment, son of the late Colonel Davidson, I.M.S., died on October 24th of wounds inflicted the day before. He was educated at Temple Grove School and at Cheltenham College, entered the army as second lieutenant at the beginning of the war, and joined his battalion at Cairo in October, 1914, on their way from India to France. He had been previously wounded in November, 1914.

Girling, Charles John, Second Lieutenant Hampshire Regiment, elder son of Dr. Girling, of Cranborne, near Salisbury, killed October 23rd, aged 19.

Greathead, John Rivers, Second Lieutenant Rifle Brigade, sixth son of the late Dr. J. B. Greathead, of Grahamstown, South Africa, killed October 23rd, aged 21.

Maclean, D. Fitzroy, Second Lieutenant, only child of the late Dugald Maclean, M.B., died recently of wounds received on July 23rd, aged 28.

Spreat, L. H., Lieutenant Royal Horse Artillery, son of Dr. Spreat, of Oakleigh Park, London, N., died of wounds recently, aged 19.

Medical Students.

Maxwell, Henry, Second Lieutenant Cheshire Regiment, killed in action in October. He was the younger son of T. Henry Maxwell, LL.D., B.L., of Mount Street Crescent, Dublin, and before the war was a second year medical student at Trinity College, Dublin, where he was in the O.T.C. His commission was dated November 16th, 1914. His elder brother is a surgeon in the Royal Navy.

Montgomery, Edward Henry, Second Lieutenant R.F.A., whose death in action in France we announced last week, was a second year medical student in Trinity College, Dublin. He was the only son of Dr. Edward Hugh Montgomery, of Mallow, co. Cork, who is at present on active service abroad.

Lemass, Herbert Justin, Second Lieutenant Royal Dublin Fusiliers, who was killed in action in France on October 23rd, was a second year medical student in Trinity College, Dublin. He was a son of Dr. P. E. Lemass, I.S.O., of Monkstown, co. Dublin. He was only 19 years of age and joined the army through the Royal Military College, Sandhurst. An elder brother, who is a barrister-at-law, holds a commission in the A.S.C. and is on service in France.

NOTES.

Honours.

The *London Gazette* of November 2nd announces that the King has been pleased to confer the following honours on officers of the R.A.M.C. in recognition of their distinguished service and devotion to duty during the epidemic of typhus at Gardelegen Prisoners of War Camp, in Germany, during the spring and summer of 1915, under circumstances related in the British Medical Journal of November 20th, 1915, p. 737, and November 4th, 1916, p. 623.

C.M.G.

Major Philip Claude Tresilian Davy, R.A.M.C.

D.S.O.

Captain Augustus Scott Williams, R.A.M.C.
Captain Arthur James Brown, R.A.M.C. (S.R.).

Croix de Guerre.

The French Army has awarded the Croix de Guerre to A. Louise McIlroy, M.D., D.Sc., for her work as médecin-chef in the Scottish Women's Hospital formerly at Troyes, France; later, with the Armée d'Orient in Serbia; and now in Salonica. General Ruotte visited the hospital in Salonica and pinned it on "as a recognition of the work done for the French army."

Mentioned in Dispatches.

In printing the names of the medical officers mentioned in the dispatches from General Sir Archibald Murray, Commander-in-Chief, Egyptian Expeditionary Force, published in the *London Gazette* of September 25th (Journal, September 30th, p. 472), the following were accidentally omitted: Colonel D. O'Sullivan, A.M.S., Captain M. O. Wilson, R.A.M.C., Temporary Captain R. H. Makgill, R.A.M.C. (since relinquished his commission), Temporary Captain L. L. Satow.

French Sanitary Squads.

It would appear that the French army has not hitherto had sanitary squads to attend to the hygiene of the front lines and the cantonments in the rear. These are now to be established, and the men comprising them are to receive theoretical and practical instruction in the cleansing of clothes, the disinfection of *fosses d'aisance*, the destruction of flies and mosquitos, the incineration of refuse, and the purification of drinking water. Each member of a squad must specialize in one of these matters, so as to be able to direct the work of fatigue parties.

England and Wales.

Maternity Institute for Cardiff Hospital.

The President of the Local Government Board visited Cardiff on November 3rd, and was the principal speaker at the ceremony of laying the foundation stone of a new chapel and maternity department for King Edward VII Hospital. Colonel Bruce Vaughan, chairman of the hospital, stated that during the last fifteen years the hospital had been trebled in respect of the number of its beds, income, and invested capital. It was now engaged in adding another 150 beds to its ordinary accommodation, and 89 beds for maternity cases and child welfare in addition to the wards which Mrs. Nixon had so generously given. A gift of £10,000 by Commander Sir Edward Nicholl, R.N.R., would furnish 32 surgical beds, including 8 for tuberculosis. An orthopaedic department had been founded, and a gift by Mr. Charles Radcliffe would provide another 14 beds in the children's department. It was estimated that the buildings would cost £120,000, of which £80,000 had already been subscribed or promised. The latest and most generous promise of £50,000 was made in response to the appeal for a nursing home and maternity hospital. Mr. Walter Long spoke of the importance of the further development of maternity and child welfare centres, and dwelt on the work hospitals could do, not only for the cure of disease, but for its prevention. He regretted that the whole of the care of public health of young and old alike was not in the hands of one great Government department, and he hoped to see the time when such an alteration would be made as to render the Local Government Board the great single public health authority of the country. The public knew that the medical profession had given, and was prepared to give, its labour without fee or reward, and that it was constantly studying every new feature, looking back into the past and trying to anticipate the difficulties of to-morrow. Mrs. Nixon's benefaction would provide a young woman in the early days of her married life with skilled attention, splendid surroundings, and the devoted attendance of the nurses, to whom the public could never express one tithe of its gratitude.

In proposing a vote of thanks to Mr. Long, Commander Sir Edward Nicholl said that after a conversation with Major Ewen Maclean he had promised to give £50,000 to erect a building for maternity and child welfare. Major Ewen Maclean, in seconding the resolution, said that of the large number of deaths in childbirth, half were due to puerperal fever, a preventable disease. Cardiff had been backward in not having made provision for maternity work, but now had an opportunity of inaugurating a scheme which might well be the first in the country. Mr. Long, in acknowledging the adoption of the resolution, proposed a vote of thanks to Mrs. Nixon. In acknowledging a vote of thanks to him Colonel Bruce Vaughan announced a number of other subscriptions.

Position of Special Venereal Hospitals.

The report presented to the biennial meeting of the Manchester and Salford Lock Hospital stated that the future of the hospital entirely depended on the nature of the scheme for the treatment of venereal diseases which was being prepared by the city council. There were only four similar hospitals in the kingdom — Manchester, London, Dublin, and Glasgow—and as no mention was made of them in the recent Local Government Board circulars, it was uncertain whether they would receive any subsidy, such as the 75 per cent. of the cost which the Government promised to county and county borough councils. Apparently the Local Government Board was rather in favour of treatment at general hospitals, where it was thought patients could attend with less risk of publicity. The report showed that during the last four years there had been a regular increase in the number of women out-patients. While the number of men out-patients varied between 4,700 and 4,900, the number of women out-patients had increased from 1,206 in 1912 to 1,732 last year.

The Refreshment House Experiment in Carlisle.

Mr. Edgar C. Sanders, general manager of the Central Control Board (Liquor Traffic) scheme for Carlisle, made a report to the local committee last week. He said that the operations of the Board in Carlisle practically commenced on July 1st. On July 12th the Gretna Tavern was opened, and six public-houses were closed. At the Gretna Tavern, in addition to food and non-intoxicants, beer and stout only were sold. The consumption of food and non-intoxicants increased steadily for many weeks, and the receipts from this source represented over 60 per cent. of the total trade, which was very large. The policy of acquiring licensed premises was begun on July 24th, and there now remained only six in Carlisle which had not been dealt with. The taking over implied that all private interests in the sale of intoxicants terminated. Only five licences now remained in Carlisle, and negotiations were pending with regard to two of them. With regard to the others—two hotels and one restaurant—the Board did not intend to take any action at present. In nearly all cases in which licensed premises had been taken over the former licensees had become the salaried managers under the Board. They had no interest in the sale of intoxicants, but were encouraged to provide food and to push its sale, together with all non-intoxicants. In some houses a percentage of the gross receipts from food was allowed to the managers; in others the whole of the profits would go to them. Strict instruction had been given that all restrictions ordered by the Central Control Board were to be scrupulously observed, and although it was difficult for licensees and their assistants to enforce their observance Mr. Sanders believed that in every house they were now implicitly carried out. The businesses of wine and spirit merchants in Carlisle had been acquired and were being conducted on behalf of the Board, several of the previous proprietors having been retained. It was the policy of the Board to comply with the public demand for all classes of goods which the public were in the habit of obtaining before the Board began its work. The joint use of premises for the sale of groceries and intoxicants had been discontinued, and the off-sale of spirits would be limited to seventeen licensed premises. The Board had also acquired the four breweries in Carlisle; two of them had been discontinued, and in the other two the greater part of the beer required in Carlisle and in the country houses formerly owned or tied to Carlisle breweries was being brewed by the Board. One of the breweries which had been discontinued had been converted into a hostel for men employed on the reconstruction schemes, while the other was used for bottling. The reconstruction schemes included the conversion of a club into a place similar to, but smaller than, the Gretna Tavern, and large alterations in certain licensed premises were in hand. The Board was also taking over the supply and sale of intoxicants at the four refreshment rooms at Carlisle station, while the Caledonian Railway Company was conducting the sale of food and non-intoxicants. At Longtown, in the Gretna area, one inn was being reconstructed and another was being converted into a coffee-house. The net result was that there were now ninety-two licensed premises, including the Gretna Tavern, controlled and managed in Carlisle city and sixteen in Longtown; twenty licensed premises had been extinguished in Carlisle and three in Longtown. The Board was now directing its attention to the country houses in the direct controlled area surrounding Carlisle, and the ownership of several had become vested in the Board in connexion with their purchase of Carlisle breweries. The report was accepted by the committee, and it was decided to make arrangements to keep open certain public-houses in the centre of the city all the afternoon for the sale of food and non-intoxicants.

The National Association of Insurance Committees.

The annual meeting of the National Association of Insurance Committees was held in London on October 19th and 20th. The President, Mr. Alderman Huddart, in his opening address, expressed the opinion that the relations of the association with the Commissioners had so much improved that any suggestions made would be sure to receive due attention. There were now 104 Insurance Committees associated out of a total of 130. Speaking of medical benefit, he considered that it would be greatly improved by the schemes for consultants and specialists, but if the present system was to continue it would have to be strengthened. On the whole, he believed the panel doctors had done their work well, though there was a residuum whose services had not been satisfactory. The profession had responded loyally to the country's call, and he was not up against those doctors, but he was up against those who had practices in congested areas many of whom made money the first consideration. Patients seldom utilized the machinery for dealing with complaints, but submitted without complaint to bad habits and neglect on the part of their doctors. He thought the medical system would be greatly strengthened by effective supervision and by limiting the numbers that a doctor could take on his list. This could be carried out by inspectors, who should be empowered to visit the doctors' surgeries and inspect their records. Where records were badly kept or prescriptions badly written so as to be likely to cause mistakes in dispensing, or where waiting-room accommodation was bad, pressure should be brought on the doctors to remedy the defects on penalty of not participating in any grants. The system of inspection should also apply to the chemists. Sanatorium benefit in addition to the treatment of patients was intended as a preventive measure. Experience was showing that the great expectations of cure would have to be modified. A large percentage of early cases could be cured, but unfortunately few cases came under medical observation in the early stages. With regard to prevention it failed largely from insufficient funds. In Salford (where the president was chairman of the Health Committee of the Corporation as well as chairman of the Insurance Committee), £8,600 a year was being spent, which would be increased to £15,000 when the new sanatorium was completed, and last year the Insurance Committee contributed to this about £1,850, but an expenditure of at least two or three times the present amount was required to cover the whole field. Indirect measures, such as proper housing of the working classes, were even of greater importance than direct measures. In Salford, housing schemes were started in 1889, when the death-rate from phthisis was 23 per 10,000 population, and in the following twenty years, without any direct attack on the disease, the death-rate had decreased to 15 per 10,000. He believed, too, that the proper care of infants and young child life was a most important part of the campaign against tuberculosis.

Resolutions were passed urging on the London Government Board and the Commissioners the importance of measures for the after-care of tuberculous patients, and suggesting that the Government's proposals for small holdings or farm colonies for discharged soldiers offered aid for the solution of this problem. The authorities were also called on to deal with overcrowding and insanitary housing. The Conference welcomed the proposal that discharged soldiers should be provided with medical benefit to include specialist and consultant treatment, and recommended that there should be no difference in the medical treatment of discharged soldiers and the ordinary insured population, and that the supplementary grants recommended by the Government in 1914 for the provision of specialists and consultants for the insured should now be provided. It was resolved to compile data with regard to the medical facilities in each committee area, and a resolution was passed recommending that insured persons should not be disqualified for sickness or disablement benefit in respect of venereal disease if medical treatment could be efficiently rendered without abstention from work.

A paper was read by Alderman Hayhurst of Bradford on public health services and their relation to the National Insurance. Speaking generally, he said local authorities only dealt with the prevention of disease, but the more advanced authorities had extended their operations to the treatment of certain diseases. Bradford had a scheme for dealing with the whole of the population in the case of tuberculosis. It had also a maternity and child welfare scheme, an antenatal clinic and maternity home, an infant department which is responsible for treating some 600 babies under one year of age every week, a pre-school and post-school clinic, a municipal milk dépôt, and a scheme for the provision of meals for expectant and nursing mothers. He claimed that all these schemes would greatly affect the insured population of the future. He believed that the demand was now strong for a revision of all the health services of the country and for the appointment of a Minister of Health.

Ireland.

Several persons from the Clonlee district have been admitted to the Loughrea Workhouse Hospital suffering from typhus fever. Dr. J. F. Ryan, M.O., in his weekly report to the guardians, stated that the type of fever was very virulent.

Anterior Poliomyelitis in Ulster.

Sporadic cases of anterior poliomyelitis have occurred lately in the North of Ireland. No one district has shown any epidemic prevalence, but cases in twos and threes have been reported here and there. It is important that medical men should be on the look-out, as in some cases the onset of feverish symptoms has preceded the onset of paralysis by a period as long as a week.

Salaries of Medical Officers.

At a meeting of the Irish Committee of the British Medical Association, held at the Irish offices, 16, South Frederick Street, Dublin, on November 1st, a letter was read from the Local Government Board in reply to a resolution passed at a previous meeting of the committee urging on the Local Government Board that as the majority of unions in Ireland had adopted graded scales of salaries the Local Government Board should at once take the necessary steps to have all unions in Ireland brought into uniformity on the matter. The letter stated as follows:

> The Local Government Board desire to state that, notwithstanding the financial exigencies which have resulted from the war, they have sanctioned the scales of salaries which have been adopted by boards of guardians during the past two years, but, as pointed out in their letter of October 28th, 1914, the Board do not consider that it would be advisable at the present time to press the matter specially on boards of guardians.
>
> In regard to the appointment of substitutes to discharge the duties of dispensary medical officers while on vacation, the Local Government Board would point out that the appointment of temporary medical officers is vested in the boards of guardians. The guardians, however, select the practitioner nominated by the medical officer in almost every instance, and in any case where they do not do so the Local Government Board urge them to accept the medical officer's nominee, except where the arrangement suggested by the medical officer would be likely to lead to inconvenience to the sick poor.

The committee directed its secretary, Dr. Hennessy, to wait on the Medical Commissioner of the Local Government Board and to point out to him that there was never a time in Ireland when the ratepayers, who were practically all farmers, were in a better position, owing to the great agricultural prosperity, to improve the positions of their Poor Law medical officers, whose salaries were, in nearly all cases, less than the working expenses of their districts.

Scotland.

An *x*-ray motor ambulance has been presented, as a memorial of Miss Edith Cavell, to the Scottish Women's Hospitals for service with the Serbian army. Dr. Hope Fowler, at the ceremony of presentation, said that the car contained one of the best *x*-ray outfits he had seen. The tube is carried on a travelling carrier underneath the trestle; the switch-board is controlled by a pedal; electricity is obtained from a dynamo driven by the car's engine.

Miners and Doctors' Fees.

The miners of Fifeshire, Mid and East Lothian, Clackmannan, and Kinross have refused to accept the agreement reached by miners in other districts in the south of Scotland. Seventeen out of twenty branches in Mid and East Lothian have resolved to have no further dealing with the doctors through the colliery offices, but to establish a fund from which the accounts as rendered to the families direct by their medical attendant will be paid in future.

Manual Curative Workshops.

On October 30th King Manoel, continuing his tour of hospitals equipped with departments for orthopaedic treatment, inspected the Scottish National Red Cross Hospital at Glasgow. He was accompanied by Colonel Robert Jones of Liverpool, Major Stiles of Edinburgh, and Sir George T. Beatson. The structural work of the orthopaedic department is now approaching completion. The King was much impressed by the comprehensive nature of the preparations made for applying orthopaedic treatment. On October 31st His Majesty, accompanied by Colonel Jones and Major Stiles, visited the Bangour Military Hospital near Uphall. He was received by Surgeon-General J. C. Culling, D.D.M.S. Scottish Command, and Lieutenant-Colonel J. Keay, who is in charge of the hospital. After the inspection King Manoel expressed his appreciation of the arrangements, especially those for orthopaedic treatment.

Maternity Service and Child Welfare.

The national sacrifice of young adult life entailed by the war calls for the most scrupulous care of the oncoming generations, from birth upwards, in the immediate future. By the extension of the Notification of Births Act (1915) it has now been made incumbent upon local authorities to exercise the powers conferred upon them for the benefit of expectant as well as actual mothers and to watch over the welfare of young children up to the age of 5 years. They are empowered to work through local committees, and it is especially provided that such committees must include women and may also comprise persons who are not members of the local authority itself. Thus the machinery has been provided if the brains and the hands can be found to work it.

In an interesting report by Dr. A. K. Chalmers, Medical Officer of Health for Glasgow, issued in July last, the progress of the work as carried on in the great hive of industry on the Clyde is fully described and may well engage the attention of authorities in other large centres who may have this great responsibility thrust upon them. As a result of experience it has been found that many requirements can be met by existing machinery, but that others demand special arrangements not as yet perfected. The conclusions at which he has arrived seem to be somewhat as follows:

Dispensaries, where expectant mothers can obtain advice supplemented by home visitation, are very much

needed. They should be distributed over given areas and established in direct connexion with hospitals, so that skilled treatment can be promptly provided as soon as the need for it has been detected. The association of the great medical charities with this and other State schemes, such as those for dealing with tuberculosis and venereal diseases respectively, presents a problem which is very difficult of solution. Dr. Chalmers points out that "the dovetailing of rate-aided machinery into the administration of institutions conducted on a voluntary basis will require careful adjustment if the full benefit of voluntary contributions is to be maintained."

Home visitation, which must form an essential part of any scheme for the supervision of infant life, must be supplemented by some scheme for providing medical treatment for incipient disease. The importance of early recognition of the first departure from physiological health can hardly be exaggerated. The aid of the doctor, both for mother and infant, is too often delayed until irreparable mischief has been set up. The aim of all such welfare schemes must be essentially preventive rather than merely curative. Child-welfare institutes are needed in all industrial centres, and must be established on broad and liberal lines, rendering them at once effective and attractive. They should provide facilities for antenatal and infant consultations, day nurseries, playgrounds, and kindergartens on a large scale. Crèches have been set up in considerable numbers throughout the country, where young children can be taken care of during the absence of the mother working away from home. But it does not appear that mothers in large towns working only at home have been assisted in the same way with the care of their children during working hours.

The establishment of such institutes as those suggested would afford this much-needed relief, and would keep the children up to 5 years of age in decent surroundings and with proper infant instruction, instead of leaving them to be neglected and permitted too often to seek recreation in the gutter. Health visitors can render invaluable aid in such matters, but it is necessary that they should be trained for the work that they undertake. Qualification both in nursing and midwifery is desirable, and indeed essential, if the supervision of midwives forms a part of their duty. At the present time it should be noted that there is no such supervision in force, and this is an omission which should not be allowed to continue.

In Glasgow, as in all large communities, there must always be a number of distinct authorities—councils, boards, and committees—directly or indirectly concerned with the administration of a public Act, and their various interests can only be co-ordinated by some central body on which they are properly represented. With the powers now conferred upon them it should not be difficult for local authorities to set up such co-ordinated machinery for the carrying out of this all-important work, and so to safeguard the oncoming generations during their years of greatest peril.

Australia.

THE AUSTRALIAN INSTITUTE OF TROPICAL MEDICINE.

THE half-yearly report of the Australian Institute of Tropical Medicine, Townsville, Queensland, from July 1st to December 31st, 1915, has recently been printed. The work has comprised research investigations into problems connected with tropical disease, tropical hygiene and sanitation, and clinical work in connexion with the tropical ward of the Townsville Hospital. A list of the diseases treated in that institution shows that tropical maladies are by no means rare in Queensland—for example, there were 54 cases of malaria, 64 of dengue, 8 of ankylostomiasis, 5 of filariasis, 6 of dysentery, and 2 of sprue. There are also interesting observations dealing with helminthology, Dr. Nicoll having contributed papers on the trematode parasites of North Queensland, and on worm nodules in cattle. The entomologist also has made a detailed study of some of the insects found in these parts, and has been occupied in transferring the collection of Australian diptera to a new insect cabinet. The collection now contains the representatives of many families, and should be of great use to students of entomology in Australia.

Correspondence.

VENEREAL DISEASES IN THE ARMY.

SIR,—Mr. E. B. Turner refers, in the SUPPLEMENT of November 4th (p. 125), to the "enormous amount of venereal disease in the army, at the front and at home," and states that "when the war was over there might be such a spread of disease as to cause a material degeneration among the general population." Equally grave charges have been brought against the soldier recently by Mr. Walter Long and Sir Malcolm Morris. Would it be possible to have the facts and figures on which these statements are based? My experience in extensive civil practice and in a large military hospital, as well as in a populous recruiting area, fails to confirm them.

A medical officer of high rank recently home from the front tells me that there is singularly little venereal disease at the front. I ask every medical man I meet if he finds any increase in venereal disease since the war began, and the answer is constantly in the negative. It wound be unfortunate if the present agitation, which is rapidly making venereal disease the subject of constant discussion in the lay press, should prove to have no better foundation than that of the "war baby." In my experience the British soldier is no less mindful of his health and his morals than his civilian brother.—I am, etc.,

Leeds, Nov. 7th. A. G. BARRS, M.D., F.R.C.P.

CONTROL OF VENEREAL DISEASES.

SIR,—As it appears evident that steps are to be taken at once by the county councils to provide for the diagnosis and treatment of cases of venereal diseases, it seems a fitting occasion to draw the attention of the profession to the necessity of seeing that those members of the profession who are at present on military service either at home or abroad should have the opportunity of undertaking some of the work entailed, and failing this possibility, that temporary officers only should be employed until the end of the war.

It appears that the authorities at Portsmouth are about to have the necessary work carried out on the above-mentioned lines, and it would be well if this course were followed by all county councils.—I am, etc.,

Cambridge, Nov. 4th. S. W. CURL, Captain R.A.M.C.(T.).

THE POSSIBLE FUNCTIONS OF THE CEREBRO-SPINAL FLUID.

SIR,—The importance of this subject from the standpoint of intrathecal treatment is, I trust, sufficient excuse for my venturing to criticize the views of so eminent a physiologist as Professor Halliburton. I find it difficult to accept his conclusion that the cerebro-spinal fluid constitutes the lymph of the central nervous system (p. 609).

As I understand Professor Halliburton, this fluid may be regarded as normal saline solution *plus* minute quantities of sugar and a peculiar protein—a type of fluid which, if duly oxygenated and perfused through the excised mammalian heart, allows it to continue beating for a considerable time, and is thus presumably all-sufficient for the nutrition of the central neurons. The cerebro-spinal fluid is secreted by the choroidal glands, and (so it is maintained) after passing into the subarachnoid space, drains off into the venous sinuses, along certain of the cranial nerves, and possibly (this a conjecture only) by the capillaries of the central nervous system.

The view that the cerebro-spinal fluid constitutes the lymph of the central nervous system was put forward some years ago by Mott, one of his arguments being that the interneuronal lymph, as studied in specimens of the brain and spinal cord under the microscope, does not appear to contain any coagulable lymph.

Now, although it is certain that the cerebro-spinal fluid does actually reach the perineuronal spaces (via perivascular channels), there are, it seems to me, weighty arguments against regarding it as true perineuronal lymph.

This view supposes that the entire nutriment of the central nervous system is provided by the comparatively small quantity of blood brought to the choroidal glands, a supposition which appears all the more unlikely when it is reflected that a goodly proportion of the cerebro-spinal

fluid admittedly does not enter the nervous system at all, but drains off in other directions.

Even supposing the choroidal glands to be capable of yielding the needful supply of nutriment, how is this to be conveyed in sufficient quantities to the neurons? We should have to postulate a rapid, vigorous flow from the subarachnoid space into the perineuronal spaces, and a rapid draining off of the fluid by the local capillaries (a mode of exit which Professor Halliburton barely admits even). Have we evidence of any mechanism capable of bringing about such a flow? On the contrary, the facts advanced by the professor are in favour rather of a sluggish flow of the fluid into the central nervous system. He gives definite evidence that in the case of the spinal cord this flow cannot be other than sluggish, seeing that such readily diffusible substances as adrenalin and atropine, when introduced into the spinal subarachoid space, take a long time to reach the blood stream; and he himself suggests that their rapid entrance into the blood, when the injection is made into the subcerebellar space, is not by the capillaries of the central nervous system but by the venous sinuses. Evidently Professor Halliburton regards the cerebro-spinal fluid which reaches the perineuronal spaces as all but stagnant. How under such conditions would it be possible for the neurons to receive an adequate supply of nutriment?

Professor Halliburton is silent as to the purpose served by the enormous blood supply to the central nervous system, other than the fractional portion sent to the choroidal glands. Presumably he regards it as essentially respiratory.

I confess that to me it appears more probable that the perineuronal lymph is derived not only from the cerebro-spinal fluid, but (mainly indeed) by exudation from the local capillaries. Professor Halliburton regards this as improbable on the ground that capillaries which allow the passage of foodstuffs would be likely also to permit the escape of substances (for example, arsenical salts) injurious to the neurons, whereas they are known to be impermeable, for the most part, to such substances. May we not, however, postulate an electivity on the part of the capillaries of the central nervous system, one which, while allowing the escape of substances favourable to the activities of the neurons, would tend to intercept such as are likely to injure these delicate structures?—I am, etc.,

London, W., Nov. 5th. HARRY CAMPBELL.

SIR,—Referring to Professor Halliburton's most interesting address on the possible functions of the cerebro-spinal fluid, I notice that he found that the sheath of the olfactory nerves in particular afford a communication between the cerebro-spinal canal and an external portion of the body (the nasopharyngeal membrane). He does not, however, offer any explanation of this condition of affairs; whereas it strikes me as a particularly interesting discovery in view of the embryological history of the nerves in question. Unless I am mistaken, the olfactory nerves develop in quite a different fashion to almost any other, and are histologically unique also. They are supposed to be no true nerves at all, but rather prolongations of the central nervous system, being, strictly speaking, part of the rhinencephalon itself. At one period of our development the sense of smell, as in many of the lower animals, was evidently of very great, if not of paramount, importance, as is shown by the extreme complexity of the portion of the brain to which the fibres from these nerves run, known collectively as the limbic lobe; and I would suggest that it is not improbable that the vestigial character of this portion of the system conduces, as in so many other vestiges (for example, the appendix), to inflammatory disturbance of any description.

The histological anatomy of the olfactory nerves bears out these remarks; composed of non-medullated fibres (the only sensory nerves connected with the central nervous system of this description), I believe they finally terminate by actual continuity with the olfactory cells in the epithelium of the nasopharynx.

Professor Halliburton's discovery goes far to confirm the above embryological theory, which I believe was first propounded by Keith, and shows that a third ally, in the shape of the embryologist, may well be added to the *rapprochement* he desires between the physiologist and the practitioner.—I am, etc.,

York, Nov. 6th. J. C. LYTH.

NITROUS OXIDE-OXYGEN ANAESTHESIA.

SIR,—I should like through you to thank the gentlemen who so kindly entered into the discussion of my case reported in your issue of August 26th last. I waited to see if more letters would reach you, but as this has not happened, now venture to reply.

I do not in the least attribute a carping spirit to Mr. Edmund G. Boyle. Like him I wish to learn, and I quite appreciate the spirit in which he penned his questions. Let me first answer these categorically.

(*a*) Sentiment and the patient's own expressed wish to have something to make her sleep made me give the nitrous oxide and oxygen as well as stovaine. I agree with Mr. Page that the Trendelenburg position is not an ideal one for comfort.

(*b*) I have no experience of the Gwathmey apparatus in practice, but have followed Gatch's method. This is quoted in Gwathmey's book, and from him I gather that it does not matter about the exact percentage; the pink colour of the patient should be one's guide to mixing the gases. By changing "about every five minutes," I mean that I empty my bag completely in this period through the expiratory valve, and then start a fresh mixture. I allow a very small jet of nitrous oxide gas to run in constantly, the patient rebreathing, and from time to time, according to the respirations and colour, add oxygen. If the CO_2 content in the blood becomes too high the breathing becomes violent, and at once subsides on the addition of oxygen (see Dr. Pembrey's letter, BRITISH MEDICAL JOURNAL, September 16th).

(*c*) I mean breathing deeply as in profound sleep, with blowing out of cheeks and a suspicion of a snore—certainly not stertorous breathing. This type of breathing, and a pink colour, would to me mean a perfect condition of deep anaesthesia, and was the state I attempted to describe.

(*d*) The second attack of vomiting could not have been due to rebreathing, as so little time had elapsed (ten minutes). I agree with Mr. Boyle that rebreathing may cause it, and it is not easy to tell when this is going to happen. I can recall many two-hour anaesthesias in which no vomiting occurred, and others in which vomiting was a trouble more than once during an operation of but one hour's duration.

I regret that Sir James Barr should feel it his duty to write so adversely of the use of nitrous oxide and oxygen, but am glad that his criticisms are met by so eminent a physiologist as Dr. M. S. Pembrey. From practical experience I have learnt that oxygen steadies the laboured and hurried respirations due to too much CO_2 in the blood, and, further, that it is this hurried respiration which ends in apnoea. It is not the oxygen, but the over-stimulation of the respiratory centre by CO_2, which is the cause of the apnoea. In this connexion Dr. Pembrey calls attention to the use of morphine and its allies by anaesthetists. For many years I was in the habit of using morphine prior to administering an anaesthetic. For the last four years I have discontinued its use and feel sure that a patient is far better without it owing to its deadening effect upon the respiratory centre.

Mr. Page is inclined to attribute death in my case to the stovaine and not to the nitrous oxide and oxygen. His experience of spinal anaesthesias is larger than mine, and from him I am glad to learn one point of which I was quite ignorant—namely, that in spite of a successful spinal anaesthesia, shock may still be produced by forcibly pulling on the uterus. But my experience of stovaine is that toxic symptoms appear in fifteen minutes with the utmost regularity. In his description of his methods, however, I am disappointed, just as I was in reading Gwathmey. Put shortly, I read both to say that in any suspect case ether should be used with the nitrous oxide and oxygen. But the point I would urge in my case is that, beyond being nervous and fat, there was no reason to suspect any heart trouble.

In reviewing my case, I cannot but repeat that the combination of the two anaesthetics—the stovaine and the nitrous oxide-oxygen sequence—was the cause of death; one would not have been fatal alone. It was on this account that I called attention to the fatality, and am richly rewarded by the discussion that has ensued.—I am, etc.,

London, W., Oct. 30th. W. E. ROBINSON.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on October 18th.

Sir Bertrand E. Dawson, K.C.V.O., C.B., has been elected Dean of the Faculty of Medicine.

The second examination for medical degrees, Part II, for internal and external students will commence on December 4th.

UNIVERSITY OF WALES.

THE Swansea Technical College Committee has adopted resolutions providing that, under suitable conditions, the Swansea Local Education Authority should levy a rate up to a maximum of one penny in the pound in aid of the Welsh University. One of the conditions was that, while safeguarding the authority of the University, the Treasury should make an increased contribution at least equal to the rateable contribution of the local education authorities in Wales and Monmouthshire from time to time.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE annual report of the Council for 1916 contains the list of names of Fellows and Members who are known to have been killed in action, or to have lost their lives from wounds or diseases contracted while on active service with His Majesty's forces, an analysis of which was published in the JOURNAL of October 21st, p. 576. It is proposed to compile at the end of the war a complete list of these names with short biographies, and Fellows and Members are invited to assist in making this catalogue as correct as possible. The report includes an abstract of the proceedings of the Annual Meeting of Fellows and Members in 1915, the usual official documents concerning Finance, the Annual Elections, the Museum, and the Library. The Jacksonian and Triennial prizes were not awarded, the Walker prize of £100 for the period 1911–1915 was bestowed upon Mr. W. Sampson Handley, F.R.C.S. Documents also included concern the Direct Representation of Members of the Council, the abuse of medical certificates, the prevention and treatment of venereal diseases, the motor licences for maimed persons, Poor Law medical officers' special fees, and the removal of Members. The President and Council have received from Mr. C. H. Golding-Bird a very complete annual report of the proceedings of the Central Midwives Board for the year 1915, which is published in full.

Obituary.

PROFESSOR JAMES JAMIESON, of Melbourne, who died recently at the age of 76, was born at Beith, near Glasgow. He studied at the University of Glasgow, graduating M.D. in 1862 and C.M. in the following year. Some years later he went to Australia and settled in Warrnambool where he practised for nearly ten years. In 1877 he migrated to Melbourne where he took the degree of M.D. in 1878. In 1879 he was appointed lecturer on obstetrics and diseases of women and children in the medical school. He held that post till the end of 1887 when he was elected to the chair of medicine. Two years before he had been appointed physician to the Alfred Hospital. In 1885 he was appointed health officer to the City of Melbourne, a position which he held for twenty-seven years. He resigned the chair of medicine in 1907 and retired from active professional life in 1912. In 1878 Dr. Neild resigned the position of editor of the *Australian Medical Journal* and was succeeded by Professor (now Sir Harry) Allen, who in turn gave place to Dr. Jamieson. The *Journal* was then a monthly publication, and Dr. Jamieson did not a little to establish its scientific reputation. As a health officer his activity brought about an extraordinary change in the hygienic condition of Melbourne. He was President of the Victoria Medical Society, since incorporated with the Victoria Branch of the British Medical Association. He was President of the Section of Medicine of the Australian Medical Congress which was held in Hobart in 1902. When "Wee Jimmie," as he was affectionately called, retired from his university and hospital work his students, past and present, showed their appreciation by founding a memorial in the form of an endowed scholarship in medicine.

PROFESSOR JOHN FERGUSON, who was for over forty years professor of chemistry in the University of Glasgow, died on November 2nd, after a short illness. He was well known to many succeeding generations of Glasgow medical students, and when he resigned his chair about a year ago the University Court recorded its high appreciation of the valuable services he had rendered to the university and to learning. He was much interested in the history of chemistry, and contributed many of the biographies of chemists in the *Encyclopaedia Britannica* and the *Dictionary of National Biography*.

DR. J. PICOT, sometime professor of clinical medicine in the University of Bordeaux, died on September 26th, aged 77. He was born in the department of Meurthe-et-Moselle, studied medicine at the old French University of Strasbourg, and in 1872 was appointed deputy professor in the Tours School of Medicine. While holding that post he wrote two volumes on clinical pathology (*Les grands processus morbides*) for which the Institute of France awarded him its Montyon prize in 1877. When the medical faculty of Bordeaux was founded in 1878 Picot was appointed professor of general pathology. A year later he succeeded Henri Gintrac in the chair of clinical medicine. He was very successful as a teacher and extremely popular with the students, who in their demonstrations used to cheer him under the affectionate nickname of "Père la Clinique." He was elected a corresponding member of the Institute in 1891, and in 1899 the distinction of the Legion of Honour was conferred on him. He was one of the founders of the *Gazette Hebdomadaire des Sciences médicales de Bordeaux*, in which he published a series of observations on diseases of the heart that attracted considerable attention.

PAUL VON BRUNS, professor of surgery in the University of Tübingen, who died recently, was the son of the famous Victor von Bruns, his predecessor in the chair, and was born on July 2nd, 1846. After serving in the war of 1870–71 he qualified as privatdozent at Tübingen in 1875. He was appointed extraordinary professor of surgery in 1877, becoming ordinary professor and director of the surgical clinic at Tübingen in 1882. He was president of the Deutsche Gesellschäft für Chirurgie in 1897. He was the author of writings on laryngotomy for the removal of growths in the larynx, gunshot wounds, the treatment of goitre, the radical operation for umbilical hernia, the treatment of fractures of the lower extremities, acute osteomyelitis, the temporary ligature of arteries, antiseptics in war, and many other subjects. In 1883 Bruns founded the *Beiträge zur klinischen Chirurgie*, which he edited up to the time of his death. He collaborated with Bergmann and Mikulicz in the *Handbuch der Chirurgie* and continued Bergmann's *Deutsche Chirurgie*.

DR. JOHN A. MCCORKLE, President of the Long Island College Hospital, Brooklyn, who died on August 15th, graduated at the University of Michigan in 1873, and after holding a resident post in the Long Island College Hospital, settled in Brooklyn. He was a member of the teaching staff of the hospital for forty years, and during a large part of that time he was professor of medicine and head of the department of medicine in the college. To his efforts was in great measure due the accumulation of the fund of £400,000 which now forms the endowment of the hospital and college.

COLONEL JAMES SUTHERLAND WILKINS, D.S.O., Bombay Medical Service (retired), died at Stayer House, Eye, on October 27th, aged 65. He was born on May 18th, 1851, took the diplomas of L.R.C.P.Lond. in 1873, and M.R.C.S. in 1874, and entered the I.M.S. as surgeon on March 31st, 1874. He became surgeon-major on March 31st, 1886, surgeon-lieutenant-colonel on March 31st, 1894, brigade surgeon-lieutenant-colonel on August 16th, 1897, and colonel on October 2nd, 1900, retiring on November 11th, 1905. He served in the second Afghan war in 1880, when he took part in the march from Quetta to the relief of Kandahar, receiving the medal; in Burma in 1886-87, when he was mentioned in dispatches, and gained the medal with two clasps, and the D.S.O.; and in South Africa in 1902, gaining the Queen's medal with three clasps. He also received the Kaisar-i-Hind medal, 1st class, on January 1st, 1901.

Surgeon-Major Robinson Boustead, Bombay Medical Service (retired), one of the few remaining veterans who served both in the Crimea and in the Mutiny, died at Hove on October 8th, aged 81. He was educated at Edinburgh University and took the M.R.C.S. in 1859, the L.S.A. in 1863, and the F.R.C.S.Edin. and M.D.St. Andrews in 1866. Entering the I.M.S. as assistant surgeon on July 23rd, 1858, he became surgeon on July 23rd, 1870, and surgeon-major on July 1st, 1873, retiring on February 5th, 1889. He had a fine record of war service. Before entering the I.M.S. he had served in the Crimea with the Turkish contingent, in medical charge of the Osmanli Irregular Cavalry, receiving the medal and the fifth class of the Order of the Medjidie. In the Indian Mutiny he served with the field force against the Rohillas, in the Central India campaign and pursuit of Tantia Topi, against the Bhils in Ahmadnagar district, and against mutineers on the Bhima-Krishna frontier, and gained the Mutiny medal with a clasp. He also served in the second China war of 1860; in the Abyssinian war of 1867–68, when he got the medal; and in the Eastern Soudan campaign in 1885, when he was present in the actions at Hashin, Tofrek, and Tamai, was twice mentioned in dispatches, and received the medal with a clasp and the Khedive's star. Surgeon-Major Boustead's death leaves only one survivor among the I.M.S. officers who served in the Crimea, Deputy Surgeon-General B. Williamson; but there are still about twenty-five I.M.S. officers living who were serving in India at the time of the Mutiny, nearly sixty years ago, and of these at least eight or ten took part in the campaign.

The Services.

EXCHANGES.

Captain R.A.M.C.(T.) in charge troops at a well-known golfing resort on the East Coast desires exchange with an officer doing hospital or recruiting duty in London or other large town.—Address No. 4450, British Medical Journal Office, 429, Strand, W.C.

Regimental Medical Officer attached to Camp, Eastern Command, Woolwich District, wishes to exchange with Medical Officer attached London Command (hospital preferred).—Address No. 4449, British Medical Journal Office, 429, Strand, W.C.

Medical News.

Sir Lauder Brunton left unsettled estate valued at £28,151, the net personalty being £26,457. Dr. W. W. Tate left estate valued at £26,414. Dr. Wharton Peter Hood left estate valued at £53,751.

The Act passed by the Michigan Legislature in 1913 permitting the sterilization of inmates of State institutions has been declared unconstitutional.

A paper on functional gastric disturbances in the soldier will be read by Colin McDowall, M.D., R.A.M.C. (temporary), at the quarterly meeting of the Medico-Psychological Association, to be held on Tuesday, November 21st, at 11, Chandos Street, Cavendish Square, W., at 2.45 p.m.

Dr. H. R. Kenwood, Professor of Hygiene and Public Health in the University of London and Lieutenant-Colonel R.A.M.C., will deliver a public lecture on hygiene—some lessons of the war, at University College, Gower Street, on Friday next, at 5.30 p.m. The chair will be taken by Sir Alfred Keogh, K.C.B., D.G.A.M.S. Those interested are invited to attend.

A course of lectures, to which members of the profession will be admitted on presentation of a visiting card, will be given by Dr. J. H. Sequeira on the early diagnosis and treatment of syphilis, at the skin department of the London Hospital, on Thursdays, November 23rd, 30th, and December 7th and 14th, at 11 a.m. Dr. J. McIntosh has arranged to give practical demonstrations of the examination for spirochaetes and of the Wassermann test.

The Council of the Edith Cavell Homes of Rest for Nurses (25, Victoria Street, London, S.W.) has received letters from Queen Alexandra and Lady Douglas Haig, strongly commending the project to provide homes of rest for nurses temporarily unable to carry on their duties owing to stress of work. Lady Haig says that officers who have benefited have expressed to her their desire that a channel might be provided through which both officers and those in the ranks could give practical expression to their gratitude according to their ability, and adds that the project to establish homes of rest for nurses affords to them an ideal opportunity for fulfilling their wish. Subscriptions may be sent to the honorary secretary at the address given.

The *Medical Record* states that, in accordance with the wishes of Mrs. Eddy, who in 1909 proposed that her followers should "establish and maintain a Christian Science resort for the so-called sick," the directors of the church have recently accepted a gift of twenty acres of land in Brookline, Mass., on which such buildings as may be necessary for the purpose will be erected.

At the annual meeting of the Japanese Red Cross, held recently at Tokyo, the young Empress was present, and there was a very large attendance. The society, which was formed in 1866, and was recognized by the Geneva Convention in 1877, has now a membership of about two millions and a capital of £4,000,000. It has twelve hospitals and two hospital ships. In co-operation with other Red Cross Societies, it has taken an active part in humanitarian work in the present war.

At the first meeting of the Chemical Society for this session a number of specimens of British-made synthetic chemicals were shown from the laboratory of Messrs. Boots and Co., Nottingham. They included chloralamide, chloramine-T, acetanilide, aspirin, paraldehyde, salol, adalin (bromdiethylacetylurea), phenacetin, hexamine, antipyrine, phthalic anhydride, and digitalin, all of them drugs made in Germany before the war. We are informed that these drugs are being manufactured in factories specially erected for the purpose at Nottingham since the outbreak of war.

The winter session of the Royal Society of Arts will be opened on Wednesday next, when Mr. Dugald Clerk, B.Sc., F.R.S., chairman of the council, will deliver an address at 4.30 p.m. on the stability of Great Britain. Among other lectures before Christmas is one by the Master of Magdalene College, Cambridge, on classical and scientific education, to be given on December 20th at 4 p.m. The Cantor lectures will be given during January and February by Professor A. Beresford Pite, F.R.I.B.A., on town planning and civic architecture.

A series of demonstrations has been arranged at the North-East London Post-Graduate College, Prince of Wales's Hospital, Tottenham, commencing on November 16th, when Dr. Murray Leslie will show selected medical cases. The other demonstrations arranged are: November 22nd, selected cases of children's diseases, by Dr. Whipham; November 28th, clinico-pathological methods in the diagnosis of disease, by Dr. G. G. Macdonald; December 7th, cases illustrating the treatment of (*a*) extensively splintered fractures, (*b*) consecutive osteomyelitis, by Mr. Howell Evans; and December 14th, screen demonstration of *x*-ray diagnosis of cardiac and pulmonary lesions, by Dr. J. Metcalfe. The demonstrations will be given at 3.30 on each day.

Dr. William Palmer Lucas, professor of paediatrics in the University of California, who was sent by the American Belgian Relief Commission to study health conditions in the conquered part of Belgium, has recently presented a report in which he states that the increase in the prevalence of tuberculosis seems to him to be mainly a result of lowered vitality due to underfeeding. Every sanatorium in Belgium is crowded, the waiting lists of all the institutions have increased, and the waiting cases are more acute. On the other hand, infant mortality has diminished and the health conditions of this class are better than normal, owing to its having been the object of great solicitude since the beginning of the war.

Mr. T. E. Wallis, B.Sc., has described to the Society of Public Analysts a method of quantitative microscopical examination for use in instances where chemical methods were inapplicable. Equal weights of the material under investigation and of a standard mixture for comparison, are separately mixed with similar weighed quantities of lycopodium spores. The mixed powders are suspended in a suitable fluid, and two slides are prepared from each suspension. Ten fields, selected according to a pre-arranged plan, are counted on each slide, and the average ratio of the number of particles of the substance to be determined to the number of lycopodium spores present is found, and reduced in each case, to the number corresponding to 100 lycopodium spores. The figures so obtained are proportional to the quantities of material present in the substance and in the standard mixture respectively. A simple calculation gives the quantity sought. The accuracy and utility of the method was shown by experiments with typical mixtures, including wheat flour, potato starch, and mustard, each mixed with corn-flour, wheat flour containing potato starch, white pepper adulterated with ginger and with rice starch, and gentian root with added cocoanut shell.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

A RESIDENT medical officer in a sanatorium enquires whether he is entitled to deduct as expenses the amount spent by him on medical textbooks and current literature and necessary instruments; these are not supplied by the authorities of the institution.

*** Our correspondent does not state the precise constitution of the institution, but we assume that it is in the nature of a legal corporation, and that his appointment falls to be dealt with under Schedule E, and in accordance with the more stringent rules as to expenses which appertain to that schedule. Nevertheless, the expenses appear to be properly allowable, inasmuch as they may reasonably be regarded as "solely, exclusively, and necessarily" laid out in performance of the duties of the office. If the enquirer buys textbooks for the purpose of a special course of study or for improving as distinct from maintaining his standard of ability, there would be reasonable grounds for refusing allowance of such expenses, but it must surely be obvious that a certain amount of expenses is necessary in the circumstances mentioned by our correspondent.

CHRONIC GLOSSITIS.

COUNTRY PRACTITIONER asks for suggestions for the treatment of a case in which red raised patches have been present on the tongue for about a year. The patient has given up smoking, and the Wasserman reaction is negative.

LETTERS, NOTES, ETC.

ALCOHOL IN VENEREAL DISEASES.

DR. J. LEWIS THOMAS (Tuberculosis Physician, Newport, Mon.) writes: Is it not of the utmost importance that the general public should be told in no uncertain language that total abstinence from alcoholic drinks of all kinds is absolutely essential in the treatment of venereal diseases?

TREATMENT OF DYSENTERY.

DR. W. VERNER FUELONG (Dublin) states that he has found rectal injections of ipecacuanha useful in dysentery. He uses a liquid extract diluted with warm water and directs the patient to retain the injection as long as possible; for this purpose in some cases the addition of a small quantity of opium was found to be advantageous.

DR. JOHN PECHEY.

DR. GEORGE C. PECHEY (London), who is compiling "a biographical memory of John Pechey (1654-1718), the editor of the first English version of Sydenham, is desirous of obtaining a copy of the following of his works, which are absent from the medical libraries:

Perspectivum Pectoris Medicum, etc.: 1694; 1702 (cum aliis tractatibus); and 1715. Amst.; 1705, Lipsiae, 12mo.

The Whole Works of Sydenham, etc., fifth edition, 1710, or 1711. Lond. Svo.

Collections of Acute Diseases, published separately in five parts, 1686-91, and together in one volume, 1691, London, 8vo.

THE INFLUENCE OF THE MENINGOCOCCUS AND OTHER BACTERIA.

MR. JAMES WHITE (Crosfield's Colloids, Limited) writes: With reference to Professor Arrhenius's article on the above subject in your issue of October 14th, p. 586, and also to the interesting letter of Dr. Graham reading thereto in your issue of October 28th, p. 653, we venture to suggest that the ultra-microscopic (or supposed form of) that generally employed, will eventually solve the mystery. If the "filter-able virus" of fluxt and Landsteiner were subjected to ultra-filtration, we very much doubt if the filtrate would reproduce the infection. The question would then resolve itself into whether the minute phase of the organism exists in the colloidal condition itself (and this seems probable) or whether it is adsorbed to the colloidal protein of the serum. In the latter case they would indeed be minute, as the colloidal particles of normal serum are certainly not larger than 5 to 8 $\mu\mu$ ($\mu\mu$ = one-millionth of a millimetre). The number of particles in a drop of a perfect colloidal solution is not less than one million million (1,000,000,000,000); and on p. 586 of your issue of October 28th, Dr. Boys states that two drops of collosol argentum completely healed an ulcerated and inflamed cornea in twenty-four hours. We know that the colloidal silver is an oxygen carrier, and if one considers the number of "carriers" at work the result is not really surprising.

CIGARETTE SMOKING AND IRRITABLE HEART.

A. W. SINCLAIR, Surgeon-Colonel (R.) writes: I think we are greatly indebted to Dr. Philip G. Borrowman for drawing our attention to this subject, especially at this time; more especially the attention of medical boards should be drawn to this. Young men of the present day are seldom without the cigarette in their mouth from morning to night, the tobacco is coarse and the paper is worse; no wonder we find irritable heart very frequent nowadays. It will be found that many recruits are rejected on account of "irritable heart," and consequently many young fit men—fit for general service—are lost to the State, or relegated to Class C 3. Some legislative restrictions should be enacted to prohibit youths under a certain age smoking, and young men or lads over this age should be restricted in the quantity they smoke—this latter could be done by the commander of a unit, or, if thought necessary, by the G.O.C. In my younger days we were never allowed to smoke when we were training for sports, such as rowing, swimming, or racing and walking long distances. When intending to go shooting big game we never smoked for at least a fortnight before, and I have to record the sad death of one of my comrades through neglecting this rule. No one can enjoy a smoke more than myself, so that I am not running down smoking in a narrow or captious spirit; but cigarette smoking is carried out far too much at the present. In the BRITISH MEDICAL JOURNAL of November 22nd, 1884, will be found a few remarks of mine on cigarette smoking, and the benefit of the use of the under skin of the nepa-palm leaves over the use of paper, and especially cheap paper.

A CASE OF TETANUS.

DR. D. MCARTHUR (Bury St. Edmunds) writes: A girl aged 10 years sustained in a carriage accident a lacerated wound 4 in. long on the outer side of the left knee-joint. I saw the case half an hour afterwards and found the wound had been bathed with potassium permanganate by a nurse. I cleaned it thoroughly with hydrogen peroxide, inserted four silkworm-gut sutures, and applied double cyanide gauze, iodoform wool, and bandage, and placed the leg on an aluminium back splint to prevent possible jerking during sleep. Patient and wound did well until the fifth day, when symptoms of trismus set in at 6 a.m. I sent for Dr. Master of Bury St. Edmunds, asking him to bring antitetanic serum, which he did, and within two hours; the patient was anaesthetized, lumbar puncture performed, and the serum was injected through the cannula and also into the median basilic vein. The same evening 6,000 units were injected again, and the same dose next morning, the patient's strength being sustained by nutrient enemata; and morphine ¼ gr. was given subcutaneously from time to time to subdue restlessness. Twenty-four hours after the first injection the spasms were less violent, and the tonic contractions of the head, which had been very marked, relaxed; the patient drank water and asked for grapes; but death occurred during a spasm about thirty-six hours after the first injection. My experience of the treatment of tetanus is limited to three cases, all children, of whom two died within four days.

CARE OF THE EXPECTANT MOTHER.

THOSE interested in this question may like to know of a little book published in the year 1663, and entitled "A Present for Teeming Women, or Scriptural directions for Women with Child. How to prepare for the houre of Travel. Written first for the private use of a Gentlewoman of Quality in the West, and now published for the Common Good. By John Oliver less than the least of Saints." To those curious to know what advice was given to the "Gentlewoman of quality in the West" by the "less than the least of Saints," it may be stated that almost the entire book is of a religious or moral nature, and passed by a divine who finds nothing "factious" or "seditious" in it. Only one of its fourteen little chapters is devoted to the care of the health, which the author states would generally be regarded as too small a matter to require notice. He, however, counsels moderation in all things, and reminds his readers that the mother of Samson, when pregnant with that prodigy, abstained from alcoholic beverages.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

AN INVESTIGATION CONCERNING THE DISINFECTION OF MENINGOCOCCUS CARRIERS.

BY

M. H. GORDON, LIEUT.-COLONEL R.A.M.C.,

AND

MARTIN FLACK, CAPTAIN R.A.M.C.

(From the Central and London District Laboratories for Cerebro-spinal Fever, R.A.M. College, S.W.)

THE PROBLEM OF THE CARRIER.

In the present as in past outbreaks of cerebro-spinal fever, where bacteriological investigations have been made, convincing evidence has been found that the main factor in the spread of this disease is the healthy carrier who harbours the meningococcus in his nasopharynx, whence it is liable to become detached when he sneezes, coughs, or possibly when he articulates loudly. In the acts mentioned droplets of secretion from the upper respiratory passages are liable to be sprayed out into the surrounding air, where they float for a short time, and may be inhaled by those in the immediate neighbourhood. In this, as in similar infections of the upper respiratory passages, however, successful transference of the disease is doubtless largely dependent upon dosage. Hence the extent to which the carrier himself is infected, his spraying capacity, the number of his friends, and the degree of bad ventilation or overcrowding obtaining in his immediate environment, have all an important influence in facilitating the successful passage of the meningococcus from one nasopharynx to another.

Though mostly free from symptoms, carriers of the meningococcus do not always escape. Careful observation of this matter during the present outbreak has shown that persons harbouring this micro-organism in their nasopharynx occasionally exhibit symptoms indicative of meningeal irritation, and, further, that sometimes carriers develop a definite attack of cerebro-spinal fever during isolation. The following instance is of interest from many points of view.

A case of cerebro-spinal fever occurred among soldiers billeted in a large dépôt. On proceeding to swab the segregated contacts, one of them was found to be absent, having been sent to hospital with a minor injury to his arm. As fifteen men from the same dépôt were also in this hospital at the time, all of them were swabbed. The only one of the sixteen found to be positive was the particular contact in question, who, it turned out subsequently, had slept next to the case for three nights immediately preceding the attack. This carrier was found to yield the same type of meningococcus from his nasopharynx—Type I—as was present in the cerebro-spinal fluid of the man who developed the disease. After isolation for six weeks, during which he was apparently quite well in spite of his nasopharyngeal infection, this carrier developed cerebro-spinal fever; the same type of meningococcus being now found in his cerebro-spinal fluid as had previously been found in his nasopharynx. After a severe attack of the disease this man recovered, but continued to carry Type I meningococcus in his nasopharynx for a further period of five weeks before he could be discharged to a convalescent home as free from infection. In addition to the case mentioned, four other carriers out of 185 under observation developed cerebro-spinal fever during isolation. This proportion is small; but it should not be forgotten that the constant presence of the meningococcus in the nasopharynx of the patient at the onset proves that every case of cerebro-spinal fever is an instance of a carrier developing this disease.

In all outbreaks of cerebro-spinal fever where bacteriological investigations have been made, carriers have been found greatly to outnumber the cases. From the evidence obtained by a careful bacteriological study of contacts in the present outbreak, however, it would seem that the extent of carriers of the true meningococcus has been somewhat over-estimated. By application of the agglutination test, based upon a study of meningococci isolated from the cerebro spinal fluid of over 200 of the actual cases, and applied throughout in a strictly quantitative fashion with suitable controls, the number of persons who would otherwise be identified as carriers merely because they harbour in their nasopharynx an organism resembling the meningococcus is reduced by as much as 30 to 40 per cent. But even with this precaution, the number of carriers considerably exceeds the number of cases. Thus from contacts of 16 cases 92 carriers were found in a recent outbreak.

Results of Previous Attempts to Free Carriers of the Meningococcus.

If the meningococcus were a highly resistant micro-organism, and survived equally long in every nasopharynx to which it obtained access, the task of checking the spread of this germ by isolating carriers of it would be a matter of great difficulty. Fortunately the majority of carriers become free of the meningococcus in a comparatively short space of time. There remain a few who become chronic carriers. These are the persons who undoubtedly constitute the source from which arise outbreaks of meningococcus infection culminating here and there in an apparently "sporadic" case of cerebro-spinal fever.

Some careful observations[1] on several chronic carriers made in the Therapeutic Inoculation Department of St. Mary's Hospital last year on behalf of the Medical Research Committee showed that vaccines were of little use in the treatment of carriers. Local treatment by means of heat or by zinc ions was equally unsuccessful. Further experiments carried out at the same time also indicated that the local application of disinfectants was unsuccessful, and if pushed too far might increase the period of carrying, thus doing more harm than good.

In contrast to this, in course of time if left alone many carriers are found to clear up by themselves. The rate at which they free themselves varies, in our experience, according to the degree to which they are infected—carriers whose nasopharyngeal secretion yields only a few colonies of the meningococcus becoming free, as a rule, more rapidly than those giving a copious growth of it. Dry warm weather with sunshine apparently has some beneficial influence in enabling carriers to become free, and cold damp sunless weather the opposite. How far this apparent influence of the weather is due to its effect on the secretion of the nasal mucus, or not, remains to be seen.

Grounds for Still Believing Successful Local Treatment by Disinfectant Possible.

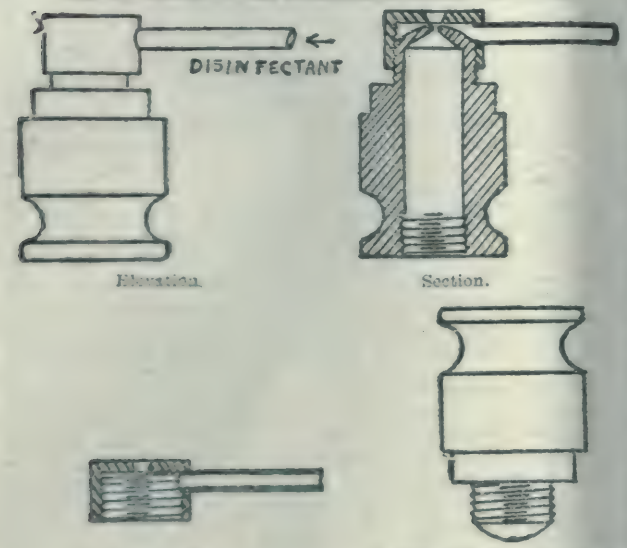
Now the meningococcus is one of the least resistant of all pathogenic bacteria to disinfectants, and it is rapidly destroyed by some of the mildest of these bactericidal agents in concentrations easily tolerated by the mucous membrane of the nasopharynx. Theoretically, therefore, the meningococcus should be destroyed in the nasopharynx with ease if only it could be reached there by a suitable disinfectant. It was conceivable and even probable that the lack of success hitherto attending attempts to disinfect carriers might be due to restrictions imposed by the procedures followed. The means employed for applying disinfectants locally has consisted up to the present chiefly of hand sprays and douches. Some comparative observations made recently on carriers showed that when the carriers are not too heavily infected, distinct acceleration in clearing them of the meningococcus is to be obtained by causing them to sniff up vigorously 1 per cent. solution of chloramine, held in the palm of the hand, through the nose, expelling it through the mouth. This exercise was carried out twice daily and a permanganate gargle used as well.

On the other hand, carriers whose nasopharyngeal secretion gives a practically pure growth of the meningococcus often clear up extremely slowly if left alone, and are also as a class far more resistant to treatment. By local application of a disinfectant in the ordinary way the meningococcus is temporarily banished from their nasopharynx only to reappear there at the next examination. In other words, the meningococcus is not eliminated in these cases; it is merely reduced in numbers.

A probable explanation of this lack of success in the treatment of chronic carriers is either (1) that all the surface area of the nasopharyngeal mucous membrane carrying the meningococcus is not reached by the antiseptic, or (2) that the meningococcus lurks in the depth of this mucous membrane as well as on its surface. However

this may be, it is certain that the germ would readily be destroyed even by a comparatively feeble disinfectant, could the latter be got to it.

FIG. 1.—THE JET OF THE FALMOUTH ATOMIZER. No. 1 JET.



Parts of atomizer separated, showing construction.

A disinfectant in concentration sufficient to destroy the meningococcus without injury to the mucous membrane could conceivably be conveyed to the nasopharynx from without in one of the following ways:

1. In bulk, as in the douche, etc.
2. In droplet form, as by the ordinary hand spray or atomizer.
3. In the form of extremely fine droplets floating as a cloud, mist, or nebula, mixed with steam derived from an automatic spray actuated by high-pressure steam.
4. In the form of vapour, or of gas.

As methods (1) and (2) had already received considerable practical application, trial has been made of the procedure described under (3). A claim that successful results in the disinfection of meningococcus carriers had been obtained elsewhere[2] by a similar method formed an additional incentive to this investigation.

OBJECTIVE OF PRESENT INVESTIGATION.

The primary object of the following experiments was to obtain a method whereby a suitable solution of disinfectant could be broken up into a fog of minute droplets and distributed in air so that it could be inhaled through the nostrils with ease, and in this way caused to impinge in a continuous series of fine showers upon as much as possible of the mucous membrane of the nasopharynx.

Such a method having been obtained, it was proposed to determine its practical value for the purpose of freeing chronic carriers of the meningococcus.

Preliminary Experiments.

The results of this preliminary investigation have been already recorded in the BRITISH MEDICAL JOURNAL for July 1st, 1916, but in order to preserve the sequence of events the following summary of the observations then described will be given.

As the matter was of some urgency, it was necessary to make a start without delay. A room of 1,050 cubic feet capacity was kindly put at our disposal by Surgeon-General Sir David Bruce, C.B., F.R.S., Commandant of the R.A.M.College, for the purpose of experiments. Through the courtesy of Dr. A. E. Thomas, M.O.H. of Finsbury, we obtained the loan of a Lingner spray. This machine was designed for disinfecting rooms with formaldehyde vapour mixed with steam. We found the Lingner spray very useful during the earlier stages of the investigation, but some of its shortcomings for the present purpose will be dealt with presently.

In order to determine the bactericidal action of the air of the room when the spray was working it was necessary to have an index micro-organism. *Staphylococcus epidermidis* was chosen for this purpose because it is far more resistant to disinfectants than the meningococcus, and is readily to be obtained by the simple expedient of rubbing a little broth on the skin of the hand and then distributing this skin washing over an agar slope.

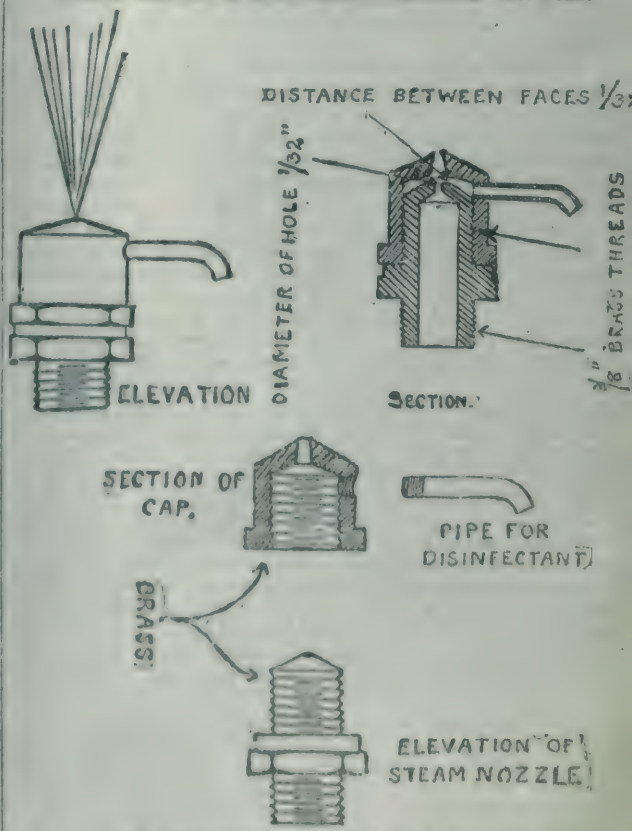
The first disinfectant chosen for trial was chloramine-T, discovered by Dr. Dakin in a research carried out on behalf of the Medical Research Committee. Chloramine has the advantage of combining a comparatively high bactericidal value with low toxicity, and, in the strength used during the present experiments, does not coagulate albumin.

The first point determined was the bactericidal value of the air of the room when saturated with moisture derived from the apparatus charged with a known strength of chloramine. It was found that the spray itself immediately disinfected a staphylococcus plate when the concentration of chloramine used was 1.5 per cent. or over. With 2 per cent. of chloramine, plates sown with staphylococcus and exposed at a distance of 3 ft. from the apparatus were disinfected within five minutes.

The second point investigated was the extent to which the air of the room could be tolerated during these bactericidal tests. It was found that when 5 per cent. of chloramine was being sprayed the atmosphere was too pungent for comfort, but with 2 per cent. the atmosphere during the spring months could be tolerated easily for five minutes, and by some for twenty minutes or longer. The atmosphere during these tests became so dense that it was not possible to see across the room, but this steam-laden air, when inhaled through the nostrils, caused a not uncomfortable flow of secretion, and the chloramine impinging on the mucous membrane of the nasopharynx produced a pleasant tingling sensation.

Preliminary observations made on two carriers while 2 per cent. of chloramine was being sprayed showed that, provided they inhaled the spray-laden atmosphere vigorously through their nostrils, the meningococcus

FIG. 2.—THE JET OF THE FALMOUTH ATOMIZER. No. 2 JET.



Parts of atomizer separated, showing construction.

was temporarily destroyed in their nasopharyngeal secretion within five minutes. In one of these carriers the meningococcus reappeared; both were therefore submitted to further inhalations, after which the meningococcus could no longer be found in the nasopharyngeal

secretion of either of them. The method, therefore, appeared worthy of trial, not only on meningococcus carriers in general, but especially on the obstinate class of chronic carrier that had defied all methods of treatment previously essayed

The following observations were undertaken at this point for the purpose of defining and improving the method.

1. *Does the Bactericidal Action of the Air Vary Directly with the Amount of Moisture Derived by it from the Spray?*

The preceding observations were not made until the air of the room had become saturated. The comparatively high wet bulb temperature of the air which this involved was found to be somewhat trying, especially in summer. A series of experiments, therefore, was undertaken in order to define the bactericidal value of the air of the room during the whole of the time that the spray was working when charged with 2 per cent. of chloramine. The dry and wet bulb temperatures were observed throughout. Stations were arranged at measured distances from the spray and relays of staphylococcus plates were exposed in these spots and changed every five minutes during the whole of the time that the spray was in action. As the result of these tests it was found to be quite unnecessary to wait until the air was saturated with water vapour. The bactericidal action of the air began with the spray and was more intense during the second interval of five minutes than either before or after. The bactericidal action was as a rule actually on the wane by the time that the air of the room reached the saturation point.

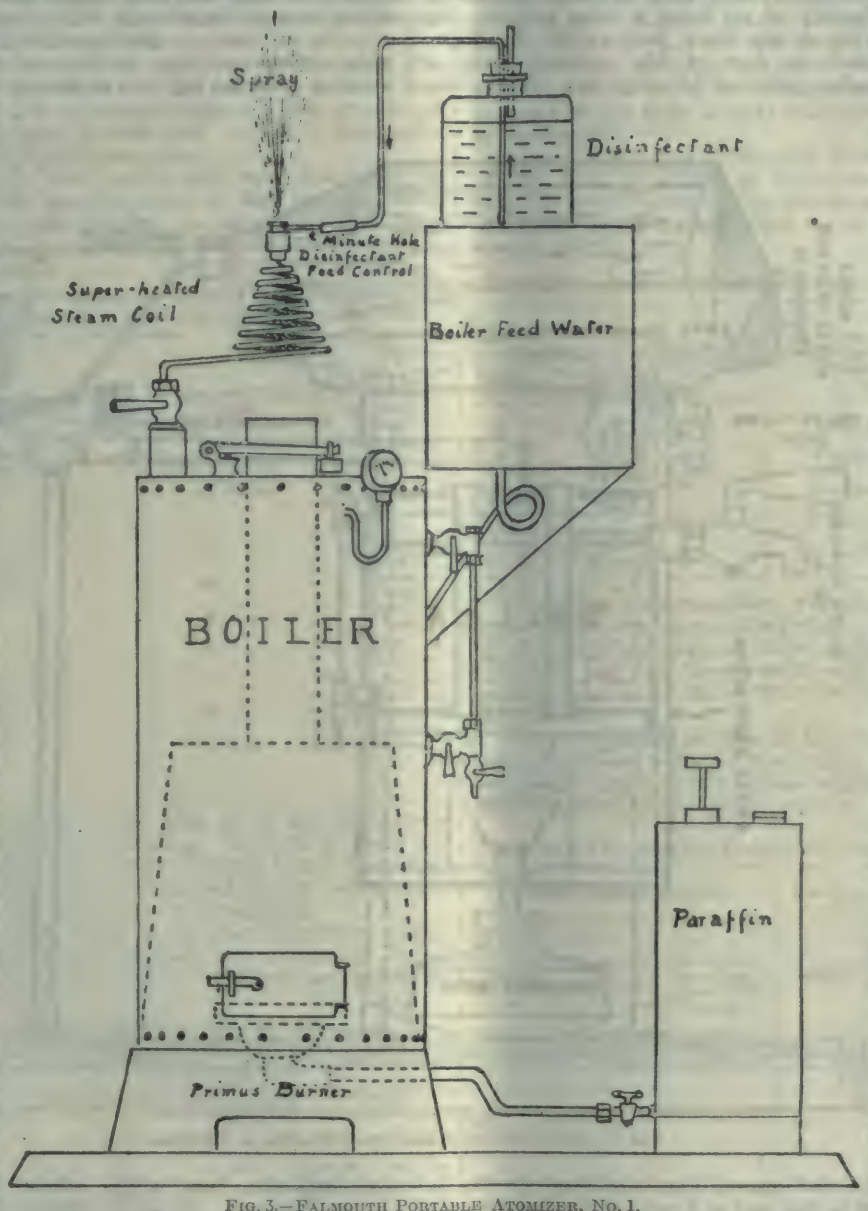


Fig. 3.—Falmouth Portable Atomizer, No. 1.

2. *Does the Bactericidal Action of the Air Depend in any way upon Chemical Vapour or Volatile Product Derived from the Disinfectant in the Spray?*

This question was settled by the two following experiments:

(*a*) A 2 per cent. solution of chloramine was boiled and plates sown with the staphylococcus exposed to the vapour. The staphylococcus was unaffected.

(*b*) A test was made in the inhaling-room, and in addition to the plates exposed in the ordinary position another set of plates was exposed in the same spots, but *inverted*. It was found that whereas the former plates were disinfected as usual the latter were unaffected. Clearly, then, the bactericidal action of the air was entirely due to droplets of the chloramine solution derived from the spray.

3. *How long does the Bactericidal Quality of the Air Continue when the Spray is Stopped?*

Experiments showed that the bactericidal action of the air ceased within two minutes after the spray had stopped—further evidence, if such were needed, that the droplets from the spray are the sole factor in producing the bactericidal action.

Shortcomings of the Lingner Spray.

While the points mentioned were being defined, the Lingner apparatus was in daily use for disinfecting carriers. During these observations attention was drawn to some defects of this apparatus for the present purpose. These faults may be described as follows:

1. The Lingner apparatus gives out too much heat. A rise of 20 degrees or more in the air of the room when the apparatus was working was not uncommon. Such excess of heat is undesirable.

2. The apparatus is not adaptable. Once charged and started it has to burn itself out. There is thus a tendency to waste disinfectant.

3. At first the Lingner apparatus emitted a fine spray, but with continued use the droplets emitted by it were found to become coarser. Hence the spray became less effective for disinfecting the nasopharynx of carriers than when first used.

New Spray.

By kind permission of the C.R.E., Falmouth, a spray which promises to be better suited for the present purpose has been specially designed and made for us by Second Lieutenant E. Gordon, R.E.(T.), who carried out a number of experiments before arriving at the present models. By means of this apparatus the disinfectant is broken up into a finer mist than was obtainable with the Lingner apparatus. As a result the present apparatus disinfects over a larger area of the room. It also economizes material; the disinfectant is under control, and every portion of it is broken up into fine droplets as it arrives at the nozzle. During the past two months the first of these sprays has been in continual use for disinfecting the nasopharynx of carriers.

The Falmouth Atomizer.

A portable apparatus was required that would atomize a disinfectant at the rate of 1 litre in twenty minutes over a space of 750 cubic feet. In order to accomplish this some motive agent had to be decided upon. Compressed air was first tried; a motor tyre foot pump, and a cylinder of compressed air being used in succession, with unsatisfactory results. Steam was then employed. A Wassmuth spray was tested with fair results; but was found to be unsuitable for the comparatively heavy rate of flow of disinfectant required. Various sprays and methods of feeding the disinfectant were then experimented with, the most satisfactory of all being a brass regulator to a gas jet, having a cup head into which the disinfectant is allowed to flow at the required rate, a jet of steam under pressure blowing the disinfectant out into the air in fine droplets. In order to use the steam to the best advantage a cap was made to screw over the cup and slightly press on the disinfectant so as to ensure that the latter flows all round the jet of steam. A drawing of this No. 1 jet is attached (see Fig. 1, p. 674). Jet No. 2 is very similar, save that, in this case, when steam is passing through under pressure, the shape of the cap produces a strong suction which will pull up the disinfectant vertically from a point 18 in. below (Fig. 2). Owing to this suction, and to a certain amount of steam condensation, the spray from No. 2 jet is somewhat coarser than that from jet No. 1.

Having arrived in this way at a more or less satisfactory spray, attention was next given to the provision of a portable plant. For the purpose of generating steam with suitable pressure, a 12 in. by 6 in. steel boiler was obtained with the necessary boiler fittings. This apparatus is shown in Fig. 3. The boiler is fired by a 3 in. primus burner connected by a horizontal pipe to the paraffin reservoir. The steam is generated and passes through a tap to the superheating coil, so arranged that it can be rotated over the exhaust boiler gases and thus heated. The advantage of this superheating is that the steam is rendered invisible, with the result that the visible particles sprayed from the jet are practically all composed of the disinfectant emulsion. The disinfectant gravitates to the jet from a bottle placed on the tank feeding water to the boiler. In practice, the pressure of steam is kept between 20 and 30 lb. on the gauge when this spray is in action; the heat necessary for maintenance of this pressure of steam being kept up by pumping on the paraffin in the reservoir.

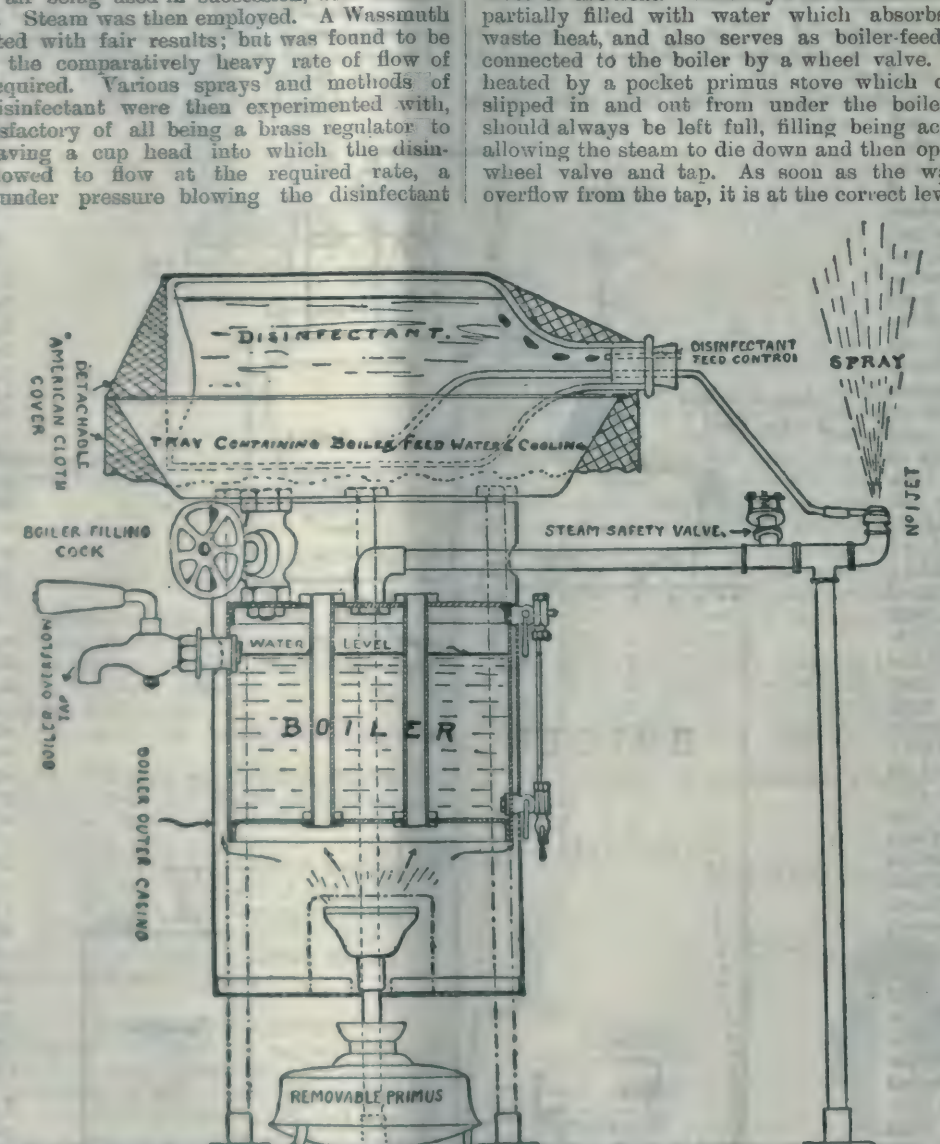


FIG. 4.—FALMOUTH PORTABLE ATOMIZER, No. 2. SECTION.

The second form of portable atomizer shown has advantages over the former as regards lightness and simplicity, besides eliminating much of the heat given off by atomizer No. 1. The present apparatus consists of a 5 in. by 6 in. copper and brass boiler with four fire tubes (Fig. 4). This boiler is surrounded by sheet iron casing which keeps in most of the heat. Directly over the boiler there is a tray partially filled with water which absorbs most of the waste heat, and also serves as boiler-feed water, being connected to the boiler by a wheel valve. The boiler is heated by a pocket primus stove which can readily be slipped in and out from under the boiler. The boiler should always be left full, filling being accomplished by allowing the steam to die down and then opening both the wheel valve and tap. As soon as the water is seen to overflow from the tap, it is at the correct level for further operation and wheel valve and tap should be turned off. There is no steam valve on the top of this boiler so that there is clear passage of steam to the jet, a safety valve being placed on the tube close to the jet. Either No. 1 or No. 2 jet can be used. With the former when steam has risen, it is necessary to turn on the disinfectant. With No. 2 jet the bottle of disinfectant is placed on the boiler base and, after the primus has been lighted, the plant is automatic.

With regard to regulating the flow of disinfectant, in atomizer No. 1 the liquid flows through an extremely fine hole, which allows 1 litre to pass in twenty minutes. In No. 2 atomizer the air displacement is regulated.

A new revolving jet is being constructed with a view to getting better diffusion of the droplets. No. 2 atomizer will be used. By taking the steam off vertically from the boiler, considerable space will be saved.

DISINFECTANTS USED.

Experiments have been made with a considerable number of disinfectants, but the ones of which chief use has been made so far are chloramine 1 to 2 per cent., or zinc sulphate 1.2 per cent. Eusol was tried, but was found more irritating and less efficient for the present purpose than the substances named.

Procedure Followed.

The cubic capacity of the room in which the carriers have been subjected to treatment with the spray has been reduced, by means of a canvas ceiling, to 750 cubic feet

One litre of the solution of disinfectant is sprayed into this area in the course of fifteen to twenty minutes. The carriers remain in the room during the whole of that time, inhaling the air through their nostrils.

Results Obtained with Chloramine.

The concentration of chloramine in the solution sprayed was 1 per cent. or 1.5 per cent. in a few of the earlier trials, but in the majority of the tests the spray was charged with a 2 per cent. solution of chloramine.

The following tables show the results obtained with chronic carriers who represented the residue of 139 positive contacts of cerebro-spinal fever cases occurring between December, 1915, and May, 1916.

Degree of Infection.—The sign (+) signifies that the nasopharyngeal secretion of the carriers gave a few colonies only of the meningococcus, + a fair growth of colonies, ++ copious growth, and +++ a practically pure culture of that micro-organism.

The inhalations were carried out once daily, and on each occasion the carriers were in the inhaling room from fifteen to twenty minutes, during which time they vigorously inhaled the steam and spray-laden atmosphere through their nostrils.

TABLE I.—*Showing Particulars of Chronic Carriers successfully freed of the Meningococcus by the Spray when charged with a 2 per Cent. Solution of Chloramine.*

Name.	Degree of Infection.	Time previously under Treatment.	No. of Daily Inhalations required before Discharge.
N.	+ + +	17 weeks	10
B. 1	+ + +	14 ,,	10
C. 1	+ + +	10 ,,	9
C. 2	+ +	12 ,,	5
K.	+ + +	6 ,,	9
B. 2	+ +	0 ,,	13
T.	+ + +	11 ,,	6
S.	+ +	10 ,,	4
B. 3	+ +	3 ,,	9
B. 4	+ +	3 ,,	9

With the exception of one man, all of the above were proved carriers of some standing. In each of them six successive negative swabs were obtained before discharge. Five of the cases were re-examined five or seven days after discharge, and found to be still negative.

On the other hand, three of the chronic carriers under treatment at the same time with the chloramine spray failed to clear up. Particulars of these are given in Table II.

TABLE II.—*Chronic Carriers not freed by Chloramine.*

Name.	Degree of Infection.	Time previously under Treatment.	No. of Inhalations of Chloramine Given.	Remarks.
S. 2 ...	+ + +	16 weeks	16	Knocked up by chloramine.
L. ...	+ + +	14 weeks	14	Did not appear to inhale properly.
E. ...	+ + +	Contracted cerebro-spinal fever 9 months previously	15	Neurotic; did not inhale properly.

In addition to these thirteen men, another carrier was subjected to the chloramine spray. The carrier in question was an officer who was convalescent from cerebro-spinal fever which he had contracted two months before. At the beginning of treatment the plate from his nasopharynx gave a practically pure culture of the meningococcus. In contrast to the third of the carriers in the above table, he inhaled most vigorously while in the inhaling room. After seven daily inhalations he was found to have become free of the meningococcus, and was discharged.

Results Obtained with Zinc Sulphate.

With the advent of the warmer weather, and the consequent rise of the wet bulb temperature of the air of the inhaling room, the chloramine spray became more trying. It was therefore decided to drop chloramine for the time being and to continue with solutions of zinc salts, which were found to be much better tolerated. The salt which has been principally used has been zinc sulphate, of which a 1.2 per cent. solution has been employed, as some preliminary experiments on carriers had proved that this was successful in freeing the nasopharynx of the meningococcus temporarily.

Since the majority of the chronic carriers had cleared up under the chloramine spray, only one known chronic carrier could be subjected to the zinc spray. His nasopharynx gave a copious growth of the meningococcus, and he had been carrying for four weeks before coming under this treatment. Although temporarily freed of the meningococcus by the zinc spray on many occasions, this carrier required no less than seventy inhalations before he could be discharged.

Table III contains particulars of cases which had recovered from an attack of cerebro-spinal fever, and were found to be still carrying the meningococcus in their nasopharynx; they were submitted to the zinc spray, with the results stated.

TABLE III.—*Recovered Cases Treated with Zinc Sulphate Spray.*

Name.	Degree of Infection.	Time from Onset of Cerebro-spinal Fever.	No. of Inhalations required before Discharge.
K.	(+)	6 months	9
R.	+	4 months	12
H.	+ +	15 weeks	30
D.	+ +	11 weeks	32
B.	+ +	10 weeks	44

Although strict comparison with the chloramine results was not possible, because the present men had undergone an attack of cerebro-spinal fever, and the former with one exception had not, these results with the zinc spray were greatly inferior to those that had been obtained with chloramine.

Newly discovered carriers of the meningococcus coming under treatment with the zinc spray during the summer may be divided into two classes according to the degree of their infection by the meningococcus.

TABLE IV.—*Carriers Treated with Zinc Sulphate Spray.*

Carriers Lightly Infected.			Carriers More Heavily Infected.		
Name.	Degree of Infection.	No of Inhalations required before Discharge.	Name.	Degree of Infection.	No. of Inhalations required before Discharge.
G. ...	(+)	4	F. 1 ...	+ +	42
C. ...	(+)	4	K. ...	+ +	38
B. ...	(+)	4	F. 2 ...	+ +	37
T. ...	(+)	4	D. 1 ...	+ +	18
S. ...	+	6	B. ...	+ +	27
Nurse G.	(+)	8	Nurse C.	+ +	31
R. ...	(+)	6	D. 2 ...	+	17
B. 1 ...	+	3	P. ..	+	12
W. ...	(+)	2	W. ..	+ +	8
C. ...	(+)	5	Mc. ..	+	8

It is seen that while the lightly infected carriers cleared up as a rule quite quickly, those more heavily infected by the meningococcus required a comparatively large number of inhalations of the zinc spray before they became free.

It is proposed to continue these experiments in an inhaling room so arranged that the boiler of the apparatus is outside, the steam being led into the room by means of a tube passing through a small window. The receptacle for the disinfectant can be either outside or inside the inhaling room, whichever is found to be most convenient for the attendant to regulate its flow to the jet. It is

proposed also to try other disinfectants, or combinations of disinfectants; and, as suggested by Colonel Reece, to compare the effects of the spray upon patients lying on their backs on the floor with the results obtained when they are sitting or standing; and also to see whether multiple inhalations are more successful than a single daily inhalation for the present purpose.

It should be added that during some recent experiments with a powerful experimental spray the use of 2 per cent. of chloramine produced a certain amount of bronchial irritation in two medical volunteers who underwent this treatment for catarrh. Although in no sense serious—both declared their catarrh benefited by the treatment—this effect is undesirable. No such bronchial irritation was observed when 1 per cent. of zinc sulphate was sprayed by the same apparatus. The result would appear to suggest that for disinfection of the nasopharynx of meningococcus carriers the finest possible spray is not essential, since the droplets of disinfectant, if very finely divided, penetrate further along the respiratory tract than is necessary, and reach the bronchi in some quantity. With a weaker solution of chloramine such irritant effect would doubtless be avoided, even in persons suffering, as these were, from a more or less acute form of catarrh at the time when they entered the inhaling room.

Conclusions.

These observations have led us to believe that, in the case of carriers of the meningococcus, prognosis with regard to the duration of their future period of carrying varies largely with the degree to which their nasopharyngeal secretion is infected by the meningococcus.

In our experience, the majority of carriers whose nasopharynx yields only a few colonies of the meningococcus clear up quickly. In the case of these persons good results follow local treatment either by direct application of a 1 per cent. solution of chloramine, or by subjecting them to inhalation of a steam spray charged with zinc sulphate.

On the other hand, carriers whose nasopharyngeal secretion yields a copious growth, or a practically pure culture of the meningococcus, are often far more difficult to cure. The results on these persons with zinc salts were disappointing, but they served to emphasize the success of those obtained with chloramine, which, though still somewhat few in number, are more than encouraging, and would appear to indicate that a large proportion of these chronic carriers can be definitely freed of the meningococcus by this form of treatment in a comparatively short space of time.

We would add that while these observations on meningococcus carriers were in progress, several cases of chronic nasal or post-nasal catarrh have been submitted to disinfectant treatment by the automatic steam spray. As in all of these persons improvement has resulted, we offer the suggestion that this method is worthy of trial on a larger scale for the treatment of such cases.

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[1] *Meningococcus Carriers.* By Captain L. Colebrook, R.A.M.C.(T.), and Lieutenant H. T. Tanner, R.A.M.C. *Journal of the Royal Army Medical Corps*, January, 1916. [2] *The Treatment of Meningococcus Carriers.* E. Kuster, *Deut. med. Woch.*, September 9th, 1915, p. 1116.

AN EXPERIMENTAL STUDY OF THE CULTURAL REQUIREMENTS OF THE MENINGOCOCCUS.

Together with a Description of an Easily Prepared Medium for that Micro-organism.

BY

LIEUT.-COL. M. H. GORDON, R.A.M.C., AND MAJOR T. G. M. HINE, R.A.M.C.

With a Note by

MARTIN FLACK, CAPTAIN R.A.M.C.

(From the Central Laboratory for Cerebro-spinal Fever, R.A.M. College, London.)

One of the functions of the Central Laboratory established at the Royal Army Medical College for dealing with outbreaks of cerebro-spinal fever is to supply district laboratories with medium for cultivation of the meningococcus. For this reason the following investigation was the first of a series of researches carried out in the Central Laboratory during the outbreak of 1915.

Ordinary agar medium, which consists of about 2 per cent. of agar dissolved in meat broth with the addition of 1 per cent. of Witte's peptone and ½ per cent. of salt, is generally recognized to require the addition of protein in some form before it becomes a satisfactory medium for the meningococcus. Animal protein in the shape of ascites fluid or blood gives good results when added to ordinary agar medium, but neither of these materials was employed for routine purposes in the present instance because ascites fluid was not procurable in large enough quantity and blood was found to have two disadvantages. First, it made the medium opaque, thus interfering with the differentiation of the meningococcus colonies, and secondly, in spite of all efforts to prevent it, the blood which we were able to obtain from the slaughterhouse was found to be contaminated. There remained horse serum, which we were able to get in quantity, but at considerable expense, and without a guarantee of its sterility.

Satisfactory results having been obtained previously with nasgar, and this medium having the great advantage that it can be sterilized by steam without losing its capacity of growing the meningococcus, it was decided to send out nasgar in the first place for routine purposes, using serum instead of ascites fluid for its manufacture.

Two difficulties, however, had to be met in making nasgar. In the first place, the supply of nutrose failed, necessitating recourse to a substance asserted to be identical with nutrose chemically—namely, a mixture of sodium caseinogenate with glycerophosphates. Secondly, the supply of Witte's peptone ceased. We therefore made nasgar with serum instead of ascites fluid, with artificial nutrose, and with Armour's standard peptone in place of Witte's. As regards reaction, the medium was rendered + 1.0 to phenolphthalein.

Nasgar made in this way was carefully tested and found to grow the meningococcus quite well in primary cultures from the cerebro-spinal fluid and also in subcultures. When swabs from the nasopharynx of contacts were plated out on it, a proportion of them grew colonies of cocci indistinguishable from the meningococcus. The medium also had the great advantage that it gave good differentiation of colonies of the meningococcus from those of other Gram-negative cocci of the nasopharynx, such as *M. flavus and M. catarrhalis.*

While a start was made with nasgar, an investigation was begun for the purpose of defining the conditions of growth of the meningococcus in artificial culture more thoroughly, with the special view of obtaining, if possible, a superior medium for routine purposes.

The chief requirements that a satisfactory routine solid medium for the meningococcus should meet may be summarized as follows:

1. It must grow the meningococcus with constancy in primary culture, as well as in subculture.
2. It must be transparent, so that colonies of the meningococcus developing upon it can readily be distinguished from those of other Gram-negative cocci.
3. It must be simple and easy to make, sterilize, and handle, and as far as possible free from materials of foreign origin.
4. When the supply of a large number of laboratories is in question, as in the present instance, it must be cheap.
5. The medium should be capable of maintaining the meningococcus alive for a considerable time, thus obviating the necessity of frequent subculture.

The research which has been made for the purpose of obtaining an improved medium has been carried out in three stages. In the first two experiments ordinary agar consisting of agar 2½, Witte's peptone 1, salt ½, and meat broth to 100, was used as base.

In the succeeding experiments, where the value of individual substances for growing the meningococcus was under investigation, water agar, consisting of agar 2½, salt ½, and water 100, was used as menstruum.

As a result of these observations a medium was arrived at that appeared to be full of promise. The third stage of the investigation, therefore, was to test the capacity of this medium to satisfy requirements in practice.

In the experiments now to be described, the sign — signifies that the meningococcus failed to grow; the sign (+) signifies a distinct but feeble growth; + a moderate growth; and ++ a good growth of this micro-organism.

Peptone Broth Agar Series.

EXPERIMENT I.—Fresh human blood when added to ordinary agar encourages the growth of the meningococcus. Is this power lost when the blood is heated?

A meningococcus recently isolated from the cerebro-spinal fluid was sown in equal amounts on slopes of the following:

1. Ordinary agar (agar 2½, Witte peptone 1, salt 0.5, meat broth to 100).
2. Ordinary agar + 1 per cent. of fresh blood.
3. Ordinary agar + 1 per cent. of fresh blood heated to 55° C. for ten minutes.
4. Ordinary agar + 1 per cent. of fresh blood heated to 70° C. for ten minutes.
5. Ordinary agar + 1 per cent. of fresh blood boiled for ten minutes.

Owing to heat coagulation of the albumin 4 and 5 were very opaque.

Result.—The meningococcus grew on all the tubes, but more quickly and copiously on 2, 3, 4, 5 than on 1. There was no difference in the degree of growth on 2, 3, 4, and 5 respectively.

Inference.—Heating does not destroy the augmenting effect of blood on the growth of the meningococcus on ordinary agar.

EXPERIMENT II.—What are the relative values of various forms of protein for augmenting growth of the meningococcus on ordinary agar?

The same menstruum was used as before.

0.1 gram of the various nitrogenous substances of test were placed in a series of test tubes, and 1 c.cm. of water added to each; 9 c.cm. of melted agar was then run into each tube. The tubes were steamed on two successive days, shaken and sloped.

A parallel series was also put up in the same way, but with the addition of 1 per cent. of glucose.

A meningococcus recently isolated from the cerebro-spinal fluid of a case was then sown in equal amounts on all the tubes. The results were as follows:

Growth of the Meningococcus in Forty-eight Hours at 37° C.

No.	Substance.	Alone.	With Glucose 1 per Cent.
1	Alkali albumin	(+)	(+)
2	Serum albumin	++	++
3	Globulin	−	+
4	Haemoglobin	++	++
5	Fibrinogen	++	++
6	Protalbumose	−	(+)
7	Deuteroalbumose	−	(+)
8	Dysalbumose	−	−
9	Nuclein	−	−
10	Legumin	++	++
11	Control agar alone	−	−

It is seen that growth was excellent with serum albumin, haemoglobin, fibrinogen and legumin, and that the addition of glucose appeared to make little or no difference to the value of these substances for encouraging growth of the meningococcus.

The percentage composition of serum albumin, serum globulin, and legumin respectively is seen from the following figures taken from Hammarsten's *Textbook of Physiological Chemistry*, translated by Mandel, 1914:

Percentage Composition.

	Serum Albumin.	Serum Globulin.	Legumin.
Glycocoll	0.0	3.5	0.38
Alanin	2.7	2.2	2.08
Valin	—	—	1.0
Leucin	20.0	18.7	8.0
Isoleucin	—	—	—
Serin	0.6	—	0.53
Aspartic acid ...	3.1	2.5	5.3
Glutamic acid ...	7.7	8.5	13.8
Cystin	2.5	1.51	—
Phenyl-alanin ...	3.1	3.8	3.75
Tyrosin	2.1	2.5	1.55
Prolin	1.04	2.8	3.22
Oxyprolin	—	—	—
Tryptophan ...	—	—	—
Histidin	—	—	2.42
Arginin	—	—	10.12
Lysin	—	—	4.29
Ammonia	—	—	1.49

It would appear that there is a broad similarity between them as regards components, so far as these have been determined.

As a practical medium was being sought for, and legumin has the great advantages that it is cheaply and easily prepared by extracting peaflour with salt solution, and that the crude solution of legumin thus obtained can be sterilized by heat without precipitating the legumin, an attempt was made to ascertain more closely the value of this vegetable albumin for the present purpose.

At the same time opportunity was taken of examining the actual values of various constituents usually included in media for cultivating the meningococcus.

Water Agar Series.

EXPERIMENT III.—What are the relative values of peptone (Armour's), peaflour extract, and meat broth respectively for growing the meningococcus?

An extract of peaflour was prepared by placing 10 grams of peaflour in a flask together with 10 grams of salt and 100 c.cm. of distilled water. The flask was then well shaken, steamed, and its contents filtered. The filtrate, which was sterilized by steaming it on two successive days, was the peaflour extract used in this and the following experiments. A 5 per cent. solution of Armour's peptone was made in the same way. The present experiment was carried out in duplicate.

In the first place 2½ per cent. of agar dissolved in distilled water was used as menstruum, and in the second 2½ per cent. of agar dissolved in meat broth. The meat broth was made in the usual way by boiling 500 grams of finely-minced beef in 1 litre of distilled water and filtering. Except where the peaflour extract was added the agar in both cases received the addition of ½ per cent. of salt. This experiment and the following ones were made in Petri dishes. One cubic centimetre of the solution of peaflour, peptone, etc., was first placed in the dish. Nine cubic centimetres of the melted agar, or in the case where trial was made of two added substances, 8 c.cm. were poured in, the contents well mixed, and allowed to set.

Three recently isolated meningococci were then each inoculated upon a different segment of the solid medium.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition.	Meningococcus 1.	Meningococcus 2.	Meningococcus 3.
1	Water agar		−	−	−
2	,, ,,	Armour's peptone	−	−	−
3	,, ,,	Peaflour extract	(+)	(+)	(+)
4	,, ,,	Peptone and peaflour extract	−	−	−
5	Broth agar			+	+
6	,, ,,	Armour's peptone		+	+
7	,, ,,	Peaflour extract	++	++	++
8	,, ,,	Peptone and peaflour extract	++	++	++

Inferences.—(1) The sample of peptone here used was of no value for growing the meningococcus. In Experiment 4 it seemed to inhibit. (2) Peaflour extract has some nourishing value for the meningococcus. (3) Meat broth also has this property. (4) Growth of the meningococcus was best when both peaflour extract and meat broth were present in the medium.

In the preceding experiment the meat broth was in far higher concentration than the peaflour extract in the agar. In the next experiment, therefore, equal quantities of meat broth and peaflour extract respectively were added to the water agar.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition.	Growth of Meningococcus.
1	Water agar		−
2	,, ,,	Broth 10 per cent.	−
3	,, ,,	Peaflour extract 10 per cent.	(+)
4	,, ,,	Both.	(+)

When in equal concentration, therefore, in the agar, the peaflour extract gave better growth than the meat broth. As before, growth was best when both were present. With 10 per cent. of both in the agar, a moderate growth of the meningococcus took place.

EXPERIMENT IV.—Comparison of the values of peptone (Armour's), peptone (Witte), peaflour extract, nutrose, and serum (horse), in water agar and in meat broth agar respectively.

As in the case of Experiment III the present test was made in duplicate. Five per cent. solutions of each of the peptones and of the nutrose substitute were used. The peaflour extract was prepared as before. One cubic centimetre amounts of these fluids were mixed in plates with 9 c.cm. of melted agar. After setting, each plate was inoculated with three meningococci.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition.	Meningococcus 1.	Meningococcus 2.	Meningococcus 3.
1	Water agar		—	—	—
2	.. ..	Peptone (A.)	—	—	—
3	.. ..	Peptone (W.)	—	—	—
4	.. ..	Nutrose	—	—	—
5	.. ..	Peaflour extract	—	—	—
6	.. ..	Serum	—	—	—
7	Broth agar		(+)	—	+
8	.. ..	Peptone (A.)	—	(+)	+
9	.. ..	Peptone (W.)	++	++	++
10	.. ..	Nutrose	++	++	++
11	.. ..	Peaflour extract	++	++	++
12	.. ..	Serum	++	++	++

None of the five substances tested separately in the first half of this experiment sufficed by itself for growth of the meningococcus. On the other hand, when meat broth was used to dissolve the agar, a certain amount of growth occurred without further addition. This growth was greatly enhanced by the addition of each of the substances of test except Armour's peptone.

EXPERIMENT V.—Comparison of the effect of adding to water agar, meat broth, trypsinized meat broth (Douglas), nutrose, peaflour extract, serum, and ascites fluid respectively.

The meat broth, trypsinized meat broth, serum, and ascites fluid were each added to the extent of 10 per cent. of the water agar. The amount of nutrose and peaflour extract added was as before.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition.	Meningococcus 1.	Meningococcus 2.
1	Water agar.		—	—
2	.. ..	Meat broth	—	(+)
3	.. ..	Trypsinized meat broth	—	+
4	.. ..	Peaflour extract	(+)	(+)
5	.. ..	Nutrose	—	—
6	.. ..	Serum	—	—
7	.. ..	Ascites fluid	(+)	(+)

Both meningococci grew slightly but distinctly when peaflour extract or ascites fluid were added to the agar. Growth of meningococcus 2 was better on trypsinized broth than on ordinary broth.

EXPERIMENT VI.—Comparison of the effect of adding serum, ascites fluid, peaflour extract, and nutrose to agar containing meat broth and trypsinized broth respectively.

A bottle of water agar was melted and divided into two equal parts. To one portion 10 per cent. of meat broth was added, and to the other the same amount of trypsinized broth. Plates were then prepared of these two media with the addition of the various substances mentioned above. The serum and ascites fluid were added in the proportion of 10 per cent.; the peaflour extract and the nutrose were in the same concentration as before.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition 1.	Addition 2.	Meningococcus 1.	Meningococcus 2.
1	Water agar		Broth	—	—
			Trypsinized broth	(+)	(+)
2	Water agar	Ascites fluid	Broth	+	+
			Trypsinized broth	++	++
3	Water agar	Serum	Broth	—	—
			Trypsinized broth	—	—
4	Water agar	Peaflour extract	Broth	(+)	(+)
			Trypsinized broth	++	++
5	Water agar	Nutrose	Broth	+	+
			Trypsinized broth	++	++

Both meningococci grew on agar containing trypsinized broth but not on that containing ordinary broth; and in the remaining three experiments in which growth took place it was always better on the trypsinized broth than on the other. For some reason not ascertained, but possibly from surviving antiseptic action of the sample of chloroform which had been added to it as a preservative, the serum used in this experiment inhibited growth.

It is clear, however, from this experiment that, as had been indicated in the preceding one, trypsinized broth is more favourable to the growth of the meningococcus than ordinary broth. Further, the addition of peaflour extract, nutrose, or ascites fluid to trypsinized broth increases the growth of the meningococcus in the way that these substances do when added to ordinary broth.

EXPERIMENT VII.

The following experiment was made for the purpose of confirming the previous ones, and also to ascertain if another sample of serum (bullock's) containing haemoglobin in solution from lysed corpuscles offered any advantage for culture of the meningococcus. Each addition was made to the extent of 10 per cent. of the medium.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition 1.	Addition 2.	Meningococcus 1.	Meningococcus 2.
1	Water agar	Trypsinized broth		+	+
2	.. ..	Peaflour extract		—	+
3	.. ..	H. B. serum		—	—
4	.. ..	.. ..	Trypsinized broth	+	+
5	.. ..	.. ..	Peaflour extract	+	(+)
6	.. ..	.. ..	Both above	++	++
7	.. ..	Trypsinized broth	Peaflour extract	++	++

As before, the addition of serum by itself to water agar failed to induce growth, and the best results were obtained with peaflour extract (experiments 6 and 7). Growth was so good when both these substances were added that the further addition of serum seemed to make no difference to it.

EXPERIMENT VIII.

The object of this experiment was to ascertain the effect of adding glucose.

Water agar was used as before. To it were added in eight successive plates, respectively, 10 per cent. of peaflour extract, serum, trypsin broth, peaflour extract and serum, peaflour extract and trypsin broth, serum and trypsin broth, and finally peaflour extract, serum and trypsin broth all three at once. In a duplicate series the experiment

was repeated with the addition in each case of 1 per cent. glucose to the medium.

No.	Medium.					Result.	
	Menstruum.	Addition 1.	Addition 2.	Addition 3.	Addition 4.	Meningococcus 1.	Meningococcus 2.
1	Water agar					–	–
					Glucose	–	–
2	Water agar	Peaflour extract				–	–
					Glucose	–	–
3	Water agar	Serum				–	–
					Glucose	–	–
4	Water agar	T. broth				–	–
					Glucose	–	–
5	Water agar	Peaflour extract	Serum			(+)	(+)
					Glucose	(+)	(+)
6	Water agar	Peaflour extract	T. broth			(+)	(+)
					Glucose	(+)	(+)
7	Water agar	Serum	T. broth			+	+
					Glucose	++	++
8	Water agar	Serum	Peaflour extract	T. broth		++	++
					Glucose	++	++

Result.—It is seen that glucose only produced a marked effect in the second half of subexperiment 7. As trypsin broth itself contains a considerable quantity of sugar, no doubt when the agar contains 100 per cent. of broth instead of 10 per cent., as in this experiment, the addition of glucose is superfluous.

EXPERIMENT IX.

This experiment was made to ascertain the value of Savory and Moore's fluid extract of meat as a substitute for trypsin broth. The preparation was tried because it contains, as Mr. Mackenzie Wallis pointed out to us, a comparatively large amount of true peptones.

Water agar was used as before, and to 70 c.cm. of the melted agar 30 c.cm. of a 10 per cent. solution of Savory and Moore's preparation was added. To this was then added in a succession of plates, glucose, serum, peaflour extract, finally glucose, peaflour extract and serum all three together.

Result Forty-eight Hours at 37° C.

No.	Menstruum.	Addition 1.	Addition 2.	Addition 3.	Meningococcus 1.	Meningococcus 2.
1	S. and M. extract in water agar				–	–
2	,,			Glucose	–	–
3	,,	Serum			(+)	(+)
4	,,	Serum		Glucose	+	+
5	,,	Peaflour extract			–	–
6	,,	Peaflour extract		Glucose	Trace	Trace
7	,,	Peaflour extract	Serum		++	++
8	,,	Peaflour extract	Serum	Glucose	++	++

It would seem that, although the preparation in question contained a considerable quantity of peptones, it had no striking value for the present purpose. Savory and Moore's meat extract, however, has some value for increasing growth of the meningococcus, for a control experiment made at the same time as subexperiments 7 and 8, without addition of this meat extract, showed less abundant growth than 7 and 8.

EXPERIMENT X.

This experiment was made to ascertain the point at which concentration of salt in this medium inhibits growth of the meningococcus. The medium used was agar 2½ per cent. dissolved in trypsin broth and containing 5 per cent. of peaflour extract, the "trypagar" introduced as the result of the preceding experiments. This medium is rendered neutral to phenolphthalein.

Salt was distributed in plates of this medium in increasing amounts, and examples of four different types of meningococci isolated from the cerebro-spinal fluids of cases in the present outbreak were then inoculated on each plate. The results were as follows:

Result Forty-eight Hours at 37° C.

No.	Percentage of Salt in the Medium.	Meningococci.			
		Type 1.	Type 2.	Type 3.	Type 4.
1	1.0	+	+	+	+
2	1.5	(+)	(+)	(+)	(+)
3	2.0	(+)	–	(+)	–
4	3.0	Trace	Trace	(+)	(+)
5	4.0	–	–	–	–
6	5.0	–	–	–	–

Growth of all four meningococci became diminished when the salt exceeded 1 per cent., and at 4 per cent. it was arrested.

General Result.

As the outcome of these experiments it was decided to make a practical trial of the following medium:

Agar 2½ per cent. dissolved in the trypsinized broth of Douglas.

To this when it has reached the final stage is added 5 per cent. of a sterilized extract of peaflour prepared as follows: Peaflour 10 grams, salt 10 grams, distilled water 100 c.cm. Steam for twenty minutes and filter. Sterilize the filtrate by steaming on two successive days.

By reason of some observations which will be referred to later, this medium, trypsin broth, pea agar, or "trypagar," is now made neutral to phenolphthalein.

Trial of Trypagar as a Routine Medium for the Meningococcus.

Since its introduction over two hundred meningococci originally isolated from the cerebro spinal fluid of cases of meningitis have been subcultured on to trypagar, with the result that they have all been found to grow readily on it; moreover, plates of this medium have been in continual use for growing meningococci in bulk for the purpose of making standard suspensions of them for agglutination work.

Trypagar has also been found to grow the meningococcus in primary culture from the cerebro-spinal fluid in several cases where an opportunity of testing this point has occurred.

The chief object, however, for which a culture medium was required in the present connexion was for cultivating the meningococcus from the nasopharynx of contacts. The following observations were made for the purpose of deciding the suitability or otherwise of trypagar for this purpose:

Test I.

Swabs from the nasopharynx of six contacts were each plated on the following media:

1. Nasgar.
2. Nasgar with the addition of 1 per cent. of blood.
3. Nasgar with the addition of 2 per cent. of blood.
4. Trypagar with the addition of 2 per cent. of serum.

The growth of meningococcus-like colonies on these plates was as follows:

1. On nasgar one case showed meningococcus-like colonies, and two others showed slightly suspicious colonies.
2. On nasgar enriched with blood the same case showed meningococcus-like colonies, and three others showed slightly suspicious colonies.
3. On nasgar enriched with serum the results were the same as with blood.
4. On trypagar enriched with serum five of the six cases showed colonies resembling those of the meningococcus.

On examination of subcultures of meningococcus-like organisms, all were rejected except two. One of these had come up on all the media; the other had developed only on the plate of trypagar enriched with serum.

TEST II.

Five days after the test just related these same six contacts were re-examined, and at the same time nine persons in their proximity were swabbed, making in all fifteen cases.

Each of the fifteen swabs from these men was cultivated on plates of the following media in turn:

1. Trypagar.
2. Trypagar enriched by 2 per cent. of serum.
3. Trypagar enriched by 1 per cent. of nutrose.
4. Trypagar enriched by 2 per cent. of serum and 1 per cent. of nutrose.

Meningococcus-like colonies appeared on nine of the plates of media 1 and 2, and in only two of the plates in 3 and 4. On testing these suspicious organisms only two of the cases were found positive. These were the same two cases that had been positive before, and in the present series they were positive on all four media.

TEST III.

After a further interval of five days these fifteen men were again swabbed.

Each swab was plated on three media.

1. Trypagar.
2. Trypagar enriched by 2 per cent. of serum.
3. Nasgar.

Meningococcus-like colonies appeared on medium 1 in two cases, on medium 2 in five cases, on medium 3 in three cases. On examination of their characters all of these Gram-negative cocci were rejected except one, and that had come up on all three media. The case from which it had been obtained had been positive in the previous two tests.

The second and third of these tests, therefore, showed that trypagar by itself, without enrichment, was successful for growing micrococci indistinguishable from the meningococcus from the nasopharynx. In this respect it appeared to give as good results as, if not better than, nasgar, and as trypagar is much easier and cheaper to make than nasgar it was adopted for routine purposes.

It has been mentioned that trypagar was successful for the object in view without enrichment. The addition of 2 per cent. of serum, or better, ascites fluid, seems to increase the size of the meningococcus colonies, and sometimes their vitality on the medium.

Since these tests were made we have on over a dozen occasions plated swabs from the nasopharynx of contacts or carriers on to trypagar plates at the same time with and without addition of ascites fluid. In all those cases in which meningococcus-like colonies appeared they came up on both plates.

Reaction of the Medium.

At an early stage of the present inquiry an experiment was made to see what reaction of the medium was best suited for culture of the meningococcus. Strains of this micro-organism were tested on plates of trypagar the reaction of which ranged from 0.0 to +1.6 to phenolphthalein. Growth of the strains occurred at +0.4 and continued up to +1.6; it appeared to be best at about +1.0, and accordingly this titre was adopted.

When opportunity offered later on, however, of testing contacts and carriers, the question of titre was reopened, and it was found that while there was as a rule growth of the meningococcus-like colonies in plates having a reaction of +1.0, they grew even better in plates the reaction of which was neutral to phenolphthalein. On two occasions also a swab was found to yield a positive result on the neutral plate when it was negative on the corresponding plate +1.0 to phenolphthalein. Some further experiments with delicate meningococci from the cerebro-spinal fluid having given a similar result, from this time onwards the trypagar was sent out neutral in reaction.

CONCLUSIONS.

The five requirements of a medium desirable for the present purpose have been previously stated. Trypagar prepared in the manner described has been found to fulfil four of them with satisfaction, and has, therefore, been adopted for routine use. Since May, 1915, over eight thousand bottles of this medium have been made and supplied to district laboratories at about half the cost of nasgar. With each bottle, sterile horse serum is sent out for addition in the case of primary cultures. Some comparative tests having indicated that a solution of haemoglobin gives even better enrichment, attempts are being made to apply this in place of the serum for routine purposes.

So far the fifth requirement is the main one that this medium fails to satisfy. Although growth of the meningococcus is excellent in trypagar, this micro-organism as a rule does not survive on it for over forty-eight hours.

The cause of this brief vitality of the meningococcus on a medium so well suited to its development in the first place, and the task of defining the value of the peaflour extract more closely from the chemical standpoint, are matters that have engaged the attention of Captain Martin Flack, to whom the research was handed over at this point.

FORMULA FOR TRYPAGAR.

1. Peaflour Extract.

Take 100 grams of peaflour (ordinary Pearce Duff's), and add 1 litre of distilled water with 100 grams of salt. Mix and steam for half an hour, stirring occasionally. Allow to settle, and filter, then sterilize and label "Saline Pea Extract." This peaflour extract should preferably be freshly made for each batch of agar.

2. Trypsin Broth (Douglas).

Take some fresh bullocks' hearts, free from fat and vessels, mince the meat very finely, and weigh. To each ½ kilo add 1 litre of water, and make faintly alkaline to litmus with 20 per cent. KOH solution. Heat this slowly to 75°–80° C. for five minutes. Cool to 37° C., and add 1 per cent. of liquor trypsinae co. (Allen and Hanburys), and keep it at 37° C. for two and a half to three hours. When trypsinizing is finished, test for peptone with copper sulphate and KOH as below, then render slightly acid with glacial acetic acid, and bring slowly to the boil for a quarter of an hour. Leave overnight in a cool place, and siphon off the clear liquid in the morning. Make faintly alkaline to litmus, and sterilize in an autoclave at 118° C. for one hour on each of two days (if not to be used at once).

To Make Trypagar.

Take a measured quantity of the trypsinized broth, add 2 per cent. of agar fibre (see below for preparation) and 0.125 gram of calcium chloride per litre. Autoclave at 118° C. for three-quarters of an hour to dissolve the agar. Mix together in an urn or saucepan; titrate with N/10 KOH while boiling, using phenolphthalein as the indicator, and add the necessary amount of normal KOH to give an absolutely neutral reaction. Cool to 60° C., add white of egg (2 to a litre) beaten up with the crushed shells, autoclave again at 118° C. for 75 minutes (or in the steamer for two hours). Filter, add to the filtrate 5 per cent. of the sterile pea extract, and sterilize in the ordinary way.

Preparation of Fibre Agar.

Weigh out the required quantity, cut up small with scissors, place in a large flask or enamel pail and wash twice quickly in water. Drain thoroughly; add water just to cover, and put in glacial acetic acid, 2.5 c.cm. per litre of water. Mix thoroughly and leave for a quarter of an hour. Pour off the liquid and wash *thoroughly* four or five times to make sure that all the acetic acid is washed out. Drain carefully and use as above.

Biuret Reaction for Peptone.

Take 5 c.cm. of broth, add 0.1 c.cm. of 5 per cent. solution of $CuSO_4$; mix, and then add 5 c.cm. normal NaOH. A true pink colour indicates that trypsinization is sufficient; a bluish-purple shade that it is incomplete.

Trypagar medium prepared as above is sent out from the Central Laboratory to district laboratories in sterilized bottles each containing 200 c.cm. A small phial of sterile serum is supplied for addition in the proportion of 1 of serum to 50 of medium in the case of primary cultures.

NOTE ON THE CONSTITUENT OF THE PEAFLOUR AUGMENTING GROWTH OF THE MENINGOCOCCUS ON THE TRYPAGAR MEDIUM.

By CAPTAIN MARTIN FLACK, R.A.M.C.

(From the London District Laboratory for Cerebro-spinal Fever, Royal Army Medical College, S.W.)

In order to ascertain the nature of the constituent of peaflour which favours growth of the meningococcus when added to a broth agar medium, investigation was pursued along the following lines:

1. *Analysis of the Peaflour.*

Analysis of the peaflour showed that it contained legumin, starch, dextrins, salts, and extractives. No sugar was present. Analysis of the peaflour extract as added to the medium in the course of its preparation gave quantitatively the following results:

Solids	13.58 per cent.
Ash	10.11 ,,
Organic matter	3.47 ,,

The amount of organic nitrogen as determined by Kjeldahl's method was 0.07 per cent. This small amount of nitrogen precludes the possibility of the presence in the

extract of any large amount of a body of protein nature. The high percentage of ash is accounted for by the 10 per cent. saline solution used in preparing the extract.

2. *Cultural Experiments.*

Cultural experiments were made upon media prepared by adding various solutions obtained from the peaflour.

(*a*) To agar dissolved in water.
(*b*) To water agar to which trypsinized broth was added.
(*c*) To water agar to which was added caseinogen hydrolyzed for sixteen hours in an autoclave.

The following solutions were employed:

Solution A.—Prepared by boiling peaflour with 10 per cent. NaCl and filtering. Such a solution contains starch, dextrins, extractives, and salts.

Solution B.—Prepared by extracting the peaflour with 10 per cent. saline in the cold, boiling to get rid of coagulable protein, and filtering. This solution contains dextrins, extractives, and salts.

Solution C.—Prepared by precipitating the starch and dextrins by alcohol from the first-named solution and then removing as much alcohol as possible from the filtrate by boiling. Such a solution contains extractives and salts.

No phosphotungstic or phosphomolybdic acid was available to test the amount of precipitate which could be obtained from this filtrate with these reagents.

In addition to these solutions, there was prepared from the peaflour (Solution D) a solution of legumin. This was used, since an early experiment in the previous paper had shown that legumin exerts a favourable effect upon the growth of the meningococcus.

EXPERIMENT I.

The first experiment was made by adding the solutions singly to water agar and inoculating each plate with one loop from a culture of meningococcus in ascites broth. The result was as follows:

Medium.	Contents of Solution Added.	Growth.
Water agar + Solution A ...	Starch, Dextrins, Extractives, Salts	−
Water agar + Solution B ...	Dextrins, Extractives, Salts	−
Water agar + Solution C ...	Extractives, Salts	(+)
Water agar + Solution D ...	Legumin	−

Water agar 9 parts. Solution 1 part.
− = No growth. (+) = Slight growth.

EXPERIMENT II.

In the second experiment the solutions were added to trypsinized beef broth agar.

Medium.	Growth.
Broth agar + A	++
„ „ + B	++
„ „ + C	++
„ „ + D	++
Broth agar only	++

Broth agar 9 parts. Solution 1 part.
++ = Abundant growth.

EXPERIMENT III.

A similar experiment was tried, using caseinogen agar in the place of broth.

Medium.	Growth.
Caseinogen agar + A	+
„ „ + B	++
„ „ + C	++
„ „ + D	−
Caseinogen agar only	−

Water agar 18 parts. Caseinogen 1 part. Solution 1 part.
++ = Abundant growth. + = Moderate growth. − = No growth.

It will be observed that with broth agar good growth was obtained upon all the plates. With caseinogen agar moderate growth was obtained with Solution A, good growth with Solutions B and C, and no growth with legumin solution only, or with caseinogen only. The results with the broth agar showed that the proportion of broth in the agar was too great to bring out differences.

Other tests, therefore, were made, using a smaller percentage of broth—namely, one of solution, and two of broth to seven of water agar. As before, each plate was inoculated with one loop of meningococcus culture in ascites broth. The results were as follows:

Medium.	Experiment IV.	Experiment V.
Agar + Broth + Solution A	+	+(+)
„ + „ + Solution B	++	++
„ + „ + Solution C	++	++
„ + „ + Solution D	−	−
Agar broth only	−	−

Broth 2 parts. Solution 1 part. Water agar 7 parts.
++ = Abundant growth. +(+) = Good growth. + = Moderate growth. − = No growth.

It will be seen that best growth occurred with Solutions B and C, although a favourable growth also occurred with Solution A. No growth occurred with legumin and broth, or with broth only.

From a consideration of the contents of the various solutions used in these experiments it is obvious that the agent favouring the growth of the meningococcus is one which must be grouped among the extractives. Such an extractive may provisionally be classified as being of the nature of a vitamine.

It appeared of interest to put this conclusion to the test. The germ of wheat was selected for the purpose, since this has been shown by the writer and Leonard Hill to be rich in vitamine.

Similar 10 per cent. NaCl solutions were prepared from raw wheat germ and from the patent Hovis cooked wheat germ respectively. Each of these extractives was then separately added to water agar, to water agar to which broth had been added, and to water agar with the addition of caseinogen. Each of the media thus prepared was inoculated with one loop of meningococcus culture.

In the experiments with water agar only no growth occurred; with caseinogen the results were inconclusive; but in the broth experiments a distinctly favourable influence was exercised upon the growth of the meningococcus. This vitamine, however, did not produce by any means so favourable an effect upon the growth of this micro organism as did the extractive from the peaflour.

It has been suggested that vitamines are of two kinds, (1) those which favour growth, and (2) those which favour vitality.

Since the meningococcus is but short-lived upon trypagar, it appeared of interest to compare the above extractives with regard to their respective influence on the longevity of the meningococcus.

On examination of the cultures made in the preceding experiments after the lapse of some days at 37° C., it was found that the meningococcus was dead upon all the plates except those containing the cooked or raw germ. The cultures on the plates in the first test lived sixteen and twenty days. In further tests it was again found that the cultures after some days at 37° C. were alive only upon plates containing extract of germ.

The extractive from the wheat grain therefore appears to have the property of prolonging the vitality of the meningococcus upon medium to which it has been added. In illustration of this, it was found that a specimen of meningococcus Type 1 lived for ten days, of Type 2 for seventeen days, and of Type 3 for twenty-eight days upon a slope of peaflour trypsin agar to which germ extract had been added.

Stab cultures of this medium (trypsinized broth agar containing extracts of both peaflour and germ) have been in use by me for some time, and have proved equally as efficacious as starch stabs for stock cultures. Subcultures

have shown that occasionally the meningococcus may live on either starch or germ agar for as long as two months.

The extractive in the peaflour, therefore, would appear to be concerned rather with favouring the growth of meningococcus than with preserving its vitality.

That the extractive contained in the peaflour is probably of a vitamine nature is shown also by the fact that the trypagar medium, after it has received the peaflour extract, deteriorates if autoclaved, and after submission to such treatment may absolutely fail to grow the meningococcus. The presence of vitamine is difficult to prove chemically, but the above experiments clearly indicate that the essential constituent of the peaflour is a body of an extractive nature, not precipitated from solution by alcohol, and that it may provisionally be classified in the group of bodies known as "vitamines." The experiments in question suggest, further, that possibly a deficiency, to which attention has been drawn in the preceding paper, may be remedied by adding to the medium an extract of the germ of wheat.

EPIDEMIC CEREBRO-SPINAL MENINGITIS:

ITS BACTERIOLOGY AND PATHOLOGY.

BY

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THE extreme variability, the comparative uncertainty of our bacteriological findings in this disease, and the impossibility of making an absolute diagnosis on a clinical basis alone, especially in the milder types, have combined to influence me in publishing my conclusions from the examination of an enormous number of specimens in the laboratory from the 368 cases that have been admitted to the Alfred Hospital, Melbourne, during the past eleven months (to July 1st, 1916).

An endeavour is made in this article to give the laboratory findings in the Victorian epidemic, the cases dealt with being those occurring in the adult male population of the metropolitan district, together with a considerable number from country districts.

Of the 368 cases under review 207 occurred among soldiers in camps and the remainder among the civil population—the great majority within the first few months being from the military population, the civil population providing the greater number during the summer months. For the last three months the numbers are as follows: 31 soldiers, 50 civilians. These figures show how, with the increased number of foci as the epidemic proceeds, the civil population begins to suffer more severely.

First, in dealing with suspected cases, the examination of cerebro-spinal fluid is all-important. If the fluid is turbid the patient is admitted without delay, the fallacy of this proceeding being evidenced by the occasional presence of a pneumococcal meningitis or a septic meningitis, and, in a few cases, the turbidity has been due entirely to red blood corpuscles from accidental sources or from cases of cerebral haemorrhage.

Procedure.

In my experience the greatest cause of mistaken positive diagnosis has been in regarding a turbid or opalescent fluid, due to red blood corpuscles, as a cerebro-spinal fluid, turbid owing to the presence of polynuclear leucocytes or organisms, this fault lying with both hospital residents and private practitioners.

The microscopic examination of a wet specimen is the best procedure—(1) not centrifuged, (2) sedimented or centrifuged. The presence of polymorphonuclear leucocytes in appreciable numbers is taken as a positive diagnosis of an acute meningitis, but not necessarily cerebro-spinal. Coccal forms can be seen even in the wet state. They are usually intracellular, contrary to the experience of Dowglas[1] in early cases. Frequently also in the early cases mononuclears are quite as numerous as polynuclears. In only 3 per cent. of cases were mononuclears found to be the outstanding feature of the cerebro-spinal fluid, and in half of these polynuclears were very numerous also. The period when mononuclears were most in evidence certainly appeared to be in the early stage (that is, the early part of septicaemic stage under Lundie's classification [2]) of the disease. This period immediately succeeds the stage of clear fluid with a positive potassium permanganate test, as described later.

The presence of fibrin is noted; the fibrin clot in a positive case usually settles in a few hours together with the majority of cells present. Excess of globulin is estimated by the simple ring test with saturated solution of ammonium sulphate. An enormous increase in globulin is a marked feature in the clear fluid after centrifuging. In all cases the potassium permanganate test is performed. Frequently one finds a clear fluid with no cell content, excepting, perhaps, a few mononuclears, no fibrin, and negative globulin test, and with no organisms, but giving an immediate potassium permanganate test (Lundie [2]).

In 51 different cases of this series the above result was obtained—that is, no abnormality was found except positive potassium permanganate test. The fallacy of this test is in a cerebro-spinal fluid containing red blood corpuscles; this invariably gives a positive reaction. Even if cerebro spinal fluid is contaminated with red blood corpuscles, we still have an accurate means of judging the reaction to potassium permanganate.

If we centrifuge the cerebro-spinal fluid till we get a clear fluid free of haemoglobin and cells, we find in an early case of cerebro-spinal meningitis a positive potassium permanganate test, a negative test being obtained in non-meningitic cases.

I wish to add my recommendation of this test to that of Lundie and his co-workers.[2] Especially will it be of value to men in general practice, or in practice away from the advantages of laboratory diagnosis; for it appears to me that not only in cases where the fluid is turbid (with exceptions referred to) a diagnosis of some type of purulent meningitis can be made, but also a positive diagnosis of acute meningitis can be made with little risk of mistake in cases showing clear fluid if the potassium permanganate test is positive (avoiding the fallacy as above, as I suggest).

I do not wish to say that this test is specific in early cerebro-spinal meningitis, but after a large number of examinations of cerebro-spinal fluids from non-meningitic cases (128 examinations) I have come to this conclusion as to the value of the test, my only doubt being that a positive reaction may be obtained in septic non-meningitic cases.

These cases (with clear fluid giving positive potassium permanganate test) have at all times been admitted to hospital, and my experience is that, within twenty-four to forty-eight hours of admission, the cerebro-spinal fluid is found to be of the usual turbid type of cerebro-spinal meningitis.

Case 207.

Admitted October 10th, 1915. Died October 13th, 1915.

October 10th.—Cerebro-spinal fluid: No cells; no organisms. Fibrin −; globulin −; potassium permanganate + (immediately).

October 11th.—Cerebro-spinal fluid: Polymorphonuclear +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 14th.—*Autopsy:* Brain shows pus along sulci over vertex and at base. Enormous distension of ventricles. General congestion of organs. Internal hydrocephalus.

Case 354.

Admitted June 14th, 1916. Relieved July 3rd, 1916.

June 15th.—Cerebro spinal fluid: No cells; no organisms. Fibrin −; globulin −; potassium permanganate + (slow).

June 17th.—Cerebro spinal fluid: Polymorphonuclear +++. Mononuclear ++. Occasional red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Many intracellular and extracellular diplococci.

June 21st. Swab: Staphylococci.

In the well-marked meningeal stage the potassium permanganate test, of course, is unnecessary from a diagnostic point of view; but, following Sophian,[3] I attempted a quantitative test, as follows: Potassium permanganate (1 in 1,000) is poured from a measure into 1 c.cm. of cerebro-spinal fluid. The purple permanganate colour is usually immediately lost, the brown colour, due to reduction, replacing it. More potassium permanganate solution is added in small quantities until, on standing for three minutes, some purple colour remains. It was found that to the cerebro-spinal fluid of those most seriously ill seven to eleven times its volume could be added before the fluid ceased to reduce the potassium permanganate. Further work may determine a very definite prognostic value for this quantitative method.

The work done in connexion with well-marked cases shows the continued presence of polynuclear cells and meningococci for a considerable time. Examinations conducted in the following cases will give an idea of the findings:

Case 264.

Admitted June 24th, 1916. Died June 27th, 1916.

June 24th.—Cerebro-spinal fluid (yellow): Polymorphonuclear +++. Mononuclear ++. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Many intracellular and few extracellular diplococci.

June 24th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Many intracellular and few extracellular diplococci.

June 25th.—Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears and red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Many intracellular and few extracellular diplococci.

June 28th.—*Autopsy:* Brain: Intense general congestion; pus general; ependyma spoiled; ventricles moderately dilated. Heart: Pyopericardium; petechiae over pericardial surfaces; toxaemia.

Case 281.

Admitted March 11th, 1916. Died March 19th, 1916.

March 13th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

March 14th.—Cerebro-spinal fluid: Polymorphonuclear +++. Red blood corpuscles ++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

March 15th.—Culture from cerebro-spinal fluid: Meningococcus.

March 18th.—Cerebro-spinal fluid: Polymorphonuclear +++. Red blood corpuscles +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

March 19th.—Cerebro-spinal fluid: Polymorphonuclear +. Red blood corpuscles +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

Cerebro-spinal fluid, right ventricle: Polymorphonuclear +. Few red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

March 20th.—*Autopsy:* Brain shows marked congestion of surface; thick pus at base; ependyma spoiled; ventricles markedly dilated; no damage due to puncture. Spleen large, mushy. Internal hydrocephalus.

Case 271.

Admitted January 21st, 1916. Died March 10th, 1916.

January 22nd.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear ++. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

February 6th.—Cerebro-spinal fluid: Polymorphonuclear +++. Fibrin +; globulin +; potassium permanganate + (in one minute). Intracellular and extracellular diplococci.

February 9th.—Cerebro-spinal fluid: Polymorphonuclear ++. Red blood corpuscles +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci. Some shadow cells.

Culture from cerebro spinal fluid (24 hours): Gram + diplococci.

February 10th.—Culture from cerebro-spinal fluid (48 hours): Gram − diplococci; pure meningococci.

February 21st.—Cerebro-spinal fluid: Occasional polymorphonuclears and mononuclears. No organisms. Fibrin −; globulin +; potassium permanganate + (immediately)

February 26th.—Cerebro spinal fluid: Polymorphonuclear +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

March 2nd.—Cerebro-spinal fluid: Polymorphonuclear +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci

March 6th.—Cerebro-spinal fluid: Occasional mononuclears. No organisms. Fibrin, trace; globulin −; potassium permanganate −.

March 7th.—Cerebro-spinal fluid: Clear. Fibrin, trace; globulin +; potassium permanganate + (immediately).

March 9th.—Cerebro-spinal fluid: Occasional polymorphonuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

March 11th.—*Autopsy:* Brain shows general congestion over surface; gelatinous pus at base. Ventricles very dilated; ependyma spoiled. Spleen large, mushy. Large hydatid cyst in right kidney. Internal hydrocephalus. Toxaemia.

Case 218.

Admitted October 21st, 1915. Relieved April 27th, 1916. Readmitted May 18th, 1916. Died May 22nd.

October 22nd, 1915.—Cerebro-spinal fluid: Polymorphonuclear +++ (shadow cells). Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate +. Intracellular and extracellular diplococci.

October 23rd.—Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears and red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 26th.—Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 27th. Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 28th.—Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

November 4th.—Cerebro-spinal fluid: Polymorphonuclear +++. Occasional mononuclears and red blood cells. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

November 12th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +. Occasional red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

November 13th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear ++. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci.

November 24th.—Serum: Widal.

January 14th, 1916.—Swab: Staphylococci; Gram − and + diplococci.

March 23rd.—Swab: Staphylococci; Gram + diplococci.

April 26th.—Swab: Staphylococci; Gram + diplococci.

May 19th.—Cerebro-spinal fluid: Red blood corpuscles +. No organisms. Fibrin −; globulin +; potassium permanganate + (immediately).

May 23rd.—*Autopsy:* Brain shows recent marked congestion; ependyma clear; no pus; at base dry and matted; enormous dilatation of ventricles. Four punctures show no damage. Spleen enlarged. Aortic atheroma. Internal hydrocephalus.

Here the clinical characteristics are usually sufficient to give a diagnosis, but help is given in those cases with few, if any, other signs except coma or headache.

In the cerebro-spinal fluid of a typical case we usually find an enormous deposit of fibrin and cells, which settles and may occupy as much as one-third of the total volume.

In the markedly purulent fluids intracellular diplococci occur almost constantly, rare exceptions showing no organisms. In the examination of 700 specimens of cerebro-spinal fluid obtained at various stages of the disease I was able to demonstrate organisms in 82 per cent. In 80 per cent. intracellular organisms were seen, the numbers varying vastly in different specimens; in 8 per cent. enormous numbers were present.

In 24 per cent. intracellular diplococci occurred alone, and, in the remaining 56 per cent., both intracellular and extracellular diplococci were present, the extracellular variety usually being in scanty numbers. Extracellular diplococci occurred alone in only 2 per cent. of the specimens, so that in 58 per cent. one finds some extracellular organisms, but rarely in sufficient numbers to warrant the assertion[1] that the name *Diplococcus intracellularis* is a false one. In this series of examinations it was rare to find a large number of extracellular diplococci, only 5 per cent. of specimens showing them in numbers sufficient to make them a feature.

In the remaining 18 per cent. of specimens I found it impossible to demonstrate any organisms.

The wonderful increase noted in the numbers of organisms after incubating the cerebro-spinal fluid alone at 37° C. for twelve or twenty-four hours is worthy of mention. A fluid which appeared on a first examination to be free from organisms, in twelve hours showed an enormous number of intracellular and extracellular diplococci, the increase apparently going on within the leucocytes as well as in the fluid media. Some observers[4] report an extracellular increase only, but repeatedly I have found a marked intracellular increase also. This, however, agrees with the result of Lundie's[2] work, but it seems to me that the addition of citrate and glucose is unnecessary, for, if cultured overnight, the number of organisms, both intracellular and extracellular, is usually very large.

The incubation of cerebro-spinal fluid alone, as indicated above, suggested an easy means of making primary cultures, and the results have been as successful as recently reported elsewhere. I found that if the number of organisms in a non-incubated cerebro-spinal fluid was very large the patient's condition was very serious, and in nearly all cases death ensued very soon after the fluid was obtained. Especially does the presence of many extracellular organisms seem to indicate a very severe case, and usually a hopeless prognosis.

Some writers say that when the disease is becoming less severe and the patient approaching convalescence, the organisms become extracellular. This has not been my experience, and, if it does occur, the number of extracellular organisms must be so small as to make it of no prognostic value.

Contrary to the experience of Webster[11] and others, I have never been able to satisfy myself that the number of extracellular organisms was increased by allowing cerebro-spinal fluid to stand at room temperature. Even in twenty-four hours no alteration of site of organisms could be found.

A few cases have shown a peculiar feature in that no cells (or very few cells) were present, even in the lower layers of a centrifuged specimen, but the fluid showed a general opalescence similar to that seen in a saline emulsion of organisms. These fluids, on microscopic examination, show the presence of an enormous number of diplococci from which cultures could be made. The disease period of such specimens was not constant, but was usually towards

the end of the disease. These fluids gave a positive reaction to globulin test, and also a positive potassium permanganate test, but this reaction was not as marked as with a cell-containing fluid.

Cultural Characteristics.

It was during this stage of the fully developed disease that the cultural characteristics were studied. The meningococcus grew readily on blood serum, the infection of the culture media being carried out by (1) pouring sediment of cerebro spinal fluid over it and immediately withdrawing it, (2) pouring sediment into a culture tube and incubating for twelve to twenty-four hours before withdrawing the fluid, and then reincubating for twenty-four hours, or (3) with a platinum loop making streak cultures.

With the first plan a uniform sheet of growth was frequently found in twenty-four to forty-eight hours, usually the longer period elapsing before a well-marked growth was found. With the second and third plans the usual type of circular discrete colony was found, although occasionally a sheet culture was seen in (2).

For the purposes of vaccine, subcultures or other media were necessary.

Just at this stage, owing to the failure of cultures in three consecutive litres of ascitic agar and ascitic glucose agar, the culture, primary and secondary, on 3 per cent. glucose agar was attempted. This proved to be quite a reliable medium, and the growth, though often delayed till forty-eight hours, was sufficiently profuse for vaccine purposes. An alteration in technique was instrumental in saving time and media. On incubating the cerebro spinal fluid for twelve to twenty-four hours (usually overnight) a streak or sheet culture on glucose agar was almost invariably positive. A second subculture was then made from the latter, and a forty-eight hour culture was used for vaccine purposes.

I have kept cerebro-spinal fluids in the incubator at 37° C. for three to six days before subculturing, and yet a profuse growth was even then obtained on glucose agar.

I have impressed on the ward staff the necessity for incubation of specimens within a very short time of withdrawal from the body. The fact that during the earlier part of the epidemic no cultures were obtainable in many cases was due to the long period that elapsed between the withdrawal of fluid from the body and incubation. The ideal would, of course, be to incubate immediately, so keeping up the body temperature without a break.

In furtherance of this scheme of uninterrupted heat up to 37° C. the transference of sediment from tube to primary and secondary culture tubes was carried out without delay, only a few minutes elapsing before the culture was returned to the incubator.

Again, I discovered by accident a means of obtaining a more rapid and profuse growth. On several occasions a tray of glucose agar slants was incubated immediately after pouring into tubes and allowing them to settle in order to test their sterility. The tubes at blood heat (that is, direct from the incubator) have been used for primary and secondary culture of cerebro-spinal fluid. An earlier appearance of growth, as well as an increased number of colonies, was constantly noticed. In a few cases the growth appeared in fourteen to sixteen hours. This agrees with the generally accepted fact that the meningococcus does not grow at a temperature below 25° C. (room temperature being as a rule below this).

Apparently this subjection of the meningococci to room temperature for a period, perhaps only brief, is a frequent cause of non growth or of scanty growth. I would suggest that this is a possible cause of the findings of several observers[5] that the meningococci give only a scanty growth on agar. My conclusion as to the cultural power of glucose agar for meningococci is based on the uniformity of the results of cultures for vaccine purposes. Successful cultures approximate to 60 per cent. and 70 per cent.; cultures from cerebro spinal fluid of 32 cases have been used in the preparation of vaccine for prophylactic purposes and for use in chronic cases.

In the identification of the organism, acid production has always been obtained in solid and fluid media containing glucose and maltose, the reaction certainly being a little slower with maltose.

On two occasions I have seen a mixed infection of what appeared to be definite pneumococci with meningococci. This calls to mind an experience of five cases in which cultures on blood serum or glucose agar in twenty-four hours showed Gram-positive diplococci, while twenty-four hours later, on re-examining before emulsifying for vaccine purposes, the organisms appeared Gram-negative. A control of *Staphylococcus albus*, *B. coli communis*, and *B. typhosus* was done to ensure accuracy of staining in one case, the four smears being placed on the one slide.

Some observers report irregular staining, which is of course marked in smears of ordinary cultures; but my experience has been that, though the depth of staining varies, the organisms (except as above stated) have always been Gram-negative. I cannot agree with Shaw[6] that old cultures are Gram-positive. I have repeatedly had cultures in the incubator at 37° C. for many days and still the Gram-negative staining was obtained.

The staining methods employed for films of sediment from cerebro-spinal fluid were Gram's, and Leishman's modification of Romanowsky's method, the latter showing up the deeply-stained organisms on a pale ground of leucocytic protoplasm and making the detection of the organisms much easier than by the Gram method. Similar methods were employed in the examination of blood films. Wet specimens of blood were also examined.

Cultures have been made not only from lumbar puncture fluids but from cerebro-spinal fluids obtained by ventricular puncture. On three occasions blood cultures have been obtained. In two cases of cerebral abscess meningococci were cultured, and in a case of ulcerative endocarditis complicating cerebro-spinal meningitis a pure culture was obtained.

The presence of vacuolated polynuclear leucocytes in the cerebro-spinal fluid (so-called shadow cells) is not frequent, but their presence seems to indicate the approach of death. I have notes of thirteen cases in which shadow cells were present in the cerebro-spinal fluid. Death occurred in all. The following two cases (128 and 279) demonstrate this peculiarity.

Case 128.

Admitted September 2nd, 1915. Died October 23rd, 1915.

September 3rd.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci ++, and extracellular diplococci +++.

September 21st.—Cerebro-spinal fluid: Polymorphonuclear +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

September 27th.—Cerebro spinal fluid, right ventricle: Polymorphonuclear +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci +++.

September 30th.—Cerebro-spinal fluid Polymorphonuclear ++. Fibrin +; globulin +; potassium permanganate + (immediately).

October 8th.—Cerebro-spinal fluid: Polymorphonuclear ++. Fibrin −; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

October 15th.—Cerebro-spinal fluid, left ventricle: Polymorphonuclear. Fibrin −; globulin +; potassium permanganate + (immediately). Few intracellular and extracellular diplococci.

October 17th.—Cerebro-spinal fluid, right ventricle: Polymorphonuclear +++ (many shadow cells) Mononuclear +++. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 19th.—Cerebro spinal fluid, left ventricle: Polymorphonuclear +++. Occasional mononuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 21st.—Cerebro-spinal fluid: Polymorphonuclear +++ (many shadow cells). Occasional mononuclears and red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

October 24th.—*Autopsy*: Brain shows some congestion. Ventricles show marked dilatation with thin turbid fluid. Internal hydrocephalus.

Case 279.

Admitted March 2nd, 1916. Died March 21st, 1916.

March 3rd.—Cerebro-spinal fluid: Polymorphonuclear +++. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci.

March 4th.—Cerebro-spinal fluid: Polymorphonuclear +++. Red blood corpuscles ++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci.

March 7th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear ++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

March 9th.—Cerebro-spinal fluid: Polymorphonuclear +++. Few mononuclears. Occasional red blood corpuscles. Fibrin +; globulin +; potassium permanganate (immediately). Intracellular and extracellular diplococci.

March 15th.—Cerebro spinal fluid: Polymorphonuclear +++. Few red blood corpuscles. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +++. Fibrin +; globulin +; potassium permanganate + (immediately) Intracellular diplococci.

March 14th.—Cerebro spinal fluid: Polymorphonuclear +++. Few mononuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and many extracellular diplococci.

March 15th.—Cerebro-spinal fluid: Polymorphonuclear +++. Few mononuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
Culture from cerebro-spinal fluid: Meningococcus; some Gram + in twenty-four hours.
March 16th.—Cerebro-spinal fluid: Polymorphonuclear +++. Few mononuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci.
Cerebro-spinal fluid: Polymorphonuclear +++. Few mononuclears. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
Culture from cerebro-spinal fluid: Meningococcus (48 hours) vaccine (Gram −).
March 17th.—Cerebro-spinal fluid: Polymorphonuclear +++. Mononuclear +. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and few extracellular diplococci.
March 18th.—Cerebro-spinal fluid, right ventricle: Few polymorphonuclears. Red blood corpuscles +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
Cerebro-spinal fluid, left ventricle: Few polymorphonuclears (some shadow cells). Fibrin −; globulin +; potassium permanganate + (immediately). Intracellular diplococci.
Cerebro-spinal fluid, right ventricle, culture: Meningococcus vaccine.
March 20th.—Cerebro-spinal fluid, left ventricle: Few polymorphonuclears. Red blood corpuscles +++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
Cerebro-spinal fluid, right ventricle: Polymorphonuclear +++. Red blood corpuscles ++. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
March 21st.—Cerebro-spinal fluid, right ventricle: Polymorphonuclear +. Red blood corpuscles +. Fibrin +; globulin +; potassium permanganate + (immediately). Intracellular and extracellular diplococci.
March 21st.—*Autopsy*: Brain shows marked congestion; haemorrhage near right trephine hole; pus marked at base. Ependyma spoiled with petechiae showing. Enormous dilatation of ventricles with turbid fluid. Serous membranes petechial. Internal hydrocephalus.

The general tendency to haemorrhage is evidenced (1) by the presence of red blood corpuscles in the cerebro-spinal fluid, often in great numbers; and (2) by the frequent appearance *post mortem* of a haemorrhagic condition of the surface of the brain, especially the base. This will be dealt with more fully later.

Dr. Mary Williams[10] states that "if there were any symptoms showing involvement of the nervous system we found the germ in the blood."

I have examined films of incubated and non-incubated blood and have been unable to demonstrate organisms. These examinations were all from cases with marked meningeal and septicaemic signs and symptoms, some even being moribund when blood was taken. I must admit that when one does discover the organisms in the blood film (a frequent occurrence) the picture is very typical, as the polymorphonuclear neutrophile leucocytosis is so marked that the need for an actual leucocyte count is unnecessary.

I have not found time to enter into the question of the disease period when the leucocytosis appears, but intend to study this phenomenon with the view of determining if it be an early diagnostic feature.

I have records of three cases in which I have been able to demonstrate extracellular organisms as well as intracellular in blood films. The positive fermentation tests with glucose and maltose media were obtained in the case of one blood culture, these being performed in order to confirm the morphological characters. Gram-negative diplococci have been obtained from pericardial fluids both *ante mortem* and *post mortem*.

Fluids obtained during life from elbow and knee joints have been found to contain many polynuclears with intracellular Gram-negative diplococci. These joint conditions have cleared up without having to be treated as other pyogenic joints.

In a swab from an aural discharge I found Gram-negative diplococci; but again, in this case, the organism present may have been the *Micrococcus catarrhalis*, no time having been available to carry out differential tests.

The sputum examinations done were mainly in cases of complicating pneumonia or in suspected cases of tuberculosis. In nineteen examinations made from different patients five showed Gram negative diplococci indistinguishable morphologically from the meningococcus.

Out of a large number of microscopical examinations of urine from patients with definite cerebro-spinal meningitis, many pus cells were found in seven, and in three cases chemical tests showed the presence of sugar in moderate amount (1.5 per cent. average). As convalescence approached the glycosuria disappeared. Since July 1st several cases of glycosuria with definite cerebro-spinal meningitis have come under notice.

No systematic examination of throat swabs has been undertaken in the early stages; but in the stage of convalescence, when the patient is fit to leave hospital, swabs free from Gram-negative diplococci have been required before discharge is allowed. Time has not permitted a closer study of swabs than to culture for twenty-four to forty-eight hours and determine the presence or absence of Gram-negative diplococci. It was astonishing how many tubes showed no growth after twenty-four hours' culture. Many of them, however, gave positive results after forty-eight hours. With regard to those giving no growth, I think the explanation lies in the fact that not only were argyrol and hydrogen peroxide used locally with a short free period before swabbing, but the patients themselves obtained throat tablets, many containing free formalin, which successfully inhibited growth for some time—a patient eager to leave the ward taking care to administer to himself a liberal dose of such tablets immediately before the swabbing was performed.

In these convalescents a series of 190 swabs was examined. Of 93 first swabs, Gram-negative diplococci were obtained in 28 (that is, 30 per cent.). Of the remaining 97 swabs, taken usually at intervals of three to four days after first swabs, 42 (that is, 43.3 per cent.) contained Gram-negative diplococci. In some, great difficulty was experienced in obtaining cultures free from the organisms.

Cases 294, 269, and 254 show this difficulty.

Case 294.
May 11th, 1916.—Swab: No growth.
May 13th.—Swab: Staphylococcus, and Gram − and + diplococcus.
May 19th.—Swab: Gram − diplococcus.
May 21st.—Swab: Gram − diplococcus.
May 25th.—Swab: Gram − diplococcus.
May 31st.—Swab: No growth.
June 2nd.—Swab: Staphylococcus.

Case 269.
January 29th, 1916.—Swab: Staphylococcus, and Gram − and + diplococcus.
February 2nd.—Swab: Gram − and + diplococcus.
February 7th.—Swab: Staphylococcus, and Gram − and + diplococcus.
February 12th.—Swab: Staphylococcus, and Gram − and + diplococcus.
February 14th.—Swab: Staphylococcus, and Gram + diplococcus.

Case 254.
January 14th, 1916.—Swab: Staphylococcus, and Gram − and + diplococcus.
Relapse.
February 5th.—Swab: Gram − and + diplococcus.
February 12th.—Swab: Staphylococcus, and Gram − and + diplococcus.
February 14th.—Swab: Gram − and + diplococcus.
February 19th.—Swab: Gram − and + diplococcus.
February 23rd.—Swab: Gram − and + diplococcus.
February 27th.—Swab: Staphylococcus, and Gram + diplococcus.

Contacts.

As to examination of contacts, during November and December, 1915, under the direction of Major R. J. Bull, Director of the Bacteriological Department, University of Melbourne, I, with three others, examined the direct nasal and pharyngeal smears from the 800 employees of the Commonwealth Clothing Factory, where there had been two cases of cerebro-spinal meningitis. In 179 of these Gram-negative diplococci were obtained, some showing the organisms in both smears, but many only in the pharyngeal smear. These employees were not allowed to resume work until negative swabs on two successive days were obtained.

The work of treating these patients and subsequently examining the swabs was handed to me by the Principal Medical Officer of Victoria. Treatment consisted in allowing various fluids to run gently into each nostril and syringing the posterior pharyngeal wall also. It was found that the results were too slow with saline alone, so that potassium permanganate (1 in 1,000) was tried, the result being that some of the patients felt a marked soreness of nose and throat, showing red glazed mucous membrane. Also my negative results were still slower in appearing. Therefore I found it necessary, under these circumstances, to seek a fresh means of treatment. I chose a solution of sodium bicarbonate (1 drachm in a pint of normal saline) as a possible improvement. The results justified my choice, for I obtained negative results sooner than previously (working on batches from 20 to 40 previously untreated), and without causing any inconvenience

to the patients. From the nose 500 to 600 direct smears were examined, and a similar number from the pharynx, negative returns from both nose and throat simultaneously being required on two successive days.

Post-mortem Investigations.

In the study of the results of 70 autopsies done in cases of cerebro-spinal meningitis during the last nine months, I am forced to agree with Lundie that not only is there a meningitis present, but that a panencephalitis is a feature in the acute cases, the macroscopic evidence in favour of this view being the general spoiling of the brain substance (the organ is flabby and falls flat, losing its dome shape when placed on the examining bench). It tears if held in the hand, no matter how gently one handles it, and the intracerebral vessels are widely dilated and stand out very markedly on the cut surface. Also the ependyma lining the ventricles is spoiled in nearly every case, being petechial in many. This spoiling of the ependyma seems to me a very useful diagnostic point in favour of cerebro-spinal meningitis as against other cerebral lesions, especially tuberculosis.

Mode of Death.

As regards the mode of death, I decided that toxaemia was the main factor in 48 cases (69 per cent.), while in 11 cases (16 per cent.) internal hydrocephalus was the immediate cause. This cause is divisible into two varieties: (1) Those occurring in the acute stage, with meningitis still present, and caused partly by adhesions and partly by plugging of the foramina of Magendie and Luschka by thick tenacious pus and fibrin. I have not included under this head those cases of general hydrocephalus in which, on opening the skull, there is an enormous excess of fluid, both within and without the brain, with apparently a free communication between. This phenomenon occurred in several cases, the deaths being included under the head of toxaemia. (2) Internal hydrocephalus was most marked in those cases which had recovered from the meningitis and showed clear meninges with no pus and usually very little congestion. These were due directly to adhesions closing the foramina.

Considering internal hydrocephalus, both as an early and a late complication, I must agree with Horder[7] that "lack of mechanical resistance on the part of the ventricular walls" is a factor, but my experience forces me to the conclusion that this is decidedly more important in the early cases (that is, those showing what is really a panencephalitis) rather than in the chronic cases as suggested by Horder.

Heiman's idea, to which Horder makes reference, "that the weight of fluid in the posterior horns of the lateral ventricles, pressing down the cerebellum over the bulb, temporarily obliterates the outflow from the fourth ventricle," seems quite feasible, especially as we find on *post-mortem* examination that (1) the brain substance covering the posterior horns of the lateral ventricles always suffers most severely in internal hydrocephalus, the dilatation and consequent thinning being most marked here; (2) the posterior horns always contain the greatest sediment; and (3) the posterior horn, being the lowest part of the lateral ventricular system, is the site selected for ventricular puncture.

Ventricular puncture was done as a therapeutic measure in all cases of internal hydrocephalus as soon as symptoms arose and was repeated as occasion demanded. Many of the fluids obtained by ventricular puncture were perfectly clear and gave negative globulin and potassium permanganate tests. I consider that this indicates a freedom from meningitis. Dr. Stewart, medical superintendent, who was performing the clinical work, reports success from this treatment in a few cases.

In nine cases which came to *post-mortem* examination I have noted the presence of trephine hole with ventricular punctures; in one case seven punctures were found. It is remarkable that these punctures show no damage to the brain substance. They pierce the most dependent part of the lateral ventricular system—that is, the posterior horn—and one finds merely a needle track, usually blood-stained, without any damage to the brain substance. Even in the case of multiple puncture, which is usual, a collection of puncture wounds can be seen on the ependymal surface with no evidence of damage. In one case the lateral ventricles were distended with markedly blood-stained fluid, but both the lumbar and ventricular puncture fluids were, even before ventricular puncture, markedly blood-stained. In this case a further evidence of the haemorrhagic tendency was shown by the petechial ependyma. In another case a large dark clot lay immediately within the skull (extradural), due to accidental rupture of a vessel in this situation.

These were the only two examples in which any abnormality was traced to ventricular puncture.

Complications.

Pneumonia, usually of the lobular type, seemed to be the actual cause of death in seven cases; probably the condition was accentuated by the continued presence in the majority of the original meningitis. In one or two other cases a less marked bronchopneumonia was present, but death seemed to have occurred from other causes.

Apparently the pneumococcus was the causative organism, although in five cases of pneumonia complicating cerebro-spinal meningitis, in which the sputum was examined, Gram-negative diplococci were present in appreciable numbers. In three cases recent cerebral haemorrhage (capsular) was present. In two cases rupture had occurred into a ventricle. Apparently the congestion due to early meningitis was the determining factor in causing vascular rupture, in each case chronic nephritis and diseased blood vessels being present. In two cases old encapsuled cerebral haemorrhages were seen. These had no causal relation to death.

In this connexion it is necessary to mention the presence of chronic nephritis in 14 cases (20 per cent.). These all occurred in patients past middle age, and it seems that cerebro-spinal meningitis is much more serious in a person past middle age with chronic nephritis than at any other period of life, not even excepting the very young.

In case No. 214, male, aged 84, the diagnosis of cerebro-spinal meningitis is open to doubt, as at autopsy chronic nephritis was found and an empyema of the gall bladder with suppurative cholangitis, the latter without any apparent gross local cause. I did not personally conduct this examination, and as no cultures were made from either gall bladder or meninges I must label this case as of doubtful origin.

In reviewing the cases that came to autopsy the brain conditions not yet considered include two cases in which cerebral abscess was present. In both cases the meningococcus was isolated from the pus.

In case No. 348, male, aged 50, death occurred within three days of onset. At autopsy the main points were: (1) Marked general meningeal congestion. (2) Profuse pus at base. (3) Dilated ventricles. (4) Abscess, which had ruptured into the right lateral ventricle, present in right cerebral hemisphere. (5) Heart clear. (6) Culture from pus of cerebral abscess—meningococcus. Culture from pus under meninges—meningococcus.

The laboratory examinations in this case were as follows: The cerebro-spinal fluid on May 14th showed an enormous number of polynuclear and mononuclear leucocytes with only a few intracellular and occasional extracellular diplococci. On May 15th the result was as on the 14th, with the exception that many intracellular and extracellular diplococci were present.

The second case showed a temporo-sphenoidal abscess, but this was secondary to mitral ulcerative endocarditis. In this case pericarditis was also present, also multiple emboli in other organs. In two cases ulcerative endocarditis was found, the first being as described above, the second affecting the aortic valve, the laboratory record being as follows:

Case 327.

Admitted May 27th, 1916. Died June 25th, 1916.

May 28th.—Cerebro-spinal fluid: Polymorphonuclear + + +. Mononuclear +. Occasional red blood cells. Fibrin +; globulin; potassium permanganate + (immediately). Intracellular and extracellular diplococci.

June 1st.—Cerebro-spinal fluid: Occasional polymorphonuclears. Few mononuclears and red blood cells. Fibrin −; globulin +; potassium permanganate + immediately). No organisms.

June 8th.—Cerebro-spinal fluid: Occasional polymorphonuclears [illegible] Few mononuclears. Red blood corpuscles + +. Fibrin −; globulin +; potassium permanganate + (immediately). Intracellular diplococci.

June 26th.—Culture from aortic valve: Meningococci.

June 26th.—*Autopsy*: Brain shows marked general congestion. Ependyma clear, ventricles not dilated. Softening of right occipital lobe due to embolism. Endocardium and pericardium petechial; the two posterior flaps of the aortic valve show acute deep ulceration with vegetations. Petechial spots present over kidneys. Emboli present in brain, right brachial artery (1), spleen, and left lung. Ulcerative aortic valvulitis with multiple emboli. Toxaemia.

In two cases *ante mortem* cardiac thrombi were found in the right heart and haemorrhagic infarcts were present in the lungs. In one of these polyserositis was found, the pericarditis being especially well marked.

Pyopericardium was seen in 8 cases (11 per cent.), usually being the greatest factor in the causation of a toxaemic death. Pericardial and pleural adhesions were often seen but did not seem to have any importance.

The serous membranes frequently (13 per cent.) showed petechial haemorrhages. The ependyma lining the lateral ventricles was petechial in a few cases.

The choroid plexus on several occasions showed hypertrophy and vesiculation. This was more apparent in the more chronic cases.

Pyelitis was marked in two cases, but many showed turbid urine coming away from the pelvis on cutting the ureter.

The spleen showed appreciable enlargement in 29 cases (41 per cent.). Most writers seem to form too low an estimate of this feature. Milligan[9] reports enlargement of the lymphatic glands in this condition at autopsy in a very great number. I found the mesenteric glands enlarged and reddened in the majority.

Aortic atheroma was present in 15 cases (22 per cent.). In 5 cases (aged 13, 15, 20, 21, 25) atheroma was present, and the organs were firm. In one case, aged 13 years, the aorta was clear, and the organs did not show any undue firmness.

Though these cases are very few, they bear out the opinions of some authorities who state that in the majority of adolescents dying from acute infectious diseases there is a syphilitic basis. The positive evidence in these five cases is at least very suggestive.

Purulent bronchitis was present in the majority of cases coming to autopsy, thick creamy pus often being expressed from the bronchi with ease. This seems to invite further study. In view of its great frequency I would suggest the possibility of this being the primary site of the infection, with dissemination taking place therefrom.

Haemorrhages.

I have purposely left the consideration of the haemorrhagic tendency in this disease (as evidenced in the laboratory and *post-mortem* room) to the last.

I have already remarked on the great frequency of red blood corpuscles in the cerebro-spinal fluid—a condition which is unlikely to be always due to accidental causes or faulty technique, especially in view of the dexterity and perfection which those constantly performing lumbar puncture attain.

The occurrence, in 3 cases, of cerebral haemorrhage (capsular), in one of multiple small meningeal (subarachnoid) haemorrhages, and in many cases the presence of a general haemorrhagic condition of the base of the brain, give further evidence of this tendency.

I have referred above, also, to the frequency of petechial haemorrhages under the ependyma and the serous membranes. The purpuric skin condition is frequently seen *post mortem*, most often in fulminant and hyperacute cases. On two occasions multiple haemorrhages into lung tissue were seen, without apparent gross cause. In one case the intestinal canal was filled with blood clot. There was no lesion in the intestinal wall to account for this condition. Horder[8] states that small haemorrhages into the intestinal canal may be conspicuous especially in acute cases. This case, however, demonstrates the possibility of a large haemorrhage occurring. Recently, in two examinations conducted in fulminant cases, the presence of a haemorrhagic enlargement of the adrenals was noted, this being very conspicuous.

In two other cases (since July 1st) I have observed the same condition, apparently clearing up, the cases being of the acute type which usually ends in death after a few days. It would appear, therefore, that this is an early feature of fulminant, hyperacute, and acute cases. The occurrence in so many situations of haemorrhages is in accord with the existence of the purpuric rash which gave to the disease its name, spotted fever.

Conclusion.

In conclusion, I wish to add that I hope by the publication of these deductions to stimulate discussion, especially as to the points of importance in early diagnosis and their relation to treatment.

It will be seen that I have disagreed with some of the usual bacteriological findings. Though this may not meet with approval, I think such variations from what we at present regard to be the normal may prove to be much more common than formerly supposed, and may possibly help us to a better understanding and more efficient treatment of such a fatal disease.

My thanks are due to Lance-Corporal (now Staff Sergeant) Weir, Australian Imperial Force, who was detailed as my laboratory assistant, retaining that position and rendering me much valuable aid during six months out of the eleven months under review. I must also thank Drs. A. V. M. Anderson and G. T. Howard for their encouragement to continue a work the routine of which at times became very irksome.

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OBSERVATIONS ON THE TREATMENT OF CEREBRO-SPINAL FEVER.

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As a definite line of treatment in cerebro-spinal fever (meningococcal meningitis) is as yet not satisfactorily determined, methods of considerable diversity being still employed by different observers, any record of a number of consecutive cases treated by a particular method may be of some value in the ultimate elucidation of the best means to combat the disease. There is still much difference of opinion as to whether serum is or is not of any efficacy, whether cases are best treated by lumbar puncture alone, or if vaccines assist in contributing towards a successful issue.

The average mortality in epidemics of cerebro-spinal fever from 1904 to 1905 was 80 per cent.[1] In 1913 Flexner[2] published a summary of 1,294 cases treated with the serum bearing his name and yielding a mortality of only 30 per cent. Unfortunately, however, the cases occurring in this country from the end of 1914 onwards did not apparently show the good results with serum that were expected. In the cases occurring at Royal Naval dépôts (1914–15) the mortality of serum-treated cases was 64 per cent.,[3] but in many instances the serum treatment was not commenced until late in the disease, often the fourth to the seventh day, sometimes even later. The doses, also, in certain cases were quite inadequate. In the report of the Medical Research Committee[4] on cerebro-spinal fever (1916), the majority of reporters seemed unable to decide how much benefit accrued from serum and how much from the associated lumbar puncture. The average mortality appears to have been as high as 59 per cent. in the serum-treated cases mentioned in this report. More recently, however, F. W. Andrewes,[5] using Lister Institute serum (1916) on 11 consecutive cases, had a mortality of 4—that is, 36.36 per cent.; two of the fatal cases were under a year old.

On the other hand, Gaskell and Foster[1] treated 30 cases of cerebro-spinal fever by frequent lumbar puncture only; their mortality was 30 per cent. Morgan[6] in 1908 had a mortality of 44 per cent. in 18 cases treated in the same manner.

During 1915 vaccines were frequently employed concurrently with other methods of treatment. The few cases referred to by Rolleston[3] in which vaccine was used, many of which I had the opportunity of observing, gave an apparent mortality of only 25 per cent. Most of these cases, however, were well on the way to recovery before the vaccine was given; they were also, in addition to lumbar puncture, treated with either serum or soamin. Of other observers, Warren Crowe[4] considered that autogenous vaccines did good in influencing temperature.

He commenced with the very small dose of one million organisms, while Walker Hall[4] gave a polyvalent vaccine every two days in gradually increasing doses from 25 to 500 million, preferring it to serum. J. R. Collins[7] recommended starting with a half to one million organisms, and is of opinion that it does good, especially in chronic cases. T. J. Horder[8] also quotes a case of Garrod's in which vaccine certainly appeared to benefit a case running rather a prolonged course. Sophian[9] has further demonstrated antibodies in the blood of persons injected with vaccines. Among other authors there is considerable doubt existing as to the relative value of vaccines. My own experiences in 1915 left me with the distinct impression that vaccines were of material assistance once cases had passed the initial acute stage and were full worthy of a further trial. The series of cases here dealt with, therefore, have been treated by the combined method of serum administered intrathecally and vaccine subcutaneously.

The one fact on which the majority of observers are agreed is that the chemical substances hitherto employed—for example, soamin, protargol, lysol, etc.—are of no value in influencing the disease. Certainly this was my conclusion with regard to soamin in 1915. Recently Flexner and Amoss[10] have further shown that lysol and protargol have no effect upon meningitis in guinea pigs or monkeys, and moreover, being antiphagocytic, do more harm than good.

In estimating the value of any particular form of serum treatment it is essential to know the day of the disease on which the treatment was commenced, the exact dosage, and also the frequency with which the serum was given. It is unfair both to the serum and the physician to state in a statistical report that the mortality of serum-treated cases was such and such a number when the serum injection has not been commenced until the fifth or sixth day, the dose has varied from 5 c.cm. to 40 c.cm., and the frequency of administration from twice a day to once a week.

All observers emphasize the supreme importance of early treatment. All have found that the earlier treatment is begun the better are the results. In the present series of cases the following table illustrates this:

Day of Disease on which Treatment was Commenced.	Number of Cases.	Deaths.	Recoveries	Mortality.
First day	2	0	2	0
Second day ...	6	1	5	16.6 per cent.
Third day	6	3	3	50.0 ,,
Fourth day and after	2	1	1	50.0 ,,

When first performing lumbar puncture on a suspected case, if the fluid shows any turbidity, it is advisable to administer serum at once without waiting for the bacteriological examination. This, as far as possible, has invariably been my practice; valuable time is saved, and no harm can be done by the serum to a possible case of pneumococcal or tuberculous meningitis. A similar procedure was also followed by Pignot and Terrasse[11] at the French front with good results.

The serum used in my cases was the Lister Institute polyvalent serum (1916), prepared from the various strains of last year's epidemic. The summary of the treatment adopted is as follows: Serum is given at the earliest possible moment, as stated previously, without waiting for the bacteriological report. The initial dose is 30 c.cm. This amount is repeated daily until the clinical improvement is quite definite and undeniable; the bacteriological findings are inclined to be misleading if relied upon solely, as clinical symptoms are often well marked when organisms can neither be seen nor cultivated. The minimum period for continuance of serum is four days, thus covering the nearly apparent improvement so often seen on the second or third day. This practice is also strongly advised by Netter,[12] no matter how great the improvement may appear. The dose is always 30 c.cm., excepting when less than this amount of cerebro-spinal fluid can be obtained; in such a case the fluid withdrawn should exceed the amount of serum injected by at least 5 c.cm. When the clinical improvement is quite decided, serum may be omitted, lumbar puncture is then performed daily until the fluid is clear to the naked eye. Should there be any sign of the reappearance of symptoms, particularly mental relapse or increased turbidity of fluid, serum administration is recommenced and continued on the same lines. The amount of fluid withdrawn is always practically the maximum that can be obtained—that is, until it flows through the needle at about the rate of one drop in five seconds. I have never seen the slightest misadventure follow this evacuation, not only in the present series of cases, but in many others treated by various methods.

There is some difference of opinion concerning the advisability of a general anaesthetic for the performance of lumbar puncture. Horder, Robb, Gaskell, and Foster[1] regard anaesthesia as infinitely preferable. The latter authors give two reasons: (1) Necessary in delirium; (2) danger of breaking a needle. Having performed some hundreds of punctures in routine neurological work, including out-patient departments, I do not consider an anaesthetic at all necessary as a general rule. It is essential in tetanus, but in cerebro-spinal meningitis I have only used anaesthesia four or five times when the patients have been very violent. Provided one has an assistant with a thorough knowledge of the requisite position in which to hold the patient, the operation is performed without difficulty, always allowing moderate skill on the part of the operator. Two patients suspected of being mild cases of cerebro-spinal fever were admitted, having been punctured elsewhere under general anaesthesia. When the operation was performed without an anaesthetic, they stated afterwards that they much preferred it thus, not being troubled by the subsequent vomiting. Further, an anaesthetic requires two medical officers instead of one, it occupies more time, and when given daily there is a risk of its considerably interfering with feeding. As regards the second point mentioned above, that of breaking the needle, I can only say that, so far, I have had the good fortune to escape this calamity.

The serum is much better run in by the gravitation method than injected by means of a syringe. However slowly the serum is forced in with a syringe, there is a risk of respiratory failure occurring from a sudden increase of intracranial pressure. This I have seen occur, the patient only being brought round with extreme difficulty. In some 400 injections with a funnel and tube, including the administration of salvarsanized serum and tetanus antitoxin, I have never seen any indication of collapse or the slightest bad result. It seems unnecessary, therefore, to take the further precaution, advocated by Sophian,[9] of registering the blood pressure as an ocular guide to injection to gravity.

Method.

The following is a description of the technique employed. The upper end of an india-rubber tube about 18 in. long is attached to a small glass funnel, the lower end being secured to a tubular piece of metal with a prolongation which fits into the spinal needle. The barrel of an ordinary hypodermic syringe, provided it fits the lumbar needle, will serve for the lower attachment equally well. About three or four inches from the lower end a small piece of glass tubing interrupts the continuity of the rubber tube to act as "window," a metal clip being between this and the attachment fitting into the needle. Having sterilized the whole apparatus by boiling, the tube and part of the funnel is filled with sterile saline solution; the clip is then released, and the saline allowed to escape, in order to displace the air, until its upper level reaches the tube of the funnel. Serum warmed to body temperature is then poured into the funnel, and the clip again released until the serum, known by its yellow colour, is seen at the "window." Finally, the metal insertion is placed in the spinal needle, and the serum allowed to flow in.

If the patient is straining, the inflow may be very slow indeed and scarcely discernible; he may also complain of considerable pain and "cramp" in the legs caused by the sudden rise of pressure acting on the spinal nerve roots. When the needle was between the third and fourth lumbar vertebrae, the site most frequently indicated was down the front of the leg; the spasm was probably due to stimulation, by the inflowing serum, of the roots of the anterior crural nerve issuing from the third and fourth spinal foramina. On the other hand, when the puncture was made between the fourth and fifth vertebrae, pain was usually experienced in the back of the leg, and the hamstring muscles could be both seen and felt to twitch. This was evidently owing to pressure on the upper roots of the great sciatic nerve while on their way to the fourth and fifth foramina.

In the earlier cases a complaint of cramp was invariable. I found, however, that by directing the patient, when his mental condition permitted, to breathe deeply with a somewhat long inspiration and short expiration, the inflow of the serum was greatly accelerated and he ceased to complain of cramp and pain. On inspiration

there is a considerable lowering of pressure in the spinal canal, with a corresponding increase during expiration. During the long inspiration the serum flows extremely rapidly, but when the expiration is long and the inspiration short the serum scarcely moves. This can easily be observed by using a funnel with rather a long tubular lower end. When the upper level of the serum is in the tube the extremely rapid fall during inspiration can be watched, while the level remains almost stationary during expiration. The great diminution of pain and cramp was therefore due, no doubt, partly to the decreased pressure on the nerve roots and partly to the fact that the patient's mind was more or less concentrated on the breathing.

When the injection is completed the foot of the bed is raised on blocks for an hour to facilitate the upward flow of the serum. If any subsequent pain is complained of in the back or legs 10 to 15 grains of acetyl-salicylic acid usually gives relief.

Vaccines have been given in considerably larger doses than are usually employed. Thus 250 million organisms are injected subcutaneously at the time of the first dose of serum; vaccine is continued every fourth day, the second dose being 500 million and each of the subsequent doses increased by 500 million up to a maximum of 2,500 million. The last two doses have not always been necessary. The vaccine is preferably autogenous, but as this takes some time to obtain, an initial dose of 250 million polyvalent vaccine, prepared from strains of organisms of last year's epidemic, is given; autogenous vaccine is then commenced four days later. In some cases the polyvalent vaccine was continued throughout. If the reaction to a certain dose is at all pronounced—for example, a rise in temperature of 2° F., the same dose is repeated four days later, usually without a reaction following; the increase of 500 million is then made on the next occasion of administration.

The number of cases treated in the manner above described was 16; of these, 11 recovered (68.75 per cent.) and 5 died (31.25 per cent.). For general statistical purposes, of course, a far larger number of cases would be necessary definitely to establish the undoubted value of any particular method of treatment; the present contribution serves merely as a suggestion.

The total amount of serum given varied from 110 c.cm. to 600 c.cm. As shown previously the prognosis is better the earlier treatment is commenced. In common with other observers, I never noticed any sign of true anaphylaxis. Serum rashes, appearing from eight to twelve days after the initial injection, were seen in six patients, all of whom recovered. In one severe case, that of a bugler aged 15, serum was given during the first nine days of observation; a serum rash appeared eleven days after the first dose. Serum was resumed two days later and given for three days; after two further days a second rash appeared—that is, on the eighteenth day of observation and treatment. Serum was again started on the twenty-fourth day, but no further rashes occurred. The case developed left hemiplegia on about the fortieth day and eventually recovered, after a course of eighty days, with only some residual weakness of the left leg. In all, he received about 400 c.cm. of serum. Another case, a man aged 37, developed left lobar pneumonia on the fourteenth day of his illness, the meningitis having improved considerably; he also recovered, lumbar puncture and vaccine being continued during the course of the pneumonia. In four cases it was only necessary to give serum for four days; three of these were delirious and incontinent when admitted to the ward. In all four the cerebro-spinal fluid was quite clear on the ninth or tenth day.

In the remaining six cases which recovered, the amount of serum administered varied from 170 to 300 c.cm. per case. Complications were not frequent; in addition to the hemiplegia and pneumonia referred to above, optic neuritis, deafness of central origin, and *B. coli* pyuria occurred in different patients.

Cases in which the effect of vaccine was certainly beneficial were those which tended to run a somewhat long course. In one, a man aged 25, whose illness continued for forty-six days, the mental condition was almost normal after the first few days. Although general improvement was definite, the raised temperature persisted with slight morning remissions. The cerebro-spinal fluid also remained turbid, though no organisms could be seen or cultivated. In spite of frequent lumbar puncture this state continued, the temperature varying between normal and 102.6° F., until a dose of 2,000 million organisms was reached. Following this, the temperature did not rise above 100°; after 2,500 million, given four days later, the temperature fell to normal and remained so, excepting for a slight evening rise two days later. The cerebro-spinal fluid was quite clear within a week. In the case of the bugler, previously mentioned, vaccines also appeared of great assistance in bringing about recovery, as well as in another patient, aged 27, with a course of some twenty-eight days, who showed a tendency to become hydrocephalic.

No ill effect directly attributable to the vaccine was ever observed. In some cases the third or fourth dose was followed by a rise to 99°, the temperature having previously been normal for a day or two. Subsequent increased doses, however, failed to produce any appreciable rise in temperature or pulse-rate. In two patients a rise of 2° F. followed the injection of vaccine; repetition of the dose produced no observable reaction, and the usual increase given later was not followed by any well marked rise of temperature.

In one case which died from hydrocephalus on the twenty-ninth day of the disease, a dose of 1,500 million organisms (autogenous) was given on the morning of the eighteenth day, the temperature being 99° F. At 3 p.m. it had risen to 103° F., falling to 99° F. next morning; no other change was noticed. Although the temperature had been very irregular, and previous doses had failed to produce any similar rise, it was thought in this case it might possibly be due to the vaccine. The same quantity repeated four days later was not followed by any elevation but by a fall from 101° F. to 100° F. with no subsequent rise. A slight local reaction occurred in two cases with a dose of 1,500 million, but 2,000 million, given four days later, failed to produce a similar result. There was no instance of relapse in any of the cases once definite convalescence was established.

With regard to drugs, I have found sulphonal (in 25 gr. doses) most useful in promoting sleep; dilute hydrocyanic acid has proved beneficial in allaying mild vomiting. Morphine has never been withheld when necessary for restlessness or excessive sleeplessness in the early stages.

The importance of fresh air cannot be too strongly insisted upon. If the day was sufficiently warm, beds were taken out in the open air; the patients running a long course invariably seemed to benefit.

Of the five fatal cases, the first was a man of 60 years of age, probably one of the oldest recorded, who was found unconscious while waiting to report sick. He was thought to be suffering from cerebral haemorrhage and admitted to a general ward; it was not until the third day, therefore, that lumbar puncture revealed the true nature of the complaint; 30 c.cm. of serum was given and 250 million polyvalent vaccine. Next day he had improved sufficiently to answer questions, but was very deaf. Serum was continued daily in doses averaging 20 to 25 c.cm., as the amount of cerebro-spinal fluid obtained did not exceed 30 to 35 c.cm. While he was thus progressing quite satisfactorily, pneumonia of the right lower lobe unfortunately made its appearance on the eighth day, and, although by this time no meningococci could be found or cultivated from the slightly turbid fluid, the lung condition appeared to enable the meningitis, as it were, to take on a new lease of life, for organisms reappeared in the fluid on the eleventh day. When he died, on the fourteenth day of his illness, the pneumonic condition had practically cleared, but no fluid was obtained by lumbar puncture. The necropsy showed early hydrocephalus with acute purulent basi-meningitis; the lower lobe of the right lung was much congested but not consolidated.

The second fatal case had not been recognized until the second day, and on the following day, when treatment was commenced, only 20 c.cm. of fluid could be obtained; consequently only 15 c.cm. of serum were given. Numerous meningococci, chiefly extracellular, were present in the fluid. Next day no more than 22 c.cm. would flow, but 20 c.cm. of serum were run in. On the two ensuing days no fluid whatever could be obtained, although the canal was entered in different interspaces. He died on the ninth day, pronounced mental symptoms—delirium, incontinence, and hallucinations—having been present throughout. *Post mortem* the ventricles, including the third and fourth, were much distended with purulent fluid, and the pons and medulla were quite obscured by the extremely thick coating of pus. The amount of serum given in this case was necessarily very limited, the total only reaching 60 c.cm., which, in the absence of adequate drainage, could not be expected to yield a good result.

The third case was not received into the ward until the third day of illness. Numerous extracellular meningococci were found in the cerebro-spinal fluid; 30 c.cm. of serum were given on each of the first three days of treatment. The fluid drained off by lumbar puncture, however, gradually became increasingly purulent, and was obtained in diminishing quantities until

death on the ninth day. Very few meningococci were seen in the fluid on the eighth day and no growth was obtained; this fact illustrates the inadvisability of relying too much on the bacteriological findings as an indication of progress. In films of the exudate obtained from the base of the brain after death meningococci were abundant. The case was clearly one of the so-called suppurative type, no definite hydrocephalus being found. The total amount of serum administered was 170 c.cm.

The fourth case was a very acute form. He was admitted in a state of unconsciousness, with occasional delirium, and a well-marked petechial rash distributed all over the body, including even the face. The onset had occurred suddenly with headache and vomiting the day before admission. The fluid was crowded with meningococci. A petechial rash occurring at such an early stage is known to be of grave significance. The case, however, ran a course of thirty days, eventually dying from hydrocephalus. Meningococci were found in the cerebro-spinal fluid until the day of death in varying numbers, but no growth was obtained after the fifteenth day. He was given 30 c.cm. of serum on each of the first ten days of treatment (300 c.cm.), and his condition had improved—he was mentally clearer, answered questions fairly well, and incontinence had ceased. For four days serum was not given, lumbar puncture alone being performed; this always yielded 60 to 80 c.cm. As he became somewhat worse and meningococci were still seen in the fluid, he was given a further 150 c.cm. of serum during the next five days. Drowsiness and incontinence increased, however, and he became typically hydrocephalic. On the twenty-seventh day 80 c.cm. of cerebro-spinal fluid were obtained, but none on the last four days, the blockage evidently having become complete. He died on the thirty-first day of the disease. No symptoms referable to the serum were ever noticed.

The disease had been present in the last case four days before treatment was commenced. On admission he was somewhat excited, and although he answered questions it was clear that he did not realize that he was at all ill. Serum was given in 30 c.cm. doses daily, but delirium increased and he died on the tenth day in hospital (thirteenth day of the illness). The necropsy revealed moderate hydrocephalus, purulent exudate over the pons, medulla, and cerebellum, purulent fluid in the ventricles and some old fibro-caseous foci in the lungs.

In all the above cases vaccine was given as usual.

I have to acknowledge my indebtedness to Lieutenant A. M. Kennedy, R.A.M.C., Bacteriologist to the Royal Herbert Hospital, for bacteriological investigations and several autogenous vaccines; to Mr. Kenneth Goadby for other vaccines, and to Captain Isaac Jones, R.A.M.C., Officer in Charge of Medical Division, for much valuable help.

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Reports of Societies.

THE LINGUAL TONSIL AND PAROXYSMAL COUGH.

In his address as President of the Section of Laryngology of the Royal Society of Medicine, delivered on November 3rd, Mr. T. MARK HOVELL dwelt on the part played by enlargement of the lingual tonsil in the production of paroxysmal cough. He said that the tickling cough which was common after influenza, and might follow a simple cold or occur without known cause, was frequently due to enlargement of the lingual tonsil, the cough apparently being produced by the swollen tissue coming into contact with the epiglottis. A solution of chloride of zinc, 15 to 30 grains to the ounce, with a trace of dilute hydrochloric acid to dissolve the salt thoroughly, was in many cases sufficient to remove the trouble, but, as suggested by Mr. Morley Agar, the best remedy was trichloracetic acid, applied on a wool holder bent at a right angle, with only a very thin layer of wool attached to it, so as to ensure the quantity of acid being small. A mirror should be used so that the acid might be placed accurately on the swollen tissue. He related two cases, in one of which paroxysmal cough had been very troublesome for fifteen and in the other for seven years; in both the cough diminished as the swelling of the lingual tonsil decreased. He referred to his note (BRITISH MEDICAL JOURNAL, July 1st, 1916, p. 15) on the beneficial effects in whooping-cough of garlic, not a new remedy, as it was known to most old women and herbalists. Immediately after the publication of that note he had heard of an outbreak at a school, and at once communicated with the medical officer suggesting the use of garlic. The opinion of all the masters and both matrons was that it had an immediate beneficial effect in many cases, but on some it appeared to have no effect. The garlic was administered by peeling the segments of the root, called cloves, cutting them in thin slices, and wearing them beneath the sole of the feet between two pairs of socks; if worn next the skin the irritation of the juice caused sore feet. One of the masters mentioned that a boy who used to cough, previous to the administration of garlic, until he was "black in the face," after using garlic for two days no longer experienced extreme discomfort. Mr. Hovell said that he had recently seen two patients who had suffered from whooping cough in whom the cough persisted; in both the lingual tonsil was considerably enlarged, and in both the cough diminished as the swelling of the lingual tonsil subsided under the application of trichloracetic acid. If, as he conjectured, the violent paroxysms of coughing were the result of enlargement of the lingual tonsil, the terrors of whooping-cough ceased to exist, for without doubt the juice of garlic passed into the circulation in the raw condition through the skin destroyed the micro-organisms of whooping-cough, and if a strong astringent was applied to the swollen lingual tonsil, the source of irritation which produced the cough would be removed. It was probable that any strong astringent would produce the desired effect, and therefore tannic acid, silver nitrate, iron, zinc, or any other astringent, might prove sufficient; in all cases care must be taken to prevent the application from trickling into the larynx; a spasm could, however, quickly be dispelled if the patient could be induced to speak, "London" being a word which usually answered the purpose.

TREATMENT OF PLACENTA PRAEVIA.

A Correction.

PROFESSOR J. B. HELLIER writes calling attention to a printer's error in the report of the meeting of the Leeds and West Riding Medico-Chirurgical Society published in the last issue of the JOURNAL (p. 653). In the last sentence the words "the importance of not waiting" should read "the importance of waiting." We greatly regret that Professor Hellier should have been made to appear as an advocate of a line of practice which it was his special purpose to protest against.

Reviews.

DISEASES OF CHILDREN.

PREVENTIVE medicine and society now join hands in the laudable endeavour to save the lives of all children, so far as is possible. So many adults are dying at the war that the value of every infant's life, always high, is now higher than ever. The systematic study of the diseases and hygiene of infancy and childhood is accordingly more important to the student and the practitioner of medicine than ever before. With these considerations in view, Dr. DINGWALL FORDYCE of Edinburgh has written a brief manual of the *Diseases of Children*[1] that will be welcomed by many of those who are interested in the study and treatment of the ailments of these patients, which form, as the author points out, the bulk of general medical practice. The book contains forty-two chapters, and deals systematically with the disorders of infancy and childhood. The text is clearly written, full of dogma, and well illustrated. It abounds in practical directions for which the inexperienced will be grateful; at the same time, justice is done to the morbid anatomy and bacteriology of the diseases with which the author deals. Statistical tables and the rare types of children's ailments are wisely omitted. It is clear that the author has had great experience in the diseases of children—a fact that will be familiar to the many readers of his contributions to the pages of the BRITISH MEDICAL JOURNAL. His book may be

[1] *Diseases of Children.* By A. Dingwall Fordyce, M.D., M.B., Ch.B., F.R.C.P.E. The Edinburgh Medical Series. London: A. and C. Black, Ltd. 1916. (Post 8vo, pp. 506; 84 figures, 32 plates. 10s. 6d. net.)

warmly recommended to the attention of medical students and practitioners alike.

The third edition of Chapin and Pisek's *Diseases of Infants and Children*,[2] has been thoroughly revised and brought up to date. The authors have aimed at producing a work as compact as is consistent with thoroughness and completeness. They have succeeded in their endeavour; the book is full of medical detail, precise directions as to treatment are conspicuous by their number and fullness, and the illustrations are for the most part well chosen and well reproduced. The book is divided into forty-three chapters, arranged in seventeen sections; the arrangement is practical and well thought out. The word "ventrum" on page 26 we suppose to be Latin, and formed by false analogy from the word "dorsum" on page 27; it should be "venter." The book may be recommended as a sound account of the subject with which it deals.

NOTES ON BOOKS.

Dr. L. Spiegel's little book on *Chemical Constitution and Physiological Action*[3] has been translated by an American, and is now issued at a rather high price by Messrs. Constable and Co. The German original, always a disjointed and incomplete piece of writing, appeals to advanced students of chemistry only. The present edition appears in many ways out of date; for example, when referring to Fraenkel's monumental work on the subject, it quotes the second edition dated 1906. Here, one would think, the translators might with advantage have referred to the third edition, which came out in 1912. The book has no index, and is not free from misprints.

The primary virtue of a psychological author is lucidity. Mr. Dearborn does not possess it. Many of his sentences are involved and obscure, but his *Influence of Joy*[4] is nevertheless well worth reading. In it he insists that, in its effects upon the processes of digestion and assimilation, the circulation, the nervous system, and the reproductive functions, a joyous attitude towards life, which he believes to be within the province of volition, is in a high degree salutary. "Primitive gladness is," he urges, "not a stimulant, but a food to personality. . . . It is a reflex of the normal life-activity, and therefore an obligation." Mr. Dearborn writes as a man of science; his methods have nothing in common with those of "new-thought" cranks or "Christian Scientists."

[2] *Diseases of Infants and Children.* By H. D. Chapin, A.M., M.D., and G. R. Pisek, M.D., Sc.D. Third edition, revised. London: Baillière, Tindall, and Cox. 1916. (Roy. 8vo, pp. 597; 12 plates, 179 figures. 15s. net.)

[3] *Chemical Constitution and Physiological Action.* By Professor Dr L. Spiegel, Berlin. Translated, with Additions from the German, by C. Luedeking, Ph.D. Leipsic, and A. C. Boylston, A.M. Harvard. London: Constable and Co. 1915. (Post 8vo, pp. 159. 5s. net.)

[4] *The Influence of Joy.* By G. Van Ness Dearborn. Mind and Health Series, edited by H. Addington Bruce, A.M. London: W. Heinemann. 1916. (Pott 4to, pp. 241. 5s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Pure Casein.

We have received from Cascin Ltd., Culvert Works, Battersea, a sample of pure casein, described as "100 per cent. pure casein," which this firm is now producing to replace the special variety of German-made casein known as "Hammarsten casein" formerly supplied by E. Merck. Our analysis of the substance shows it to contain:

Real casein	84.7 per cent.
Moisture...	11.1 ,,
Mineral matter...	1.36 ,,

The colour and taste are excellent, while the above figures show that, apart from the moisture present, the sample consists of a very pure form of casein.

Aquaperia.

Aquaperia, a sample of which has been submitted to us by Camwal Ltd., is a natural mineral water obtained from a Harrogate spring, and is put forward as a substitute for German and Austrian waters of the type of Apenta and Hunyadi Janos. Our analysis shows 100 parts by volume of the water to contain:

Total solids	3.87 parts
Sulphuric acid	2.2 ,,
Chlorine	0.15 part

A small amount of bicarbonate is also present, while the principal metals are magnesium and sodium. The water is not unpleasant in taste, and appears to be quite suitable for use as an aperient water in place of the waters of enemy origin mentioned above.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

The autumn general meeting of the above association on November 11th, at Pagani's Restaurant, London, was attended by a large number of members, a considerable proportion of whom appeared in uniform. The chair was occupied by the President, Dr. R. Jocelyn Swan, who announced that as their valued colleague Dr. H. Macnaughton Jones, whose work for the association had placed them all under so great an obligation, had recently celebrated his "golden wedding," the council had prepared an address of congratulation, which, along with a more substantial proof of their affection, would be presented to him at the banquet that evening, at which he and Mrs. Jones would be the guests of the association.

At this gathering upwards of a hundred members and their friends (the latter including many ladies) sat down. The President, in proposing the health of the guest of the evening, said that during thirty-seven out of the thirty-eight years the association had been in existence, Dr. Macnaughton Jones had been continuously doing "spade work" for it, and had earned the gratitude of the thousand members, who had seen how he never spared himself if anything he could do would contribute to its success. On three occasions he had been elected President, and on the last year he held that position he presented the association with a costly and beautiful work of art which always ornamented their festive board. The members, in requesting him to accept the token of their regard and gratitude he was about to hand him, desired to express the hope that Mrs. Jones and he would be spared together to see many happy returns of their "golden wedding" day.

Dr. Macnaughton Jones, in thanking the association for the beautifully illuminated address handed to him by the President, said he would treasure it as one of his most valued heirlooms, coming as it did from those whom he was proud to recognize as worthy followers in the footsteps of the men who, when he joined the association in 1879, presented a galaxy of talent at the great gathering that year of the British Medical Association of which all Irishmen might well be proud. He rejoiced to know, too, that it was not only in professional skill that his countrymen were showing themselves worthy successors of the giants of those days, but also in devotion to the cause for which we were fighting at present. He quoted the statistics contained in the Roll of Honour presented by the President of the Royal College of Surgeons in Ireland, and given at page 703 of this issue. An equally gratifying return, Dr. Macnaughton Jones said, could be supplied of the numbers of old Queen's College, Cork, men and of the alumni of the other schools of medicine in Ireland who were now serving their King and country. In concluding an eloquent speech, Dr. Macnaughton Jones referred to the great comfort it had been to him during all his professional career to have had at his side one who had been a real helpmate and who now very warmly thanked them, through him, for associating her name with his in their good wishes apropos of their "golden wedding day."

He was greatly applauded on resuming his seat after reciting verses entitled "In Memory," which he had composed for the occasion, and of which the following are the last two stanzas:

No one can see the inmost soul
Or gauge the hidden force
That lies below the surface stream
To speed the current's course.

Could I but bare those depths to-night
Where lie the thoughts concealed
Of gratitude and love combined,
You'd see myself revealed.

The evening was enlivened by some very humorous songs and anecdotes by the Rev. Houston Collisson and by sentimental songs given by Mr. Harry Beaumont.

The British Fire Prevention Committee has issued a poster in Braille type containing directions as to simple precautions against fire for use in institutions for the blind.

British Medical Journal.

SATURDAY, NOVEMBER 18TH, 1916.

"TARRYING BY THE STUFF."

We are members one of another.
And whether one member suffer, all the members suffer with it; or one member be honoured, all the members rejoice with it.

THERE are few bodies which react more readily or are more sensitive to the good or evil state of its several members than the medical profession. If one achieve a good work, all share in the honour as well as in the added power for good that achievement brings, so also if one falls on evil ways or evil days each of us suffers in the ill repute and maybe also in the direct effects of that evil.

A host of our profession has gone forth to the battle and has done work for the country which all men know is good. They are our colleagues; if we share in their glory so also must we suffer with them if suffering there needs be. Some, alas! suffer the full trial of war, they do not return to us again. Some suffer wounds and sickness; they are again with us, but ill fitted for the stress of a doctor's life. Most return and will return in health, with the honour of work well done: let us see that on their return they find no cause for bitterness in a discovery that those who have "tarried by the stuff" have fared better than they who went out to the fight.

For those who return disabled by wounds or sickness the Officers' Branch of the Auxiliary R.A.M.C. Fund has been founded, and for it Dr. Collier of Oxford makes an eloquent appeal in a letter published at p. 703. We hope, and indeed have no doubt, that this appeal will meet with the most ample response, and that the first subscription list, appended to Dr. Collier's letter, showing a total of over £730 already subscribed, will be followed by others which will raise the amount to a sum which will place this branch of the fund on a secure basis.

But the profession has an obligation also towards those men who return to civil practice in good health, to find perchance the positions they have won seriously endangered. One of the most difficult and anxious tasks of the Central Medical War Committee and the local Medical War Committees throughout the country is to safeguard the practices and interests of those who are away on service. The central committee has issued a circular letter to all members of the profession, reprinted in the SUPPLEMENT for this week, which focuses the information gathered by that committee and by the local committees. The work of the local committees has been beyond all praise, and their members have worked and are working hard in the interests of their absent colleagues. But when all has been done, when forgetfulness, apathy, and the rarer purposeful neglect have been corrected, there must necessarily be a loss of value in the practices of the absentees, if only because there is no natural inflow of new patients to meet an equally natural loss of old ones; and the longer the term of service the more certain will be that loss. Whilst the man is away, though the loss may mean penals, his army pay helps to meet it, but on his return his financial position may be seriously embarrassed. All his old obligations—rent, establishment charges, insurance premiums, possibly interest on money borrowed to buy the practice—all will have to be met from a lessened income and with increased taxation. Yet he cannot easily quit his house for a smaller, since a move may mean the loss of his livelihood. Moreover, the dread of these obligations hangs like a millstone round the neck of not a few men, who, but for this, would long since have been in the army or navy; and the tale of these cases is growing in the experience of the war committees. The facts of irrefutable cases have been sent to the Central Medical War Committee, some even from small provincial towns, where, if anywhere, the bond between doctor and patient is stable. If in the countryside the bond be broken, how will it hold in London and the great cities, where the feeling of neighbourliness is weak?

To meet these hard cases is an obligation on us all. The younger men must be able to take their turn of service, and both they and those already in the field must be secure of their status on their return. It is a patriotic duty that the home-stayers must shoulder. The need has been recognized, and to a small extent, up to £104 and in a limited class of cases, met by the Government, but the provision made cannot fulfil the heavy obligations of our order. The profession has recognized the necessity, for by a unanimous vote of the Representative Meeting of the British Medical Association the Council of the Association was directed to consider the advisability of raising some fund to help medical practitioners taking service.

Investigations made by the Central Medical War Committee showed that, whilst there were admirable societies ready and willing to act as the almoners of the profession in helping the families of men on service and to care for the widow and orphan, there was no way of helping men in these financial matters on a business basis. They were left to have recourse to commercial banks and professional moneylenders. To meet these financial difficulties the Central Medical War Committee proposed that a fund should be created from which loans might be made to men leaving home for military service, or on their return home, and for a period sufficient to allow of the re-establishment of their position. At the last quarterly meeting of the Council of the British Medical Association a special committee was appointed to deal with the matter. Invitations were sent to several influential medical bodies asking them to take part in determining the character and in initiating the proposed Loan Fund. The new committee meets for the first time this week, and we hope to be in a position to give some account of its decisions and recommendations in an early issue.

THE MENINGOCOCCUS IN HEALTH AND DISEASE.

IT is at the end of the year that cerebro-spinal fever tends to become epidemic, and so it may be said that we are now entering upon the cerebro-spinal season. This lends special interest to the four papers on meningococcal meningitis printed in this number of the BRITISH MEDICAL JOURNAL, for now is the time to take stock of our defences. As is pointed out by Lieutenant-Colonel M. H. Gordon and Captain M. Flack, unwitting carriers of the meningococcus seem to be the chief factor in the spread of the disease. For every epidemic or endemic case of cerebro-spinal fever that occurs, several carriers will be found in the patient's immediate circle. Thus, among the persons brought into contact with the sixteen cases in a recent small epidemic of the fever, ninety-two carriers of the

meningococcus were detected by bacteriological examination of swabs from the nasopharynx. In all outbreaks hitherto investigated the carriers have been found greatly to outnumber the cases, and the problem of the treatment of these carriers has long been crying out for solution. It is true that sooner or later spontaneous cure is the rule, while a few of the carriers solve this problem for themselves by becoming cases of cerebro-spinal fever. Thus the instance is quoted of a man who was found on examination to be carrying in his nasopharynx the same strain—Type I—of meningococcus as the patient with whom he had been in contact. The man was isolated as a carrier, and for six weeks was apparently quite well in spite of persistence of the meningococcal infection of his nasopharynx. He then developed cerebro-spinal fever, and the Type I meningococcus was cultivated from his cerebro-spinal fluid. After a severe attack of the disease this man recovered, but for five weeks he continued to carry the same meningococcus in his nasopharynx before he could be discharged to a convalescent home as free from infection.

What is to be done with detected carriers of the meningococcus who do not develop the disease? On *a priori* grounds one would say that some form of local disinfection should prove effective, for the reason that the meningococcus is one of the least resistant of all pathogenic bacteria to disinfectants, and is rapidly destroyed by some of the mildest of these bactericidal agents in concentrations easily tolerated by the mucous membrane of the nasopharynx. Experience has shown, however, that the effective application of such disinfectants to all parts of the nasopharynx and its recesses is, in practice, a matter of the utmost difficulty. To secure a great but temporary reduction in the number of the meningococci present is easy; their complete extermination, the only cure for the carrier, has hitherto been found impracticable. Lieutenant-Colonel Gordon and Captain Flack have now, with the assistance of Lieutenant E. Gordon, R.E.(T.), devised an apparatus for the disinfection of the nasopharynx that gives most promising results in the case of meningococcal carriers. It produces an atmosphere heavily laden with minute droplets of antiseptic solution. The carrier is introduced into this atmosphere, and is made to inhale it vigorously through his nose for fifteen or twenty minutes a day. The best of the antiseptics employed was a 2 per cent. solution of Dr. Dakin's chloramine-T; this was found to give better results than either eusol solution, which proved more irritating and less efficient, or a 1.2 per cent. solution of zinc sulphate. It is essential in this disinfecting treatment that the patient should co-operate by inhaling the antiseptic spray through his nostrils with vigour and persistence. The results obtained show that a large proportion of the chronic meningococcus carriers, who are indeed a real but often unrecognized source of danger to the community, can be definitely freed from the meningococcus by the spray treatment in a comparatively short time. Some evidence was also obtained to show that the droplets of chloramine solution might penetrate far into the air passages, a point of interest to those who have to treat patients with such refractory diseases of the lungs as chronic or putrid bronchitis and bronchiectasis.

The experimental study of the cultural requirements of the meningococcus that follows the paper already mentioned gives an account of the way in which "trypagar," a stock medium suitable for the growth of the meningococcus, came into being. It is a 2½ per cent. agar jelly in trypsinized broth, with the addition of 5 per cent. of extract of peaflour, the whole being made neutral to phenolphthalein. Having many advantages, it has the defect of not encouraging the vitality of the meningococcus, which does not, as a rule, survive more than forty-eight hours on trypagar. Captain Flack is of the opinion that the value of the peaflour in this medium is that it contributes to it an extractive of the nature of a vitamine. The difficulties in the way of preparing a standard medium for the growth of the meningococcus are clearly great, and Dr. Denehy emphasizes the further difficulties met with in standardizing the cultural and bacteriological characteristics of the microbe itself, a variable organism with a marked tendency to degenerate into disputable types, and highly sensitive to variations in its environment.

The treatment of cerebro-spinal meningitis in different hands varies as widely as its bacteriology; Captain Worster-Drought, R.A.M.C.(T.C.), gives an instructive discussion of the varieties of opinion that have been expressed in this connexion. Vaccines, antiseptic injections, repeated lumbar puncture, and antiserums have all had their advocates and their detractors. As to the value of repeated lumbar punctures in cerebro-spinal fever there seems to be little doubt; a point of interest for practitioners is Captain Worster-Drought's statement that he does not consider the administration of a general anaesthetic before the puncture at all necessary as a general rule. He holds that vaccine treatment is of distinct value in cases that have passed the initial acute stage of the disease, and he combines it with the early administration of antimeningococcal serum intrathecally, emphasizing the great importance of beginning treatment at the earliest possible moment.

Perusal of the four papers mentioned shows the considerable advances that have been made recently in the diagnosis, treatment, and prevention of cerebro-spinal fever. We still have much to learn in these departments of medical science, but it is satisfactory to reflect that the general dissemination of the disease throughout this country during the last two years, due indirectly to the war, has led to such material progress in our knowledge of it as is indicated elsewhere in this issue of the British Medical Journal. When the cerebro-spinal fever season does begin we may hope not to be caught wholly unprepared.

MEDICINE, MAGIC, AND RELIGION.

The second course of FitzPatrick lectures given this week by Dr. W. H. R. Rivers before the Royal College of Physicians formed a continuation of the course he gave last year. He has dealt with the relations between medicine, magic, and religion from the historical and evolutionary points of view. These relations were used as a means of illustrating the problems which arise when an attempt is made to decide whether the similarities of medical practice found in different parts of the earth have arisen independently or are the result of transmission from one place to another. It was shown that, side by side with the measures which bring medicine into close relations with magic and religion, there are others which correspond to our own domestic remedies, and it is in this branch of the medical art that similar practices are especially apt to occur. According to the hypothesis of independent origin, these widespread remedies should have grown out of a body of beliefs and sentiments common to mankind. The fact that these remedies stand apart, and seem to have no direct relation to the magical and religious atmosphere which dominates the lives of peoples of rude

culture forms a great difficulty for the advocates of independent origin. In the second lecture the subject was illustrated by means of blood-letting, massage, vapour baths, and circumcision. Various features of these practices were considered in their relation to the controversy between the advocates of independent origin and transmission. Especial attention was paid to the modification of custom which often takes place when a medical practice is introduced into a new home. It was suggested that the modification may sometimes be so great as wholly to disguise the original therapeutical character of the practice. In conclusion, it was pointed out that modern progress in medicine, especially in the domain of psycho-therapeutics, is leading us to a condition in which medicine stands in that close relation to religion and other departments of social life which is found in the earlier phases of social evolution. It was held that the increasing specialization which is generally supposed to be characteristic of evolution has its limits, and that the present condition of medicine illustrates the nature of this limitation.

THE STATUS OF THE RADIOLOGIST.

Dr. THURSTAN HOLLAND, the new President of the Röntgen Society, devoted the annual address, at the meeting of the society on November 7th, to discussing the status of the radiologist. He said that as a result of *x*-ray work being carried out by unskilled and untrained operators a number of cases of burning had occurred both among wounded soldiers who were under examination and among the operators themselves. Mistakes in interpretation and localization had also occurred, and he instanced a case under his notice of a soldier, brought home from the East on a hospital ship, having on the front of his chest the marks of an operation wound, with an incision over the region of the heart 4 in. in length. The bullet, for the removal of which this fruitless operation was performed, was subsequently located 1½ to 2 in. deep in the muscles of the back. The fact was that a very fine *x*-ray apparatus had been installed on the ship, but no one knew how to use it. There were grounds to fear that one result of the war would be that a large number of non-medical men and women, having obtained a certain amount of knowledge of radiography, would be considered by many medical men fit to undertake the *x*-ray examination of medical and surgical cases. Whatever might have been desirable or even inevitable in the early days of *x*-ray work, it was no longer the case that accomplishment in photographic technique was sufficient to make a man a good *x*-ray worker; anybody could get a good negative with the use of modern apparatus; the important thing was the interpretation, which could only be carried out by a medical man, and even he should have unusual professional attainments. There was a distinct tendency among certain surgeons and physicians to send their *x*-ray work to unqualified people, and to his certain knowledge this was done by eminent members of the medical profession. As to the position of the lay assistant, Dr. Holland insisted that no opinion on matters of diagnosis should be given by him; he should not be permitted to undertake the screening of deep parts; no *x* ray or electrical treatment should be carried out on his initiative, and the medical head of the department should keep a tight hand all round. He believed the *x*-ray department to be the most important single department in the hospital, and yet it often happened that the charge of this department was given over to any one who would take it, and sometimes to men who, in the opinion of the authorities, were not considered quite good enough for other hospital posts. He knew of one large provincial hospital in which the brilliant chief of the *x*-ray department—a man whose name was well known for original work all over the world—was recommended for promotion to a staff appointment by the lay committee. This was opposed tooth and nail by a member of the medical board, who even went the length of insisting that instead of making this man a full member of the staff, they should make one of the ordinary physicians or surgeons the titular head of the *x*-ray department. Dr. Holland concluded by pleading for a recognized place for radiology and electrotherapeutics, not only in the hospitals, but also in the universities and medical schools. A course of study in this subject should be made a part of every medical student's curriculum; there should also be facilities for post-graduate instruction, and the teachers should have a proper status.

ENTOMOLOGY AT SALONICA.

A LECTURE on the medical entomology of Salonica, delivered before the Salonica Medical Society last May by Lieutenant-Colonel Andrew Balfour, C.M.G., R.A.M.C., has been printed by the Wellcome Bureau of Scientific Research (10, Henrietta Street, London, W.), which will supply copies to members of the military sanitary services. The insects discussed included flies, mosquitos, lice, fleas, the itch mite, and some others. Special attention was directed to the work of Lieutenant-Colonel Wenyon and Captain O'Connor, R.A.M.C., in Alexandria, touching the relation of flies, including *Musca domestica* and *Fannia canicularis*, the little house-fly or latrine fly, and the green and blue-bottle flies, to amoebic dysentery. They had shown what happened when these flies take up the cysts of *Entamoeba histolytica*. The cysts, transparent capsules with four nuclei, were passed in large numbers in the faeces of patients or convalescents suffering from untreated or improperly treated dysentery. It was found that within twenty or thirty minutes of feeding on human faeces, and in some cases even five minutes after such a feed, flies began to deposit droplets of liquid faeces, and in these the unaltered and living cysts could be seen if the faeces on which the fly has been feeding contained them in the first instance. Within a few hours thousands of cysts might pass through a single fly, and if it visited food they were deposited on it, and the way made easy for a dysenteric attack. It seemed unlikely that the cysts were carried on the outside of the fly, for flies cleaned themselves after feeding, and if any foul matter remained the cysts died when it dried. Dysentery bacilli had been recovered from flies two or three days after their absorption by the insects. Dr. Balfour added that 500 flies could breed out from a single deposit of human faeces, and 4,000 could emerge from one-sixth of a cubic foot of sewage trench ground. Horse manure, if left alone during the warm months, even in a temperate climate, might yield an average of from 10,000 to 12,000 flies a cubic metre, and thus one horse might be responsible for from 40,000 to 50,000 flies a month. Of the green and blue-bottle, or blow-flies, he said that though they were excellent scavengers they did not confine themselves to filth, and must therefore be exterminated. Speaking of the mosquitos, he said that the Stegomyia was probably not to be reckoned among the mosquitos of Greece, but it was an excellent traveller, and might readily find its way to Salonica from Egypt and elsewhere on board ships. It was, of course, the carrier of yellow fever, but might also be the carrier of the unknown organism of that obscure form of jaundice known as Mediterranean yellow fever, which is endemic at Smyrna and elsewhere along the eastern Mediterranean. All three of the common Anopheles mosquitos in Greece were known malarial carriers. Speaking of the drainage operations which were carried out to keep the mosquito pest down, Dr. Balfour said that he had not seen such extensive work since he had witnessed the colossal work of the Americans in the Panama Canal zone. As to the flight of mosquitos he related an ingenious experiment made at Panama with plates of glass smeared with tanglefoot, which gave a transparent surface. It was found that there was a return flight, and that the mosquitos, which were usually

adult females, flew much higher and more swiftly in the morning than at night. Anophelines might travel as far as a mile, and a favouring breeze might waft them considerable distances, especially if there were shelter on the way. The irritation following a mosquito bite was due, he said, to the entrance into the little wound of a fungus derived from the œsophageal diverticula; it was not due to the secretion from the salivary glands which harboured the sporozoites of the malarial plasmodium. A description was also given of the phlebotomus fly, whose body was only about a quarter the size of the head of an ordinary pin, so that in spite of its long wings and long legs it was not easy to see, and still more difficult to catch. It had recently been shown that it could easily be transported in timber and other cargo by sea-going vessels, and a single fly could infect a man with the unknown virus of sand-fly or three days fever. Of the louse, after mentioning that a female, during the six weeks of her life, could produce 8,000 young, he said that it had now been shown that it was only capable of transmitting the disease five days after it had fed from infected blood, and that it could then transmit infection for two days. According to Nicolle, the faeces of lice were infective after nine or ten days, and it was known that the virus was exalted in virulence by its sojourn in the louse. Dr. Balfour concluded his lecture by paying a compliment to the scarab beetle, a diligent, ingenious, and useful scavenger. The pamphlet in which the lecture is reproduced is well illustrated by instructive drawings made by Mr. E. Schwarz, of the Wellcome Bureau.

THE COST OF DRUGS IN GERMANY.

Professor H. Führer,[1] Director of the Pharmacological Institute of the University of Königsberg, has attempted to show that Germany is paying less for her drugs than England, even in the case of drugs which Germany has to import. Thus, balsam of Peru and quinine were in April, 1916, cheaper in Germany than in England, the cost for the former being 54 marks a kilogram in England and 42 marks in Germany. The difference in the case of quinine was still greater, the figures for England and Germany being 180 and 94 marks respectively. Up to 1916 the price of chloroform and ether, of the grade required for anaesthetics, remained at the pre-war level; and, thanks to the maintenance of the communications between Germany and Turkey, opium in April, 1916, cost 60 marks a kilogram in Germany, whereas in England it cost 82. The comparative figures for aceto-salicylic acid in England and Germany were 117 and 7.2. Although iodine was mainly an imported drug, its price was no higher than before, and the same was true of potassium iodide. There was, however, an embarrassing shortage of all fats, and the cod-liver oil of Norway and the lard of North America showed a great rise in price. Paraffin and vaseline were four times as costly as before, and no cheap base for ointments was procurable. The lack of cotton-wool was embarrassing. But, in spite of the shortage and costliness of many drugs, Professor Führer emphatically opposed the suggestion that drugless days should, as had been suggested, be established in Germany. In calculating the above prices, Professor Führer has, no doubt, taken into account the relative depreciation in value which the German mark has suffered compared with the English shilling. It may be noted that the prices of many of the drugs mentioned in the article have fallen very considerably in the English market since April last, this being especially the case with drugs formerly manufactured exclusively in Germany. For instance, the price of aceto-salicylic acid has fallen to about one-half and of salicylic acid to one-third during the last six months.

[1] *Deut. med. Woch.*, June 22nd, 1916.

THE CANADIAN ARMY MEDICAL CORPS.

About a month ago a letter was published by Lady Drummond very strongly deprecating the policy which she implied was being adopted by the Canadian authorities of segregating the Canadian wounded in special Canadian hospitals in this country. Lady Drummond's objection was made on what she herself called sentimental grounds, her desire being that Canadians should mix in the hospitals with men from all parts of the empire who were fighting for it. Other letters from other Canadian ladies, also interested in Canadian Red Cross work, seemed to show that this desire was very general. It is certainly the desire in this country, where people have been glad to see Canadian soldiers in hospitals maintained by the War Office, and English, Scottish, and Irish soldiers in hospitals maintained by the Canadian authorities. We know that the same feeling prevails in the British Expeditionary Force in France among the officers both of the Canadian and of the Royal Army Medical Corps, and we are certain that it is shared by at least a very large majority of the Canadian wounded themselves. Apart from sentimental considerations, the segregation of Canadian wounded down to the time of the beginning of their convalescence would present great administrative difficulties, and most certainly would not, from the surgical point of view, be to the advantage of the wounded man himself. The feeling of uneasiness expressed in Lady Drummond's letter arose during a visit to this country of Major-General Sir Samuel Hughes, Canadian Minister of Militia. According to a Reuter's telegram, Sir Samuel Hughes, in an address to the Empire Club at Toronto on November 10th, made, "advisedly and on his own responsibility," certain charges against British army administration of a somewhat comprehensive kind, such as that the equipment, transport, and arms of the Canadian troops were scrapped by British officers to be replaced by other material not so good. With this charge others must deal; all that need here be said is that it would be well for people at home to reserve judgement until the other side of the case has been stated. The allegations that concern us are that "thousands of Canadians had lost months, and sometimes a year, in hospital not under Canadian control, when they should have been back in the trenches, and that Canadian soldiers were allowed to go under the knife of first-year medical men while the services of experienced surgeons from the Dominion were not being utilized." We are not in a position to say that no Canadian soldier has remained in hospital longer than was necessary; nor can we assert that some of them may not have been treated by newly qualified men. But Sir Sam Hughes's statement does not give a true picture of what has been happening—in fact, it gives an utterly false picture. The services of experienced surgeons from the Dominion have been utilized, and are being utilized, and have been given as freely to soldiers from other parts of the empire as to Canadians. We affirm with confidence that the battalion medical work of the Canadian Army Medical Corps in France is very good, as is also the field ambulance work; that they have some of the best casualty clearing stations serving in France, and that their base hospitals are very progressive. This last word really goes to the root of the matter. Canadian surgeons serving with the Canadian contingent have had the experience of two years of war surgery, and some of them have had experience in former wars. They know that this war is unlike other wars, and that the surgery of this war therefore differs from the surgery of other wars. Any surgeon, British or French, would say the same. All the surgeons of all the allied countries have been learning, and, like their Canadian brethren, they are not prepared to accept the criticisms of surgeons who, however large their civilian practice may have been, have had no experience of the conditions of this war. It is announced

from Ottawa that the Prime Minister of Canada has asked for the resignation of Sir Sam Hughes as Minister of Militia, and that it has been tendered. But we hope that his allegations will be thoroughly sifted and the value of the evidence on which they were founded ascertained, and that meanwhile no further steps may be taken which would have the effect of disturbing the organization which has worked so well for the benefit, not only of Canadian soldiers, but for those from all parts of the British empire.

MILITARY MEDICAL ARCHIVES.

A REQUEST has been received from the Director of the War Library of the French Army Medical School at Val de Grâce, near Paris, for a set of copies of the BRITISH MEDICAL JOURNAL issued since the commencement of the war. It has been possible to comply with this request with the exception of the issue of February 13th, 1915, which has long been out of print. If any member happens to have preserved this number and does not wish to file it we shall be glad to receive it for transmission to Val de Grâce. The library forms part of a very fine collection of objects of medical and scientific interest relating to the war which is being arranged in the Medical Museum at Val de Grâce. One of its sections is the library to which we have referred; the books and papers so far collected there are mainly French, but the Director is anxious to get together an English selection. The library is intended to include reports, documents, and reprints relative to the medicine, surgery, and hygiene of war, and although it was only established four months ago it already contains an important collection of such documents.

Medical Notes in Parliament.

The New Pensions Board.

A BILL to establish a Board of Pensions was introduced by Mr. A. Henderson into the House of Commons on November 14th, and read a first time. The object of the measure, he said, was to consolidate the pension administration and to simplify the procedure by forming a new Government department, to be named the Board of Pensions. It would consist of a president (himself) and three members—namely, the Parliamentary Secretary to the Admiralty, the Financial Secretary to the War Office, and the Parliamentary Secretary to the Local Government Board. The navy was not included, except in so far as supplementation was concerned. The new Board would not take over the army service and pay pensions or separation allowances; they numbered 2,500,000, and would expire on the termination of the war. It was thought that to upset existing arrangements for a temporary period would be a mistake. At present there was overlapping, and irritating delays occurred, so that there was a growing want of confidence in the present method of dealing with the pension question. The work was very large. In January, 1916, the departments concerned dealt with 27,551 cases, involving 77,824 letters; in October last the number of cases was 79,558, involving 705,277 letters, and it was estimated that by March next the number of cases would be 146,244, involving 378,500 letters. The staff at present engaged in the work numbered 1,952.

The bill proposed to transfer to the new board the powers of the Commissioners of the Royal Hospital for soldiers at Chelsea with respect to the grant and administration of a disability pension other than an "in pension"; of the Army Council and Secretary for War with respect to pensions and grants to persons who have been officers or soldiers, and to their dependants other than service pensions; and of the Statutory Committee under the Naval and Military Pensions Act, 1915, so far as they related to the supplementation of pensions and grants administered by the Board of Pensions, except the power to supplement such pensions and grants out of funds not derived from moneys provided by Parliament. In other words, the Statutory Committee retained its powers practically untouched, except so far as what it had done in supplementation.

He acknowledged the force of the contentions that the problem of the disabled soldier went much deeper than the matter of a pension, and that a satisfactory and permanent solution could only be found by comprehensive handling of the whole problem, of which the pension formed only a part, and in the judgement of many not the most important part. He was fully convinced of the importance of co-ordinating, as far as possible, cure, after-care, training, employment, and pensions. If all this could be brought together and administered under one roof with one controlling head, the different sections of the work would have been developed on the lines most conducive to the efficient solution of the whole problem. But the Government had been reluctantly forced to the conclusion that in the present circumstances it would be most difficult to secure. Apart from practical difficulties relating to the magnitude of the work and the difficulty of securing a trained staff sufficient for the purpose, there were other considerations. There was no small amount of expert opinion in favour of cure, after-care, and training taking place before the soldier's discharge, during the period of military discipline. If this policy were adopted, and in his opinion there was much to be said in its favour, a strong case could be made out for close co-ordination between pensions and employment. Experience went to prove that only when a pension had been permanently fixed and guaranteed to the soldier was the soldier, speaking generally, prepared to take kindly to training. The soldier was not prepared to allow either the State or the employer to take any advantage of him if either felt so disposed.

Mr. Henderson defined the future relations between the Statutory Pensions Committee and the Board of Pensions by stating that the Statutory Committee would retain the power to supplement separation allowances, service pensions, and pensions to officers' widows so far as these pensions were determined by service. This form of supplementation could be done either from private funds or from the public funds promised by the Treasury; either the whole or part of that money would be continued at the disposal of the Statutory Committee. It would also have power to supplement out of private funds disability pensions to officers and men and grants to widows, children, and other dependants of men, and pensions to officers' widows. The powers remaining with the Statutory Committee would comprise power to make advances on account of pensions, grants, or allowances; power to administer voluntary funds; power to make provision for the care of disabled officers and men after they had left the service, including provision for their health, for their training, and for securing them in employment.

So soon as questions of principle and policy had been properly co-ordinated, the more the work could be decentralized, the more it could be done through properly constituted and thoroughly representative committees, the more thorough would it be. There were some 300 local committees already in existence, and he believed that satisfactory arrangements could be made whereby the position of these committees would be further improved.

With regard to scales of payment, he said that he was by no means satisfied with the Royal Warrants by which they were determined, and this matter would receive the earliest attention once the new department was set up. In reply to Mr. Ellis Griffith, who said that when a disabled man first went to Chelsea the Commissioners determined his earning capacity and settled his pension for a certain time, and that when he came up again he was asked what he had earned and his pension was readjusted, Mr. Henderson said that it had been determined to scrap that system and to issue a new warrant which would set the matter right.

War.

Mesopotamia: Medical Equipment.—Sir J. Jardine, on November 9th, suggested that the War Secretary should telegraph to the general officer commanding in Mesopotamia to ask whether all the units under his command had a sufficient supply of water packhals and water carts, and of transport animals for the same, and whether the chlorinated plant and raw material were sufficient. The Financial Secretary to the War Office said that he thought the officer in command might be trusted to ask for anything

which he considered deficient in the respects mentioned. That was what he was there for and what it was certain he was doing. In reply to a further question Mr. Forster said that there were 168 nurses in Mesopotamia, stationed partly at Basra and partly at Amara. In reply to Sir D. Goddard, who asked whether a number of cases of scurvy had occurred, and whether on one hospital ship no less than 90 per cent. of the sick sent to Bombay were suffering from it, Mr. Forster said that there had been scurvy but it had been confined to the Indian troops in Mesopotamia. The medical authorities there had taken the necessary measures to deal with it.

Emoluments of Officers, R.A.M.C.—Mr. Barlow asked whether there was a uniform rate of pay for all medical practitioners now holding commissions of equal rank in the R.A.M.C., and whether doctors coming within the Military Service Act received less than those who came within the enrolment scheme. The Financial Secretary to the War Office said: "There are two forms of temporary commission in the Royal Army Medical Corps. Before the Military Service Act came into operation medical men joined the army either under a special contract or through the Special Reserve. Since the Act came into force all medical men who have not enrolled with the Central Medical War Committee and are compelled to serve are taken into the Special Reserve. The pay of the Special Reserve is lower than that received under the contract, but when the gratuities given on cessation of employment are taken into consideration there is little difference in the emoluments."

Army Dental Treatment.—In a written answer on November 9th the Financial Secretary to the War Office stated that civilian dentists are employed at stations where there are not sufficient troops to keep a whole-time dentist.

Boots for Disabled Men.—Mr. Forster has informed Mr. Snowden that disabled soldiers who need surgical boots can obtain a new pair when necessary by applying to Chelsea (presumably to the Commissioners of Chelsea Hospital).

Bread Prices.—Several questions have been asked recently with regard to the price of bread. The President of the Board of Trade stated, on November 8th, that the price of 4 lb. of household bread on November 6th was 10d. and 10½d. in London, 7d. in Paris, and 1s. 4d. in New York. The price in Petrograd of rye bread, which was the kind most commonly consumed in that city, was 4½d., and of wheaten bread 8½d., taking the rate of exchange at par, or 6¾d. and 1s. 1d. at the present rate of exchange. It was to be understood that these comparisons were subject to the qualification that there was no international standard quality. On November 9th the Parliamentary Secretary said that the increase in the price of bread in London appeared to be due mainly to the recent increases in the price of flour following on the rise in wheat prices. It was not possible to give a comparison between the prices in London and in Berlin, which would not be seriously misleading. Prices in Berlin were officially fixed maxima, at which very limited rations were obtainable; moreover, the bread obtainable in Berlin was war bread, composed mainly of coarsely-milled rye flour, potato preparations, and a small proportion of wheaten flour only. On the same day the Financial Secretary to the War Office said that the cost of baked bread supplied to the army, calculated on the cost of army flour and of baking by contract, was about 2d. a pound. When it was baked in field bakeries the cost was slightly less.

Medical Research Committee.—In a written reply to Sir George Greenwood, Mr. Roberts, Chairman of the Joint Committee of Insurance Commissions, stated (November 8th) that the total sum paid out in the financial year ending March 31st, 1916, under the regulations, out of the moneys standing to the credit of the Medical Research Fund, was £53,375 18s. 7d. It would not be possible to keep distinct the sum expended on research by experiments on living animals from those expended on research by other means. In reply to further questions, he said that full reports of the work carried out by the Committee were presented to Parliament and published. The investigations carried out by Dr. Flack as to the effect of various poisonous gases were of an urgent nature, and the results were of great value to the civil population, and to insured persons in particular.

Petrol.—The Parliamentary Secretary to the Board of Trade stated, on November 9th, that the steps which had been taken with regard to the supply of petrol had resulted in a considerable improvement in the position, but it was still of importance that users of petrol should endeavour to restrict their consumption to the utmost extent possible.

Cocaine Committee.—The Home Secretary stated on November 14th that he had appointed a committee consisting of the Right Hon. Charles Hobhouse, M.P. (chairman), Mr. Stanley Baldwin, M.P., Professor W. M. Bayliss, F.R.S., Mr. James O'Grady, M.P., and His Honour Judge Ruegg, "to consider the authorizations granted for the use of cocaine in dentistry, and to advise whether or not they should be continued or modified, and, if continued, in what cases and with what conditions."

THE WAR.

MESOPOTAMIA DISPATCH.

A FURTHER dispatch from Lieutenant-Colonel Sir Percy Lake, commanding the Indian Expeditionary Force in Mesopotamia, was published in the *London Gazette* of November 14th. It deals with the period from April 30th, 1916, where his last dispatch, analysed in the JOURNAL of October 21st, p. 567, ended, to August, when he relinquished the command to General Maude.

The dispatch states that during the hot season, which was drawing to a close in August, the business of administration and the work of preparation for more active measures during the cold weather assumed relatively great importance.

The Turks retreated from the Sinn to the river Hai, where they left rearguards to cover the bridge. They retained the Sannaiyat position, and were thus able to prevent the passage of our supply ships up the river, the troops operating on the other bank towards the Hai having to depend for food, forage, and even in some cases water, upon land transport. The Turks had constructed other lines behind the Sannaiyat position on the left bank, and on the right bank their outposts reached the Hai river, which was then fordable. The dispatch contains the following further paragraphs:

In my previous dispatch I alluded to the difficulties against which the Medical Services had to contend.

Much thought and hard work have been devoted to overcoming these difficulties and meeting the medical needs of the force. The advance made in meeting the medical needs of the force is clearly shown by the fact that the total accommodation for sick and wounded in Mesopotamia, which on January 21st (exclusive of Kut) was 4,700 beds, and by May 13th had risen to 9,425, amounted on July 1st to 15,745, with 2,700 more in process of organization.

The advent of the hot weather early in May, with a sudden rise in the temperature, increased the number of sick rapidly. The intense heat was aggravated at the front by the total absence of shade and by the failure of the "shamal" or north wind, which, usually due about the middle of June, did not commence to blow till July 19th. The admissions to hospital then at once lessened, and are still decreasing. The majority of the cases are not serious.

An outbreak of cholera occurred at the Tigris front at the end of April, but was got under control in the course of a short time, since when only a small number of isolated cases are reported from time to time from various parts of the country.

I am much indebted to Surgeon-General F. H. Treherne for the valuable assistance he has consistently rendered since his arrival in the country; also to Colonel W. H. Willcox, consulting physician, whose high professional knowledge has always been at the service of the force. Much credit is due to the nursing sisters, who have carried out their duties with great devotion and have shown untiring zeal and energy in alleviating the sufferings of those who have passed through their hands.

By the untimely death of Colonel Sir V. Horsley, both the force and the medical profession sustained a severe loss.

During the flood season, from April to June, nine-tenths of the country round Basra is under water, and in normal years a continuous belt of flood, from six to nine miles wide and from one to four feet deep, separates the Basra tract from the higher lying desert country to the south-west.

This flood water in 1915 forced its way into and inundated the Makina Masus Camp area. This year, in order to meet the needs of the constant stream of troops and stores pouring into Basra, it was imperative to safeguard from floods the ground space required for camps, hutting, store dépôts, and additional hospital accommodation. This was done by constructing, first, a main protective embankment or "bund" from the Tigris at Magil to the higher ground at Shaiba. This "bund" was eleven to twelve miles long, and completely shut off the belt of flood water above referred to.

It was supplemented by a second bund, which branched off from it about two miles from the river, and was carried to the neighbourhood of the Zubair Gate of Basra, some three miles. A series of smaller subsidiary bunds was constructed along the river front and the intermediate creeks. The whole system, covering a total length of some twenty miles, safeguards an area of some forty-eight square miles in all, and of one and a half square miles at Magil and Makina Masus, which has been adopted as the main camp for troops in and near Basra. Wharves have been constructed, and ocean-going steamers are now able to come alongside and unload.

A large amount of hutting for hospitals and troops has been erected, providing accommodation for 8,700 sick and 15,000 troops; water supplies for the troops have been installed at Basra and Amara, and many important miscellaneous works have been carried out.

Two railways are now in course of construction. Lieutenant-Colonel J. H. White and his assistants are pushing on both lines with much zeal and energy, in spite of considerable difficulties in the transport of materials.

The thanks of the whole force in Mesopotamia are especially due to the Order of St. John of Jerusalem, the British Red Cross Society, including its Indian branch, and the Young Men's Christian Association.

The two former, through their representative, Lieutenant-Colonel J. Gould, have devoted their resources to supplementing the medical appliances and comforts provided by the State for the care of the sick and wounded. All officers and men who have passed through the hospitals at any time would desire to express their gratitude to these societies.

The following medical officers are included in the list of officers mentioned in the dispatch as deserving of commendation for services rendered in connexion with the administration of the force: Brevet Colonel M. H. G. Fell, R.A.M.C., Lieutenant-Colonel S. P. James, M.D., I.M.S.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

CAPTAIN G. H. WATSON, R.A.M.C.(T.F.).

Captain George Henry Watson, jun., R.A.M.C.(T.F.), 3rd Northumbrian Field Ambulance, who was reported wounded in our issue of September 30th, has died of wounds. He was educated at the London Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1907. He had held the office of house-physician to the London Hospital and to the Hull Royal Infirmary, as well as that of assistant medical officer to the Shoreditch Infirmary. He received his commission as lieutenant on January 6th, 1913, and was promoted to captain on April 1st, 1915. Prior to the war he was in practice at Hull.

Wounded.

Captain G. R. Grant, M.C., R.A.M.C. (S.R.).
Captain N. M. Macneill, Canadian A.M.C.
Captain O. de Muth, R.A.M.C. (temporary).
Lieutenant J. W. Wayte, R.A.M.C. (temporary).
Lieutenant A. C. Wilson, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cleveland, Alfred Sherwood, Second Lieutenant Sherwood Foresters, elder son of Dr. R. A. Cleveland, killed October 16th, aged 18.

Dyson, William Hubert, Lieutenant London Regiment, son of Dr. Dyson of Sheffield, died of wounds on July 14th, aged 24, having been previously reported as missing. He was educated at the Leys School and at King's College, Cambridge, where he was an exhibitioner in history and theology, and graduated as B.A. in June, 1914. He was a candidate for the Wesleyan ministry, but took a commission on August 12th, 1915, and went to the front last March.

Kilner, Charles Usher, Second Lieutenant Suffolk Regiment, eldest son of Dr. Charles Scott Kilner, of Bury St. Edmunds, died of wounds on October 8th, aged 34.

Leeson, Arthur Gerald, Corporal Canadian Infantry, only son of the late A. E. Leeson, M.D., formerly of London, killed on October 31st, aged 46.

Porter, Frederick E. G., Captain Loyal North Lancashire Regiment, elder son of Dr. W. E. Porter, of Wood Green, died of wounds on November 3rd, aged 23. He was educated at Merchant Taylors School, and had passed the intermediate LL.B. and the intermediate solicitor's examination in 1914. He joined the Inns of Court O.T.C., got a commission on November 27th, 1914, and had been at the front for fifteen months. His younger brother is a lieutenant in the London Regiment.

Rankin, Franklin S., Lieutenant Canadian Engineers, eldest son of Dr. W. D. Rankin, of Woodstock, New Brunswick, killed October 23rd.

Leggatt, Eric G., Second Lieutenant Argyll and Sutherland Highlanders, only son of Dr. Gerard Leggatt of Harpenden, Herts, formerly reported missing, now reported killed on July 15th while leading a bombing party, aged 25. He was educated at Foster's School, Stubbington, and at Dulwich College. In 1910 he went out to a rubber plantation in the Malay peninsula, but returned to join the army in March, 1915, got his commission on March 20th, and went to the front in August, 1915.

Stewart, William Malcolm, Captain Machine Gun Corps, only son of Dr. R. W. Stewart of Adelaide, South Australia, of the Australian Army Medical Corps, died of wounds on October 27th, aged 26. He was educated at St. Peter's College, Adelaide, served in the South African war, gaining the King's medal with four clasps, and came to England from Rhodesia in January, 1915. He first joined King Edward's Horse, got a commission in the Devonshire Regiment on April 8th, 1915, went to the front last May, and was transferred to the Machine Gun Corps, in which he was promoted to captain in June, 1916.

NOTES.

HONOURS.

A SPECIAL supplement to the *London Gazette* of November 14th contains a long list of awards in recognition of gallantry and devotion to duty in the field. Among those decorated are fifty medical officers, of whom four receive the D.S.O., one the bar to the D.S.O., forty-two the Military Cross, and three the bar to the Military Cross.

D.S.O.

Temporary Captain George Douglas Ferguson, M.B., R.A.M.C.
He tended the wounded under very heavy fire, bringing in over fifty wounded men, and displaying the greatest courage and determination. His fearless bearing set a fine example.

Major Lewis Wibmer Jeffries, Australian A.M.C.
He tended the wounded and reorganized the stretcher-bearers in the front line at great personal risk. When only a few bearers were left, he himself assisted to carry back the wounded under heavy fire.

Lieutenant-Colonel Ethelbert Brown Hardy, Canadian A.M.C.
He controlled the evacuation of the sick and wounded, and by his energy and courage kept up the spirits of the stretcher-bearers when they were much exhausted.

Lieutenant-Colonel Harry Melville Jacques, Canadian A.M.C.
He supervised the clearing of the front and controlled the work of the advanced and main dressing stations with great skill and personal courage.

Bar to D.S.O.

Temporary Captain Hugh Llewellyn Glyn Hughes, D.S.O., R.A.M.C.
On four separate days he showed an utter contempt for danger when collecting and tending the wounded under heavy shell fire. (D.S.O. awarded in *Gazette* dated August 25th, 1916.)

Military Cross.

Temporary Captain Malcolm King Acheson, M.D., R.A.M.C.
He tended the wounded under very heavy fire, displaying great courage and determination. By his devotion and initiative he was instrumental in saving many lives.

Temporary Captain John Alban Andrews, M.B., R.A.M.C.
He tended the wounded with utter disregard of personal danger, dressing their wounds under heavy sniping fire from a trench 450 yards distant. He also got the wounded into shell holes till they could be collected after dark.

Captain James Elliot Black, M.B., R.A.M.C.(S.R.).
He rendered valuable services when attending the wounded under heavy machine gun and shell fire. Later he went out into "No Man's Land" to succour the wounded.

Captain Austin Basil Clarke, M.B., R.A.M.C.
He showed great coolness during the assault, and for thirty hours afterwards under intense shell and machine gun fire. He tended the wounded in the open the whole time, his aid post being full, and, after dark, went out and searched the wood under heavy shell fire.

Temporary Lieutenant Sydney John Dark, M.B., R.A.M.C.
Although badly wounded he worked for five and a half hours under heavy shell fire, tending the wounded, without letting any one know he was wounded himself. His gallantry throughout the operation was very fine.

Captain Henry Bryan Frost Dixon, M.B., R.A.M.C.
He volunteered and led a stretcher party to a regimental aid post under very heavy fire, and successfully brought in twenty-five wounded men.

Temporary Lieutenant John Beatson Dunning, M.B., R.A.M.C.
He went into the open under heavy shell fire, and tended the wounded until he was himself severely wounded.

Temporary Lieutenant William Norman Gilmour, M.D., R.A.M.C.
He gallantly dressed a wounded man lying in "No Man's Land," and finally brought him in, with great courage, under very heavy fire.

Temporary Lieutenant Robert Inkerman Harris, M.B., R.A.M.C.
He commanded the stretcher-bearers throughout the entire day under incessant fire, and set a fine example of energy and pluck.

Temporary Captain Frank Melville Harvey, R.A.M.C.
He repeatedly tended the wounded in the open under very heavy fire, and worked continuously for thirty-six hours, showing an utter disregard of danger.

Temporary Captain Richard Harold Hodges, R.A.M.C.
He organized and led parties of stretcher-bearers under heavy fire, displaying great courage and determination.

Captain William John Sivewright Ingram, M.B., R.A.M.C.(S.R.).
He tended the wounded under very heavy fire, displaying great courage and determination throughout. He set a splendid example of coolness and devotion to duty.

Temporary Captain Edward Sandwith Johnson, R.A.M.C.
Although severely wounded, he remained at his aid post and continued to dress the wounded with great skill and determination. He has previously done splendid work.

Captain John Herbert Jordan, R.A.M.C.
Under very heavy fire he reconnoitred the front area for wounded, and by his gallantry was instrumental in recovering many wounded men from shell holes.

Temporary Captain John MacIntyre, M.B., R.A.M.C.
He tended and dressed the wounded under heavy fire with great courage and determination, himself being four times buried by shells.

Captain William Edward Marshall, M.B., R.A.M.C.
He tended the wounded under very heavy fire with great courage and determination. On one occasion he worked single-handed for over twenty four hours.

Captain William Archibald Miller, D.S.O., M.B., R.A.M.C.(S.R.).
He accompanied a raiding party with his stretcher-bearers, and remained in the enemy trenches until quite certain no raiders were left behind. Previously he had accompanied a patrol under heavy fire and tended the wounded. He has on many previous occasions displayed great gallantry and determination.

Temporary Captain John Hay Moir, M.D., R.A.M.C.
Although wounded, he tended the wounded under very heavy fire, displaying great courage and determination, and refusing to be relieved until all the wounded had been evacuated.

Temporary Captain Patrick Joseph O'Reilly, R.A.M.C.
He tended the wounded under intense fire, displaying great courage and determination. Later, although wounded, he stuck to his post.

Temporary Captain Wyndham Parker, M.B., R.A.M.C.
He tended the wounded under very heavy fire for thirty-six hours, displaying great courage and determination. Later, he rescued wounded officers under intense fire

Temporary Captain William Henry Parsons, M.D., R.A.M.C.
He established the most advanced aid post of the brigade front, and, although slightly wounded, cleared over 300 cases. Subsequently, working all night, he cleared in all over 400 cases.

Captain Edward Phillips, M.B., R.A.M.C.
He collected wounded under heavy shell, rifle, and machine-gun fire. He set a fine example by his complete disregard of danger.

Temporary Captain James Henry Ritchie, M.B., R.A.M.C.
He tended the wounded and organized stretcher parties under very heavy fire, displaying great courage and determination.

Captain Hugh Huntley Robinson, R.A.M.C.
He tended the wounded with great courage and skill, quite regardless of personal danger. He has on many previous occasions displayed the greatest bravery.

Temporary Lieutenant Clifford Maunsell Scott, R.A.M.C.
He tended wounded with great skill and determination under intense fire. He has done fine work on many previous occasions.

Temporary Captain John Telfer Smeall, M.B., R.A.M.C.
He tended wounded with great skill and determination under intense fire. He has done fine work on many previous occasions.

Temporary Lieutenant Frederick James Strachan, M.B., R.A.M.C.
He tended and dressed the wounded under heavy fire with great courage and determination. Later, although himself wounded, he continued to carry out his fine work.

Captain John Ronald Rigden Trist, R.A.M.C.(S.R.).
He tended and dressed the wounded under heavy fire with great courage and determination. He has on many previous occasions done fine work.

Temporary Captain Gideon Walker, M.B., R.A.M.C.
This officer cleared the wounded of the battalion with remarkable efficiency. In addition, he worked for two days under heavy and continuous shell fire evacuating wounded.

Captain Archibald Wilson, M.B., R.A.M.C.(S.R.).
He organized and led parties of stretcher bearers under very heavy fire, displaying great courage and determination. He has on many previous occasions done fine work.

Temporary Lieutenant Clarence Randolph Young, M.B., R.A.M.C.
He tended the wounded under very heavy fire, displaying great courage and determination.

Captain Charles Corlis, Australian A.M.C.
He tended the wounded under very heavy fire with great courage and determination, working continuously for three days and nights.

Captain William Wallace Stewart Johnston, Australian A.M.C.
When his battalion was relieved, he stayed behind to tend the wounded, and then went forward through a heavy enemy barrage and dressed a wounded officer and several other men in the front trench. He also attended others while returning under fire.

Captain James Sprent, Australian A.M.C.
He tended the wounded under very heavy fire with great courage and determination. He personally supervised and organized the forward portion of tending the wounded right up to the firing line.

Captain David Macdonald Steele, Australian A.M.C.
He tended the wounded under very heavy fire and trying conditions with great courage and determination. It was due to his organization and skill that the wounded men were successfully evacuated.

Captain William Henry Weston, Australian A.M.C.
He established an aid post in the open, and tended the wounded under very heavy fire. He has displayed great courage and determination throughout.

Captain Kenneth Edgar Cooke, Canadian A.M.C.
He tended the wounded for two days and nights, under intense fire, with great gallantry and ability.

Captain Howard Brown Jeffs, Canadian A.M.C.
Although wounded himself, he tended the wounded under very heavy fire with great courage and determination. Later, being again wounded, he remained on duty till relieved.

Captain Victor Henry Kingsley Moorhouse, Canadian A.M.C.
He tended the wounded under very heavy fire, displaying great courage and determination throughout.

Captain Thomas Francis O'Hagan, Canadian A.M.C.
He rescued a wounded officer and five men under very heavy fire. Later he tended the wounded in an advanced dressing station under heavy fire. He displayed great courage and determination throughout.

Captain Alex. Harold Taylor, Canadian A.M.C.
He tended the wounded under very heavy fire with great courage and ability. He has on many previous occasions displayed great bravery.

Captain William Lawrence Whittemore, Canadian A.M.C.
Although wounded, he carried out his duty with great courage and determination. He has on many previous occasions displayed great gallantry.

Bar to Military Cross.

Temporary Captain Cyril Mary Brophy, M.C., R.A.M.C.
He tended a wounded officer under intense fire. Later he carried out the work of rescuing the wounded with great courage and determination. He has on many previous occasions done fine work. (M.C. awarded in *Gazette* dated July 27th, 1916.)

Captain John Arthur Cullum, M.C., Canadian A.M.C.
He carried out the evacuation of the wounded under very heavy fire with great courage and skill, and at great personal risk. He has on many previous occasions done very fine work. (M.C. awarded in *Gazette* dated July 27th, 1916.)

Temporary Captain William Foot, M.C., M.B., R.A.M.C.
He tended the wounded without any regard for own safety, and, by his coolness throughout the action, undoubtedly saved many lives. (M.C. awarded in *Gazette* dated January 14th, 1916.)

The following temporary chaplains to the force have received the Military Cross for assistance rendered to the wounded: Arthur Stafford Crawley, William Henry Kay, Arthur O'Connor, Clifford Hugh Reed, Christopher Stephen Sheehan, John Stratton, Bartholomew Stanislaus Wilson.

Manual Curative Workshops.

At a congress held in Berlin in the early part of this year to discuss the care and education of crippled soldiers Professor Spitzky described the organization and arrangement of the central military orthopaedic hospital and school established under his direction at Vienna. An account of the institutions was given in the British Medical Journal of July 8th, 1916, p. 55. In the *Information* for July 23rd the Lausanne correspondent of that periodical states that Dr. Kouindjy, head of the physiotherapeutic service of the Val-de-Grâce military hospital in Paris, claims that Spitzky's manual work treatment ("Arbeitstherapie") is by no means new, and is founded on a French idea. In the eighteenth century, he says, G. Tissot, *médecin-major* of the 4th Regiment of Cheveau-Légers, called the attention of the medical profession to the necessity of using manual work as a therapeutic measure for the completion of the treatment of injured limbs in labourers. Dr. Kouindjy urges that, in order that work should have the good effect required from the point of view of functional re-education, it must not be too complicated, and it must be complementary to physiotherapeutic treatment.

French Red Cross.

The London Committee of the French Red Cross (9, Knightsbridge, S.W.) requires a surgeon-in-charge (honorary) for a hospital in the war zone with 300 beds. It also has vacancies, both honorary and paid, for assistant operating surgeons and house-surgeons. In making this announcement, we assume that the London Committee is only prepared to receive applications from surgeons ineligible to serve in the British army. Lord Robert Cecil stated in the House of Commons on November 14th that the British Government was about to address proposals to the French Government regarding British subjects of military age in France.

England and Wales.

Dr. A. J. Rice-Oxley has been elected Chairman of the Public Health Committee of the Royal Borough of Kensington. He has been vice-chairman for the last two years, and chairman since its inception, five years ago, of the Medical Subcommittee, which deals with questions relating to the treatment of tuberculosis, baby clinics, and of other medical matters.

During the three months ending September 30th, 66 cases of cerebro-spinal meningitis were notified in London, and 36 deaths occurred. During the corresponding quarter of last year 102 cases were notified, and 62 deaths occurred.

At the end of the third quarter of this year 446 persons (310 children and 136 adults) were undergoing residential treatment for tuberculosis provided by the London County Council.

The Institute of Massage and Remedial Gymnastics.

A society has been formed in Manchester under the name of "The Institute of Massage and Remedial Gymnastics." The subscription is to be 10s. 6d. a year, and the articles of association provide for a board of examiners to arrange for examination of candidates and the grant of certificates, and for centres to be established in all large towns where candidates are prepared for examination, with local committees. The council is to consist of about twenty ordinary members, of whom half are to be representatives of hospitals, and there are to be representatives also of the medical profession, private massage schools, trained

workers (men and women), and any members of a university or other educational body who may be elected. A distinctive badge is to be provided for members engaged in the practice of massage and remedial exercises, and there is to be a registry of members and an organization to protect their interests. On November 10th a meeting to inaugurate the institute was held at the Manchester University. Sir William Milligan, who presided, said that the preliminary arrangements had been going on for about two years, and last August the Board of Trade granted the certificate of incorporation, allowing the omission of the word "limited" as part of the title and reserving to the institute for a number of years the right to add the word "British." The idea of the founders had been to improve the training and status of persons engaged in medical gymnastics, massage, electro-therapeutics, and kindred subjects. The art of massage had been known as early as 600 B.C., and was favourably described by Hippocrates. In the Middle Ages massage seemed to have gone out altogether, but in the latter half of the nineteenth century it was revived, largely owing to the labours of Peter Henrik in Sweden, who left a carefully prepared plan of remedial gymnastics founded on accurate anatomical and physiological laws. The organization of the institute had not been so far advanced as to permit of the appointment of a full council, and it was only proposed at present to appoint certain officers and then to adjourn *sine die*. The meeting agreed to this and appointed as President Sir William Cobbett, Chairman of the Board of Management of the Manchester Royal Infirmary, as Chairman of Council Sir Wm. Milligan, as Honorary Secretary Dr. A. E. Barclay, as Honorary Treasurer Mr. J. L. Fox, and as auditors Messrs. Edwin Guthrie and Co.

Cardiff Hospitals.

King Manoel of Portugal went, on November 8th, to Cardiff, where he was the guest of Lieutenant-Colonel and Mrs. Lynn Thomas. On the following morning, accompanied by Lieutenant-Colonel Robert Jones, inspector of military orthopaedics, he visited the newly established Prince of Wales's Hospital for Limbless Sailors and Soldiers, where the plans of the workshops for technical instruction and the making of artificial limbs were explained. He next visited King Edward VII Hospital, where he was received by Colonel Hepburn, M.D., the officer commanding the 3rd Western General Hospital. The authorities of the hospital have allotted 124 beds for the use of limbless soldiers, and the facilities afforded at the orthopaedic department lately established through the generosity of Sir John Gunn and others are also available. After leaving King Edward VII Hospital King Manoel visited the Metropolitan War Hospital, Whitchurch, where he was received by Lieutenant-Colonel Edwin Goodall, M.D. The orthopaedic department, which at present provides 150 beds, but will eventually be extended to 300 beds, was visited, and the King congratulated Colonel Goodall on being the head of one of the most up-to-date war hospitals in the United Kingdom. Subsequently a new hut and recreation room given to the Whitchurch Hospital by Sir William and Lady Tatem was opened by Mr. Arthur Bourchier.

Scotland.

After inspecting various places in Edinburgh for the preparation and supply of sphagnum moss, Surgeon-General Culling, D.D.M.S. Scottish Command, said that the work which was being done was fully appreciated by the medical branch of the War Office. The value of sphagnum moss in the treatment of septic wounds was established, and he would press for its use in the military hospitals in Scotland. Surgeon-General Culling was thanked by Lord Mackenzie, and was conducted over the various dépôts by Lieutenant-Colonel C. W. Cathcart, surgeon to the Royal Infirmary, Edinburgh, the originator of the movement.

Dr. Dow of Dunfermline.

On October 25th Dr. W. B. Dow of Dunfermline was entertained at a complimentary dinner by the Dunfermline Established Presbytery and the Kirk Session of Dunfermline Abbey Church. The Rev. D. Stewart Rose, Moderator of the Presbytery, who was in the chair, said, in proposing the health of Dr. Dow, that to dwell upon his long and distinguished career would be equivalent to reciting the history of the "Auld Grey Toon" of Dunfermline for many a year. The Rev. Robert Stevenson, in the name of the Kirk Session of the Abbey Church, of which Dr. Dow was the oldest elder, presented him with an address commemorating his work as a medical practitioner, a member of the University Court of St. Andrews, a Justice of the Peace for Fife, and a Commissioner of the Presbytery to the General Assembly. Dr. Dow, in reply, said that for his professional "shepherd guides" he had chosen Syme, Warburton Begbie, and Gairdner. Those were the men whom Bunyan called knowledge, experience, and science. There were very great changes in front of the Church after the war. The first, which he hoped to live to see, was the peaceful union of the Protestant Churches of Scotland. Following this, he would like to see a declaration of war by all religious and scientific forces against physical and moral diseases. What they had to do was to combine their forces—laymen, doctors, and the Church—and go for them.

Ireland.

On November 8th another hospital ship, with 460 wounded soldiers, arrived at Dublin. The hospital train of the Great Northern carried 40 cot and 70 sitting cases to Belfast, and the Great Southern train took 100 sitting cases to Cork hospitals and 50 sitting cases to the Curragh Military Infirmary. In Dublin the Castle Red Cross Hospital received 38 cot and 40 sitting cases; Richmond Hospital, 25 cot cases; Dr. Steevens's Hospital, 10 cot cases; Mercer's Hospital, 6 cot cases; Adelaide Hospital, 4 cot cases; Meath Hospital, 12 cot cases; King George V Hospital, 1 cot and 2 sitting cases; Royal Victoria Eye Hospital, 3 sitting cases; St. Vincent's Hospital, 3 cot cases; Sir Patrick Dun's, 8 cot cases; Royal City of Dublin Hospital, 10 sitting; Mountjoy Square Auxiliary, 12 sitting; National Children's Hospital, 6 sitting; Mater Misericordiae Hospital, 12 sitting cases.

Base Hospitals in Egypt.

The opening meeting of the Biological Society of the Royal College of Surgeons in Ireland was held on November 1st. The President of the College, Mr. William Taylor, who was in the chair, was accompanied by the Lord Lieutenant and the Archbishop of Dublin.

Captain T. Gillman Moorhead, R.A.M.C., Professor of Medicine, gave an address on "Some experiences in a base hospital in Egypt," of which the following is an abstract. Professor Moorhead, who went out to Egypt last December, described the working of the large base hospital at Alexandria, containing 2,500 beds. Of the three hospital buildings, one was allocated entirely to surgical, one to enteric, and one to general medical cases, but only a comparatively small number of the patients were treated in the buildings, the remainder being dealt with in wooden huts and in tents, which as far as possible were grouped in separate areas according to the type of cases they were to receive. The soldier, with few exceptions, received treatment without question, content that the best was being done for him. During the later months of 1915 most of the cases came in large convoys from Gallipoli, and even after the evacuation cases from there continued to come from Mudros. Most of the Gallipoli army itself subsequent to the evacuation was stationed in Egypt, and continued to suffer for some months from the same diseases as on the peninsula. Later on convoys from Mesopotamia would cause sudden rushes of work. From what he had seen in his early days in Egypt he came to the conclusion that many newly qualified men were sent out without receiving any instruction in camp sanitation. Probably the demand for men was so great and sudden that there was no time to give the necessary short course of practical lectures, but he felt certain that as soon as the first rush was over much would

have been gained by organizing practical instruction of this kind. With the best intentions these men lacked the necessary experience of camp conditions, and at first, at any rate, were not in a position to deal efficiently with the preventive side of medical war work. He ventured therefore strongly to urge that in the future a central dépôt should be established where practical information on all details of camp life could be given by regular officers of the Royal Army Medical Corps and that all men on joining should be sent to the dépôt for at least a week before undertaking other work. The medical men themselves were not to blame, as such knowledge was outside the scope of ordinary medical training. In Gallipoli the tropical heat of the summer months and the abundance of flies made conditions especially trying. So far as his experience went, antityphoid inoculation appeared to have been of great value, as only very few genuine typhoid cases were admitted to hospital. Many soldiers were beginning to think that the administration of vaccines was being overdone. The lot of the recruit was indeed a hard one; but he was sufficiently sensible to realize that all these vaccines did no harm, and that most of them had been proved to do good. Both in Gallipoli and Mesopotamia dysentery had been abundant, and even among the troops in rest camps in Egypt the incidence had been at times very heavy. The treatment of dysentery was now in a much better position than during the South African war, and, in consequence, the mortality in cases that could receive attention at once was very low. Camp jaundice, which fortunately had a low mortality, caused much disability in the Gallipoli army. All the ordinary infections were met with—scarlatina and diphtheria, and an occasional small-pox case, and a few cases of cerebro-spinal fever, whilst malaria was fairly prevalent, especially in cases from Mesopotamia. Relapsing fever and sand-fly fever occurred also, and a mysterious complaint called P.U.O., which, along with the still more mysterious N.Y.D. (not yet diagnosed), was a trouble they endeavoured to keep out of the wards by ascertaining as exactly as possible the cause of each individual fever admitted. Neurasthenia patients were numerous, and the large majority were of necessity invalided home. The question was often raised as to what would become of these nervous wrecks when the war was over. For his part, he was most hopeful, and thought that the existence in each case of an adequate cause for their breakdown was of itself ground for the belief that, with the cessation of the cause, they would, in favourable circumstances, quickly and completely recover.

Surgeon-General Ford, C.B., in proposing a vote of thanks to Professor Moorhead, congratulated their President on his appointment as Consulting Surgeon to the Forces in Ireland. The President said he was asked to present to His Excellency a copy of the roll of honour of the Royal College of Surgeons in Ireland. This roll had been brought down to November, 1915, but some improvements had recently been made. So far as could be ascertained, 1,012 old students should be entered on the roll. Of these, 6 had obtained the C.B., 12 the C.M.G., 22 the D.S.O., 13 the Military Cross, 1 the Croix Chevalier, and 111 were mentioned in dispatches, many of them more than once. Whatever might be thought or said of the necessity of applying conscription to the youth of Ireland, he did not think there could be any question as to what the College of Surgeons had done. At the conclusion of a suitable reply, His Excellency said that he knew the great work the College had done; if it were possible for him at any time to be of service, it would be the greatest pleasure to him to give what assistance he could.

Typhoid Fever following Floods.

Following the unprecedented floods of the Shannon, an outbreak of typhoid fever seems to be coming to add to the misery of the inhabitants of the inundated area. Last week a man from Lower Clonbonny was admitted to hospital suffering from typhoid fever. The patient was living with his family a mile within the flooded area, and great difficulty was experienced in getting him on to the public road. This was accomplished in a boat, and he was taken in an ambulance to the hospital. The whole village of Clonbonny stands out in the flood, with the meadow and tillage lands many feet under water. It is two years since flooding in the Shannon and the attendant discomforts and miseries it occasions caused a serious outbreak of fever, necessitating the removal of many people for hospital treatment.

Ulster Medical Society.

The opening meeting of the session 1916–17 of the Ulster Medical Society was held in the Medical Institute, Belfast, on the evening of November 9th, when Dr. Gardner Robb, the out-going President, resigned the chair to Mr. Robert Campbell, F.R.C.S.Eng., who delivered an inaugural address, in which he examined some of the major surgical problems of the day, and drew conclusions founded on his personal experience. The use of a solution of bleaching powder was old; Bryant and Erichsen both advocated it in their textbooks, and Whitla, in the first edition of his *Materia Medica*, mentioned it with approval. The chief improvement made of late consisted in simplification of manufacture and the adoption of a name. Whether its use in intravenous injections in septicaemia would prove of benefit was still doubtful. Though much was known about cancer, its cause was yet a mystery. The fact of auto-inoculation and the problem of the precancerous stage as evidence in tertiary syphilis of the tongue and of the breast, where malignant disease so often supervenes, were dealt with, and the large number of recurrences, even in early operation, deplored, though it was recognized that the general drift of statistics pointed to the necessity of early and thorough operation. During eighteen years for which he had been observing and operating on tuberculous disease of childhood in the Belfast Hospital for Sick Children it had markedly diminished, and personally he was of opinion that this fall was associated with the steady removal of tonsils and adenoids. Inoculation with bovine tuberculin was clearly of service. In dealing with the surgery of the gall bladder, Mr. Campbell expressed the opinion that the supposition of the Mayos that the gall bladder was not a reservoir for bile, but converted an intermittent flow into a continuous one, was correct. In the strangulation of a loop of intestine the danger of death from toxic absorption after operation, when the bowel was returned, was in proportion to the length of time the strangulation continued, and to the extent of bowel involved; so that, as regards the return of the bowel, the appearance was not to be the guide, nor the supposed viability of the walls. Finally, Mr. Campbell said that six years ago he drew attention to the difference between an obstructed appendix and appendicitis; the practical importance of this distinction was great.

Sir John Byers proposed a hearty vote of thanks to Dr. Gardner Robb for his conduct in the chair for the past year; and to the President for his address. This was seconded by Professor Lindsay, and passed with applause.

Correspondence.

OUR DUTY.

Sir,—When on his return journey from the South Pole Captain Scott realized that his great adventure might terminate in disaster to himself and his comrades, his thoughts, as his diaries clearly show, turned not on himself and his own safety, but on what might happen to the wives and children, if death overtook his party. In a letter to Sir J. M. Barrie, he says: "I leave my wife and your godson, Wilson leaves a widow, and Edgar Evans a widow in humble circumstances. Do what you can to get their claims recognized." In a letter to Mr. J. F. Kinsey he says: "My thoughts are for my wife and boy; if I knew my wife and boy were in safe keeping, I should have little regret in leaving the world." The very last words he wrote were, "For God's sake look after our people."

In the present war already many of the younger members of our profession have sacrificed their lives in the most heroic manner, tending the wounded under heavy gunfire. Who can doubt that in the period before a big engagement their thoughts have centred not on themselves and their own safety, but rather on what might happen to their wives and children, if they fell?

Is it not a duty—an urgent duty falling on all of us who are not called to serve in the danger zone—to see that we spare no effort to safeguard the interest of those who fall? If we do our duty, what a load of anxiety we shall remove from the minds of those of our profession who know that

at any moment they may be called upon to face danger or death.

In the pages of the JOURNAL you have already announced the fact that a society has been started for the express purpose of assisting in the education and starting in life of orphans whose fathers have died in the present war without having had the opportunity of making provision for their families. The president of this society is Sir Alfred Keogh. It has a representative body of vice-presidents and a strong working committee. Many donations have already been received, varying in amount from one to fifty guineas, and annual subscriptions from one to five guineas.

It is quite clear that a great deal of money will be required if adequate help is to be given, and especially valuable will be annual subscriptions.

The secretary of the Auxiliary R.A.M.C. Funds, to give it its proper title, is Lieutenant-Colonel F. W. H. Davie-Harris, R.A.M.C., 124, Victoria Street, S.W., who is ready to give all information.

In conclusion, I would ask any member of the profession who reads this letter not to dismiss the points raised at once, but to ask himself whether the support of the Fund does not make a strong appeal to him as a personal duty in the great struggle in which we are all engaged, a duty the fulfilment of which should give him much satisfaction in the thought that although he himself is not called to enter the danger zone, he may by some personal sacrifice of his own comfort contribute in removing a great anxiety from those of his younger brethren who may be called upon to make the supreme sacrifice of their lives.—I am, etc.,

WILLIAM COLLIER,
A Past President of the British Medical Association.

Oxford, Nov. 13th.

AUXILIARY R.A.M.C. FUNDS.

First List of Donations for the Officers' Benevolent Branch to September 30th.

Sum of £100.—From a Friend (per Sir William Osler).

Sums of £52 10s.—Lieutenant-Colonels W. Collier and W. Hale White, and Major W. F. Brook.

Sum of £50.—Lieutenant-Colonel H. G. Barling.

Sums of £21.—Lieutenant-Colonel F. W. Westmacott and Major Ewen Maclean.

Sum of £20.—Major A. C. Farquharson.

Sum of £15.—Captain A. A. Young.

Sums of £10 10s.—Lieutenant-Colonels Sir James Barr, T. Gowans, and G. S. Middleton; Majors T. W. Buckley and T. K. Monro; Captains Cholmondeley Webb, H. H. Weir, and Hugh Wickens.

Sums of £10.—Surgeon-General Sir G. H. Makins, K.C.M.G., C.B.; Captain D. Douglas Crawford, and per Sir William Osler.

Sums of £5 5s.—Colonels Sir J. Rose Bradford, K.C.M.G., C.B., and W. Coates; Lieutenant-Colonels H. B. Angus, G. A. Bannatyne, T. Beattie, Norman Dalton, Claude Douglas, W. F. Haslam, D. L. Hamilton, A. M. Martin, W. Pasteur, and W. G. Richardson; Surgeon-Colonel Atwood Thorne, V.D.; Majors J. W. Leech, H. H. Littlejohn, A. Parkin, D. W. Patterson, R. P. R. Tyle, and J. D. Wardale; Captains A. Blackwell, E. F. Buzzard, Edgar Grey, V. Rich, R. P. Rowlands, H. R. Vachell, W. B. Warrington, F. W. Wilson, and Dr. A. Duke.

Sums of £5.—Colonel D. J. Mackintosh, M.V.O.; Lieutenant-Colonels H. P. Hawkins and W. F. Roe, D.S.O.; Captains H. H. Elliot, H. H. Kendrick, and H. Gordon Oliver.

Sums of £4 4s.—Lieutenant-Colonel Mansell Moullin; Captain Ed. Mackay.

Sums of £3 3s.—Lieutenant-Colonel R. A. Bolam; Majors W. D. Arnison and F. C. Pybus; Captains W. T. Harkness, T. H. Livingstone, T. V. Mills, H. J. Slade, and L. H. Walsh; Lieutenant A. P. Gibbons.

Sums of £2 2s.—Major G. Newton Pitt; Captains G. F. Armstrong, V. H. Blake, C. E. Droop, W. B. Gourlay, W. Seymour, and Robert Thompson.

Sums of £1 1s.—Majors W. W. Jones and T. S. Toogood; Captains Lickley, Menzies, and Slater; Lieutenants W. B. Anderson, P. E. Murray, and H. O. Wheeler; Lieutenant and Quartermaster Gibbs.

The subscriptions recorded above amount to a total of £736 6s.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—In the paragraphs quoted from a letter of the late Sir Lauder Brunton (BRITISH MEDICAL JOURNAL, November 11th, p. 661) there are some statements which call for comment.

He says in regard to abdominal operations, "The question, Shall an operation be performed or not? has been left entirely in my hands, and on the correctness of my answer the life of the patient has depended." It strikes me that, if Sir Lauder advised operation, the life of the patient then depended upon the skill of the surgeon. If the reverse, the responsibility was then Sir Lauder's.

In the statement about this enormous "disproportion between the values of mere mechanical skill and trained brain work," it is indicated that the surgeon who has mere mechanical skill gets 100 guineas, and the physician who has a monopoly of trained brain work only gets 3 guineas. (Lucky surgeon who always gets 100 guineas.)

Surely a surgeon is not called in as a mere mechanic. He must confirm the diagnosis or disagree with it. He may refuse to operate, or perform some totally different operation to that advised by the physician. So far as abdominal operations are concerned, I may be wrong, but it has seemed to me that one who is constantly opening the abdomen has a better opportunity of correcting his opinions, and building up his diagnostic powers, than one who has not the same advantages, and that a little "trained brain work" may be allowed to the surgeon.

Finally, as the patient's life really does depend upon the surgeon, the fee must be in some proportion commensurate with the responsibility.—I am, etc.,

London, W., Nov. 10th. JOSEPH CUNNING.

SIR,—I have long been of the late Sir Lauder Brunton's opinion that the fees paid to members of the different branches of our profession are reckoned on a most absurd manner and require drastic revision. It has frequently happened to me to give evidence in court in cases of probate. The expenses of such a trial are very heavy. There are court fees, counsels' retainers, solicitors' costs, expenses, not only of collecting the evidence, but also of bringing the witnesses, perhaps from Wales or Northumberland, to London, and maintaining them at hotels until the trial comes on and their evidence is given. These expenses may easily run into thousands of pounds, and have in fact reached four figures in cases in which I have been engaged. The whole of this expense would have been saved if the testator had been brought to me at the time of making the will, and had obtained or failed to obtain my signature as a witness. This measure has been adopted in several cases. I have examined a testator with respect to his disposing power, and determined the matter, a far more difficult task than that of determining whether he is mad or sane, for a man may be mad and yet have a disposing mind, and be competent to make a will. For this feat, one of the most difficult that can be proposed to a physician or anyone else, a feat which may save the estate of the testator thousands of pounds, I have received a fee of three, or perhaps of five guineas. The surgeon who scratches the back of a child's throat with his finger-nail receives thirty for the operation! The fees of surgeons are as excessive as the fees of physicians, the higher branch of the profession, are inadequate. The surgeon is a person employed by the physician to carry out his instructions, and it is anomalous that the servant should be remunerated on a higher scale than the master. In some cases the physician is his own surgeon, and instructs himself; and then he realizes how much more onerous, responsible, and difficult is the task of the former, and on how much higher a plane is the work of a physician than that of a surgeon. The surgeon is a mechanic who works to perhaps half an inch, in very special cases, perhaps, to an eighth of an inch, but never, except in eye surgery, to less than a sixteenth of an inch. The watchmaker works to a thousandth of an inch, but we do not give him a hundred guineas for an hour's work in repairing a watch.

I am old enough to remember the sensation produced in the profession when Sir Andrew Clark and Sir William Gull raised their fees from one guinea to two, and not only were the two guineas cheerfully paid to them, but what was at first an extraordinary exception soon became the rule. The remuneration for work ought, I suggest, to bear a relation to the gravity of the issue determined, the time occupied, and the skill required. In none of these is the work of the surgeon so superior to that of the physician or of the anaesthetist as to warrant the immense disproportion of their fees. I suggest that, as a beginning, physicians who have attained to the consulting staff of their hospital should fix the fee for a consultation at five guineas, and that for a consultation lasting an hour a physician should charge not less than ten. His fee would then be only the tithe of that of a surgeon for the same time, and his task may very likely be ten times as difficult, and require ten

times the skill and knowledge. The scale of fees for visits was fixed when travelling was by means of post-horses, and though travelling is now immensely cheaper and immensely more rapid, the increase in the cost of living, and the increase in the time and labour needed to acquire the skill of a consultant fairly compensate for the difference. For journeys of some distance the fees are adequate, but for visits near home they are not. It may take as long to get from one part of London to another as to travel from London to Brighton, but the fee for the one visit may be only the tenth of the fee for the other. The whole scale is in need of revision.—I am, etc.,

Parkstone, Dorset, Nov. 12th. CHARLES A. MERCIER.

THE POSSIBLE FUNCTIONS OF THE CEREBRO-SPINAL FLUID AND OPTIC NEURITIS.

SIR,—The importance of Professor Halliburton's address on the possible functions of the cerebro-spinal fluid must be patent to every one interested in the subject of optic neuritis. I was very pleased to see that so great an authority has produced recent physiological evidence in support of and reaffirmed the facts:

1. That the cerebro-spinal fluid pressure is not dependent on blood pressure.
2. That the cerebro-spinal fluid is secreted by the choroid gland.
3. That the exit of the fluid is by the blood stream (venous sinuses).
4. That the perivascular lymphatic spaces are continuous with the subarachnoid space.
5. That dyes added to the cerebro-spinal fluid travel along the course of certain cranial nerves.

In a paper (written in collaboration with Mr. W. J. Smith), published in the BRITISH MEDICAL JOURNAL (April 8th, 1911), on the mechanical etiology of optic neuritis, I advanced the view that the arrest of or marked interference with the cerebral venous return is the predominant factor in producing increased intracranial pressure and that papilloedema is produced by the resulting rise of fluid pressure in the optic nerve sheath, and also that in every case of optic neuritis from whatever cause the patency of the veins is obliterated or the flow of their contents obstructed by blockage, anywhere in the superior longitudinal jugular path, or the perivascular spaces are destroyed by disease (syphilis) of the lymphatic sheaths.

Professor Halliburton's address, and the reports that have appeared recently in army medical literature of cases of laceration of the superior longitudinal sinus with optic neuritis, lend strong support to my view of the mechanical etiology of papilloedema.—I am, etc.,

M. MAMOURIAN, F.R.C.S.E.

Ashton-under-Lyne, Nov. 12th.

SIR,—Like Dr. Harry Campbell, I am unable to accept Professor Halliburton's view that the cerebro-spinal fluid is the lymph of the brain, having always regarded it as purely mechanical in function.

In an article written in collaboration with Dr. Fildes, and published in *Brain* three years ago under the title "A comparison of the lesions of syphilis and parasyphilis, together with evidence in favour of the identity of these two conditions," while commenting on the effects of treatment on syphilis of the nervous system, we wrote:

> As is well known, no arsenic is normally found in the cerebro-spinal fluid after an intravenous injection of salvarsan, and it is often stated that this is the explanation of the absence of arsenic from the brain. It is supposed that the cerebro-spinal fluid functions as a lymph of the brain, and that substances which enter this organ must do so by way of the choroid plexus and the cerebro-spinal fluid. In our opinion, however, this explanation is incorrect. In the course of our investigations we have frequently introduced drugs into the brain substance by the intravenous route, and have never found these drugs to be present in the cerebro-spinal fluid. On the other hand, we have met with drugs which, like arsenic, will not enter the brain or cerebro-spinal fluid, although other organs of the body have contained large quantities. We have therefore been led to the conclusion that salvarsan, after intravenous injection, will not enter the brain substance, because of some peculiarity of the cerebral vessels in relation to the drug.

In another article in the forthcoming number of *Brain* we show that certain aniline dyes on intravenous injection can stain practically instantaneously the whole of the grey matter of the brain, and yet no dye be demonstrable in the cerebro-spinal fluid.

The above results seem quite at variance with the contention that the cerebro-spinal fluid is the lymph of the brain, while, in addition, there is good histo pathological evidence to show that the brain possesses an independent system of lymphatics which is normally quite shut off from the cerebro-spinal fluid.—I am, etc.,

London, E., Nov. 14th. JAMES MCINTOSH, M.D.

VENEREAL DISEASES IN THE ARMY.

SIR,—I am afraid it would hardly be expedient that the actual figures and facts on which I based my statement that there was a very large amount of venereal disease both at home and at the front should be published, as desired by Dr. Barrs. I spoke as to the state of affairs at home on evidence which was sufficiently convincing to me, evidence which had been brought under my notice during the last two years while I have been lecturing on the subject of these diseases to soldiers in camps and barracks in all parts of the country. With regard to the condition of things at the fronts and bases abroad, my information was derived from numerous reports which I have received at frequent intervals from officers on leave, both medical and combatant. If Dr. Barrs would apply to me I would put him in the way of getting most of these figures for his private information.—I am, etc.,

E. B. TURNER, F.R.C.S.,
Chairman of Representative Meetings, British Medical Association.

London, W., Nov. 14th.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

AT a meeting of the University Court on November 9th it was resolved, the approval of the Senate having been obtained, to notify the Royal and Western Infirmaries that the Court was prepared to establish lectureships in electrical diagnosis and therapeutics on the foundation of the Merchants' House, and asking the Governors to submit nominations for suitable persons who would have proper facilities for giving instruction to students in the subjects.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Ordinary Council was held on November 9th, 1916, when Sir Watson Cheyne, President, was in the chair.

Diplomas of Membership.

Diplomas were granted to eighty-nine candidates found qualified at the recent examination.

Loan Fund for Medical Men on Military Service.

A letter, dated October 26th, was read from the Financial Secretary and Business Manager of the British Medical Association reporting that, at a meeting of the Council of the British Medical Association on October 25th attention was called to the heavy financial sacrifice made by many medical men who have joined the army and navy, and the sacrifice anticipated by those who are liable for service, and stating that the Council of the Association will be pleased if the Royal College of Surgeons will nominate a representative to serve on a committee to review the whole position, and, if possible, formulate a scheme whereby those deserving of assistance through patriotic service may be assisted.

The Council of the College appointed Mr. H. J. Waring to serve on the committee.

Bradshaw Lecture.

This lecture will be given by Colonel Charters J. Symonds, C.B., A.M.S., on Friday, December 15th, the subject being gunshot injuries of the spinal cord.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following eighty-nine candidates, who were successful at the final examination in medicine, surgery, and midwifery:

J. A. M. Alcock, I. Aubrey, A. R. Balmain, H. E. Bamber, J. R. Banks, F. A Benner, J. A. Berry, J. F. C Braine, W. S Brown, J. Brumwell, C. N Carter, *Hetty E. Claremont, W. J. Colborne, L. Cunningham, *Stephanie P. L. H. T Daniel, A. W. A. Davies, G. Day, M. J. de Lemos, J. E. E. de Robillard, A. F. B. Dove, A. B Dummere, H. J. Duske, H. A. Faulkner, *Susan A. Finch, *Marjorie E. Franklin, H. D. Gardner, E. O. Goldsmith, T. S. Greenaway, L. Grey, J. M. Harrison, B. Haskins, R. B. Hawes, J. F. Haynes, G. W. Heckels, W. B. Heywood-Waddington, E. B. Hickson, J. A. Hill, C. G. Hitchcock, L. S. Holmwood, C E. Hopwood, G. J. P. Huddleston, O. C. L. Hughes, J. W. Hyatt, S. R. Johnston, P. T Jones, G. M. Kendall, E P Lazanas, D. L. Lees, E. A. Leviseur, R. T. Lewis, E I. Lloyd, P. McGibbon, O. S. Martin, A. Mortord, R. Moser, B. Mountain, N. S. Nairne, C. L. Odam, M. A. Omar, *Margaret S. Palmer, A. B. Pastel, W. D. Pearman, *Enid M. Pfeil, B. H. Pidcock, C. N. Ratcliffe, A. H. Richardson, P. R. Riggall, C. Y. Roberts, A. Rodd, J. E. Scanlan, *Elisabeth H. Schwab, R. R. Scott, S. N. Scott, F. N. Sidebotham, G. E. L. Simons, R G. Simpson, J. F. Smith, J. W. G. Steell, H. Sterne-Howitt, N. B. Taylor, C. H. Terry, R. N. Vakil, *Anna P. van Heerden, F. H. Vey, S. Vidot, O. Williams, T. P. Williams, G. S. Wilson, W. Yeoman, C. Young.

* Under the Medical Act, 1876.

Obituary.

ROBERT LAFAYETTE SWAN, F.R.C.S.I.,

SURGEON STEEVENS'S HOSPITAL, ORTHOPAEDIC HOSPITAL, AND SIMPSON'S HOSPITAL, DUBLIN; EX-PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS, IRELAND.

It is with sincere regret that we record the death, on November 4th, of Robert Lafayette Swan, who for more than half a century has been in active work as a surgeon in Dublin. We are indebted to a colleague for the following account of his life and character:

Robert Swan was born on April 27th, 1843, at Durrow, Queen's County, where his father John Wright Swan, M.R.C.S.Eng., was dispensary medical officer. Shortly after the birth of his son John Wright Swan was appointed to the Ballyragget dispensary, County Kilkenny, and it was in Kilkenny that Robert Swan spent his boyhood. He was educated at the Kilkenny College and Tipperary Grammar School, which then enjoyed a high reputation.

On November 17th, 1859, Swan entered the medical school of Dr. Steevens's Hospital, and there began the study of anatomy under Edward Hamilton, with whom he formed a lifelong friendship. His career in the school was one of exceptional brilliance, and at the termination of the session 1862–3 he won the Senior Cusack Medal and the Senior Surgical Clinical Prize. In June, 1863, at the age of 20, he was admitted as a Licentiate of the Royal College of Surgeons in Ireland. He was too young at that time to be admitted to the King and Queen's College of Physicians, but on attaining the age of 21 years he was admitted to the licence of that college.

Immediately after he had obtained his diploma from the College of Surgeons the school committee at Steevens's Hospital "unanimously resolved that Mr. Robert L. Swan, on account of his distinguished career as a student of the hospital, be recommended to the Board for the office of Curator of the Museum." That this was no formal resolution, but a real testimony to the appreciation of Swan's worth, is shown by the fact that no similar resolution regarding a student is recorded in the minutes of the committee. In September, 1867, Swan relinquished the office of curator on his appointment as resident surgeon of the hospital, but he was reappointed at the completion of his term of office two years later.

Swan then settled down to make for himself a practice in Dublin, and in 1868 was elected a Fellow of the College of Surgeons in Ireland. He took a house near the hospital, at 11, Usher's Island, and joined Richard Rooney as a private medical tutor, together they opened class-rooms at No. 1, Great Brunswick Street. About this time he was appointed assistant surgeon to the Royal Irish Constabulary and surgeon to the Great Southern and Western Railway Company. In 1873 he was appointed lecturer on descriptive anatomy in the Steevens's School, and there continued teaching till 1877, when he was appointed a member of the Court of Examiners in the Royal College of Surgeons.

Early in his career Swan became interested in the subject of orthopaedic surgery, which at that time, owing to the work of Stromeyer of Erlangen, Little of London, and Sayre of New York, was attracting considerable attention. He recognized that orthopaedic treatment required not only special study, but also special facilities in order to attain satisfactory results. Such facilities were not available in the general hospitals of Dublin, and with characteristic energy and courage Swan set himself to supply this want. Having made himself master of all the available knowledge of the subject, he opened in 1876, with the aid of a few friends, a small hospital in his house on Usher's Island for the exclusive treatment of orthopaedic patients. The venture was a daring one for a young surgeon who had his profession alone to depend on for his livelihood. Swan had, however, a peculiar power of inspiring confidence in those with whom he worked, and his great ability and foresight, as a rule, amply justified that confidence. On the staff of the new hospital he associated with himself some of his colleagues and teachers at Steevens's Hospital, but of this staff he was always himself the leading spirit. The work done was so good, and the need of it so great, that the accommodation in the house on Usher's Island soon became quite inadequate. In 1883 the hospital was moved to larger quarters in Great Brunswick Street, and again in 1902 to its present site in Upper Merrion Street, where at present the daily average number of beds occupied is over seventy. The Incorporated Orthopaedic Hospital of Ireland stands to-day as a splendid monument to the life and work of its founder, Robert Swan.



Lafayette.] ROBERT LAFAYETTE SWAN. *[Dublin.*

Though pre-eminently an orthopaedic surgeon, Swan's activities were by no means confined to that branch of practice. On March 25th, 1891, he was appointed visiting surgeon to Dr. Steevens's Hospital, and in 1898 and 1899 the Fellows of the Royal College of Surgeons in Ireland elected him president of their college. At Steevens's Hospital for twenty-five years he occupied a leading position on the surgical staff. His sound knowledge of anatomy and general pathology, combined with his great clinical experience, seemed to give him an almost intuitive power in coming to a diagnosis of surgical ailments. Though he often appeared to rely entirely on this power, he was always ready to call to his aid all those methods of clinical investigation which have resulted from scientific research. He was a rapid and resourceful operator; and though at times his methods appeared to be rough, he was well able to carry out the most delicate surgical manipulations. The excellence of the results he obtained sometimes surprised those who did not recognize the knowledge that guided his actions. In 1894 he published a short manual on *Diseases and Deformities of the Spine;* he contributed also many papers to the *Transactions* of the Royal Academy of Medicine in Ireland, the *Dublin Journal of Medical Science*, and the *Medical Press and Circular*. These writings, though valuable as the result of carefully-observed experience, represent but a small part of his professional work, the greater part of which is preserved as an oral tradition among his many pupils.

Of the personal character of Swan it is difficult for one who owes him so much, and who loved him so well, to write critically. His most striking characteristic was his great strength, both physical and mental. He never seemed to be daunted or oppressed by difficulties. Having made up his mind on any course of action, he pursued it with a quiet determination that almost guaranteed success. Whether in the operating theatre, the hunting field, or the pursuits of daily life difficulties never deflected him from his course. Like many other

strong men he was silent and reserved, and though a delightful and interesting companion he was not a talker. His opinions when expressed seemed to be the result of deep thought, and so were the more valuable. He appeared absolutely to ignore criticism of himself, and followed his own course quite regardless of the opinions that others expressed about him. This characteristic is well exemplified in the early history of the Orthopaedic Hospital. In order to attract public support for the hospital in its early days considerable publicity was given to the work done in it, and the public was made fully aware of the excellent results that followed the treatment of the patients. This procedure aroused active opposition, and Swan was accused of blatant advertisement of his work. His opponents, however, were unable to provoke Swan to reply, or to make him modify his course, and from want of opposition the attack soon died away. We are quite satisfied that it was the hospital and not himself that Swan desired to advertise, and later, when the position of the hospital was fully assured, he resented strongly any public laudation of himself or of his work. While ignoring criticism of himself he was sparing of his criticism of others. When he did criticize the opinions of others he confined his remarks to those opinions, and never attacked the persons who expressed the opinions. After an intimate acquaintance of many years we cannot recall any instance in which he attacked or vilified an individual. To the very last Swan retained that receptiveness of mind which is so commonly lost with advancing age, and he was always ready to assimilate a new idea. In his later years he was a great traveller, and visited many countries. He rarely returned home without bringing with him some new idea for his work which he had learnt while away.

As a friend he was loyal and true, always ready with assistance and advice, an advice founded on his wide experience of men and matters. Though he never sought popularity, or appeared to value it in the least, he won the respect and love of his pupils and friends by his sterling worth and his invariable courteousness. Dublin is the poorer to-day by the death of Robert Swan, and for some of us at least his place can never be filled.

He married in 1868 the widow of Judge Teed, who predeceased him by several years, leaving an only son, Lieutenant-Colonel John Stewart Swan, Indian army.

DR. JAMES VAUGHAN HUGHES, who died at Hemel Hempstead, after a very short illness, on October 25th, at the age of 95, was born in the Vale of Clwyd, North Wales. He served in the Crimea under Sir John Hall, and was for a time in charge of the Balaklava Hospital. In S. M. Mitra's life of Hall the name of Dr. Hughes is mentioned in connexion with the case of Mr. Stowe, distributor of the *Times* Fund for the Sick and Wounded, who was said to have been neglected by the army doctors. A refutation of the charge is found in a letter from Miss Wear to Sir John Hall, where she says: "I became much alarmed and wrote off to Dr. Hughes, who was confined to bed on board the *Walmer Castle*. . . . Poor Dr. Hughes left his bed, and, to my surprise, made his appearance looking more dead than alive, and nearly paid with his life for this last act of attention to Mr. Stowe. . . . Dr. Hughes never left the house until all was over." Hughes was associated with Florence Nightingale in her work, and attended her through an attack of camp fever. Later he fell ill of cholera, and was nursed back to health by Miss Nightingale. He tells the story in his book, *Seventy Years of Life in the Victorian Era*, in which he recorded his reminiscences. Dr. Hughes had lived for many years at Hemel Hempstead, taking the keenest interest in local affairs. He was a governor of the West Herts Hospital and a Commissioner of Taxes; he was formerly a member of the board of guardians. Notwithstanding his great age, he was often to be seen driving a carriage and pair or riding; only a year or two ago he took up motoring, and drove his own car till a few months before the end.

DR. ANDRÉS GARCÍA SANTIAGO, author of the scheme of reform of the Medical Faculty of Havana, died recently in the United States, whither he had gone in search of health. He was a member of the Cuban Chamber of Deputies, and, although much absorbed in politics, never lost an opportunity of furthering the interests of his profession.

The Services.

EXCHANGES.

LIEUTENANT (R.A.M.C.) at the front desires to exchange with another R.A.M.C. officer attached to a base hospital. Address No. 4550, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Regimental Medical Officer attached to Camp, Eastern Command, Woolwich District, wishes to exchange with Medical Officer attached London Command (hospital preferred) Address No. 4449, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

A Captain R.A.M.C.(T.F.), having been in France over two years, now a Radiologist at a base hospital, would like to exchange with a Radiologist on home service. The apparatus here is a presentation one. Address No. 4549, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE Queen's Hospital for Children, Hackney Road, desires to appoint clinical assistants to help the physicians in seeing out-patients.

DR. THOMAS JAMES WALKER of Peterborough left £33,720. He bequeathed a collection of local antiquities to the corporation.

FIVE lectures will be given at the Royal College of Surgeons of England in December by Dr. E. Mellanby, Acting Superintendent of the Brown Animal Sanatory Institution, on the part played in disease by water, salts' and other simple substances.

DR. HENRY HEAD, F.R.S., Physician to the London Hospital and editor of *Brain*, has been added to the Government Committee which, under the chairmanship of Sir J. J. Thomson, President of the Royal Society, is inquiring into the position occupied by natural science in the educational system of Great Britain, especially in secondary schools and universities.

AT the meeting of the Harveian Society of London on Thursday next at the Stafford Room, Tichborne Street, Edgware Road, W., at 8.30 p.m., a discussion on the treatment of fractures will be opened by Mr. Robert Jones, and continued by Mr. Jackson Clarke, Mr. Kellock, Mr. Romer, Mr. Laming Evans, and others. Any members of the medical profession besides the society's own members are cordially invited to be present.

THE Automobile Association and Motor Union offers to advise motorists who are in difficulties with regard to lighting regulations or petrol licences. Applications may be made to the head office, Fanum House, Whitcomb Street, London, W., or to any of the branch offices. The association issues lamp dimming discs, and has revised its pamphlets relating to the lighting laws in England, Wales, and Scotland.

AT the annual meeting of the State Children's Association on November 8th Lord Henry Bentinck, M.P., said that the Local Government Board had promised that all children should be out of workhouses by September next, and that the allowances made for children boarded out should be increased. The Earl of Lytton, who presided, said that the association had worked for years for the benefit of delinquent children. It held that to correct moral defects of character punishment and discipline were out of place.

THE Cross of the Legion of Honour has been conferred on Madame Tscherning, wife of the professor of ophthalmology in the University of Copenhagen, for her work in aid of the French wounded. On August 10th, 1914, she formed, with her husband, a Danish committee, which sent nurses to La Panne in Belgium. In April, 1915, she joined her husband at Tréport, where he had founded a Danish hospital. At the end of the summer of 1915 this hospital was removed to Paris, where the French Government placed at its disposal a fine building in the middle of the Bois de Boulogne with accommodation for a hundred wounded.

MENTION was recently made of the fact that the London and Edinburgh Medical Missionary Association and the S.P.C.K. employ medical missionaries; and the Church Missionary Society asks us to state that it also has medical missionaries. They number at present eighty, working in about forty hospitals and dealing with about 35,000 in-patients yearly. It offers to give information to doctors or nurses, members of the Church of England, who address a letter to the secretary at Salisbury Square, London, E.C. We assume that these societies do not now employ doctors of military age, and that they act in the same spirit with regard to nurses.

THE Royal Society has conferred a Royal Medal on Dr. John Scott Haldane, F.R.S., for his services to chemical physiology, more especially in reference to the chemical changes of respiration. Among the members of the council proposed for election on November 30th are Professor J. G. Adami, M.D., Professor A. R. Cushny, M.D., Dr. Henry Head, and Professor C. S. Sherrington.

THE following members of the profession are among those elected mayors on November 9th for the ensuing year: *Dr. B. Baron (Bristol), *Dr. A. Macgregor Sinclair (Burnley), *Dr. R. A. Bremner (Canterbury), *Dr. P. A. Roden (Droitwich), *Dr. S. R. Alexander (Faversham), *Dr. W. F. Thompson (Launceston), *Dr. M. C. Atkinson (Leamington), Alderman Dr. G. J. Maguire (Richmond, Surrey), *Dr. J. P. Atkinson (Saffron Walden), *Alderman Dr. H. B. Bates (St. Helens), Dr. J. Harris (Shaftesbury). Those marked with an asterisk have been re-elected. Dr. A. Macgregor Sinclair, who has been re-elected for Burnley for the second time, is a native of Caithness shire, and graduated M.B., C.M.Aberd. in 1890. He is honorary surgeon to the Victoria Hospital, Burnley.

THE Board of Pensions Bill has been printed. Its scope was explained by Mr. Henderson in introducing it on November 14th. It consists of eight clauses. Clause 4 defines the advisory position of the Statutory Committee in relation to the Board of Pensions, and authorizes the board to delegate to the committee any powers and duties. Clause 7 provides that the president and one of the secretaries of the board shall not by reason of their offices be incapable of sitting in the House of Commons. Clause 8 provides for the transfer to the Board of Pensions of persons employed under the Chelsea Commissioners, the War Office, or the Statutory Committee. Clause 3 transfers to the Admiralty the powers and duties of the Statutory Committee under the Naval and Military War Pensions Act, 1915, so far as they relate to the supplementation of pensions and grants out of funds provided by Parliament.

THE Central Midwives Board held a penal session on November 8th, when Sir Francis Champneys presided. Final and interim reports on eight women from local supervising authorities were satisfactory. It was decided to take no action in four instances, and adjourn the others for further reports. Various charges, including neglect of ophthalmia neonatorum, general ignorance, and disregard of the rules, were considered. At the monthly meeting of the Board on November 9th letters were read from the Board of Education on certain proposed grants in aid of the training of midwives, and on a draft form of regulations for grants for the training of midwives. The secretary submitted the report on the work of the Board for the year ending March 31st, and it was agreed to forward a copy to the Privy Council.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2651, Gerrard. (2) FINANCIAL and CLERICAL MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2640, Gerrard. (3) MEDICAL SECRETARY, *Meditecra, Westrand, London*; telephone 2650, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

INCOME TAX.

W. G. P.—The cost of living of the incumbent is as much an expense of the personal practice as the payment of the curate, and is admissible as a deduction in the same way, notwithstanding the fact that the incumbent is not charged to income tax on the value of the board and residence provided for him. As to what "would be an equivalent salary exclusive of board and lodging," that question depends too much on local and individual circumstances to permit of a definite answer. We can only say that the figure to be aimed at is the amount of the additional expense incurred by the principal in respect of the presence of the incumbent. Perhaps an exclusive of £100 per annum would be found reasonable, and we imagine that the income tax authorities would not cavil at that sum.

As "V. M. L." is a member of the existing firm, and that is the assessment for the old firm, he is liable to assessment on the profits of the firm's average profits in the past three years. On the other hand, if the profits of the new firm fall short after the succession "from some specific cause," then a claim may be lodged under Rule IV of Cases I and II, Schedule D, for the firm to be assessed on the profits of the year itself instead of on the average. If our correspondent can establish the existence of a specific cause, we advise that an intimation should be sent to the surveyor of taxes to the effect that a claim for adjustment will be made in due course. Possibly some arrangement could be made to have the claim in abeyance until the July, 1917, instalment of the tax becomes due. We do not think that a claim can be made in respect of the insurance premiums or furnishing, as they appear to represent an investment of capital in the practice rather than professional expenses chargeable against profit.

M.D.—Persons serving "in any work abroad of the British Red Cross Society or St. John Ambulance Association" are entitled: (1) For the year 1914–15 to assessment for civil earnings on the actual profit of the year instead of on an average . . . Finance Act, 1914 (Session 2), 13 (1). (2) For the year 1915–16, as above, and, if his total income does not exceed £300, to the pre-war rates of tax and scale of abatement. (3) For the year 1916–17, to No. (1) as above, and to the reduced (that is, army) rate of tax on "his pay in connexion with such service." The other question asked by our correspondent is one upon which a solicitor should be consulted.

RECLUS ANTISEPTIC POMADE.

A. J. A.—Several preparations seem to go by the name of "Reclus antiseptic pomade," but all apparently contain iodoform and antipyrin. We are indebted to Mr. W. H. Martindale for the following formulae extracted from the sources indicated:

1. Iodoform 1 gram, boric acid 5 grams, antipyrin 5 grams, vaseline 50 grams.—Bouchardat's *Formulaire*.

2. Antipyrin 1 drachm, salol ½ drachm, boric acid ½ drachm, iodoform 15 grains, carbolic acid 15 grains, mercury perchlor. 2 grains, vaseline 7 grains.—*Chemist and Druggist*, October 14th, 1905, p. 627.

3. Antipyrin 5 grams, iodoform or iodol 1 gram, carbolic acid 1 gram, salol 3 grams, boric acid 3 grams, mercury perchloride 0.1 gram, vaseline 200 to 400 grams.—Gene's *Codex*.

4. Corrosive sublimate 0.03 gram, phenol in crystals 0.30 gram, salol 1 gram, iodoform 0.50 gram, antipyrin 5 grams, boric acid 5 grams, sterile petrolatum 40 grams.—Nigay: *Journal de Médecine de Paris*, April, 1916.

LETTERS, NOTES, ETC.

DR. S. V. S. BOYD (Fenton, Staffs) has addressed a letter to the President of the Local Government Board stating that, having kept notes of the number of attendances at his surgery for treatment by persons suffering from venereal infections, he found that in spite of the most pointed and careful warnings, 90 per cent. attended an insufficient number of times, and 65 per cent. only three times, or less often.

A WARNING: SPARKING PLUGS.

WE have on several occasions published, at the request of practitioners who have had unsatisfactory experience, a warning against buying sparking plugs from persons who call representing themselves to be agents for manufacturers. Oddly enough, the north of England seems to be the hunting ground of these persons, for another correspondent in that part of the country tells us that he has recently paid for some plugs on a seven days' trial; his experience was unfortunate, and his letter claiming return has been returned from the post office marked "Not known."

DR. WILLIAM DERHAM.

DR. GEORGE HAMILTON is compiling a biographical memoir of William Derham, rector of Upminster, Essex (born 1653, died at Upminster 1735), who was the writer of *Astro-theology and Christo-theology*, and editor of John Ray's works. Dr. Hamilton asks for the loan of any book, MSS. or printed, that would throw any light upon the subject. Dr. Hamilton is, on his mother's side, great-great-grandson of Robert Derham of Dolphinholme, or Lancaster, and the name can be traced to Elias de Derham, a famous architect in the time of King John, 1199–1216. Any documents or valuable MSS. entrusted to Dr. Hamilton at Canute House, Old Fishbourne, would be carefully kept and duly returned to the owners. The Rev. B. Hamilton, his father (late vicar of Fewcott, Bicester, Oxon.), is acting as editorial secretary, and to him all correspondence should be addressed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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A whole column	3	10	0
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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

EXCISION OF THE KNEE-JOINT AS A METHOD OF TREATMENT FOR SEVERE INFECTIONS.

BY

COLONEL ANDREW FULLERTON, C.M.G., A.M.S., M.D., M.Ch., F.R.C.S.Irel.,

CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE.

THE treatment of wounds of the knee-joint produced in warfare has received a good deal of attention of late, and much progress has been made. Colonel Gray and his followers have done much to perfect what may be called the "closed" method. Excision of septic wounds into the joint and removal of foreign bodies, if present, followed by complete suture of the synovial membrane, is now the almost universal practice among British surgeons in France. The results of drainage of the joint by tubes, as we used to see them in earlier days, were disastrous. Old traditions die hard, and officers fresh from England are still inclined to adopt the system of drainage recommended in textbooks of surgery. This is to open the suprapatellar pouch or incise on either side of the patella and insert drainage tubes in cases of infection of the joint.

Our experience has been that quite a fair proportion of distended knee-joints containing actual pus, from which micro-organisms may be grown, settle down and recover

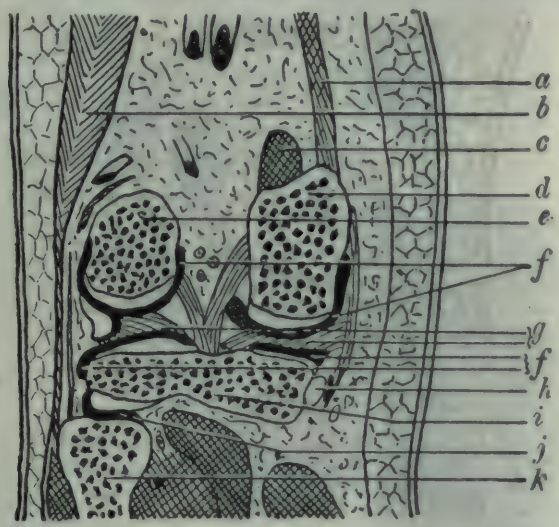


FIG. 1.—Vertical transverse section through joint. *a*, Adductor magnus muscle; *b*, biceps muscle; *c*, inner head of gastrocnemius muscle; *d*, inner condyle of femur; *e*, external condyle of femur; *f*, joint cavity; *g*, semilunar cartilage; *h*, tendon of semimembranosus muscle; *i*, tibia; *j*, superior tibio-fibula joint; *k*, head of fibula.

movement after aspiration, aspiration and irrigation, or aspiration followed by the injection of such substances as glycerine and formalin (a few cubic centimetres of a 2 per cent. solution at least forty-eight hours old), or ether. In a certain proportion of cases, however, this line of treatment fails. The joint fills up again and again with pus, the cells of which perhaps show diminishing instead of increasing phagocytosis. Pain in the joint increases, the temperature rises, the pulse increases in frequency, and the general condition of the patient becomes such that it is obvious that something radical must be done to save his life if not his limb.

One is often asked why the old method of drainage by inserting tubes into the joint is not to be adopted; it is surely one of the canons of surgery that pus must be "let out" and an infected joint drained. For reply we point to our unfavourable experience of its results in this war. The introduction of drainage tubes favours the entrance of microbes other than the original offenders, and a mixed intection is only too certain to result. Lieutenant-Colonel Elder, who has taken a great interest in this branch of work, invited me to follow with him a series of cases of wounds of the knee-joint. In eleven cases tubes had been introduced into the joint shortly after injury and before arrival at his hospital. Three of these cases required amputation to save life, five were evacuated to England with total disorganization of the joint and sinuses still discharging, and three gave promise of slight movement. These results are not encouraging. Similar results, or worse, have been common in the experience of other surgeons in France.

The difficulties one has to contend with in dealing with an infected knee-joint will be apparent when the anatomy of the articulation is studied. I have elsewhere[1] illustrated by drawings of sections through the joint at different levels and in several planes the various recesses, diverticula, and communications with bursae which militate against satisfactory drainage. These show conclusively, I think, that the best attempts at drainage must be inefficient. It is, in fact, impossible to drain the knee-joint. Let us consider the methods formerly adopted. Incisions were made on either side of the patella or into the suprapatellar pouch, which is in communication, as a rule, with a further extension in the form of a bursa—the suprapatellar bursa (Fig. 2). These parts appear to be the situations most requiring drainage on account of their obvious swelling and tenseness. They only receive, however, the overflow from the joint proper, which is just as tensely filled, though this is not so obvious on account of the surrounding resistant structures. The pockets between and around the cruciate ligaments in the intercondyloid fossa (Figs. 1, 2) are left undrained. These cannot be reached for dependent drainage except through the popliteal space, the posterior ligament, and a thick layer of tissue, which includes the

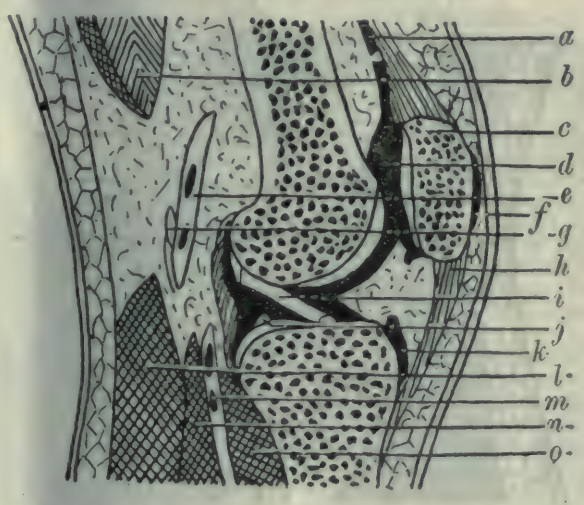


FIG. 2.—Vertical antero-posterior section through middle of joint. *a*, Suprapatellar bursa; *b*, semimembranosus muscle; *c*, patella; *d*, joint cavity; *e*, popliteal vein; *f*, prepatellar bursa; *g*, peroneal nerve; *h*, patellar ligament; *i*, anterior cruciate ligament; *j*, posterior cruciate ligament; *k*, bursa over tubercle of tibia; *l*, gastrocnemius muscle; *m*, popliteal artery; *n*, soleus muscle; *o*, popliteus muscle.

posterior cruciate ligament (Fig. 2). The pouches surrounding the condyles of the femur posteriorly, the interstices between the semilunar fibro-cartilages the lateral ligaments and the bones (Fig. 1), and the tube of synovial membrane which accompanies the popliteus tendon as it passes over the external semilunar cartilage and the superior tibio-fibular joint (sometimes communicating with the latter) (Fig. 4) are left undrained by lateral incisions in the anterior part of the synovial cavity. Similarly, the bursa under the inner head of the gastrocnemius, which so frequently communicates with the joint (Fig. 3), is left undisturbed. We have seen a few cases in which the suprapatellar portion, or even the whole of the anterior part of the joint, has become shut off from the main cavity. In these, no doubt, anterior drainage might be sufficient, but such cases are rare. Attempts have been made to drain the pouches behind the femoral condyles by introducing tubes through incisions in the capsule posteriorly. The latter is, however, so closely applied to the articular surfaces (Figs. 3, 4) that the tubes cannot be made to penetrate for any distance into the joint.

At any rate, the attempts made in this direction have failed. We have watched the career of patients treated by tubes placed in every conceivable corner of the joint. The results in those that have escaped with their lives

have been a stiff, swollen, painful limb, with sinuses discharging for weeks or months. We cannot believe that the final results, should the limb ultimately be saved, will compare at all favourably with those following a successful excision. Some of these joints that have healed up after a long and tedious convalescence have again lighted up after some slight movement or some attempt on the part of the surgeon to remedy deformity. This is probably due to the presence of residual septic material which lies dormant in some of the pockets referred to above.

In some quarters it has been the custom in bad cases of infection to turn back the patella, divide the lateral and cruciate ligaments, remove the semilunar fibro-cartilages and acutely flex the joint. When sepsis has been controlled—a process which may take six weeks or longer—the limb is straightened out, or a late excision is performed. The flexed position is extremely irksome for the patient, and it is difficult to arrange proper splinting to keep the parts at rest. Besides, this method fails fully to expose and drain the posterior part of the joint. The control of sepsis may take weeks to accomplish, and at the end of that time extension of the limb or excision may wake up the recently allayed infection. If excision is not done, the articular cartilages must be shed or removed if a firmly ankylosed knee is to be obtained. In addition to this, the intercondyloid and other recesses will probably be filled with granulation tissue, which must organize into badly-nourished scar tissue, in the meshes of which one may imagine imprisoned nests of infective material ready to declare their presence on the slightest provocation.

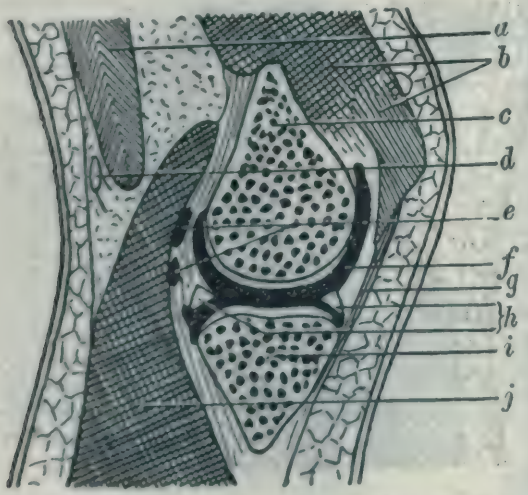


Fig. 3.—Vertical antero-posterior section passing through inner condyle. *a*, Semimembranosus muscle; *b*, quadriceps muscle; *c*, inner condyle of femur; *d*, tendon of semitendinosus muscle; *e*, bursa under gastrocnemius; *f*, cavity of joint; *g*, patellar ligament; *h*, internal semilunar cartilage; *i*, tibia; *j*, inner head of gastrocnemius muscle.

Excision with Wide Separation.

For the past six months or so in the hospitals of the base to which I am attached as consultant I have been advocating excision of the bones with wide separation of the ends as a method of dealing with certain knee-joints in which conservative methods have failed. This procedure is carried out for the purpose of drainage, even if the bone ends have not been injured.

The operation is conducted as follows:

Lateral incisions are carried from above down, commencing two inches or more above the level of the upper border of the patella, and extending to the level of the tubercle of the tibia. These incisions are made far back so as to be on the same plane as the posterior ligament. They are joined at the level of the tubercle of the tibia by one which severs the ligamentum patellae. The flap thus included is turned back. The condyles of the femur are removed just above their cartilaginous surfaces, and a thin strip, removing the articular cartilage, is taken from the upper end of the tibia. The total length of bone removed is just under two inches. The finger explores the posterior surface of the space left, and the communication with the bursa under the inner head of the gastrocnemius (Fig. 3) is opened up or the bursa removed altogether. The popliteus extension of the synovial membrane is cut across with the tendon, but is not further interfered with. If an attempt is made to dissect this further, the superior tibio-fibular joint may be opened and infected (Fig. 4). The open end of the sheath may be left to drain. In some of our cases the suprapatellar extension with the bursa in continuation of it (Fig. 2) has been removed. I am not sure whether this is desirable, as by doing so the fascial planes of the thigh may be opened up and infected. Further experience is required on this point. The suprapatellar pouch (Fig. 2) can be drained much better if the patella is removed, and this is always done.

The limb is placed on a Thomas's knee splint, and wide separation of the sawn ends of the bones is obtained (Fig. 5) by fixed extension in the manner suggested by Lieutenant-Colonel Robert Jones, of Liverpool, for fractured femur. A few stitches anchor the flap at the lower end, but the lateral margins are left open for drainage. Slings attached to the bars of the splint support the inferior surface of the calf and thigh, and maintain the proper alignment. The suprapatellar pouch and the cavity left between the bones may be packed around Carrel's tubes or drained in the ordinary way. Subsequent treatment is on the same lines as that of compound fracture of the femur.

The ends of the bones must not be allowed to approximate until sepsis has been completely controlled, and then very gradually.

If attention is not paid to this point, recrudescence of sepsis is very liable to occur, and the advantages of the operation will disappear. It is hoped that the thin layer of granulation tissue which forms over the ends of the bones will in time be converted into firm osseous tissue. Should firm union fail to take place, it would be a simple matter, when all the wounds have healed, and there is no longer danger of stirring up latent infection, to trim the bone ends and bring them together as in the ordinary excision of civil practice.

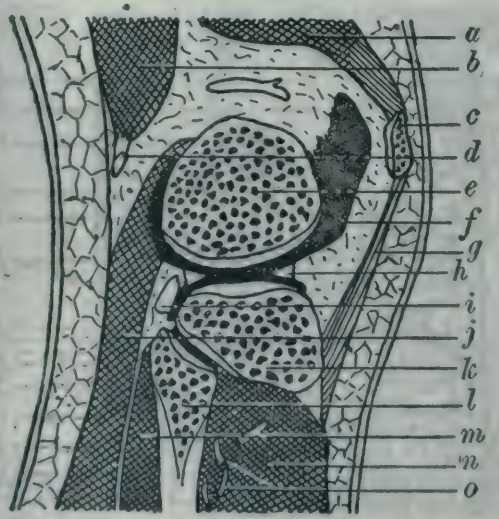


Fig. 4.—Vertical antero posterior section passing through outer condyle. *a*, Quadriceps muscle; *b*, biceps muscle; *c*, patella; *d*, peroneal nerve; *e*, femur; *f*, joint cavity; *g*, patellar ligament; *h*, external semilunar cartilage; *i*, tendon of popliteus; *j*, gastrocnemius muscle; *k*, tibia; *l*, fibula; *m*, soleus muscle; *n*, tibialis anticus muscle; *o*, anterior tibial vessels.

Advantages of Operation with Wide Separation.

Let us now consider what we have accomplished by this operation.

1. All obstacles to drainage have been removed. The pouches in the intercondyloid fossa, the extensions under the semilunar cartilages, the pouches behind the condyles, the bursa under the inner head of the gastrocnemius and the extension of the synovial membrane along the popliteus tendon have all been dealt with by one sweep (Figs. 1, 2, 3 and 4). In fact, every pocket has been removed except the suprapatellar extension, and this must be thoroughly opened up and drained.

2. We are now dealing with what is, in effect, a compound fracture with broad bony surfaces, without comminution, easily replaced in position when desired, without laceration of muscle, and with the best possible drainage.

The posterior ligament acts as a barrier against pus tracking into the popliteal space and the position of the lateral incisions allows of fluid being drained off at the lowest level of the cavity.

3. The risk of residual pockets remaining after ankylosis is reduced to a minimum.

4. It is an advantage with a stiff knee that the leg should be shorter than its fellow of the opposite side. This allows the foot to swing free of the ground in walking without the toes hitching with every step. In an ordinary case the shortening is just under two inches and part of this can be restored, if necessary, by raising the heel of the boot on the affected side. A little shortening is, as I have said, an advantage.

Objections to the Operation.

I have pointed out some of the advantages of the operation. It is necessary now to meet, on the other hand, some of the objections that have been urged against it.

1. *Shock.*—I am not satisfied that the shock of excision in capable hands is more than that of an amputation through the thigh. We have in some cases completed the operation in half an hour. No great nerves are cut, and bleeding from the soft parts is comparatively easy to control. Access to the ends of the bones for removal by the saw is facilitated by the extensive flap. If amputation is to follow, through failure of excision to control the sepsis, the risks are, of course, greater to the patient. The possibility of this increased risk is a matter for careful consideration in deciding on excision in the first instance.

2. *Oozing from the Sawn Surfaces of the Bones.*—This has occurred in two or three cases only, to my knowledge, and can, I feel certain, be controlled by packing. I have not yet dared to use aseptic wax to seal the bleeding points in the bone, for fear of damming back exudation which may be septic, but this is a method to be thought of should oozing be troublesome and confined to one or two points.

3. *Exposure of Freshly-sawn Ends of Bone to Infection.*—This is a theoretical objection which does not hold good in practice. The section is clean, the bone is not comminuted or badly bruised, and drainage is so good that retention is unlikely to occur. Osteomyelitis, starting from the cut surfaces, has not been a feature in our cases.

4. *Protracted Convalescence.*—It will be admitted at once that greater demands will be made on the patient's resources after excision than after amputation. The earlier days or weeks of his convalescence will be attended with some anxiety and trouble, and it may be six months or more before he is able to move about by himself without mechanical support. A judicial survey of all the circumstances connected with the patient's state of health, his social position, and his employment after the war, will help to guide the surgeon as to what effect the objections under this and the following heading should have upon his course of action. If he is in doubt of the ability of the patient to stand the strain of the greater demands that will undoubtedly be made on his reserve of strength by excision, he ought to amputate rather than excise. The patient, not his leg, must be given the benefit of the doubt.

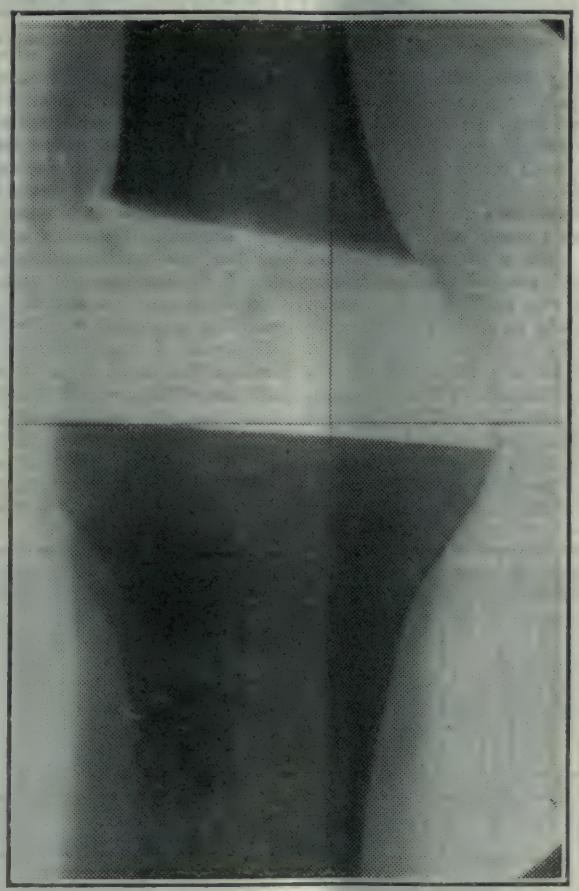


Fig. 5.—Skiagram showing the amount of bone removed, and the position in which the ends of the bones should be maintained until sepsis is controlled. The section of the femur is a little too oblique.

5. *Stiff Knee-joint.*—The high state of perfection to which artificial limbs have been brought has given rise to the opinion in some minds that a light, comfortable, efficient, and well-shaped artificial limb, with a movable knee-joint, is preferable to a stiff leg. It must be admitted that a patient with such may pass muster as a sound man. There is, however, always the sentimental objection, and few patients, if given their choice, would choose the mechanical device, however perfect, in preference to their own leg, even with a stiff knee-joint. Artificial limbs must always remain complicated and liable to get out of order, necessitating the attention of an instrument maker who may be continents away, and unless the patient has the good fortune to possess a spare one, he may have to go without during the time his artificial limb is in the repair shop. Very few men in humble circumstances will be able to afford the luxury of a succession of highly complicated appliances, and while public funds for such may be available during the excitement of war and for some time after, it is not unlikely that the final successor of the shapely artificial limb may be the less pretentious pin and bucket. It is wonderful how little real disability a stiff knee gives rise to after the patient gets used to it.

Results.

It is too early yet to speak of the final results. We are concerned in the meantime with the problem of combating sepsis and saving life. Whether the final results will repay the trouble spent in saving the leg remains to be seen. We have done over sixty cases at this base and have only had news of the fate of a very few. The first case done on these lines was under the care of Captain McDonnell at a base hospital. The patient was wounded on March 18th, 1916, by a rifle bullet which entered posteriorly through the popliteal space on the right side, and lodged in the femur at the intercondyloid fossa. *X* ray showed fracture of the internal condyle. The entrance wound was septic when I saw him on the 20th. The joint was distended, tense, and painful. Pulse 88; temperature 101.4°. There was no injury to the great vessels and nerves in the popliteal space. A large flap was turned up in order to examine fully the damage inflicted. The bullet was found deeply embedded in the intercondyloid notch, with some comminution at the point of impact, and a transverse fracture separated the internal condyle from the rest of the bone. The cruciate ligaments were torn, and the joint was filled with blood clot. Having regard to the obvious sepsis, the comminution of the femur, and the injury to the cruciate ligaments, we decided that the chances of the patient having a movable joint, even if he escaped a violent septic arthritis, were very slight. We discussed the question of amputation, but finally determined to try excision with wide separation of the bones for drainage. This was immediately carried out. The temperature rose to 102.4° on the evening following the operation, and fluctuated between 99° in the morning and 101° in the evening for seven days, after which it ranged from about 100° in the evening to normal in the morning for another seven days. On two occasions subsequently he had flares of temperature lasting for several days at a time. The temperature reached 104° F. on the first

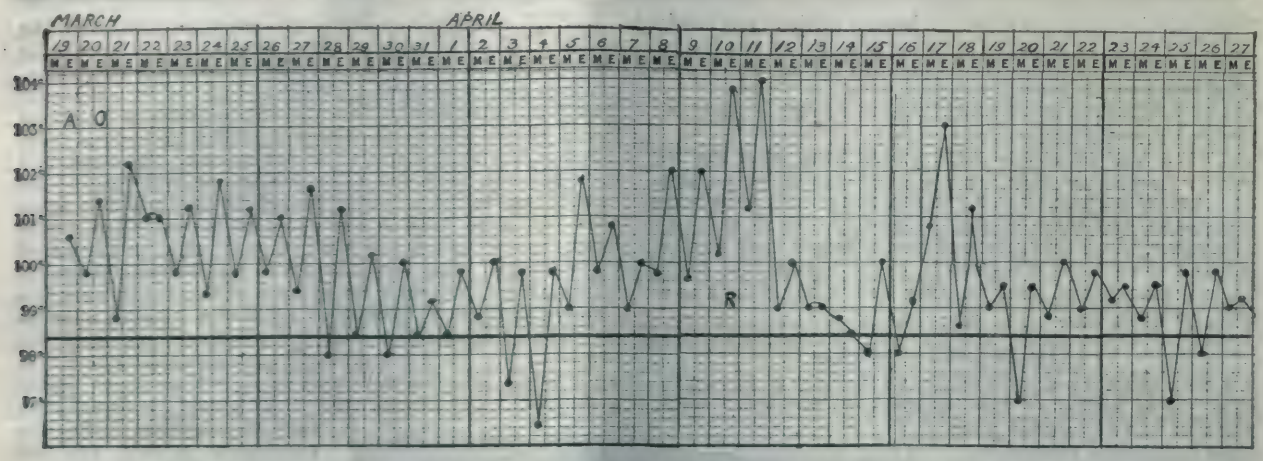


CHART 1.—Comminution of femur. Excision of knee on third day after injury. A, Admission; O, operation; R, rigor.

occasion and 103° in the succeeding attack (Chart 1). The patient's general condition, however, was so good and the wounds looked so healthy that we felt sure this temperature was due to some other cause (possibly "trench fever"). We held on, therefore, with our efforts to save the leg, and the case gave no further anxiety. The ends of his bones were gradually allowed to approximate. He was evacuated to England about six weeks after his injury in excellent condition with his limb still in a Thomas's splint. Captain McDonnell heard from him five weeks later, when he reported that he was walking about with a support on his leg and his wounds entirely healed. We have operated on cases up to ten days or more after injury. It will suffice at the moment to say that the results as regards cessation of pain, subsidence of temperature, and improvement in the general condition of the patient have been encouraging. The temperature and pulse do not come down at once, as a rule. As in the case mentioned, a week or ten days or more may elapse before the evening temperature touches the normal line, but as long as the general condition of the patient remains satisfactory we are content to wait. We are, however, always ready to intervene further should untoward symptoms occur, such as rise of pulse and temperature, and before anæmia, wasting and anorexia show that the patient is finding it impossible to cope with his infection. It is well to be prepared for the gradual settling of the temperature and not to expect too much all at once.

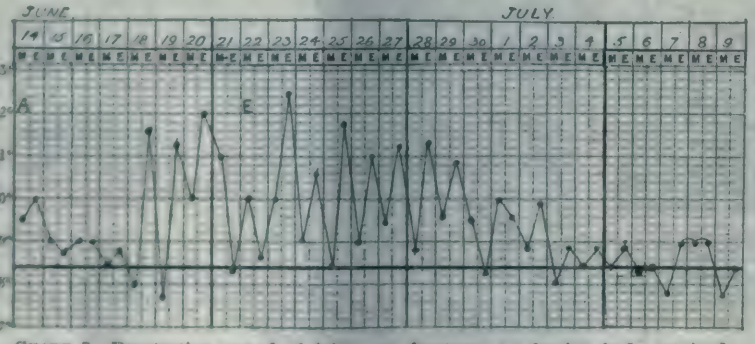


CHART 2.—Penetrating wound of joint; no fracture; no foreign body retained. Excision of knee for increasing sepsis, œdema of leg and thigh, and rising pulse-rate, on tenth day after admission. A, Admission; E, excision of knee.

The patient's general condition is a better guide than the swing of his temperature, provided the latter is within reasonable limits. Excision of the knee with bone injury is carried out exactly as I have described for sepsis, but it is essential to get well beyond the comminution. Several inches may be removed in the hope that the surgeon who finally has charge of the patient at home may be able to graft bone when all sepsis has ceased. This may be necessary to give the patient a limb of serviceable length. If joints with badly comminuted bone ends are seen early, before sepsis has had time to develop, it may be possible to allow the bone ends to come together at once, as in the ordinary cases of civil practice.

STATISTICS.

Statistics which deal with cases which have not been traced to their final termination must be regarded as unsatisfactory. On the other hand, it is desirable that the immediate risks and results of a major operation, such as excision of the knee, should be placed before those who may be called upon to perform these operations. As I have stated, the ultimate results of our cases are not at present available. It may be that cases of excision which we have considered safe as regards limb and life on evacuation have subsequently belied our hopes. Time will tell. For the information of those who are not working in France it may be stated that our cases are not evacuated until sepsis has been controlled and danger to life averted. We have endeavoured to keep our excisions of the knee until the temperature has become normal and the limb is apparently safe.

In the area to which I am attached we have carried out the operation on the lines indicated in this paper in 64 cases. Twenty-two of these were operated on on or before the third day, for shattering of bone combined in all cases with septic wounds into the joint. There have been no amputations and no deaths in this series. The remaining 42 cases, all of which were septic, were operated on between the third and twenty-fifth day. Two died after the operation. One, operated on seven days after his injury, died from shock and oozing from the cut surfaces of the bones. The second case had an incomplete excision carried out at a clearing station within twenty-four hours of his injury. When he reached the base he was doing well. His temperature shot up later, however, and the excision was completed on the twelfth day by removing more of the comminuted femur and the cartilaginous surface of the upper end of the tibia, which had been left at the first operation. He died from septic infarcts in the lungs a few days later. Thirteen cases required amputation owing to failure of the excision to control sepsis, and of these four died. In the cases that died the excision was carried out on the tenth, twelfth (two cases), and twentieth day respectively. The last case was a boy who had already had one leg amputated, and, against our better judgement, we yielded to his demand that amputation of the remaining one should not be performed. Major West did what we considered the next best thing, but the operation failed, and a subsequent amputation, as a last resort, did not succeed in saving his life. In the other three cases pus had, at the time of the excision, begun to track in the thigh or leg, and this we now believe to be a contraindication to the operation.

It will thus appear that the total mortality was six cases out of a grand total of sixty-four. Two of these followed excision alone, and four occurred after a subsequent amputation. From a study of these statistics, incomplete as they are, one can form a fair estimate of the risks of the operation. It must be remembered that a patient who will not submit to an amputation will, even

when the additional risk is explained to him, submit to an operation which gives him a fair prospect of retaining his leg, even with a stiff knee. Fifty cases reached the stage of apparent safety as regards limb and life. Most of these have been evacuated to England, and the remainder are about to be transferred. Those operated on within a few days of the dispatch of this paper are not included, as they are obviously useless for statistical purposes.

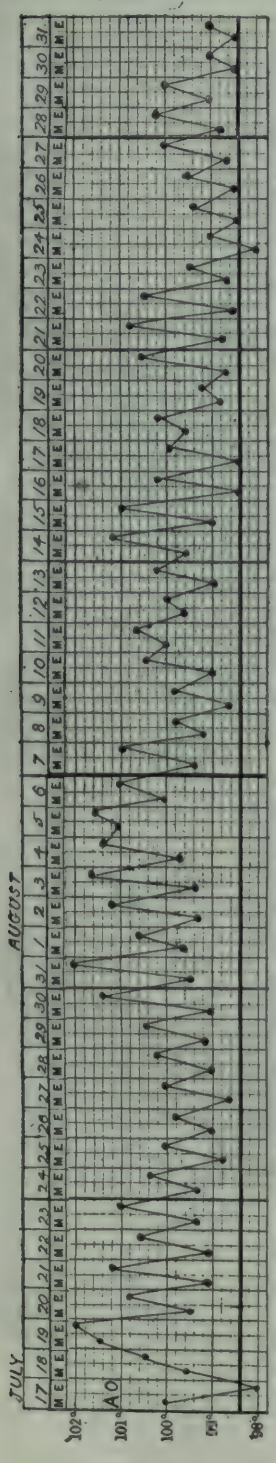


Chart 3.—Septic wound into joint; shell fragment embedded in internal condyle; comminution. Excision of knee on third day. Ends of bones now in position and union proceeding. A, Admission; O, operation.

As might be expected, the results of the operation vary in the hands of different surgeons, chiefly, I think, owing to the selection of cases. One officer, for instance, reports from his hospital twelve cases, six operated on on or before the third day for shattered bone, and six between the seventh and eleventh days for sepsis after failure of the closed method. There have been no deaths in this series, and no amputations while the patients have been in France. One case had amputation performed the day following his arrival in England.

If these statistics can be considered as proving anything they demonstrate first, that cases with shattering of the femoral condyles or upper end of the tibia, or both, if suitable, can be operated on by this method with practically no risk if dealt with within three days of the receipt of the injury; and secondly, that cases operated on for sepsis are likely to show good results if dealt with early, say within seven days. After this period, the prospects of saving the limb are less hopeful and the danger to life more serious.

While searching out these statistics I have seen several *x*-ray photographs showing the results of treatment. Bony union appears to have occurred in some instances after a period of ten weeks or thereabouts. In some, it appears that lateral shifting of the tibia on the femur has occurred. This can be prevented by suitable measures, if recognized before union is complete. During convalescence, therefore, it would be well occasionally to ascertain the relative position of the bone ends, and rectify malposition while the bond of union is soft.

Indications.

A great deal of judgement will be required to select cases for excision. It may be stated at once that the patient's life must not be unduly risked in the attempt to secure to him what is after all a somewhat disabled limb. It is difficult on paper to give reliable indications, but I will mention a few guiding principles that have been helpful to us. The reader must understand, however, that general impressions of the patient's condition, which can only be gained by experience of a large number of cases, must be the ultimate guide. Let us take a case. A patient is brought to the base with a punctured wound

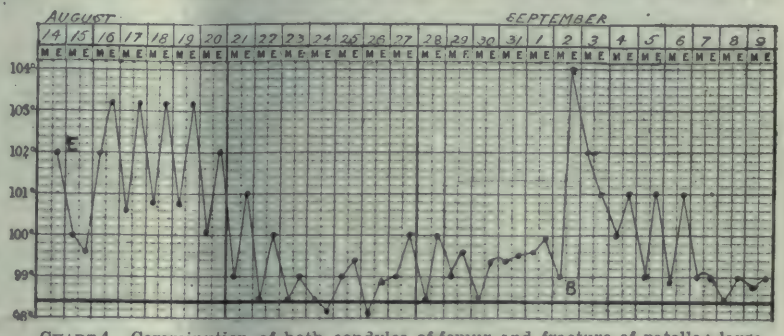


Chart 4.—Comminution of both condyles of femur and fracture of patella; large lacerated wound into joint; softs parts and bone filthy. Excision of knee on third day after injury. E, Excision; B, bronchitis.

of his knee-joint, and a retained fragment of shell with or without injury to the bone. Let us assume that the wound is excised with the greatest care, the fragment removed, the joint cleansed, its contents set aside for culture, the synovial membrane accurately stitched, and the soft parts overlying either sutured up or a drain inserted down to but not into the joint. A splint is applied and the result awaited. The joint fills up again. Aspiration is performed, and micro-organisms, let us say streptococci, are found. The joint may be irrigated and again sealed, after perhaps the introduction of ether, or formalin and glycerine. Phagocytosis is perhaps found to be deficient. Again the joint fills up, and becomes hot and tense. The same procedure as before is repeated, until it becomes evident that improvement is unlikely to take place and the patient begins to show the effect of his infection in his general condition. His temperature rises

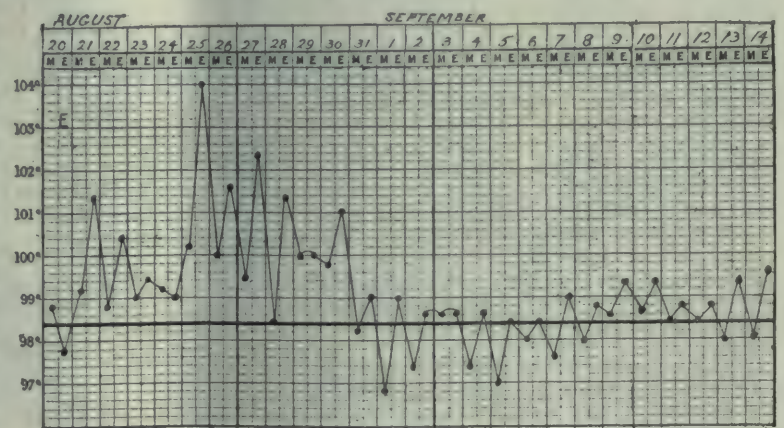


Chart 5.—Comminution of both condyles of femur and of head of tibia. Excision of knee on third day after injury. E, Excision.

and his pulse increases in frequency. Oedema of the lower part of the thigh and upper part of the leg begins to appear. Obviously something more must be done. It is at this stage that attempts to drain the joint have been made by incising freely on either side of the patella and inserting tubes here and into the suprapatellar pouch.

As I have already said, our experience of these attempts has been very unfortunate, and often, after a few days, we have been driven to the last extremity—namely, amputation—to save life. I wonder how many movable joints have been obtained by this method of drainage as adopted in this war. Of the many cases I have seen so treated in France I cannot call to mind a single satisfactory case—

that is, one that gave any promise of a freely movable efficient joint. It is to replace this system of drainage that I suggest that excision of the ends of the bones with wide separation has its legitimate place. If done early, that is, as soon as it becomes evident that the closed method is doomed to failure, and before any marked oedema of the leg and thigh has set in, limbs will be saved that would otherwise inevitably require amputation.

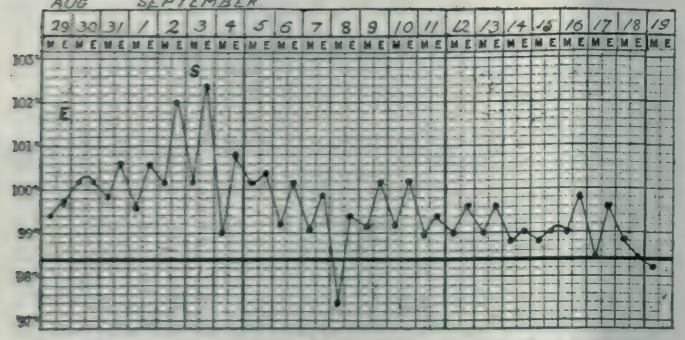


CHART 6.—Comminution of head of tibia; dirty wound. Excision of joint third day after injury. E, Excision of knee; S, splint changed under chloroform.

If a policy of waiting is adopted, the risks of the procedure are much increased. If the patient has a good colour, if his appetite remains good, if he is not wasting, if his pulse though rapid is of good tension, if he is cheerful and his condition as a whole fairly satisfactory, excision ought, in my opinion, to be considered, provided always that pus has not broken through the synovial membrane and tracked in the fascial planes of the thigh or leg. If, on the other hand, he is anaemic, if he has lost much flesh, if his appetite is poor, if he is restless and sleepless, if his tongue tends to be dry, if his pulse is rapid and flapping in character, and his condition as a whole gives rise to anxiety, it would be tempting Providence to do anything short of amputation.

If pus has begun to track in the thigh or leg, excision will probably fail and a subsequent amputation will very likely be required.

If the patient is struggling with other severe wounds, excision is, I think, contraindicated unless his general condition is very good indeed.

If one compares the condition of a patient who has been drained in the old way with one after excision he will, I think, be convinced that the morbidity is less after the latter operation, and that the relief of pain is more immediate and complete. We have in some cases had to amputate after excision had failed, but in these the operation had probably been done too late. It is a nice point to decide on the best time for an excision, but we are inclined lately to do it early. In other words, we give the closed method a chance for a few days. If the joint is not at the end of this time beginning to settle down, immediate excision will, I feel sure, save amputation in a fair proportion of cases. In fulminating cases amputation rather than excision will be required to save the patient's life.

It will be gathered that excision is here recommended as an alternative to drainage by the older methods, and to amputation. If the surgeon is satisfied that a less radical measure than amputation will suffice in a case in which the closed method has failed, he will be the more inclined to operate early, and the statistics of excision will improve accordingly.

The accompanying charts will give some idea of the course of the temperature after successful excision.

I am indebted to Captain McDonnell for Charts 1, 2, and 4, to Captain Whittington for Chart 3, to Captain Lock for Chart 5, to Captain Edye for Chart 6, and to Captain Palmer for Chart 7.

Adjustment of Splint.

I have been asked to add a few words on the splint and its management. All our cases have been treated with a Thomas's knee splint. The junctions between the bars and the ring ought to be so welded or brazed that no irregularity is left which might project through the padding and cause intolerable pressure over the ischial tuberosity. The ring must be firmly padded, and should not be too wide or too thick. If too wide, it will be impossible to keep it in contact with the ischial tuberosity, from which, and not from the perineum, the bearing must be taken. Sizes from 22 to 25 inches in circumference will be found the most suitable. If too thick a ring is used, a firm bearing will be impossible to obtain. Considerable traction will be required to overcome spasm and keep the bones apart. In order to maintain this, the extension straps should be inspected daily, and any slipping or loosening adjusted. A rise of temperature or pulse will often indicate that the traction is insufficient to keep the bones far enough apart to provide free drainage between the ends. In Chart 6, the temperature did not begin to settle until comfortable adjustment and sufficient traction had been obtained. Painful spasm is an indication that either the splint is unsuitable, or has not been properly applied.

There is one other practical point. As we have been making our lateral incisions further and further back in order to secure satisfactory drainage of the cavity between the bones, it has become increasingly difficult to drain the proximal portion of the suprapatellar space, whether the synovial membrane has been removed or not. To meet this, it has been necessary in some cases to make a median incision at the extreme upper limit of the space in question and insert a tube so as to ensure that no pocketing shall take place. Sir Almroth Wright's most recent irrigating apparatus, "the Boulogne rose irrigator," which is now available, and can be obtained from the Base Medical Stores in France, might be of great service in these cases.

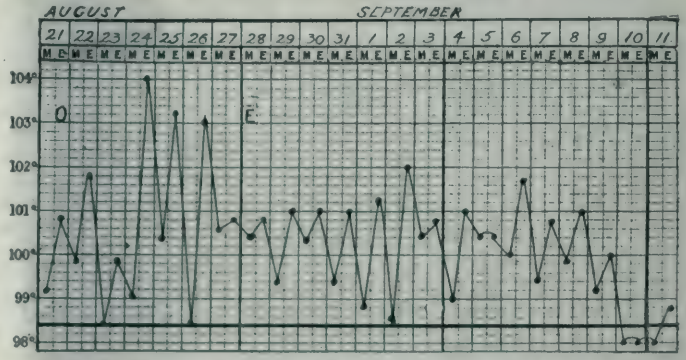


CHART 7.—Operation by "closed" method on second day after injury; shell fragment removed. No bone injury. Excision of joint six days later owing to failure of first operation. O, First operation; E, second operation, excision of knee.

I desire to express my sincere thanks to the officers who have kindly placed their statistics at my disposal. I am also indebted to Professor Symington, F.R.S., and Mr. R. Hunter, of Queen's University, Belfast, for the drawings which illustrate the text, and to Captain Gamlin, R.A.M.C., for the *x*-ray photograph.

REFERENCE.
[1] *British Journal of Surgery*, vol. iv, No. 13, 1916.

GUNSHOT INJURIES TO THE KNEE-JOINT:

SOME SUGGESTIONS WITH REGARD TO THEIR TREATMENT.

BY

LIEUT. WILLIAM EDMOND, F.R.C.S., R.A.M.C.(T.C.),

AND

CAPTAIN WALTER WEIR GALBRAITH, M.B., CH.B.,

R.A.M.C.(T.C.).

Of the injuries met with at base hospitals, gunshot wounds involving the knee-joint are, perhaps, the most troublesome to deal with, and there is as yet no consensus of opinion as to the most satisfactory methods of treatment. It is still held by some surgeons, of considerable experience in this class of injury, that such wounds may be roughly divided into two main groups: (*a*) Those which get well without interference; (*b*) those which are better amputated.

Whilst we do not claim that the treatment outlined here is original, or an improvement on methods adopted elsewhere, yet, in our hands, it has proved highly successful, and has been based on considerable experience, and not a few disappointments.

It must be remembered that the cases, on the average, do not reach us until forty-eight hours after injury. During that time they have passed through a casualty clearing station, where they are cleaned up and splinted, before being evacuated to the base. In many cases wounds have been excised under anaesthetics, and joints injected with some antiseptic preparation.

Our system of treatment is based almost entirely on the pathological report as to the nature of the fluid in the joint, and on the *x*-ray report. We find that little reliance can be placed on temperature, pulse, or degree of pain, which factors are materially influenced by the mental stress and fatigue which the patient has recently undergone.

The infections we have met with in cases of wounds of the knee-joint have been caused by one or other of the following organisms:

(*a*) *Mild.*—Enterococcus.
(*b*) *Moderate.*—*Streptococcus brevis*; Staphylococcus; *Bacillus coli*; *Bacillus aërogenes capsulatus* of Welch (*B. perfringens*).
(*c*) *Severe.*—*Streptococcus longus.*

Experience has shown us that some infections are more difficult to combat than others, and since the prognosis and treatment depend on the virulency of the infecting organism, we have classified them accordingly.

We recognize five main types of joint injury: (1) Aseptic and without fracture; (2) mild or moderate sepsis and without fracture; (3) acutely septic and without fracture; (4) aseptic with fracture; (5) acutely septic with fracture.

1. Aseptic without Fracture.

The whole limb is shaved and cleaned, the area of operation being prepared with petrol and iodine. The wound is excised should this be advisable, but we do not recommend it in small wounds in which there is little damage to the tissues; each case must be judged on its merits. The excision is carried down to the synovial membrane, but the latter is not disturbed.

Foreign Bodies.

(*a*) *None Present.*—In this case nothing further is done, unless the joint be unduly distended, when we aspirate, thereafter injecting two drachms of glycerine and formalin.

(*b*) *Small Foreign Bodies.*—These may be left, the treatment being similar to the case in which there is no foreign body, but it is necessary to keep the joint under careful observation.

(*c*) *Large Foreign Bodies.* — Unbroken bullets and shrapnel balls are invariably removed, as we are of opinion that they may become a source of infection at a later date. We prefer to remove such missiles through a counter incision, rather than extract them through the wound of entrance, since even after a most careful excision of the track one cannot be certain that no infected material is left. The joint is then irrigated with normal saline, the wound sutured, and finally 2 drachms of glycerine and formalin preparation injected. Thereafter, in all cases, the joint is immobilized on a splint in a position of slight flexion.

Case I.

Pte. L., wounded February 1st, 1916, by a rifle bullet in left knee-joint. Dry dressing applied at field ambulance. Re-dressed and limb immobilized on splint at casualty clearing station. Admitted here on February 3rd. There was a small entrance wound immediately internal to the tendon of the biceps. No exit wound. Joint tense and painful. Temperature 99.2° and pulse 84.

The joint was aspirated and found to contain blood-stained fluid, which the pathologist reported sterile. A skiagram showed an unbroken bullet lying slightly above and to inner side of patella, free within the knee-joint cavity.

Under an anaesthetic, after preparation, the wound edges were excised. An incision 1½ in. in length was made over the inner margin of the patella, the synovial membrane opened, and the bullet removed. The joint was then irrigated with normal saline and the incision sutured. Two drachms of glycerine and formalin were injected. The limb was immobilized in a slightly flexed position on a Neville's splint.

On February 4th the temperature rose to 100°, pulse 98. Joint tense and painful. On the following day the pain was less, but swelling remained the same. The patient made an uninterrupted recovery. On February 21st the splint was removed. Joint movement was free. A plaster-of-Paris splint was then applied, preparatory to the patient's evacuation to England.

Case II.

Lance-Cpl. C., wounded April 6th, 1916. Admitted here on April 8th. There was a penetrating wound of right knee-joint; entrance at inner border of patella. Knee tense and painful. Skiagraph showed small shell fragment lying free within the joint cavity, midway between the condyles of the femur. Knee-joint aspirated, and 1 oz. of a serous fluid withdrawn; this relieved the pain somewhat. Temperature 99.4°.

On April 11th knee-joint again aspirated, and 2 oz. of turbid yellow fluid withdrawn. Temperature 101.4°. The pathologist reported: "Fluid from knee-joint on April 8th, and also on April 11th, does not show any sign of the presence of organisms. Two cultures of both specimens are sterile. There are large numbers of pus cells present, and a small deposit of pus settles to the bottom of the tube. The condition is probably either traumatic or there is an infective focus shut off from the general joint cavity."

On April 13th the swelling and pain were less. Temperature 102.2°. From this date the temperature gradually subsided, and after April 16th remained normal. The swelling gradually decreased.

On April 22nd the patient was discharged to England.

2. Mild or Moderate Sepsis without Fracture.

In this class of case there is every prospect of the joint recovering its full function. Treatment is accordingly directed to this.

The operation is carried out on the same lines as in the previous class, with the addition that counter incisions into the joint are made on either side of the upper part of the patella. These incisions are made as small as possible, but large enough to admit a rubber tube ¼ inch in diameter. Before the tubes are inserted the joint is thoroughly irrigated with normal saline solution. The tubes are inserted just through the opening in the synovial membrane and are anchored in position by a skin suture. The ends of the tubes are left long enough to project through a light dressing, but they must be covered by a moist pad of gauze. The limb is fixed, slightly flexed, in a Thomas knee splint, and light extension applied. Into one of the tubes one drachm of 0.5 per cent. eusol is injected hourly; the other acts as a drain. After the third day the injection is given every four hours. The tubes are generally removed on the sixth day. After this dry dressings are used until the incisions heal.

Case III.

Pte. H., wounded July 7th, 1916. Admitted July 9th. Patient had multiple shell wounds over limb and trunk. The left thigh seriously infected, and numerous small wounds in near proximity to right knee-joint.

On July 10th a skiagraph showed numerous small shell fragments near the right knee-joint, but none actually in the joint. Under an anaesthetic multiple incisions made in the left thigh for severe suppuration; right knee-joint aspirated, and found to contain a turbid but sterile fluid. Glycerine and formalin, 2 drachms, injected.

On July 18th knee-joint tense and painful; aspirated, and glycerine and formalin again injected; patient's general condition grave.

On July 21st thigh dressed under an anaesthetic; patient had oedema of both legs and thighs; the knee-joint appeared to be improving.

On July 31st the knee-joint, which appeared to have quietened down, was again swollen and painful; knee aspirated, and 2 oz. of thick but non-offensive pus withdrawn.

On August 2nd patient's general condition slightly improved. Pathologist reported fluid from knee-joint to be infected with enterococcus and *Streptococcus brevis*. Under an anaesthetic two lateral incisions made into joint cavity, which was then irrigated with eusol, and two ¼ in. rubber tubes introduced. Limb put up slightly flexed on a Thomas splint.

August 4th: Since operation 1 drachm of 0.5 per cent. eusol was injected into one tube every four hours. There was a slight discharge; pain slight, and joint not excessively tense.

On August 8th there was still some swelling of joint and discharge; tubes changed.

On August 12th the knee was doing well; tubes removed; dry dressing; Thomas splint removed, and back splint applied.

On August 20th the knee seemed to have quietened down; back splint removed.

On August 24th the knee was healed; general condition good; slight movement of knee without pain. Patient discharged to England.

3. Acute Sepsis without Fracture.

The virulency of the organisms in this class of case is such that free drainage is called for. Should drainage be inadequate the infection will spread up and down the limb far beyond the confines of the knee-joint cavity in a remarkably brief period. The surgeon is then confronted with the necessity for amputation under most unfavourable

conditions. Whilst we recognize that perfect drainage of the knee-joint can only be obtained by laying open the joint by an anterior incision dividing the ligamentum patellae and crucial ligaments, yet such treatment is so drastic that we have, after many trials, devised another method, which gives good and adequate drainage, and is an improvement, inasmuch as the great anterior ligament of the joint, the ligamentum patellae, is undivided. Convalescence is greatly shortened, and the patient has the prospect of a useful limb.

The preliminary steps are as previously described, the wound being excised, swabbed with iodine, and packed with gauze. Two vertical incisions are made on either side of the ligamentum patellae close to its lateral margins. Each incision is 1½ in. in length, its centre being over the articulation. From the lower ends of these incisions further incisions are made at right angles, outwards in the case of the outer incision, inwards in the case of the inner incision, and extending for a like distance. These incisions are made down to the joint capsule. The flaps thus formed are turned up.

The joint capsule is now excised over as wide an area as possible, care being taken that the lateral ligaments are not cut. The next step is to remove the semilunar cartilages, together with the pad of fat which lies behind the ligamentum patellae. Free access can now be had to the posterior parts of the joint. The synovial reflections on either side of the patella are incised in their most dependent parts. The suprapatellar pouch is opened by lateral incisions 1 in. in length. The joint is now thoroughly irrigated with normal saline. The knee being fully flexed, small Carrel drainage tubes are introduced through the lowest incisions —one in each. They go between the joint surfaces, in the notch between the condyles, to the posterior part of the joint. Ordinary drainage tubes are introduced through all other incisions—they go no farther than the opening in the synovial membrane and are sutured to the skin. Finally the limb is fixed in a flexed position on a Thomas knee splint. Eusol is introduced every two hours through the small tubes, and in addition the joint is irrigated night and morning with eusol. The small tubes are removed on the fourth day, but irrigation through the other tubes is continued until all acute sepsis has disappeared—this is generally about the tenth day. The latter tubes are then removed under a general anaesthetic, and the leg is straightened and fixed in a Thomas splint.

CASE IV.

Pte. S., wounded August 8th, 1916. Treated at casualty clearing station, where he was found to have a wound of the left knee involving the joint, and two wounds of the left ankle. He was admitted on August 9th. His field card stated: "Foreign bodies removed from both wounds in ankle, but no foreign body found in knee. All wounds excised. It was impossible to get full extension of the knee." He had a wound immediately external to the lower edge of the patella. The joint was tense and very painful and held in a slightly flexed position. Temperature 101°, pulse 112. A skiagram showed shell fragment lying within the joint cavity. Fluid withdrawn from the joint contained *enterococcus* and *Streptococcus longus*.

Under an anaesthetic the wound in the knee was explored; it was found to have been excised down to the synovial membrane. The patella had been grazed by the projectile and some fibres of the ligamentum patellae severed. The wound was freely excised, and the capsule of the joint removed over as wide an area as possible. On the inner side of the ligament a V-shaped flap was turned up and the capsule opened. The foreign body was seen to be lying on the crucial ligament; it was removed. The semilunar cartilages and infrapatellar pad of fat was excised. The lateral synovial pouches were incised and drained; the suprapatellar pouch was incised on each side. Tubes were stitched into all these incisions; and, finally, two Carrel tubes were inserted through the lowest openings into the posterior part of the joint. The joint was thoroughly flushed with normal saline solution and a light gauze dressing applied, the limb being fixed in a Thomas splint under extension.

On August 13th the temperature had not risen above 99° since operation. The Carrel tubes had been injected, at first two-hourly but latterly four-hourly, with 2 drachms of 0.5 per cent. eusol, and the superficial gauze dressings changed twice daily; discharge now slight. The Carrel tubes were removed under an anaesthetic, and the limb fixed on a straight back splint without extension.

On August 15th the temperature was normal. All drainage tubes were removed; there was still slight discharge of synovial fluid from the wound. Dry gauze dressing to be changed every other day.

On August 24th the incisions were almost healed. Joint quiet; no pain. Discharged to England on back splint.

4. ASEPTIC WITH FRACTURE.

Under this heading there are two types of injury. In one case the missile traverses or penetrates the joint cavity, causing a fracture of one of the bones entering into the articulation. In the other case, the missile causes a fracture of bone in close proximity to the joint, and though the missile itself has not entered the joint, yet the fracture extends into it. In the former case the treatment coincides with that employed in Class 1.

In the latter case we have a fissured fracture in close proximity to, and extending into, the joint. The effusion, at first aseptic, rapidly becomes infected by direct extension from the wound.

In many cases the missile is embedded in the bone, and with it are numerous infected foci. Such a wound is freely excised, detached portions of bone are removed along with the missile, and the track is thoroughly cleansed and scraped. A salt pack is the ideal dressing, provided one can be sure that it is in contact with all parts, otherwise we use continuous eusol irrigation.

CASE V.

Pte. L., wounded on August 20th, 1916. Admitted on August 21st. He had a small wound on entrance over the inner side of the head of the left tibia. Knee-joint swollen, tender, and painful. Temperature 100.8°, pulse 96.

Skiagraph shows a shrapnel ball lying embedded in the head of the tibia with a fracture extending into the joint. Joint aspirated and a blood-stained fluid withdrawn, which the pathologist reported to be sterile.

Under an anaesthetic the wound was freely excised; the shrapnel ball with portions of clothing was removed, and the wound in the bone gouged. The cavity in the bone was packed with a salt bag, and finally 2 drachms of glycerine and formalin were injected into the joint.

On August 23rd the temperature rose to 102° and pulse to 118. The joint was painful.

On August 24th the pain was less; temperature 101°, pulse 110.

On August 25th the temperature was normal, pulse 90; pain less. Wound re-dressed with salt pack.

On August 30th the swelling in joint had subsided; temperature normal since August 25th; no pain; wound healing well. Discharged to England.

5. ACUTE OR MODERATE SEPSIS WITH SEVERE FRACTURE.

This class of case, unfortunately common, is too frequently temporized with till amputation is inevitable. It is almost invariably associated with extensive comminution of one or more bones entering into the articulation. Many are of opinion that amputation should be performed in these cases, but we think that, should the fracture not extend further than 1 in. above the articular surface of the femur or below the level of the tubercle of the tibia, the limb can be saved, and we consider it worth while, even at the expense of a permanently fixed knee and a certain amount of shortening.

Our treatment, in brief, amounts to an excision of the joint, but modified, so that the septic nature of the wound can be efficiently dealt with.

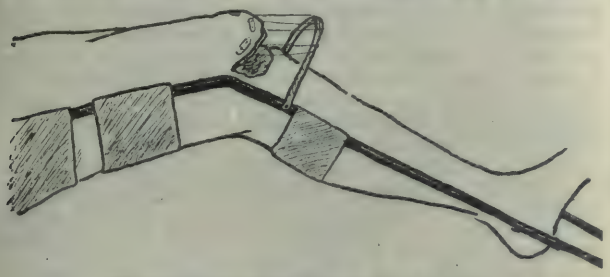
The knee-joint is opened by curved incision over the front, dividing the ligamentum patellae and lateral ligaments, a flap being thrown up which includes the patella and all superficial tissues. The knee-joint is fully flexed, the crucial ligaments divided, semilunar cartilages, tags of synovial membrane, and all necrotic tissues removed. The interior of the joint, being thus rapidly and freely exposed, is searched for any pockets of pus, which, if found, are freely laid open.

If one condyle of the femur is found to be shattered, both must now be removed. Similarly, should the head of the tibia be involved, it is excised. If either femur or tibia is intact it is left till a later date. The joint is now thoroughly irrigated with 0.5 per cent. eusol.

We have had considerable difficulty in preventing retraction of the patellar flap. To obviate this we have devised the following: Three aluminium plates, 1 in. long and ½ in. broad, with one hole bored through them near each end, are used. These plates take up the tension of sutures passed through the flap near its edges. The sutures are tied to elastic bands which are supported by a metal arch fixed anteriorly on a Thomas splint (see figure).

Tubes are now inserted down to the posterior parts of the joint; these are packed round with salt bags. Gauze wrung out of hypertonic saline is laid over this, and a few turns of bandage loosely applied, to keep the gauze in position; the last foot of this bandage is left hanging from the limb to act as a drain.

Extension is applied to the leg and the limb suspended, on a bent Thomas knee splint, by 4-in. rubber slings. The back of the knee-joint is supported on a bent perforated zinc splint reinforced by aluminium strips, which is, in turn, suspended from the Thomas splint by rubber



Thomas splint adapted for excision of knee.

tubes above and below. The knee-joint is thus firmly supported in a slightly flexed position under extension, and moreover, in spite of continuous drainage and frequent dressings, the limb can be kept dry and comfortable.

The bed is so arranged that the discharge drains into a bucket placed below it. The wound dressings are kept moist by hypertonic saline solution being sprayed on them, and thus the bandage never acts as a plug.

The dressing is removed when indicated, a general anaesthetic being given, and a similar dressing applied.

Later, this dressing may be replaced by one of eusol irrigation twice daily.

This treatment is continued until the wound is clean. We then, under a general anaesthetic, remove the articular cartilage from the ends of the undamaged bone. The flap formed by the patella and superficial tissues, which has up till now been kept under extension, as previously described, is sutured in position, plates of aluminium being employed to give equal tension and prevent the sutures cutting through.

A thin piece of rubber is left in the posterior part of the wound to act as a drain.

Finally, the limb is put up straight on the Thomas splint with a ham splint posteriorly to support the knee.

CASE VI.

Pte. M., wounded by shell fragment on June 2nd, 1916. Admitted June 4th, 1916. The patient had a large lacerated wound on the inner side of the left knee-joint, with a smaller wound on outer side of thigh about four inches above the condyle. Wound very foul, with free discharge of pus and synovial fluid. Temperature 99°, pulse 108. Skiagraph showed a comminuted fracture of the internal condyle of the femur.

On June 5th, under an anaesthetic, wound edges trimmed and loose portions removed. The wound on outer side of thigh appeared to be the entrance wound, the projectile passing between the large vessels and the bone. Fluid taken from the joint, which the pathologist reported to contain enterococcus and streptococcus.

On June 7th temperature 102°, pulse 110; joint painful. Free discharge of pus from the wound.

On June 8th, under an anaesthetic, joint opened up by anterior incision. The interior severely infected, and in a sloughing condition. Internal condyle extensively comminuted. Both semilunar cartilages removed and crucial ligaments divided, the lower ends of the femur then excised immediately above the condyles. All tags of synovial membrane and sloughing tissues removed. The limb was fixed in a flexed position on a Thomas knee splint, the wound packed with salt bags, and patella flap extended.

June 12th. The wound had discharged freely for the past three days. Temperature 99°, pulse 110. Dressing changed under an anaesthetic, wound cleaning up well and sloughs beginning to separate. The patient has a bromide mixture, with morphine when necessary.

June 16th. Wound dressed without anaesthetic. The dressing came away easily with little pain. Eusol irrigations twice daily, with light eusol dressings substituted for salt pack. Temperature 99°, pulse 90. Little pain.

June 23rd. Wound almost clean, and covered with healthy granulations. Under an anaesthetic the articular cartilages on the head of the tibia were removed and the spine chiselled away. The patella flap was sutured in position, aluminium plates being employed. A thin rubber drain was left in the posterior parts of the joint. The limb was put up straight on a ham splint, suspended in a Thomas splint. The wound healed well, and when evacuated to England on July 9th there was only a small sinus discharging on the internal aspect of the joint.

The foregoing is a summary of a wide subject, and one which we venture to think has not as yet received the attention it merits. We hope that this short article may prove an incentive to others to make known their views.

Owing to the present stress of work we apologize for the somewhat crude method in which the subject has been presented.

THE USE OF ATROPINE AS AN AID TO THE DIAGNOSIS OF TYPHOID AND PARA-TYPHOID A AND B INFECTIONS.

(Preliminary Note.)

BY H. FAIRLEY MARRIS,

CAPTAIN (TEMPORARY) R.A.M.C., BRITISH EXPEDITIONARY FORCE, 1916.

DURING the past year I have studied and recorded graphically the various cardiac irregularities met with in typhoid and paratyphoid fevers. In the course of this investigation, carried out on lines advocated by Sir James Mackenzie, I was led to devote special attention to the relatively slow heart-rate which commonly occurs in this group of fevers. It is well known that atropine increases the rate of the heart by some twenty to forty beats per minute. I found that the rate of a slowly beating heart in each of these fevers was hardly accelerated at all by the injection of $\frac{1}{33}$ grain of atropine sulphate hypodermically.

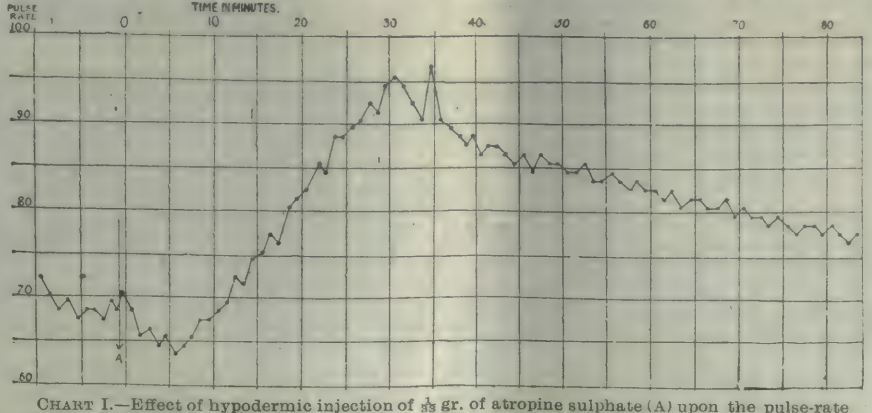


CHART I.—Effect of hypodermic injection of $\frac{1}{33}$ gr. of atropine sulphate (A) upon the pulse-rate of a healthy man aged 24 who was bacteriologically and serologically shown to be free from typhoid, paratyphoid A, or paratyphoid B infections. (Mackenzie polygraph.)

Further observations showed me that in practically all cases of the typhoid group during some period of the infection the rate of the heart could not be increased by atropine as the rate can be accelerated in normal people and those suffering from other diseases. As I found that the failure of the heart to respond to atropine was so constant in all cases bacteriologically proved to belong to the typhoid group I began to use this reaction as a means of diagnosis.

The whole of the work on this subject was carried out at a stationary hospital (under command of Lieutenant-Colonel C. R. Evans, D.S.O., R.A.M.C.) which is specially equipped for typhoid cases and possesses a full bacteriological laboratory, where, in addition to the ordinary routine of examination by cultures, Professor Dreyer's method of diagnosis by agglutination has been employed under his personal advice, and used to control all the cases enumerated in this paper.

Method of Making the Test.

At least one hour after a meal should elapse. The patient should lie horizontally and be instructed to keep perfectly quiet throughout. The pulse-rate is then taken and recorded minute by minute until found to be steady. Usually ten minutes will be found to suffice for this;

then $\frac{1}{33}$ grain atropine sulphate is injected hypodermically, preferably in the triceps region to ensure rapid absorption. The patient now remains absolutely quiet, and, after an

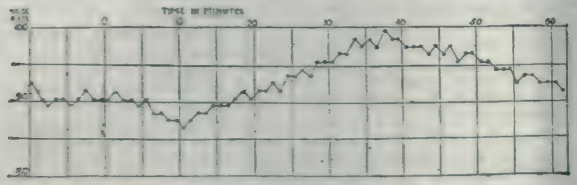


CHART II.—Effect of hypodermic injection of $\frac{1}{33}$ gr. of atropine sulphate (A) upon the pulse-rate in a bacteriologically proved case of paratyphoid B infection (bacillus isolated from stools serologically positive to paratyphoid B infection) on the twelfth day of disease. Temperature 102.5°. (Mackenzie polygraph.)

interval of twenty-five minutes, the pulse-rate is again taken and recorded minute by minute until it is obvious that any rise which may have followed the injection of atropine has passed, and that the rate is falling to a lower level—fifteen to twenty minutes may be necessary. An actual reading would be as follows:

Before atropine:
Pulse-rate ten consecutive minutes—
72 70 68 69 67 68 68 67 69 68.

After atropine:
Twenty-five minutes later—
89 90 92 91 94 95 94 92 90 96 (coughed)
90 89 88 87 88 86 stop.

The mean value of the pulse-rate in the first series of observations is judged to be 68. In the second series the pulse-rate is rising and falling on a curve similar to that shown in Chart I. The aim is to choose that rate which lies along the top of the curve. Excluding incidental changes due to muscular movements, coughing, and so on, the mean highest value in this series would be judged to be 94. The difference between the pulse-rate before and after atropine is in this case 26 beats a minute.

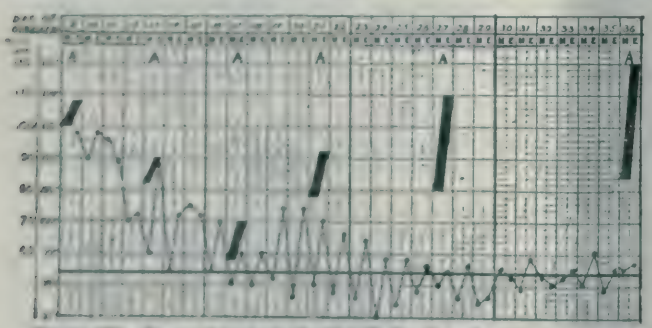


CHART III.—Case of true typhoid. Fully inoculated, six months previously, against typhoid only. *B. typhosus* isolated from stools, positive to agglutinations. A = Atropine $\frac{1}{33}$ gr.

As an arbitrary rule, an increase of the pulse-rate by about 20 or more beats a minute after atropine may be accepted as an indication that the patient is probably not suffering from typhoid or one of the paratyphoid series. Should the pulse-rate increase only 10 beats or less the reaction is suggestive of an infection by one of these diseases. Readings which give a difference of more than 10 and less than 20 beats a minute are uncertain in their interpretation, and necessitate further observations a day or so later.

The curve in Chart I represents a continuous series of pulse observations made on a healthy man before and after the injection of the test dose of atropine. The actual figures are those given in the preceding table. The man had been fully inoculated against typhoid four months previously. It will be noted that immediately after the injection of the atropine there was a fall in pulse-rate for a few minutes, then a rapid and marked acceleration, which gradually fell away some thirty minutes after the injection of the drug, and reached the base line about one hour and twenty minutes later.

In Chart II we see the effect of $\frac{1}{33}$ grain of atropine in a bacteriologically proved case of true paratyphoid B. The patient had been fully inoculated against typhoid only in October, 1914, some eighteen months previously. After the injection of the atropine there is to be noted a gradual fall in pulse-rate and subsequent gradual slight increase in rate, reaching a maximum after thirty-five minutes, and regaining a base line an hour or so later. In some cases the slowing is so marked that the pulse-rate does not regain the initial rate after one and a half hour's observation, so that the atropine has actually caused persistent slowing of the heart.

A study of these two curves will show that from a practical point of view the period of twenty-five minutes immediately following the injection may be neglected, as the "highest mean rate" is generally attained near the end of the first half-hour.

In the accompanying charts are shown the effects of atropine upon the rate of the pulse on various days

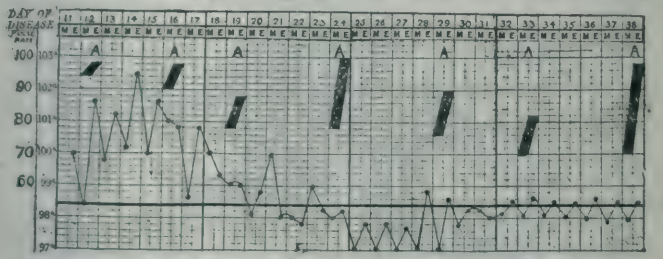


CHART IV.—Case of paratyphoid B. Fully inoculated, five months previously, against typhoid and paratyphoid A and B. Bacillus isolated from stools; agglutinations positive to *B. paratyphosus* B. A = Atropine $\frac{1}{33}$ gr.

throughout the disease, in bacteriologically proved cases of true typhoid (Chart III), paratyphoid B (Chart IV), and paratyphoid A (Chart V), occurring in inoculated men; and of true typhoid in an uninoculated man (Chart VI).

Explanation of Charts.

In the charts the numerals to the left of temperature figures denote the pulse-rate, ten corresponding to the interval between each degree of temperature. The thick dark bands denote the effect of the injection of atropine upon the pulse-rate, on days shown, the lower end corresponding with the average rate before the atropine, the upper end to the mean highest rate reached after the atropine. The length of these dark bands consequently indicates the extent of "escape" on acceleration.

Case of True Typhoid in an Inoculated Man.

In this case (Chart III) on the ninth day of the disease, after the injection of $\frac{1}{33}$ grain atropine the pulse-rate rose from 100 to 108—that is, "escaped" 8 beats.

		"Escape."
On the 13th day	82–90 ...	8 beats.
,, 17th day	58–70 ...	12 ,,
,, 21st day	78–92 ...	14 ,,
,, 27th day	80–110 ...	30 ,,
,, 36th day	84–120 ...	36 ,,

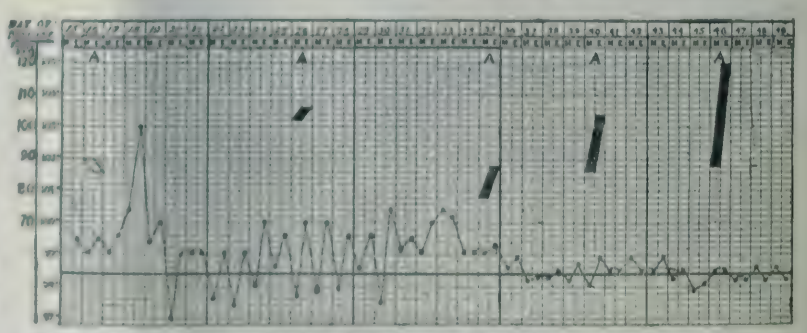


CHART V.—Case of paratyphoid A. Fully inoculated, eight months previously, against typhoid only. Bacillus recovered from blood, and positive to agglutinations. A = Atropine $\frac{1}{33}$ gr.

Case of Paratyphoid B in an Inoculated Man.

The patient was a man aged 21, who had been inoculated five months previously against typhoid and para-

typhoid A and B. The case was proved bacteriologically, the bacillus being recovered from the stools. (See Chart IV.) On the twelfth day, after the injection of atropine $\frac{1}{150}$ gr., the pulse-rate rose from 94 to 98.

		"Escape."
On the 16th day	90–98	8 beats
,, 19th day	78–88	10 ,,
,, 24th day	78–100	22 ,,
,, 29th day	76–90	14 ,,
,, 33rd day	70–82	12 ,,
,, 38th day	70–98	28 ,,

Case of Paratyphoid A in an Inoculated Man.

The patient, a man aged 30, had been inoculated eight months previously against typhoid only. (Chart V.) On the day of the first injection of atropine (the sixteenth day of the disease) the pulse failed to regain its initial rate, and so lost five beats a minute. This extreme reaction is apparently more common in the paratyphoids than in the true typhoid. On the twenty-sixth day, after the injection of atropine $\frac{1}{150}$ gr., the pulse-rate rose from 102 to 106.

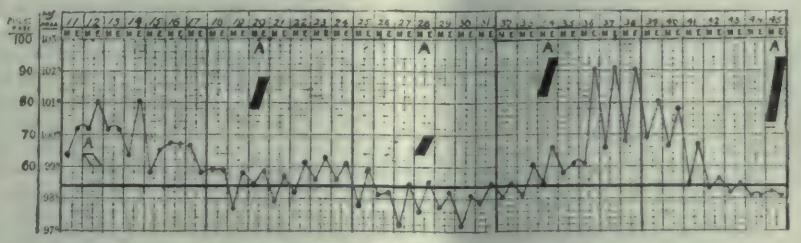


CHART VI.—Case of typhoid; not inoculated. *B. typhosus* in urine, positive to agglutination. A = Atropine $\frac{1}{150}$ gr.

		"Escape."
On the 35th day	78–88	10 beats
,, 40th day	86–104	18 ,,
,, 46th day	88–120	32 ,,
,, 53rd day	80–118	38 ,,

It will be noted in each of the diseases shown that during some period of the illness the pulse-rate fails to quicken under the influence of atropine in the normal manner.

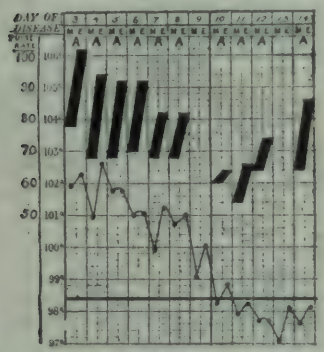


CHART VII. Case showing fleeting reaction in a very mild case of paratyphoid B infection. A = Atropine $\frac{1}{150}$ gr.

Time of Appearance of the Reaction.

As the cases do not as a rule come under observation before the tenth day of disease, the opportunities for studying this point have been few. From experience of the reaction in some 400 cases (bacteriologically controlled) the reaction is most constantly observed during the second week of the disease, and one or more observations during this period have shown its presence in the vast majority of cases. I have seen it well marked on the fifth day, often on the seventh day, most constantly about the tenth day. It has disappeared by the fourteenth day, but has persisted as late as the hundredth day, waxing and waning with relapses, although apparently not confined to the febrile period.

Safeguards against Erroneous Deductions.

Age.—It must be remembered that, with advancing years, the heart normally responds less and less to the action of atropine, so that in individuals over 50 a diagnosis of a typhoid group should be made with reserve if the acceleration is more than 10 beats a minute. My experience has been confined to males between 17 and 47 years of age.

Previous Cardiac Disease.—From my early experience of the action of atropine on sclerotic conditions of the heart, I learnt that victims of cardio-sclerosis failed to respond by quickening in the usual manner. Fallacies from this cause must be excluded in applying the test.

Rapid and Irregular Action of the Heart.—Observations upon such cases are liable to lead one astray for obvious reasons. (See Chart VIII.) Atropine itself may cause extra-systoles (very occasionally), and in these cases the observations are untrustworthy.

The Effect of Inoculation upon the Atropine Curve.

After some difficulty in finding such an individual I was able to record the effect of equal doses of atropine upon an uninoculated man and then on certain days to repeat the experiment after an inoculation with typhoid vaccine. Chart IX shows the reaction as observed throughout. Two observations previous to first inoculation showed an escape of about twenty-two beats, then on the fifth day after $\frac{1}{2}$ c.cm. typhoid and paratyphoid A and B vaccine, the reaction began, the rate being raised from 60 to 70 beats only; on the seventh day the rate fell from 76 to 72 beats; on the ninth day the rate was again raised from 74 to 80 beats. The second dose of T.A.B. vaccine was administered on the eleventh day.

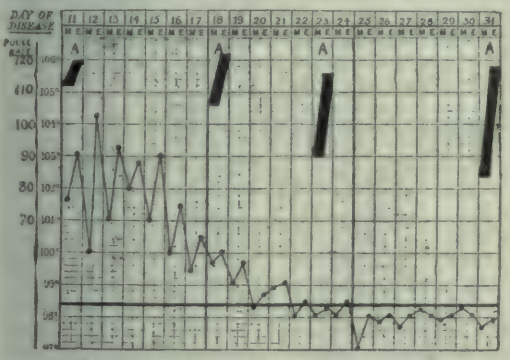


CHART VIII. In this chart is seen the reaction to atropine obtained on several days of a "suspect" bacteriologically negative to typhoid group and subsequently regarded as a case of bronchopneumonia. I do not regard this as an example of a positive atropine reaction, as the extreme height of acceleration under the atropine is approximately the same on each occasion. A = Atropine $\frac{1}{150}$ gr.

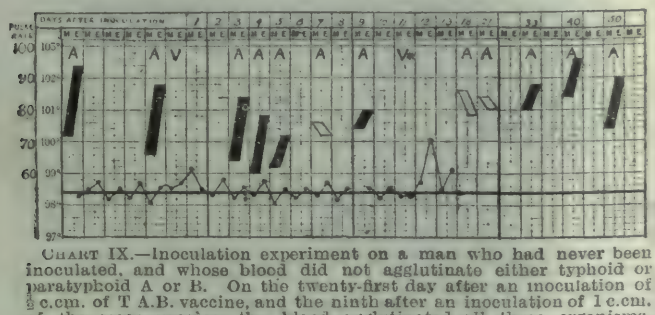


CHART IX.—Inoculation experiment on a man who had never been inoculated, and whose blood did not agglutinate either typhoid or paratyphoid A or B. On the twenty-first day after an inoculation of $\frac{1}{2}$ c.cm. of T.A.B. vaccine, and the ninth after an inoculation of 1 c.cm. of the same vaccine, the blood agglutinated all three organisms. A = Atropine $\frac{1}{150}$ gr. V = T.A.B. vaccine $\frac{1}{2}$ c.cm. V' = T.A.B. vaccine 1 c.cm.

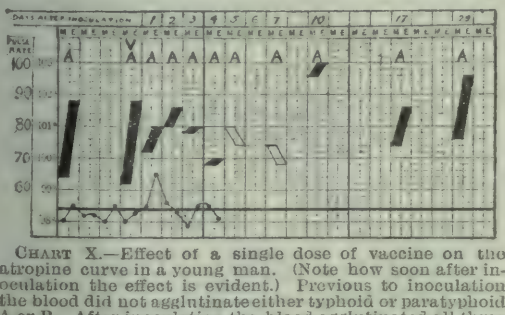


CHART X.—Effect of a single dose of vaccine on the atropine curve in a young man. (Note how soon after inoculation the effect is evident.) Previous to inoculation the blood did not agglutinate either typhoid or paratyphoid A or B. After inoculation the blood agglutinated all three organisms. A = Atropine $\frac{1}{150}$ gr. V = T.A.B. vaccine $\frac{1}{2}$ c.cm.

By the eighteenth day the pulse fell from 86 to 78.
On the twenty-first day the pulse fell from 84 to 80.
On the thirty-third day the pulse rose from 80 to 88.
On the fortieth day the pulse rose from 84 to 96.
On the fiftieth day the pulse rose from 74 to 90.

Agglutination tests previous to inoculation showed the individual to be free from infection of the typhoid group, recent or old, and also that he had not been inoculated, whereas after inoculation he was shown to possess agglutinins against typhoid and paratyphoid infections.

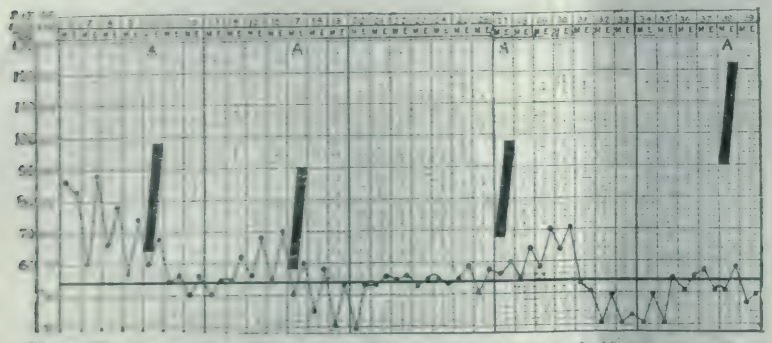


CHART XI.—Case of bronchitis. Bacteriologically free from typhoid and paratyphoid A and B infections. A = Atropine $\frac{1}{100}$ gr.

Chart X shows the great rapidity with which the reaction to the atropine test may develop after a single dose of vaccine given to a young man. From a total of six observations similar to the above it appeared that inoculation would affect the atropine reaction for probably ten weeks, and I conclude that the atropine reaction should be repeated after a few days if a "suspect" has been inoculated within that time. In these cases a definite conclusion can be drawn only when the change under atropine is well marked in one direction or the other after a second observation. Further observations are needed to determine precisely the limits of such a reaction.

The Action of Atropine on other Febrile Conditions.

The opportunity of making prolonged observation on many other febrile conditions was unfortunately not available to me, so that it is only upon such suspects as appear below that I have had any experience, because the cases which were shown bacteriologically to belong to other diseases than the typhoid group were soon removed from the hospital in which I was working.

Charts XI, XII, and XIII. are from cases clinically diagnosed as bronchitis, trench fever, and pyrexia of unknown origin, and bacteriologically free from typhoid or paratyphoid A or B infections. In each case it will be noticed that at every observation the heart is seen to respond to the atropine in the normal manner.

Among the "suspects" the following diseases were diagnosed and failed to show the reaction:

Bacteriologically proven:
- Dysentery, bacillary and amœbic.
- Cerebro-spinal fever.
- Pulmonary tuberculosis.
- Tuberculous meningitis.
- Miliary tuberculosis.
- Septic meningitis.
- Malaria.
- Relapsing fever.
- Typhoid and paratyphoid fever carriers.
- Jaundice, excepting when associated with typhoid and paratyphoid infection.
- Cerebritis.
- Septicæmia.

Clinically:
- Trench fever.
- Pneumonia.
- Pleurisy.
- Rheumatism.
- Influenza.
- Rheumatoid arthritis.
- Appendicitis.
- Pyrexia of obscure origin.
- Meningismus of unknown origin.

A notable feature of the cases which proved to be of meningeal origin was the excessive acceleration after atropine—from 40 to 60 beats—a point which may assist in the diagnosis of suspects of that class of diseases.

Total Analysis.

The observations on the following 200 cases of "suspects" were carried out according to a uniform routine by the sisters in charge, and were made within a day or two of admission to hospital, and no case beyond the twenty-first day of his disease is included.

In addition to this series I have records of about 100 cases which were examined by myself before the single routine was established. These are not included, because I wished to control my own series.

Analysis of 200 Cases, with Bacteriological Diagnoses.

36 cases: Typhoid, paratyphoid A and B bacillus isolated and positive to agglutination. The reaction was shown in 34, poorly marked in one, and entirely absent in the other—a fatal case, in which the pulse-rate was never relatively slow, the true cause of death being discovered at autopsy.

58 cases: Mixed. Positive to agglutination only. The reaction was shown in 45, absent in 13.

101 cases: Declared to be negative to typhoid or paratyphoid A or B infections. The reaction was present in 8.*

5 cases: Declared to be "carriers" bacteriologically proven. The reaction was always absent.†

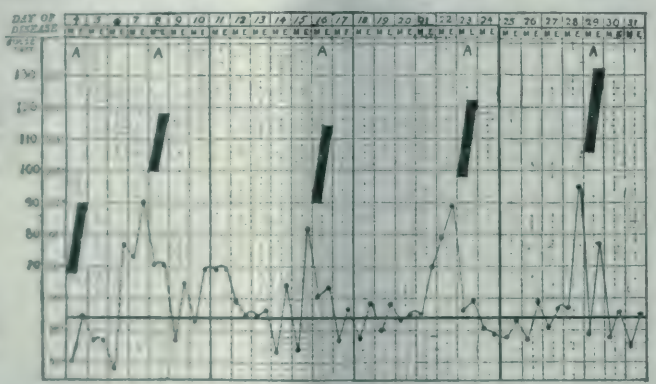


CHART XII. Case of trench fever. Bacteriologically free from typhoid and paratyphoid infections. A = Atropine $\frac{1}{100}$ gr.

I have experimented with various doses on normal individuals, and found that with $\frac{1}{300}$ grain or more the acceleration of the pulse was practically constant.

A very noticeable feature of the test is that individuals suffering from a typhoid group infection show a remarkable tolerance to atropine, and the other effects—for example, thirst, pupillary changes, etc.—are apparently in abeyance. A glance at Chart XIII would seem to show that the test may be applied indefinitely.

Further investigation may reveal the fact that other diseases may produce this phenomenon, but so far this reaction has been a very constant clinical sign in typhoid and paratyphoid fevers and has so frequently been supported at a later date by the bacteriologist.

Before closing I wish to express my thanks to Professor Dreyer, Lieutenant-Colonel Gratton, Captain Wood, R.A.M.C., Captain Perry, R.A.M.C., Captain Young, R.A.M.C., Captain Bazett, R.A.M.C., Captain Tytler, C.A.M.C., and Captain Shanks, C.A.M.C., for the bacteriological controls, and to Sisters Annandale and Best, who toiled ungrudgingly at such a tedious task.

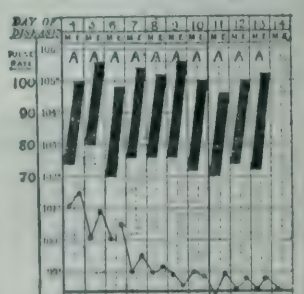


CHART XIII. A typhoid "suspect" examined daily and proved to be bacteriologically negative to typhoid group. A = Atropine $\frac{1}{100}$ gr.

NOTE. An account in detail with further observations on 400 cases is about to be presented for publication.

* Some of these cases showed such a remarkable resemblance clinically to these diseases that the possibility of an undiscovered member of the group occurs.

† From these and other cases I conclude that the reaction is indicative of active disease only.

IT is reported that the French Government has reason to expect that stretcher-bearers may shortly be returned from Germany, where they have hitherto wrongfully been detained prisoners.

THE WHIRLPOOL BATH.

BY

F. P. NUNNELEY, D.M., M.A.Oxon.,

Honorary Medical Officer, Llandrindod Wells Hospital; Commandant and Medical Officer in Charge, Red Cross Auxiliary Hospitals for Officers, Brighton; late Honorary Captain, R.A.M.C., B.E.F.

"Eau courante" had been, for some time before its introduction into this country, extensively employed in France for the treatment of stiff joints, contractures and other conditions resulting from injuries sustained by soldiers during the present war. The treatment, as carried out at the Grand Palais, was investigated by Dr. Fortescue Fox on behalf of a committee of the Balneological Section of the Royal Society of Medicine. His recommendation that the whirlpool bath should be introduced into military hospitals was adopted by the committee and brought to the notice of the military authorities.

The first baths made in this country were copied from the French model, in which the hot and cold water supplies are led into a mixing chamber whence the water, at the required temperature, passes into the bath through a number of jets. After rushing round the bath, the water flows out through an opening near the top. The whirlpool is thus produced by a constant stream of rapidly flowing water. To obtain a satisfactory whirlpool, a pressure of at least 50 ft. is required and the consumption of water is very considerable. To obviate these disadvantages, a bath has recently been devised in which the whirlpool is produced by an electrically driven turbine, placed under a grating at the bottom of the bath. A small quantity of hot water is admitted from time to time, in order to maintain the temperature, whilst a corresponding amount is allowed to flow out through the waste pipe. A very small quantity of water is thus required and, if necessary, the bath may be filled from cans. An apparatus is fitted by means of which compressed air can be forced through the water, which is thus caused to bubble violently, an addition which should prove of particular value in neuritis.*

All the leg baths at present in use are cylinders in which immersion above the middle of the thigh is impossible. At my suggestion, Messrs. Shanks and Co. (81, New Bond Street) are making a motor bath fitted with a seat which can be moved up or down and adjusted to any angle to accommodate any form of stiff hip. If the knee only requires treatment, the seat is fixed above the level of the water, and the uninjured leg can be kept dry. If the hip-joint is to be treated, the seat is lowered and fixed at the appropriate angle, but both limbs are necessarily immersed.

The following notes are based upon experience gained in the Physical Treatment Department of the Red Cross Auxiliary Hospitals for Officers, Brighton. The baths are of the French type and were presented by H.R.H. the Princess Royal. They have been in use for over four months, during which time more than sixty cases have been treated.

The period of immersion is usually twenty minutes; the temperature should be as high as can be comfortably borne—in most cases from 110° F. to 120° F. Before the limb is immersed the bath is filled with water at about 100° F. and the temperature is gradually raised to the limit of endurance. It will frequently be found that the higher ranges of temperature, 110° F. to 120° F., cannot be borne at first, but, as a rule, after one or two treatments, tolerance is acquired. It is necessary to proceed very cautiously when treating cases in which nerves have been injured and there are areas of anaesthesia or partial anaesthesia. The skin supplied by the injured nerves is frequently in a very atrophic condition, and scalding of these areas may take place without the patient having complained of any discomfort in the normal portions of the limb. Very shortly after the limb has been immersed in the bath the skin becomes flushed, pain is relieved and a feeling of comfort is experienced. The tissues become more supple and movements can be made which previously were painful or impossible. After the bath the limb is found to be in a condition of considerable hyperaemia. The skin is red and feels hot, and it is probable that the internal temperature of the limb also is temporarily raised. There is usually a slight increase in bulk, varying in the case of the thigh from one-half to one-third of an inch in circumference. The tissues are soft and relaxed, and will bear manipulations which before the bath would have been too painful.

In a large majority of cases the whirlpool bath is used as a preparation for subsequent massage and manipulation. In the Red Cross Auxiliary Hospitals for Officers at Brighton, radiant heat was formerly used for this purpose. When the whirlpool baths had been installed they were substituted for the radiant heat in every possible case, so that the views of masseurs and patients who had had experience of both methods of treatment could be obtained. The opinions expressed were unanimously in favour of the baths. The masseurs said that the tissues and joints were more easily manipulated, and the patients that the manipulations were less painful. Subsequent experience has confirmed the correctness of these early observations. Adhesions are frequently and almost painlessly broken down, and function seems to be restored more rapidly. Some members of my staff have found that, when there is great tenderness, they can employ deeper massage and obtain more movement while the limb is still in the bath than if they wait till afterwards. But the whirlpool is not only a thermal bath; in virtue of the lavage and elastic pressure produced by the rapidly moving water, it must be regarded as an efficient form of gentle massage. In cases in which the use of hand massage is contraindicated by the danger of disturbing the barriers erected by nature against the spread of infection, the whirlpool bath is of considerable value. An increased flow of blood is induced by its thermal qualities, whilst resolution and removal of inflammatory products is facilitated by the massage of the rapidly moving water.

When nerves in the vicinity of a wound have been slightly injured but not destroyed, treatment is apt to be extremely difficult. The application of heat frequently increases the pain, whilst massage, which may be urgently needed for the preservation of the utility of the limb, is rendered impossible by the pain it causes. In these cases, the whirlpool bath at a "neutral" temperature acts not only as a substitute for hand massage, but also relieves the pain to a remarkable extent.

The pain in the missing hand or foot, so frequently felt after amputation, is rapidly allayed by the whirlpool bath. The effect of the bath seems to be increased if one of the jets is allowed to play directly on the tissues covering the nerve which is apparently at fault.

The use of the whirlpool bath as a preliminary to the breaking down of adhesions under anaesthesia is of doubtful value. Owing to the hyperaemic condition of the tissues, the advantage gained by the decreased amount of force required seems to be more than counterbalanced by the increased bruising which ensues.

So far as my information goes, the whirlpool has not yet been employed in the treatment of recent wounds, but it seems probable that its use in this connexion would be valuable, especially when a large sloughing area could be exposed to the action of the water. Owing to the difficulty of cleansing the turbine bath, it would be necessary to use an apparatus of the French type.

The following cases may be of interest as illustrating the foregoing remarks. Except when otherwise noted, the angles are calculated from the position of full extension, the axis of the upper bone entering into the joint and an imaginary line produced past the joint, in continuation of the axis, forming the diameter of a circle of which the joint is the centre—for example, 10 degrees of flexion at the knee-joint means that the tibia, forming a radius of the imaginary half circle, makes an angle of 10 degrees with the imaginary line passing through the knee-joint.

1 and 2. *Fractures of Femur.*—Fracture of left femur (December 2nd, 1915) 2 in. below great trochanter. Admitted July 4th, 1916; much periarticular swelling of knee-joint, a little fluid in joint, flexion 10 degrees. Whirlpool bath and massage. August 26th: Very little periarticular swelling, still a little fluid in the joint, flexion 90 degrees. G. S. W. Fracture right femur, upper third. Admitted July 29th, 1916. Wound healed, flexion of knee 20 degrees. Whirlpool bath and massage. September 1st: Flexion 113 degrees.

3. *Shell Wound.*—Left foot; very septic. Admitted July 14th, 1916. Wounds healed, much swelling of foot and ankle, foot in toe-pointed position. Range of movement at ankle 15 degrees.

* Motor baths, with the compressed air attachment, have been installed at the Physical Clinique for Wounded and Disabled Soldiers, 126, Great Portland Street, W.

No movement at interphalangeal or metatarso-phalangeal joints. Whirlpool bath and massage. September 1st: Swelling much decreased, all interphalangeal and metarso-phalangeal joints move well. Range of movement at ankle 23 degrees.

4. *Fracture of Humerus.*—G. S. W. Comminuted fracture lower end of left humerus. Admitted August 9th, 1916. Wound healed, union firm, pronation and supination weak and incomplete, elbow can neither be fully extended nor fully flexed. Range of movement 30 degrees. Whirlpool, massage. September 1st: Pronation and supination complete and fairly strong. Range of movement at elbow-joint 70 degrees.

5. *Septic arthritis* of the knee; incisions. Admitted July 7th, 1916. Much periarticular thickening, fluid in joint, flexion 60 degrees. August 8th: No fluid in joint, very little periarticular thickening, flexion 120 degrees.

6. *Traumatic arthritis*, right knee. Admitted March 28th, 1916. Much periarticular swelling. X ray: "Lining" of cartilage; no bony change. Can bear no weight on knee; walks with crutches; no movement at knee-joint. Radiant heat and massage. May 25th: Very little improvement; still on crutches. Whirlpool bath and massage. July 15th: No swelling of knee; walks well with stick. Flexion at knee-joint 90 degrees.

7. *Amputation*, right arm. Admitted May 20th, 1916. Tenderness of stump; much pain in missing hand. Whirlpool bath. June 14th: No tenderness of stump; no pain in missing hand.

8. *Wound of axilla*, bruising of brachial nerves. Admitted June 13th, 1916. Much neuritic pain, referred chiefly to fingers. Partial anaesthesia, dorsum of thumb and index finger and radial side of hand and wrist. No power of extension of fingers. Elbow flexed at right angle; no power of extension beyond this point. Paralysis of supinator longus and extensors of wrists. Radiant heat followed by massage, or either alone, caused increased pain. July 3rd: Whirlpool bath at temperature of 99° F. Immediate alleviation of pain; tolerance to gentle hand massage after six treatments. August 8th: Very little pain; sensation returning; some power of flexion of fingers; supinator longus recovering; extension of wrist weak but complete. Extension of elbow to 50 degrees.

RELIEF STAINING FOR BACTERIA AND SPIROCHAETES.

By T. H. C. BENIANS, F.R.C.S.,

PATHOLOGIST TO THE PRINCE OF WALES'S GENERAL HOSPITAL, TOTTENHAM.

(From the Laboratory of the Addington Park War Hospital.)

By the ordinary methods we seek to colour bacteria in films to make them the more evident on a colourless background. The excess of light that meets the eye dulls our perception of the germs, and probably often causes us to lose sight of the most minute. Instead of staining the micro-organisms, we may leave them colourless and brilliant in a coloured and less transparent background. This is done, for example, in the Indian-ink method and in Harrison's collargol method of demonstrating spirochaetes. I have devised a rapid and simple process to obtain a uniform blue field from which the unstained organisms stand out in sharp relief. The depth of colour may be varied from a pale grey to a deep blue-black, being rather deeper immediately around the edge of the organism. The whole process occupies only a few minutes.

A small drop of a 2 per cent. aqueous solution of Congo red is placed on a slide, and a very small quantity of the bacterial culture, or of the exudate to be examined, is rubbed into it with the platinum wire; the drop is then spread out into a tolerably thick film either with the wire or by means of another glass slide. The film, an opaque blood red, is allowed to dry; the slide is then washed over with a 1 per cent. solution of HCl in absolute alcohol and dried in the air, or with blotting paper, although the latter is apt to tear the film. The film is then ready for examination with the oil immersion lens. It is possible to apply the process to a film which has been already spread and fixed on the slide, by spreading the Congo red gently over it, drying, and treating with acid, as described above.

Under the $\frac{1}{6}$ in. lens the background may show an extremely fine stippling, but as a rule it will be quite uniform. Either natural or artificial light may be used, but it needs to be fairly strong, especially if a thick part of the film has to be examined.

Broth and salt solutions do not form a satisfactory mixture with the Congo red, and emulsions in these fluids ought first to be thrown down in the centrifuge. Serous exudates mix readily and evenly with the dye. Blood is not so satisfactory, but, except for osmotic changes in the red cells, useful preparations of the blood fluid, and its cellular contents may be made; the films should be spread quite thinly. Urinary deposits and faecal material may both be examined by this method; in one faecal specimen I examined, large numbers of spirochaetes of various types were present. This same material examined with the dark background condenser gave a much less satisfactory picture on account of the relatively large amount of amorphous substance, and motile bacteria crowding the field. Spirochaetes as a rule show up fairly sharply, though they have not the brilliancy that the dark background condenser gives them, and of course one has not here the opportunity of observing them in motion. Bacteria vary somewhat in their relation to the dye; mostly they are clear, sharp, and quite transparent, but a certain number of them will take up the dye and appear as ill defined, bluish-black bodies; this I have noticed chiefly in old cultures of Gram-negative organisms. Some cocci show a dark central spot, and in the case of many of the *coli*-typhoid type of bacilli a similar round dark spot is seen toward each pole, or more often a dark rod-shaped area running down the centre of the bacillus. Somewhat similar appearances may be seen with Indian-ink preparations; it is impossible to say whether they represent nuclear bodies or some irregularities of external contour which have caught and held the dye. Many bacilli show a dark central portion with colourless poles, giving the appearance that the poles, either by being club-shaped, or by being bent up, had risen above the surface of the film whilst the centre part remained buried in it.

The apparent size of an organism viewed through an opaque film naturally depends on the thickness of the film—that is to say, on whether the film is sufficiently thick to more than cover the greatest diameter of the organism. Seen through an opaque film an organism usually seems much larger than it appears in a stained preparation. It was pointed out to me by Dr. Hort that in cases of septicaemia the presence of bacteria can be easily demonstrated, even when they are only present in relatively small numbers, by laking a quantity of the infected blood in distilled water and then throwing down in the centrifuge. When the deposit is examined in a Congo-red film the amorphous substances blend with the background and the bacteria are easily seen. The process is far simpler than the examination of a stained film would be in such a case. He has also used Congo-red films for the demonstration in filtrates of very minute micro-organisms near the limits of vision, films stained by ordinary methods entirely failing to reveal their presence. In work of this nature it is, of course, necessary to be certain that the distilled water used in making up the reagent is quite bacterium-free, and a control film should be prepared to show the absence of bacteria.

In conclusion, it may be claimed for this method that it has certain definite advantages over other relief staining methods, in that it can be freshly made up with bacterium-free water; and that it gives a clean and even background, which has very little tendency to form cracks and fissures. I have not been able to test its value in photomicrography, but where a clear sharp outline of the organism is required I should judge it could be used with the best of results.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CONCURRENT MEASLES AND CHICKEN-POX.

I AM not aware of any instances of cases of this character. Certainly I have not met any such during a professional life of over forty years. My patients were two boys and two girls.

Jim commenced with an attack of measles February 1st.

John developed chicken-pox February 6th and measles February 10th, both rash and spots being well out together.

Peggy began with measles February 18th and developed chicken-pox March 3rd.

Ermin developed chicken-pox and measles February 25th, practically simultaneously.

John, Peggy, and Ermin were very distinctly ill.

John had been exposed at school to chicken-pox and Jim to measles.

London, W. A. J. RICE-OXLEY, M.D., M.R.C.P.

GYMNASTIC EXERCISES FOR HYDRARTHROSIS OF THE KNEE-JOINT.

In 1912 I was consulted by a clerk to a British merchant at Puerto Orotava who had been suffering for some two or three years from increasing chronic hydrarthrosis of the right knee, which he traced to a long walk up to the mountains. The muscles were much wasted, and he was so disabled that he had to go to and from his office in a wheel chair. One day I was suddenly called and found him lying unconscious on the ground, owing to acute pain produced on rising from his seat at the office. I advised him to go to London, where Mr. Barker admitted him into University College Hospital, and on October 5th, 1912, cut open the knee-joint, and pared off a great deal of exuberant synovial membrane; he found no loose cartilage or loose body that could have accounted for the pain above referred to. After the operation the patient was able to do his work much better than before. About July, 1915, his other knee began to be similarly affected, and on distinct effusion into the joint being detected, the case was treated in the old way, by rest, counter-irritation, etc. Early in 1916 the patient came to me in great distress. I had just read an article by Dr. H. Gautiez in the *Journ. de méd. et de chir. prat.* of October 25th, 1915, where it is contended that in many such cases the real cause of the trouble is weakness of the muscles and tendons at the back of the knee-joint, and that they may be strengthened by flexion carried out by the attachment of gradually increased weights to the foot, etc. I gave the article to the patient, who carried out all the instructions. In a very short time, as the flexor muscles and tendons were strengthened all the effusion disappeared. Since then the patient, who is a very intelligent man, has gone on well. He began by raising a small weight (shot in a bag), increasing the amount to 3 lb. or 4 lb.; the number of daily flexions thus made at intervals throughout the day is about 300.

Such cases will not be uncommon among invalided soldiers, and, as the treatment is so simple and can be carried out by the men themselves, I have thought it worth while to direct attention to the fact that the flexor muscles and their tendons can be strengthened by gymnastic exercises patiently carried out.

Santa Ursula, Teneriffe. GEORGE V. PEREZ.

Reports of Societies.

EPIDEMIC NEPHRITIS.

AT a meeting of the Medical Society of London on November 13th, Lieutenant-Colonel D'ARCY POWER, President, being in the chair, a discussion on epidemic nephritis took place.

Etiology and Symptoms.

Captain LANGDON BROWN said that acute nephritis was rare in men of military age. It was not common apart from the American Civil War, in which 14,000 examples of nephritis occurred, but this number included cases both of acute and chronic nephritis. In the central army the number of cases rapidly increased, the incidence rising for twelve months, and reaching as high as 1.5 per 1,000. This was not repeated in subsequent years. In that war the military conditions were somewhat similar to those of the present war—a rapid advance and retreat being followed by a period of trench warfare. The units were involved in the same irregular and patchy manner. In our own army down to the end of June, 1915, there were 1,062 cases. Few occurred before February of that year. They increased until 1916, when there was a steady fall. The Belgian army had been unaffected, and the French little until July, 1915. Few cases occurred in the Mediterranean zone. A similar outbreak had appeared among the German and Austrian troops.

The cases on which the paper was based fell into two groups—one of 58 studied at St. Bartholomew's Hospital, the other of 108 at the 1st London General Hospital. Nine were from the Mediterranean, the remainder from France. Few officers were included, numbering only five of the whole series and two others in addition. The cases were haphazard in their distribution. Only one case had been in France for less than one month. The numbers increased for each month's stay in France, but fell again after the seven months period was reached. Exposure could not be held to be of etiological importance, for there were few cases during the worst weather, and the number increased after the spring, when the violent fluctuations of temperature were past. In the South African war there were practically no cases of nephritis although the range of temperature was enormous. The same was true of the Suvla Bay operations and of the Russo-Japanese war. In 22 only of 166 cases in which this point had been elucidated was there a history of the patient having been wet; in the remainder there was no history of exposure. Cold, however, accentuated chronic nephritis. There was no evidence that the affection was dependent upon the water supply as had been suggested. The solder and lead which might contaminate tinned foods had been blamed by some, but this was not a likely explanation, or the condition would have been present in South Africa and Suvla Bay where tinned foods were much employed. The urinary conditions in nephritis of metallic origin were, moreover, of a different character. By others, excess of protein and a deficiency of fresh vegetables in the diet was held responsible, but this would not explain the increase in the French army in July, 1915, nor was there any evidence of a coexistent intestinal toxaemia. Wounded soldiers were not especially liable to nephritis.

It had been suggested that the nephritis was a complication of an epidemic of a suppressed form of scarlet fever, and the comparative freedom of the Indian troops, who are immune to that infection, was cited in evidence, as well as the occurrence of sore throat at the beginning of the attack. A history of early sore throat was obtained in 27 per cent. of his cases, but he regarded it as secondary to the cough. There were many points of similarity between scarlatinal nephritis and this form, but such a view would mean that there were 10,000 cases of scarlet fever, all suppressed and all free from desquamation, which seemed impossible. A previous history of nephritis was obtained in 13 only, so it could hardly be due to recrudescence of former nephritis. Nor was antityphoid inoculation the cause, for nephritis had not occurred in a similar manner among the troops at home or in South Africa.

That the condition is due to a specific infection was suggested by the fever at the onset and the relapses, the spread to the French troops four months after its occurrence among the English, and to the Mediterranean area when troops were transferred there from France. Its patchy distribution resembled that of cerebro-spinal fever. The results of *post-mortem* examinations pointed to an involvement of the glomeruli and tubules as in an infective nephritis. Examination of the urine, however, had afforded little support to this view, for of 21 cases examined bacteriologically the urine was sterile in 18. Various organisms had been isolated from the throats of affected patients, but no more frequently or in greater numbers than among controls, and antibodies to these organisms were not found in excess in the blood. Dr. Mackenzie Wallis had been able to reproduce albuminuria in rabbits by inoculating them with the urine of affected persons after an incubation period of eight days, which corresponded approximately with the incubation period as estimated clinically. His investigation suggested that the infective agent was ultra-microscopic and filter-passing. A positive Wassermann reaction was obtained in 18 out of 26 cases examined; this might mean a corresponding incidence of syphilis, or, on the other hand, be due to an animal infection such as that by a filter-passing organism was supposed to be.

Considering next the symptoms of the disease, he said that the incubation period was between six and fifteen days. Premonitory symptoms were met with in about half, according to Captain Abercrombie, and were bronchitic, or febrile or abdominal (pain and vomiting). Oedema was usually the first symptom noticed and was present in 97 per cent. of the cases, but generally lasted only a few days and was not often considerable. Early dyspnoea was noticed in 76 per cent., starting usually at the same time as the oedema but ceasing sooner. It would appear from estimations of the alveolar air that the dyspnoea was not always due to acidosis, uraemic or otherwise, and was possibly explained by a similar effusion into the lungs. He had not observed the wide fluctuations of the blood

pressure described by Abercrombie. The commonest systolic pressure was 140; there were few patients with a really high pressure, and these were men who had been painters or plumbers in civil life. The difference between the systolic and diastolic pressures was very considerable, being about 10 degrees. The findings would account for the fact that cardiac hypertrophy and arterial changes were little evident. The urine was often much increased in amount, even in the acute cases. Red blood cells were seen in it in 102 cases and white corpuscles in 79. A flocculent reddish-brown precipitate, containing blood elements, was commonly met with. Casts were found in the majority. There were blood casts in 2, epithelial in 37, fatty in 7, granular in 73, hyaline in 58. Retinal change occurred in 18 per cent. and convulsions in 4 per cent., but these generally yielded quickly to venesection. Occasional symptoms were herpes and parotitis, suggesting an infective origin. Milkiness of the blood serum was not found in any of the specimens withdrawn for the Wassermann reaction except in one fatal case. Two cases only were fatal; in the majority the patient felt well when the oedema had subsided. The albuminuria was intermittent, and often relapsed and ceased after a period of from fourteen weeks to five or six months. Recovery might be complete after a long period of albuminuria. He considered that all soldiers who had suffered from nephritis should be regarded as unfit for foreign service, and if the albuminuria persisted for more than four months should be discharged. The diastase output must have returned to normal before a cure could be said to have been established.

As treatment he recommended a low nitrogenous diet during the acute stages, but one providing considerable variety. The diet suggested contained 43 grams of protein, 285 grams of carbohydrate, and 50 grams of fat, with a total calorie value of 1,815. When the acute stage was over this might be replaced by an ordinary nitrogenous diet, including mutton or fish, and might contain as much as 95 grams of protein, the total calorie value being 2,690. His experience with theocine had been unsatisfactory, the drug appearing to act as a renal irritant as well as a diuretic, and was unsuitable in acute cases. The same was true of diuretin. It was impracticable to flush out the kidneys in acute nephritis, but there was a risk in diminishing the intake too much. Hot-air baths had definite limitations; they were only useful if followed by diuresis. For haematuria he found no drug of certain value. With dry cupping his experience had been unfortunate. Venesection was valuable for cases not doing well and most efficacious for convulsions.

Pathology, Its Bearing on Etiology.

Lieutenant J. SHAW DUNN, R.A.M.C., recounted his clinical experience of nephritis in France in the casualty clearing station zone. No composite picture of the symptoms could be drawn, but a fairly clear group could be selected as characteristic. The patients, on admission to hospital, regained very rapidly the appearance of health, showing little anaemia or loss of flesh. Dyspnoea was very common, but not urgent. The amount of urine was usually considerable, and was seldom diminished. The amount of albumin was at the onset usually 2 to 4 parts per 1,000, but in some cases was 8 parts per 1,000, and higher figures had been met with. In spite of this the urine was clear, and was not usually smoky. The casts were commonly hyaline and epithelial; blood casts were uncommon. Rapid improvement was the rule, the albumin practically disappearing in a few days. There was usually no fever. In some cases blood was passed in considerable amount, when fever was often associated. He was at a loss for any general cause. Against an infective process, like scarlet fever, was the fact that although the troops were in close contact with civilians the latter were unaffected. There was nothing to support the view that the ground was infective in particular areas.

He had worked with Captain McNee the pathological anatomy in 24 cases in all, of which 17 acute cases and 2 subacute cases were of the kind of nephritis under discussion. Little could be detected by the naked eye, except that on the cut surface of the cortex the glomeruli projected slightly as grey translucent nodules, instead of the red points seen normally. Microscopically the tubules did not show constant alterations; catarrhal changes were, however, indicated chiefly by mitoses in the cells; fatty changes were seen in some cells. Tubular haemorrhages also appeared. The main changes were found in the glomeruli. They were enlarged, and often pouted into the tubules, their cell content being increased. The glomerular capillaries were dilated, but instead of containing blood were filled with endothelial cells. Desquamation of the covering epithelium and proliferation also were sometimes present. There was little evidence of reaction of the stroma or adhesion of the tufts to Bowman's capsule. Leucocyte infiltration and degeneration were also absent. In two cases total infarction of some of the tufts was found, due to occlusion of the afferent arterioles by hyaline thrombi. Special examination of the organs had failed to give any evidence of a bacterial cause. Striking lung changes were found, which, it was suggested, threw a new light on the etiology; they were found to be acutely emphysematous and oedematous and to contain diffuse patchy haemorrhages. Microscopic examination of the lungs showed a peculiar lesion of the walls of the infundibula and ends of the bronchioles. These were prominent and were denuded of their epithelium, the surface being covered by dense fibrin; thus they had the appearance of having been cauterized. The changes found resembled those following the inhalation of chlorine or other irritant gases. In the lungs from seven cases of trench nephritis these changes were found, and in three of these the condition was well marked. In six out of the seven there was evidence of thrombosis of the pulmonary capillaries in relation to the infundibular damage. Numerous small haemorrhages occurred in the spleen and brain in two cases, and were apparently embolic in origin. The explanation appeared to be that the haemorrhages were the result of multiple embolisms, and this suggested that the kidney lesion was similarly caused, although no thrombi had been found in the glomeruli. In shell-gas poisoning the lung condition was very similar, and thrombosis of the pulmonary capillaries and cerebral haemorrhages of embolic origin also occurred. In one case of gas poisoning the kidney contained thrombi in the glomerular capillaries; in another there were no thrombi there, but proliferation of the lining endothelium of the glomerular capillaries had occurred—a condition similar to that present in the kidneys in trench nephritis. It was reasonable to suppose that thrombi had previously been present, and that the endothelial proliferation represented the resulting reaction. Although it was not suggested that the nature of the irritant which caused nephritis was drift gas or shell gas—and there was no history of recent "gassing" in the cases—it seemed likely that the origin of this form of nephritis was to be ascribed to embolisms blocking the glomerular vessels, and it might be that the source of the embolisms was to be found in the lung lesions, which were of the kind recognized as due to an inhaled irritant.

Discussion.

Mr. W. H. JESSOP said that of 75 cases he had found that 70.7 had retinoedema with the occurrence of plaques and sometimes of detachment of the retina. There were few haemorrhages; 56.6 per cent. of the patients were between 20 and 30 years old. The vessels were unaffected, and the blood pressure normal. All these changes could be watched from time to time and be seen to disappear. He could not but conclude that they were due to toxaemia as also was the oedema elsewhere.

Dr. J. E. ADLER said that he had met with blood casts on several occasions. He regarded the diastase test as of the utmost value. In acute nephritis there was generally a low diastase reading. In 800 readings it varied from *nil* to 40. In the majority of cases a diastase value consistently low was evidence of low renal efficiency. Of 69 cases with a low diastase value, 31 showed blood in the urine and 38 no blood; occasionally blood was found with a high diastase reading. The phthalein test was the most valuable. To perform this 6.6 mg. of phthalein were injected intramuscularly, and the bladder emptied one hour and ten minutes later, and every hour up to three or four hours. The test depended upon the amount excreted at the different hours. The amount excreted during the first hour should equal the total of the amounts passed at the end of the second and third hours. It agreed with the diastase reaction in showing that the permeability of the renal cells was markedly decreased in nephritis, and it

also indicated the advent of uraemia. The diastase readings and the phthalein test results were generally in agreement, but there were instances when the test was more reliable than the diastase value. The disadvantages of the diastase test were that a twenty-four hours specimen was necessary, the readings were variable, much time and special apparatus were required, and the starch had to be made fresh every day. Its use was somewhat restricted to laboratory work. He thought that both tests should be done in every case to enable a decision to be arrived at as to what should be done with the patients.

THE ROYAL SOCIETY.

November 9th, 1916.

Methods of Raising a Low Arterial Pressure.

Professor W. M. Bayliss, F.R.S., said that when the arterial pressure was low from loss of blood it could not be brought back, except to a certain degree, by the injection of saline solutions into the veins in quantity equal to that of the blood lost. But if the viscosity of such solutions were made equal to that of blood, a return to normal height was possible. The effect of saline injections containing gum or gelatine was also much more lasting than that of simple saline solutions. The difference in this respect was due to the osmotic pressure of the colloids added, by which loss of water by the kidneys or to the tissues was prevented. Solutions containing gum did not produce oedema in artificial perfusion of organs. When the fall of blood pressure was due to peripheral vaso-dilatation, then gum or gelatine solutions, although more effective than pure saline, produced a much less permanent rise than in cases of loss of blood. No signs of heart failure could be detected, and the reason why increase of pressure initially produced disappeared again more or less rapidly was still obscure. The combination of a small dose of barium chloride (1 mg. per kilogram of body-weight), as recommended by Langley, with a moderate amount of gum solution, was found to be the most satisfactory method in such cases. No diminution of reflex excitability resulted. The view that fall of arterial pressure produced peripheral vaso-constriction by means of nervous channels, and that rise of arterial pressure produced vaso-dilatation, was confirmed by artificial perfusion of a limb.

The Phagocyte in Cerebro-spinal Meningitis.

Dr. Cresswell Shearer, F.R.S., and Dr. H. Warren Crowe had, as the result of a number of experiments with freshly-drawn spinal fluid obtained from lumbar puncture of cerebro-spinal fever patients, in which the leucocytes had been shown to be alive (by trypan blue staining and observation on the warm stage), obtained good evidence that the meningococcus could be taken up by human leucocytes in large numbers and retained by them for some considerable time without undergoing digestion. They had succeeded in recovering living germs from the leucocytes of a number of such cases. It was well established that in the case of freshly isolated strains of the meningococcus the leucocytes would not take them up at first; although exceptions to this rule were said to occur (Kolle and Wassermann), the authors met with none. In the case of old laboratory cultures, on the other hand, ingestion on the part of the phagocytes took place with great rapidity. In a short time the germs were killed and completely digested by the leucocytes. This was also found to be the case with the majority of nasal strains of the meningococcus obtained from chronic "carriers," although there are great individual differences in this respect. It was shown experimentally that in the intermediate stage between the fresh spinal condition and the nasopharyngeal state they could be taken up but not killed by the leucocytes. They could be recovered from these leucocytes after periods of twenty-four, forty-eight, or even sixty hours and grown on artificial media. The conclusion, therefore, was that infection was by leucocytic conveyance. This, it was suggested, might be the reason why direct infection was so uncommon in cerebro-spinal fever. The virulent organism was insusceptible of being attacked by the phagocytes. The longer the germs grew in the "carrier" throat, the more easily would they be ingested, until a time was reached when, on ingestion, they were also destroyed. Somewhere between these two extremes infection might produce the disease. The organism was sufficiently weakened to give in to the leucocytic attack, but not to lose its life. Should infection take place at this point the leucocytes would pick up the germs from the mucous membrane of the nasopharynx, and in the course of their wanderings would sometimes carry them into the spinal canal. There the liberated organisms might set up the disease, at the same time reacquiring the power of resisting the attack of the leucocytes in the presence of normal serum.

Reviews.

RUTHERFORD MORISON'S COLLECTED CONTRIBUTIONS.

The two volumes entitled *Surgical Contributions*[1] consist of a collection of Mr. Morison's monographs, his views expressed on various surgical subjects in the *Medical Annual*, and his published remarks made at various medical society meetings; their appearance in book form is due to pressure from his old house-surgeons, to whom the work is dedicated. The author has brought his views up to date by the insertion of numerous footnotes throughout the book, but it is noticeable how successfully his writings have stood the test of time, for he has little either to add, or to retract, even from opinions published twenty to thirty years ago.

Among the opinions he still warmly maintains may be mentioned—that pyloroplasty is the best operation for a simple stricture of the pylorus; that in certain cases closure of the gall bladder is preferable to drainage of the viscus after the calculi have been removed; that primary periosteal sarcoma is rare, and that such new growths—probably *all*—commence in the medulla of the bone; that in tumours of the stomach and intestines, for mechanical reasons alone, it may be justifiable to excise non-localized malignant growths; and that the wound of a major operation should be allowed to heal under a single dressing.

The range of subjects is large and few areas of the wide field of general surgery are untraversed. His large experience in gastro-intestinal, gynaecological, genito-urinary, mammary disorders, in aneurysm, ruptured knee cartilage, and in bone and joint lesions, in tuberculosis generally, and in plastic surgery, justly entitle his remarks to the serious consideration of the reader. And his opinions have the backing of many groups of his own statistics.

We are impressed with the vast amount of original work he has contributed towards the solution of surgical problems, and it is interesting to read many views expressed by him far ahead of their general adoption; some of them are only now obtaining common acceptance. He was the first to point out the importance, for surgical drainage purposes, of the peritoneal recess now known as "Morison's hepato-renal pouch"; he also pointed out the folly of performing an ileo-colostomy only, where a new growth of the colon is situated between the end of the ileum and the point of anastomosis, without arranging for an escape from the distended caecum, as the usually competent ileo-caecal valve is the cause of the final bursting of the caecum from tension gangrene.

Included among operations and surgical measures he has introduced are the vertical incision for thoracostomy in an empyema; a new method of anastomosis of the lower pelvic colon after excision of a portion of bowel for new growth; the transverse abdominal wall incisions for exposing the liver, external bile passages, and the kidney; retrograde catheterization as an aid to localizing the bladder end of the urethra in a perineal cystostomy for stricture of the urethra, with retention of urine; excision of the elbow-joint and hip-joint; and the "keel operation" for radical cure of a ventral hernia. He was the first surgeon to open the peritoneal cavity deliberately for excision of a new growth of the bladder. The first successful case of omentopexy was done by him; the priority of suggesting this operation belongs to Professor

[1] *Surgical Contributions from 1861 to 1916.* By Rutherford Morison, M.B., F.R.C.S.Edin., F.R.C.S.Eng. In two volumes. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Toronto: The Macmillan Co. of Canada, Ltd. 1916. (Med. 8vo. Vol. i, pp. 439, 41 plates, 83 figures; 15s. net. Vol. ii, pp. 965, 18 plates, 113 figures; 30s. net. 42s. net the two volumes.)

Talma, although Mr. Morison quite independently devised the measure to cure the ascites by the formation of a new circulation.

The author's teaching aims primarily at the attainment of a thorough grasp of the principles in surgery; these essentials are put in a clear, helpful way, and their appreciation is a distinct asset in war surgery, which is apt to present unexpected problems. Much thought must have been devoted to the enunciation and collection of aphorisms on general surgery, of which large numbers are given; these are in themselves a mine of epitomized information. Mr. Morison urges upon his students the importance of schematically approaching any operation in the fullest detail, if they are not to get into difficulties and if uniformly successful results are to be attained. A quotation which has been aptly applied to Professor Morison in his teaching and professional work is "that without forethought there can be no precision"; the authorship of this quotation we cannot trace. He is a well-known advocate of an ample incision to enable the surgeon always to see what he is doing, for he holds that considerable danger attaches to surgery done otherwise.

He groups as many diseases as possible under a common heading, and he teaches that in their main points the pathology, symptoms, diagnosis, prognosis, and treatment in all these groups are the same. Such groups include: (1) *Stricture* of the common bile duct, pylorus, and urethra; (2) *tension gangrene* of the gall bladder, urinary bladder, appendix, and caecum; (3) *sacculi* of the gall bladder, urinary bladder, appendix, and colon; (4) *torsions* of the different abdominal viscera. The description and illustrative diagrams of the different situations in which a pathological vermiform appendix may be found are exceptionally good, as are those relating to gall stones and intestinal obstruction. The book bristles with pathology, which enters largely into every surgical problem discussed.

A house-surgeon particularly will find much valuable information on the requisites for an operation, the preparation of a patient, and after-treatment, and on the various complications that may arise.

The volumes are well got up, the paper and print being good, and the value of the book is much enhanced by an ample index whereby the author's views on a subject may be speedily ascertained. There are a large number of diagrams and illustrations, including a photograph of Mr. Morison surrounded by all his old house-surgeons. Although the work is not a student's textbook, we venture to predict that it will be widely read, and used also as a book of reference by both clinician and pathologist, be he student, general practitioner, or consultant.

We congratulate the author, and look for further written records of his vast experience.

PHYSIOLOGICAL CHEMISTRY.

In his textbook on *Physiological Chemistry*,[2] Professor A. P. MATHEWS, of Chicago, attempts to cover the ground of both theoretical and practical biochemistry. The first part of the book, occupying about a quarter of the whole, is devoted to the chemistry of protoplasm and the cell. The amount of space given to the discussion of the carbohydrates, lipins (fats, etc.), and the proteins is well disposed, for the author enters into chemical considerations which are not as a rule fully treated in such textbooks as this. The chapter on the physical chemistry of the protoplasm is also valuable and interesting, for the subject is one to which the author has given special attention. This first part of the book is particularly useful, since it deals with subjects of fundamental importance in a clear, original, and comprehensive manner. The rest of the book is more commonplace. It is devoted to the growth, maintenance, and energies of the mammalian body considered as a machine. Here, in his chapter on the glands with internal secretions, the author takes the opportunity to give them the new name "cryptochetic organs," on the ground that "they are the tissues of hidden flowing," as he says. The volume ends with 160 pages on practical work and methods, an amplification of the schedule of work in physiological chemistry in use at the University of Chicago. Professor Mathews has collected many facts and hypotheses in his book, and presents them to the reader in a style that is at times a little tedious; the text would gain by passages of lucid summarization. Thus his explanation of the clotting of blood takes a whole page of exposition, being itself preceded by over twenty pages of preliminary explanations; its depth may be judged from the fact that he assumes the blood platelets to be liquid crystals composed of protease, fibrin, phospholipin, thrombin, calcium, and antithrombin. Nearly two pages of the book are taken up with explanations of how and why the brain and nervous system are the "master tissues of the body"—a matter which seems alien to the study of physiological chemistry.

The book is described as a textbook for students, but the opening words of the preface in which the author expresses the hope that it "may raise in the minds of those who read it more questions than it answers" shows that its appeal is not so much to the ordinary student as to those who intend to devote themselves to physiology and pathology, or to the physician who is prepared to give special attention to the study of metabolism. To such persons its value will be greatly increased by the fact that the author has appended to his chapters selected bibliographies of the subject with which each deals. He has also supplied an excellent index.

NOTES ON BOOKS.

THAT eminent surgeon and experimentalist Professor G. W. CRILE has recently developed views as to the mechanism of life that were expounded in a lecture delivered last year in America. A fairly full account of the doctrines will be found in the BRITISH MEDICAL JOURNAL of October 28th, 1916, p. 590. Professor Crile has now published a more detailed account of his views, with the facts and fancies upon which they are based, in book form.[3] He has also published a little book[4] in which he applies his ideas of the development and phylogeny of man to war and peace. In these two volumes the reader has the opportunity to study the evidence upon which the author bases his far-reaching views on the kinetic drive and the mechanical or chemical basis of life. In place of the old-fashioned tripod of life, he gives us a five-legged stool, with the brain, the adrenals, the liver, the thyroid, and the muscles as its supports. For ourselves, we find the seat uneasy, and perusal of the books exacting. Yet all attempts to solve the riddle of life are interesting, and Professor Crile's works have all the value attaching to the writings of a highly competent experimental physiologist.

The essential feature of Major WALTER'S *Guide to X Rays, Electro-Therapeutics, and Radium Therapy*[5] is that the author has compressed into a few pages the salient facts and features of electrical treatment, radiography, the action of x rays on various tissues, and the action and uses of radium. The illustrations, some original, many drawn from various publications, are well chosen; and the amount of practical information, without elaboration of detail, is somewhat remarkable. As an elementary treatise, which is all it professes to be, it is altogether admirable, and should be of much use to students, and especially to those who are commencing a course of instruction in these subjects. No attempt is made to enter into elaborate discussion as to either diagnosis or treatment, broad principles alone being dealt with, but little of importance is missed, and the whole is put together in a very practical manner, is easily understood, and is well arranged and well written. Inasmuch as most textbooks on the subject are of large size, and appeal more to the advanced student, this publication seems to fulfil a useful purpose as an elementary introduction to the various subjects. It should appeal especially to house-surgeons, to general practitioners, and those attending for the first time a course of instruction in x rays and radiotherapeutics.

[2] *Physiological Chemistry: A Textbook and Manual for Students.* By A. P. Mathews, Ph.D. London: Bailliere, Tindall, and Cox. 1916. (Demy 8vo, pp. 1040; 85 figures. 25s. net.)

[3] *Man, an Adaptive Mechanism.* By G. W. Crile, F.A.C.S.; edited by Annette Austin, A.B. New York: The Macmillan Co. 1916. (Demy 8vo, pp. 465; 88 figures. 10s. 6d. net.)

[4] *A Mechanistic View of War and Peace.* By G. W. Crile; edited by Amy F. Rowland. London: T. Werner Laurie, Limited. 1916. (Post 8vo, pp. 116; 10 illustrated. 6s. net.)

[5] *A Practical Guide to X Rays, Electro-Therapeutics, and Radium Therapy for Students and Practitioners.* By A. E. Walter, M.R.C.S., L.R.C.P., Major I.M.S. Calcutta and Simla: Thacker, Spink, and Co. 1916. (Demy 8vo, pp. 255; 144 figures. 10s. 6d. net.)

The monograph on the *Roentgenographic Diagnosis of Dental Infection in Systemic Diseases*[6] by Dr. TOUSEY, of New York, is an elaboration of many articles published by the author during 1916. The *x*-ray illustrations of teeth showing abscess formation, pyorrhoea, and conditions from which these are to be differentiated are good. It is suggested that a putrescent mass in the pulp chamber of a tooth may be present for years and be the source of long-persisting secondary infection, and the cause of such diseases as gastric ulcer, exophthalmic goitre, cardiac lesions, and many other conditions of which the initial cause is obscure, and that in all such conditions an *x*-ray examination of the teeth may be useful.

[6] *Roentgenographic Diagnosis of Dental Infection in Systemic Diseases.* By S. Tousey, A.M., M.D. New York: P. B. Hoeber. 1916. (Fcap. 4to, pp. 87; illustrated. 1.50 dols.)

MEDICINAL AND DIETETIC PREPARATIONS.

Néocaine-Surrénine.

NÉOCAINE-SURRÉNINE, samples of which have been submitted to us by the Anglo-French Drug Company, Limited, Gamage Buildings, Holborn, is a new local anaesthetic which is intended to replace cocaine, novocaine, etc., in dental practice and in all operations in which these substances have been employed. It is a white crystalline powder, readily soluble in water, and is stated to consist of a compound termed néocaine, which is described as a synthetic compound of the "benzoyl-dimethyl-ethyl series," together with 0.2 per cent. of "acid borate of adrenalin," the latter being the natural and not the synthetic variety. It is claimed that néocaine is much less toxic than cocaine, and also that the anaesthesia produced by it is much more prolonged, lasting from half an hour to an hour and a half. Néocaine-surrénine is supplied in powder form (in tubes containing twenty capsules each holding 0.050 gram, and in tubes containing 5 grams and 1 oz. respectively), and also in ampoules of various sizes containing sterilized solutions of convenient strengths. Ampoules of isotonic saline solution are also supplied for the purpose of preparing sterile solutions of the powder as required.

Forma-Germkill Fumigators.

We have recently received samples of the Forma-Germkill Fumigator, manufactured by the Central City Chemical Co., Chicago, Ill., U.S.A. (London agent, Mr. L. Warner, 1 and 3, Jewin Crescent, E.C.), and intended for fumigating sick-rooms, schools, hospitals, etc., with moist gaseous formaldehyde. They consist of a metallic cup holding a solid compound stated to contain at least 72 per cent. of real formaldehyde, together with a simple burner, burning solid fuel, by which the vaporization is effected, the two being sealed together in such a manner as to be airtight, while at the same time the fumigator is very easily opened. When used according to the directions supplied we find that the fumigators yield a steady stream of gaseous formaldehyde together with amply sufficient water vapour to ensure that the disinfectant will exert its full germicidal activity; at the same time, there appears to be no danger of fire if the precautions directed are taken. The fumigators are supplied in various sizes, the smallest containing 1 oz. of the solid formaldehyde mixture, and being stated to be sufficient for the disinfection of 1,000 cubic feet of space.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the committee, held on Tuesday, November 14th, thirty-five cases were considered, and £303 voted to twenty-nine of the applicants. The following is a summary of some of the cases relieved:

Daughter, aged 54, of M.R.C.S.Eng. who practised at Hadleigh. Applicant was a governess for thirty-three years, but, owing to a breakdown in health, had to discontinue the work. Income, £18 from dividends and £21 pension from another society, and earns a little by needlework. Owing to high price of food unable to manage at present. Voted £2 last month, and referred to the Guild. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 47, married, who practised at Birmingham, suffering from disseminated sclerosis. Until recently was able to earn a bare living by acting as ship surgeon, but now too ill to undertake work of any kind. One son, aged 9, and wants help towards his education. Voted £18 in twelve instalments.

Widow, aged 63, of M.R.C.S.Eng. who practised in Suffolk and Cambridge and died in 1904. Left quite unprovided for, and until recently earned a bare income by acting as nurse companion. About four months ago became ill, and is now suffering from paralysis, and the small amount of money saved is almost exhausted. Voted £2, and referred to the Guild.

Widow, aged 70, of L.R.C.P.Edin. who practised at Cardiff and died in 1906. Was left totally unprovided for, and is now a chronic invalid. Only income two pensions from other societies of £54. Two children married, and unable to help. Relieved eleven times, £82 10s. Voted £6 in twelve instalments.

Widow, aged 79, of L.S.A.Lond. who practised in Suffolk and died in 1878. Left unprovided for with a large family, none able to help. One daughter assists in the home. Only income a pension of £30 from Epsom College. Relieved four times, £22. Voted £12 in twelve instalments.

Daughter, aged 83, of M.R.C.S.Eng. who practised at Newton Abbot and died in 1839. Was a governess for many years. Income from two annuities £70. Was an annuitant of the Fund for many years, but this was discontinued. Relieved last year, £20 in four instalments. Voted £8 in two instalments.

Daughter, aged 66, of M.D.Edin. who practised at Spalding and died in 1896. Applicant was left with insufficient means, and is now too old to get employment. Only income £34 per annum. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 59, of M.D.Glas. who practised in Perthshire and died in 1907. Was left unprovided for, and is now practically blind. Son who used to help to keep the home now in the army. Two other sons married, and unable to help. Relieved twice, £12. Glasgow Branch of the Guild strongly recommend this case. Voted £10.

Widow, aged 79, of M.D.Lond. who practised in Wimpole Street and died in 1895. Applicant was left with very slender means, total only £44. Suffers from rheumatic gout. Relieved nine times, £55. Voted £10 in two instalments.

(To be continued.)

DISABLED SAILORS AND SOLDIERS.

SCHEME OF THE BIRMINGHAM PENSIONS COMMITTEE.

WHAT is, we believe, the first scheme of a local pensions committee for the care and training of disabled soldiers has been sent in, adopted by the Birmingham Local Pensions Committee, and transmitted to the Central Statutory War Pensions Committee. It was adopted at a meeting presided over by the Lord Mayor, Mr. Neville Chamberlain, on November 14th.

A register of all disabled sailors and soldiers in the city has been compiled and will be maintained. The scheme assumes that arrangements for domiciliary treatment of all insured men will be made under the Insurance Act, and that uninsured sailors and soldiers will have equal rights with insured men for domiciliary treatment, medicines, and appliances. It recognizes that in certain cases ordinary treatment must be supplemented by specialist consultations, or special treatment, and that this may involve arrangements to provide institutional treatment. This is the crux of the situation for the moment. The Birmingham scheme proposes to arrange with certain institutions in Birmingham to receive and treat as out- or in-patients disabled soldiers sent by the Local Pensions Committee. It proposes to make such arrangements with the General Hospital, the Queen's Hospital, the Royal Orthopaedic, the Eye, Ear and Throat, Skin and Lock, and Dental Hospitals in Birmingham. The War Office has arranged that discharged men who have undergone amputation shall attend as out-patients for further treatment at the 1st Southern General Hospital and the Dudley Road Military Hospital. It is believed that St. Dunstan's Home at Regent's Park is at present in a position to deal with all cases of blindness, and that cases of partial blindness should be sent for treatment to a local eye hospital. It is hoped to make arrangements with the Education Committee and the institution at Edgbaston for teaching lip reading or some other mode of communication to cases of deafness. It is pointed out that it is the duty of the City Council to provide for the treatment of cases of tuberculosis.

The difficulty of equipping and training a disabled man to earn his own living so that he shall not be left to become a burden to the community and possibly to himself is recognized, but it is said that local experience shows that a good proportion of discharged men have returned to their former occupations, or obtained other employment without resorting either to the Citizens' Committee or the Labour Exchange; it is assumed that as time goes on and the number grows some among them will be unable to find employment by reason of physical injury or disease. For the training of such men technical schools in the city could be utilized, and there is reason to believe that arrangements could be made with many workshops to secure training: it is therefore proposed to make arrangements both with the Education Committee and with employers in various industries to afford opportunities of practical workshop training. It is the duty of the Labour

Exchange to report each week to the Local Pensions Committee particulars of discharged men who have been placed in employment, and also of men who, within a fortnight of the date of their registration with the Exchange, have not been found employment. The committee has informed the Labour Exchange that it is now ready to receive information on these heads. Altogether 1,556 cases for treatment have been reported to the committee, and in the third quarter of the year 273 applications for training and employment were received.

We are glad to see that the Birmingham committee has taken a definite line with regard to soldiers suffering from some permanent disability, such as paralysis, which makes them bedridden or at least reduces them to a condition of helplessness requiring constant attendance. The Central Statutory War Pensions Committee appears at first to have thought that such cases might be disposed of by asking the ordinary civil general hospitals each to take a few, and approached the hospitals accordingly. Such a proposal ought not, we think, to be entertained, for its acceptance would mean the exclusion of ordinary civil patients for whom the hospitals primarily exist. The Star and Garter Home at Richmond has been established under the auspices of the Red Cross Society for helpless cases, but apart from the fact that its accommodation is limited, it would be undesirable and contrary to the wishes of the men themselves to assemble all such cases in one home or hospital, which must be situated at a distance from the relatives and friends of many of them. The Birmingham committee accordingly suggests that it may shortly become necessary to provide a local home, and asks the district committees to furnish particulars of cases suitable for admission. The way in which such a home should be provided and maintained is not discussed by the committee, but it is clear that the obligation to care for such men falls primarily upon the State. This has been recognized by the Government, although there seemed to be a disposition to think that the State pensions or allowances should be supplemented out of voluntary funds placed at the disposal of the central or local pensions committees.

The Birmingham committee recognizes that every disabled man should be in a position to obtain the medical assistance and treatment that he requires, that if training is needed the treatment and training should proceed together, and that in many cases the treatment will have to be of a special character. The decision as to the kind of treatment and training which will be most beneficial is a medical question, as is also the selection of cases suitable for admission to homes for permanently helpless soldiers; in both cases medical knowledge is necessary, and in coming to decisions on these matters local pensions committees should have the assistance of medical members. In the original scheme propounded under the Act the mistake was made of not requiring all local pensions committees to contain a medical element, and it was even said that the local pensions committees had no medical functions. This showed an imperfect understanding of what the duties of these committees would be, and the defect is, we hope, on the way to be remedied. The sooner the remedy is applied the better, and it may be suggested that the matter is one in which it is desirable that the profession should take action locally.

Second Reading of the Board of Pensions Bill.

The discussion which took place on the second reading of the Board of Pensions Bill on November 21st did not throw much new light on the problem.

Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, who moved the second reading, said that while it would have been easy to have established two years ago a single pensions body, it would be difficult now, for the staff reached a total of 2,500, the number of widows was 50,000 and of orphans 100,000, and it was considered that it would be a pity to transfer the allegiance of the 500 local pensions committees from the Statutory War Pensions Committee to a new department. The last for the first time set up a Pensions Minister, who was a member of the Cabinet, and a strong board, and he hoped that before long the Admiralty would come in. He stated that there were now over 70,000 disabled men, and it was a duty to see whether there were not many men who had been refused a pension who ought to have some form of grant or compassionate allowance. The local pensions committees should form a complete register of every widow, orphan, and dependant, and every disabled and discharged man.

Sir H. Craik, though expressing himself in sympathy with the objects of the promoters of the bill, formally moved its rejection. He did not consider it necessary to suspend all the important functions of the Statutory Committee and introduce a new executive authority. It would be necessary to establish credit banks for soldiers, to build up lost credit and re-establish good-will, and he feared that the Pensions Minister could not take that task up. Major H. Terrell, who seconded, urged that the Government should tear up the Royal Warrants and establish a system under which there would be no delay between the time when the rate applicable to a particular man was fixed and the day when he got his money. Sir C. Henry protested against the slight put upon the Statutory Committee, but Mr. Percy Harris pointed out that it would continue to exercise one most important and vital duty, that of the care of disabled men.

The Financial Secretary to the War Office defended the bill on the ground that simplification and unification were needed, and could not be carried out by the War Office, which did not possess the necessary local machinery. After a number of other members had criticized the bill, the Minister of Pensions, Mr. A. Henderson, said that the existing warrants must be replaced by a system which would act not only more promptly, but more fairly and even more generously. Before the war was over he believed that if the matter were put on a proper basis, ten or fifteen, or even twenty millions a year would be required for disability pensions alone. If it had been possible to start with a clear field, a different course might have been taken, but Parliament had been two years late in laying its plans. He was in favour of flat-rate pensions, and thought it would be possible, in the case of men disabled, or whose disability or illness had been aggravated by war service, to devise a plan by which, if the soldier's pay and separation allowance were not continued in the present form, recuperating grants might be made for a period not exceeding twelve months, at the end of which period a man could be put on a pension. If a man had the germs of disease when he enlisted, he was nevertheless able to perform his duties as a producer and citizen, and the State had an obligation to such a man.

Sir Henry Craik withdrew his amendment, and the bill was read a second time without a division.

Training and Notification.

In the discussion which preceded the first reading of the Board of Pensions Bill Mr. Hogge said that he believed the right thing to do was for the War Office to retain under military discipline all men until they were fit, or as fit as possible, to be restored to civil life. Mr. Henderson said that no decision had yet been reached by the War Office on that point; what was contemplated was that training might be begun while the later stages of the cure were being effected, but he did not think there was any intention of carrying the training to the extent it might be carried if the work was taken up by the War Office or left to be carried out by the Statutory Committee or any other authority. It was a sort of introductory stage. In a written reply to another question, Mr. Forster said that information as to soldiers about to be discharged from military hospitals was given to local committees and should reach them fourteen days or more before the man's discharge.

COMPULSORY NOTIFICATION OF VENEREAL DISEASES AT THE PRESENT TIME.

A VERY strong committee of the British Medical Association, consisting of all the chairmen of Standing Committees, with the Chairman of Council in the chair, considered this question, and has authorized the following statement for publication.

The Committee of Chairmen of the Standing Committees of the British Medical Association, after very careful consideration, has unanimously arrived at the conclusion that any system of compulsory notification of venereal diseases at the present time would entirely fail to obtain the results desired, for the following reasons:

(1) That it would lead to concealment; and

(2) That even if a public authority were notified that any particular person was suffering from one of these diseases, no effective measures could, in the large majority of cases, be taken for treatment.

The Committee considers that the time for any such procedure has not yet arrived, and that before considering how it might be carried into effect it will be necessary to provide facilities for free treatment in accordance with the scheme set out in the circular issued by the Local Government Board, and also to prevent afflicted persons while in an infectious state from resorting to unqualified and incompetent persons for treatment, by rendering any such treatment, or the advertisement or sale of quack remedies, an offence against the law.

British Medical Journal.

SATURDAY, NOVEMBER 25TH, 1916.

FRESH LIGHT ON TRENCH NEPHRITIS.

In a paper published last January[1] Sir John Rose Bradford gave the results of a study of the special case sheets of 1,455 cases of trench nephritis under treatment at various periods in the base hospitals of the British Expeditionary Force in France. The disease was, he said, characterized by five features: The rapid subsidence of well marked renal dropsy, the frequent presence of bronchitis and dyspnoea, the severity and suddenness of the onset of uraemic manifestations such as epileptiform seizures, the rapidity with which inflammatory complications occurred, and the low mortality, which had not exceeded three or four per 1,000. In a discussion held at the Royal Society of Medicine in February,[2] Dr. Langdon Brown said that usually oedema was the first symptom, often accompanied by shortness of breath, that bronchitis was common, and that a fair proportion of patients had complained of sore throat. He recalled the facts that over 14,000 cases had occurred during the American Civil War, the incidence of the disease being specially great in the course of one year (March, 1862, to March, 1863), and that the epidemic did not recur in later years of the war. Dr. F. W. Andrewes, who had only been able to examine cases in a later stage, found typical evidence of acute nephritis, the specimens showing in the glomeruli proliferation of the epithelium of the capsule, and in the tubules degeneration and desquamation of the epithelium. There was also some cellular infiltration in the interstitial tissue. The condition, he said, was comparable in all respects with the acute glomerular nephritis of scarlet fever. Dr. R. G. Abercrombie, from an examination of 500 cases in the acute phase, concluded that in about half of them there were premonitory symptoms which in order of frequency were bronchitis, febrile symptoms, and abdominal pains and vomiting.

In a highly complex organ such as the kidney, alterations which have been initiated by any process producing acute damage tend to progress, until finally the appearances present little that is characteristic of the commencement of the disorder. In order to grasp the fundamental lesion, it is necessary to examine acute cases at the earliest period. This has now been done by Lieutenant J. Shaw Dunn, working in conjunction with Captain McNee, on the kidneys of an extensive series of acute cases of trench nephritis seen in the casualty clearing station zone. A report of this investigation will be found at page 724. That material was secured from cases in a very early stage of the disease is shown not only by the clinical histories, but by the nature of the lesion. The constant and outstanding pathological feature in these cases has been the plugging of the glomerular capillaries with masses of cells, apparently of endothelial origin, so that the tufts were greatly swollen and their vessels rendered practically impervious to the blood stream. Tubular changes, on the other hand, were inconstant, and when present were mainly reactive, as shown by the occurrence of mitoses in the epithelial cells. Thus there is good reason for agreeing with the opinion expressed that the condition, so far as the kidneys are concerned, is essentially a particular type of glomerulo-nephritis (intracapillary capsulo-nephritis). The general absence in the acute cases of such phenomena as leucocyte accumulations and proliferation of the stroma or the lining epithelium of the glomeruli, points to the conclusion that these conditions, when present, are of the nature of secondary changes.

Remarkable lesions have been observed in other organs, especially the lungs and brain, and as the result of extremely searching histological investigations, the view is advanced that these changes afford a clue to the causation of trench nephritis. The lungs were examined in seven cases, and in three of these acute lesions were observed indistinguishable from those produced by the inhalation of irritating gases, such as chlorine or shell-gas; in the other four the changes were similar though less marked. The lesions consisted in total destruction of the epithelial lining of the terminal bronchioles and infundibula, with the deposition of fibrinous exudate on the denuded surfaces; there was often a superadded inflammatory reaction in the form of collections of polymorphs and lymphocytes. In the adjacent pulmonary capillaries hyaline thrombi were found in six out of the seven cases. The probability that a close connexion existed between these pulmonary thrombi and the glomerular changes in the kidney was established by the examination of peculiar punctiform haemorrhages in the brains of certain of the cases of nephritis and by the conditions found in the kidneys and brains of men who had died from gas poisoning. The punctiform cerebral haemorrhages in cases of both types were shown by serial sections to be due to hyaline plugs in the capillaries. In many of the haemorrhagic areas, however, the vascular plugs could not be found, and it is surmised that they may be extruded along with the red blood corpuscles. In the nephritic kidneys hyaline plugs were only rarely found in the glomerular vessels; but here the links in the chain are supplied by the appearances in two cases of acute poisoning by shell-gas which came to examination. Both showed the typical lung changes already mentioned, but, while the kidneys of the one presented hyaline plugs in the glomerular capillaries, those of the other showed instead some proliferation of the vascular endothelium in the tufts. Accordingly it is suggested that the proliferation of glomerular endothelium in trench nephritis represents the local cellular reaction set up by similar hyaline plugs, which are then probably disposed of by phagocytosis. This novel view of the kidney lesion as being in the first instance purely mechanical certainly affords an explanation of the extremely local and uniform character of the early change. Further, Lieutenant Dunn's statement that brain haemorrhages precisely similar to those recorded had been produced experimentally by non-toxic emboli is specially suggestive in this connexion, and seems to prove that the view that such vascular lesions must necessarily be toxic in origin is not tenable. The pulmonary changes are most significant in relation to the dyspnoea which is so prominent a feature of this type of nephritis and the bronchitis which so commonly attends it. According to the theory now propounded, the sequence of events would be as follows: Some irritant is inhaled; it causes acute damage to the terminal bronchioles and infundibula, which is accompanied by thrombosis in the pulmonary

[1] *Quarterly Journal of Medicine*, vol. ix, No. 34; British Medical Journal, 1916, vol. i, p. 351.
[2] British Medical Journal, 1916, vol. i, p. 278.

capillaries. Thence the thrombi are transported as emboli to the capillaries of various organs, where they cause characteristic lesions in certain situations. In the brain they give rise to minute haemorrhages. In the kidney the emboli lodge in the glomerular vessels, cause reactive proliferation of the endothelium and so occlusion; the glomeruli, being thus deprived of blood, are thrown out of action and the symptoms of nephritis follow. It is, of course, clear that these suggestions are advanced with reserve, since it is acknowledged that the cases of nephritis gave no history of recent "gassing"; thus, since the nature of the inhaled irritant is so far undetermined, the primary character of the lung lesions in point of time remains more or less conjectural.

Hitherto no parasite has been discovered, although in the discussion last February Dr. Mackenzie Wallis stated that he had found that the injection of filtered urine from trench nephritis into rabbits and monkeys caused a severe illness after eight days, but that urine which had been heated to 55° C. produced no illness. These results were held to suggest that an ultramicroscopic filter-passing virus might be present. Meanwhile the theory put forward by Lieutenant Dunn, which is, as we understand it, that the primary lesion is in the lungs, merits the closest consideration, and would not necessarily be put out of court by the discovery of an infective agent. The observations constitute a most important contribution to morbid histology, and reflect great credit both upon the observer and the temporary laboratory in which the work has been done. They form an important contribution to the solution of the problem, and we hope that the inquiry will be continued, that it will embrace all aspects of the acute cases, and that it will include the study of the chemical questions which arise.

FOOD CONTROL.

The decision of the Board of Trade, announced by Mr. Runciman on November 15th, to appoint a Food Controller, has naturally excited a great deal of public interest, and more has been read into the announcement than it actually contained. The Orders so far made by the Board of Trade under the Defence of the Realm Regulations apply to milk, flour, and potatoes. The price of milk must not be raised above that paid at November 15th, 1916, and the price may not exceed by more than a specified amount—in the case of retail milk 2d. a quart—the price in the corresponding month before the war. The order as to potatoes requires a return of potato stocks. The order which will have most effect in its influence on our daily diet is that which deals with flour. It affords an instance of how an agitation, unsuccessful in peace time, may succeed in its object under the stress of war conditions. The severe restriction of the hours during which alcoholic liquors may be sold, and the introduction of "summer time," or daylight saving, as it has been called, are other examples. The regulation prohibits for the future the production of any flour except such as would have been called a few years ago, when there was a considerable agitation for its adoption, "standard flour."

The relative advantages and disadvantages of the grinding of wheat so as to produce a flour containing a larger proportion of germ and bran than the ordinary white flour have been somewhat fully discussed in our columns. The prevalent method, in consequence of the preference of the public for a very white flour and very white bread, has been to grind the wheat and separate the product into a succession of fractions, the principal fraction, white flour, forming about 70 per cent. of the grain. By arranging the milling in such a way that 80 per cent. instead of 70 is collected in one fraction, the amount of protein in the flour is substantially increased, and it has been claimed that the product is increased in nutritive value not only by the enhanced amount of protein, but by the retention in it of a larger proportion of the vitamines of the embryo. Mr. Runciman appears to have been impressed by this view of the matter as well as by the advantage of getting an additional yield. He stated in the House of Commons that the Government had decided that 70 per cent. flour cannot now be permitted in this country. "Pure white flour," he said, "from which has been abstracted, as some people think, some of its most valuable qualities, will not be milled in future. We shall retain in the flour a good deal of what I believe in some quarters is called offal and in others precious food." He went on to state that the percentage of wheat which should be converted into flour varied with different kinds of wheat, and that a scale of percentages would be laid down which would, on an average, raise the yield of flour about 8½ per cent. The milling order which has since been published gives the percentage of flour that must be extracted from wheat as varying from 73 to 78 per cent. according to the variety, the highest figure being that for Australian wheat; the average figure is 75 per cent., which is still well below the 80 per cent. which was the percentage adopted for giving "standard flour." Even the additional 5 per cent., however, represents a large increase in the amount of flour obtained from every sack of wheat. The palatability of the resulting bread will continue to depend chiefly on a judicious blending of flours and on good baking.

While there may still be some difference of opinion as to the extent of the advantage secured, there will probably be no difference of opinion in the medical profession on the point that it will, in the existing circumstances of the food market, be considerable, even apart from the fact that a given amount of wheat will yield a much larger proportion of bread than before. In this case, as in the case of "summer time" and other innovations, it will be interesting to see whether the general experience obtained will lead to the retention after the end of the war of what has been adopted as a temporary measure.

CERTIFIED OCCUPATIONS AND THE POSITION OF THE MEDICAL PROFESSION.

The Man-Power Distribution Board has issued a revised list (R. 105) of certified occupations, and tribunals and military representatives are instructed to observe it strictly. Special prominence is given to the instruction that men applying for certificates of exemption should be examined by a recruiting medical board before their cases come up for decision by the tribunal, and it is added that as there is great pressure upon the medical boards applicants should give early notice to the recruiting officer of their desire to undergo medical examination. Men lawfully and habitually engaged in dispensing medicines are to be treated as in a certified occupation, if agreed to be indispensable for the needs of the population by the military representative, after consultation with the Insurance Committee for the area, which must consult the Pharmaceutical Committee, or if recommended by the National Insurance Commission and approved by the Army Council. Analytical, consulting, or research chemists are to be treated as in a certified occupation if recommended by the Royal Society. Attendants on lunatics are to be treated as in a certified occupation if recom-

mended by the Board of Control. Officers of the administrative or technical staffs of local government authorities, except men under 25 years of age and certain others engaged in fire brigades, salvage corps, the lifeboat service, and the police force, are to be treated as in a certified occupation, to whose reservation the military representatives agree. It is notified that the list will be revised early in 1917, and the age limits again raised. The rule entitling men in certified occupations under the age limits to be treated as covered by the list if found by a recruiting medical board to be unfit for general service (Category A) will also be altered so as to make available for the army men found fit for garrison duty abroad (Category B (i)). The list does not apply to duly qualified medical practitioners, with regard to whom special regulations were made by the Order in Council, made under Section 7 of the Military Service Act, 1916 (Session 2). The Order was set out in the SUPPLEMENT of June 10th, 1916, and its operation fully explained in a memorandum issued by the War Office on June 7th, and published in the SUPPLEMENT of June 17th, 1916. The Director-General A.M.S. in a covering letter emphasized the fact that the scheme would depend for its successful working upon the support and co-operation of the whole profession. The Order and memorandum recognized the Central Medical War Committee for England and Wales, and the Scottish Medical Service Emergency Committee as statutory professional committees for the purpose of considering applications for certificates of exemption on any ground other than that of conscientious objection, made by medical practitioners to local tribunals, and local tribunals were instructed forthwith to notify the appropriate central professional committee that an application had been made. At the same time, the Committee of Reference appointed by the Royal Colleges of Physicians and Surgeons in England was recognized as the statutory professional committee for the purpose of considering cases of doctors on the staffs of hospitals and medical schools in the metropolis, and such other special cases in England or Wales as might be referred to it. It is now, we believe, generally understood that a medical man who has enrolled with the Central Medical War Committee or the Scottish Medical Service Emergency Committee need not apply to the local tribunal, and that to do so only introduces an unnecessary complication. It suffices for him to produce his certificate of enrolment, and refer the local authorities to Army Council Instruction 485. A Central Professional Committee—namely, the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Committee of Reference for the special cases mentioned—has power to recommend exemption, absolute, conditional, or temporary, in cases in which, after considering the evidence, it thinks a certificate of exemption ought to be granted, and the recommendation of the professional committee concerned is binding on any tribunal under the Act. It is also now well known that doctors over 41, though not within the compulsory provisions of the Acts, are eligible up to 45 years of age for commissions in the R.A.M.C. for general service. Further, the War Office is prepared to give commissions in the R.A.M.C. to medical men between 45 and 55 willing to undertake whole-time home service. Every man who thus offers himself for whole-time home service will set free one younger medical officer now employed in this country to serve with the armies which the country has in France, the Mediterranean, Mesopotamia, India, and Africa. Communications from practitioners in England and Wales should be addressed to the Secretary of the Central Medical War Committee, 429, Strand, London, W.C., and from practitioners in Scotland to the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh. The Secretary of the Committee of Reference is Mr. F. G. Hallett, Conjoint Board in England, Queen Square, Bloomsbury, W.C.

THE PROPOSALS FOR A STATE MEDICAL SERVICE.

THE great position of the *Times* and the manner in which it has added to it by its fearless criticisms of many matters relating to the conduct of the war and reconstruction afterwards lend particular importance to any articles published in it with editorial authority. We have been accustomed to look to the *Times* for well-considered pronouncements on matters of policy reached after very full consideration of the facts, and one secret of its influence is that it has habitually followed this method. We feel, therefore, bound to enter a protest against the manner in which the campaign it appears disposed to carry on for the establishment of a civilian state medical service in this country has recently been conducted. The proposal is clearly a matter suitable for public discussion, but the very fact of its great importance, not only to the profession but to the public, makes it all the more desirable that it should be handled seriously and with full recognition of the practical difficulties of the problem. In the series of short articles published in the *Times* recently there has been no attempt to define what is meant by a state medical service, nor to indicate even the general outline of a scheme; instead we have been treated to a series of sneers and innuendoes reflecting on the competence and good faith of members of the profession who have remained in civil practice in this country, and to general statements as to what that very large part of the profession now serving in the navy and army think and desire. We are in a position to affirm that no one is at the present time justified in making any positive statement on this head. What is definitely known is that before the war the immense majority of the medical profession in Great Britain was strongly opposed to a state medical service, but that among those who are serving abroad there has recently arisen a disposition to re-examine the question. The subject, as we have said, concerns the public as much as medical practitioners, if by a state medical service is meant a whole-time salaried service for giving clinical attendance to sick persons. We do not propose to argue the general question at the present time, but it will be obvious to any one who seriously considers the matter that the prevention of disease and the treatment of disease in the individual are two different departments of medicine, in which different methods must necessarily be employed. The discovery of the cause of a disease has, with, so far as we know, only one notable exception, always preceded the institution of effective measures for its prevention. We may take as an instance a point raised this week in the *Times*. It is made a reproach to the profession that it has not discovered the origin and nature of scarlet fever and measles, and we are asked to contrast this with the success that has attended research, and administrative measures founded upon it, in controlling certain tropical diseases. It is true that the many attempts to discover the nature of the virus of scarlet fever and measles have not been successful, but they have been carried on and repeated in all civilized countries for something like a generation, and enough has been ascertained to make it almost certain that they belong to a class of infections not comparable with those producing such tropical or subtropical diseases as, for instance, malaria and trypanosomiasis, and it is misleading to write as though they were. In spite of the existence of state medical services in many tropical countries, little progress was made in the business of getting rid of tropical diseases by any government until the nature of the infections was discovered. When this had been done, and it proved a simpler matter than had been expected, administrative measures for prevention became relatively easy to apply. The problems of preventing measles and scarlet fever have engaged the attention of medical officers of health for a generation, but, lacking knowledge of the true nature of the infection, the

solutions proposed have been only partially successful; in fact, it may be doubted whether they have been attended with any real success at all, and the history of medicine goes to prove that it will not be possible to devise effective methods of prevention until the infective agent of each disease has been discovered and its characters carefully studied. This work must be done in laboratories, and the maintenance of such laboratories and the encouragement of workers in them are proper functions of the state acting either directly or through the universities and colleges. A healthy man desires to be protected from disease, but the sick man calls for relief of his sufferings, and that relief must be brought to him at his bedside by a practitioner in whom he has confidence. It is arguable that he could obtain what he wants under a state medical service, and we should be very glad to see the point discussed both in medical journals and in the public press; but it should be debated in a large spirit, with full appreciation of both sides of the problem. Due weight should be given to the feelings of the individual patient as well as to the safety of the community, and due regard should be paid to the history of the progress of medicine, and to the methods by which it has been achieved.

AN INTRODUCTORY ADDRESS BY ERASMUS.

In a volume of selected essays on medicine by old Dutch writers published in commemoration of the fiftieth anniversary of the appearance of the first number of the *Nederlandsch Tijdschrift voor Geneeskunde*,[1] there is one by Erasmus entitled "Encomium artis medicae," which reads amusingly like the introductory address that used to be the chief feature in the ceremony at the opening of our medical schools. Erasmus was not a physician, but, like nearly all the scholars of his day, he took a keen interest in medicine. His discourse may have been a mere academic prolusion, but internal evidence seems to show that it was an address actually given to students, as he speaks of "the salutary custom of our forefathers to excite, kindle, and inflame the minds of our young men to the study, admiration, and love of this most glorious science by a yearly encomium." Whether it was delivered by Erasmus is another matter. He speaks in one place of "our art," and we know that he wrote on all sorts of subjects for a living, and it is quite likely that in his younger days he played the part of "ghost" to some professor of medicine. In the dedication to Dr. Henry Afinius, "the excellent physician of Lier" (a town in Brabant), dated Louvain, March 13th, 1518, he says that in looking through his library recently he had come across an oration declaimed by him long before "when he was still inexperienced," but there is nothing to indicate the place or date of its delivery. His praise of medicine is so highly pitched as to breed a suspicion that the author of the *Encomium Moriae* was indulging his gift of irony at the expense of the doctors. But we think he was essentially sincere, for the rhetoric of his eulogy is tempered by strong denunciation of false brethren in the profession. Erasmus had a clear perception of the intimate relations between body and mind. Mental defects, he says, influence the body, while bodily disease in its turn hinders and even destroys the activity of the mind. Therefore the physician insists on abstinence, sobriety, moderation in sexual intercourse, and the avoidance of anger and melancholy. The divine, he says, persuades men to turn from their sin, but the doctor makes them physically capable of doing this. Like even the most enlightened men of his day, Erasmus believed in astrology, and he dwells on the special difficulty of observing the heavenly bodies "which the doctor is bound to know lest the remedy he administers should really be a poison." But on other subjects his views are by no means obsolete even at the present day. Thus he declares it to be perhaps the first duty of rulers to safeguard the health of the community. "What does it profit to drive the enemy from the walls when pestilence stalking within destroys more lives than the sword?" The ancients in their laws, he goes on to say, before greed and ambition had corrupted public life, made it their first consideration to keep the bodies of their citizens healthy, strong, and well proportioned. These things depend partly on the natural constitution, partly on education, exercises and diet, somewhat also on the construction of buildings. It belonged to the office of the physician to see that only persons of good constitution were allowed to marry, and that healthy nurses should be employed; he instituted public baths and gymnasiums; he promoted legislation against luxury; he warded off epidemics by rebuilding houses and draining marshes and was watchful in preventing the sale of food and drink injurious to health. But in our days rulers think it no concern of theirs if poisons are sold for wine or if by bad grain or rotten fish diseases are spread among the people. "There is no part of life," says Erasmus, "that can be properly regulated without the aid of medicine." He concludes with the usual flourish calling on the "excellent youths" whom he addresses to throw all their energies into the study of a science that will gain for them "honour, glory, influence, and wealth; and by which they will be a blessing to their friends, their country and the whole human race."

[1] [illegible] Amsterdam, 1865. An edition, [illegible]

KITCHENER MEDICAL SCHOOL, KHARTOUM.

We have received from Lord Cromer, President of the Gordon Memorial College, Khartoum, a letter commending the appeal made by Sir Reginald Wingate, Governor-General of the Sudan, for a fund to found a permanent memorial to the late Lord Kitchener in Khartoum. It has been decided that the memorial should take the form of a school of medicine to be affiliated to the Wellcome Tropical Research Laboratories; it would thus become a part of the Gordon Memorial College. Students who have passed through the institution will be fitted to serve as officers in the Egyptian Army Medical Corps, as officials in the medical department, and as general practitioners in that country. The proposal to establish a school of medicine at Khartoum was a project Lord Kitchener desired to see carried out. It was frequently advocated by him in conversation. The appeal is for funds sufficient to provide a building appropriate to the requirements and worthy of the name it would commemorate. All moneys now collected would be spent upon the building and equipment. Subscriptions may be sent to Mr. Baldwin S. Harvey, Honorary Secretary, Gordon Memorial College, 67, Lombard Street, E.C. The College was established as the result of a personal appeal made by Lord Kitchener at the end of 1898. The fourteenth annual report issued recently deals with the work of the College during a period of eighteen months, from June, 1914, to the end of 1915. The Principal, Mr. John W. Crowfoot, M.A., states that in consequence of the war it has been necessary to reduce the work of the College in several directions. The College has a primary school and upper school, and instructional workshops, and opportunity has been taken to remodel the teaching arrangements in some respects. The new curriculum has been planned with the double object of conferring a good foundation for specialized engineering courses, and of giving a balanced training of hand and eye and mind such as will fit boys, with or without further specialization, for the occupations—clerical, administrative, and educational—open for them in the country. The work of the laboratories has been hampered by the loss of workers owing to the call of the war, or in some cases owing to illness, and by the increase of routine work, especially in the bacteriological section. The number of routine bacteriological examinations made increased from 1,387 in the twelve months

ending June 15th, 1914, to 4,424 in the eighteen months ending December, 1915. Of these, 3,643 were performed during the year 1915. Nevertheless, a good deal of research work has been carried out, and a number of papers have been published. The chief subjects investigated have been the intestinal infections found in the Sudan and epidemic cerebro-spinal meningitis. The study of this disease was begun in 1913, and was continued during the recent recrudescence. Dr. A. J. Chalmers, who is in charge of the Wellcome Tropical Research Laboratories, states that the vaccine-therapy started some two years ago has been improved and varied, and expresses the hope that a measure of success, both from the therapeutic and prophylactic standpoints, will attend the use of the latest form of the remedy. Owing to the illness of Mr. King, the director of the entomological department, Dr. Chalmers had to take over its direction also, and for this reason and owing to the want of workers, the number of investigations was necessarily curtailed; various bulletins and circulars have, however, been published in English and Arabic dealing with locusts, the dura asal fly, and an injurious weed, "hambok." In commenting on the report, Sir Reginald Wingate says that Dr. Chalmers has been unsparing and indefatigable in his efforts to carry on the valuable work of the research laboratories in the face of many difficulties which have made it necessary to confine research to urgent diseases and entomological problems of vital importance to the Sudan.

THE FUNCTION OF A HOSPITAL SHIP.

In the House of Commons on July 18th it was suggested, by a question put to the Parliamentary Secretary to the Admiralty, that after the battle of Jutland men suffering from severe injuries were sent down from the extreme north to naval bases in the south of England when this need not have been done. The reply was to the effect that it certainly need not have been done, because there was, in fact, local accommodation available, but that nevertheless it was better that it should be done because moving the patients rapidly on was a better plan from an administrative point of view, and for the patient had the advantage of bringing him back to the neighbourhood of his own home. In the *Journal of the Royal Naval Medical Service* for October, 1916, there is an article by Acting Staff Surgeon A. Vavasour Elder, R.N.V.R., which has a considerable bearing on the subject, since it deals with hospital ships and their functions. The general conclusion to be drawn from this article would seem to be that a fully-equipped hospital ship can, practically speaking, only be employed in a port or at some other place to which the ships which have been in action can come up and transfer their patients without risk either from the enemy or the elements. The article, in fact, seems to argue that a hospital ship in home waters should be regarded as the equivalent of an army casualty clearing station, but that it is not a good kind of casualty clearing station because its accommodation is strictly limited; nevertheless, there are indications in the article that it is as casualty clearing stations that the Admiralty wishes to use them. A reader, relying on this article and the answer given in the House of Commons, would probably gather the impression that a fully equipped hospital ship, as distinct from a carrier, is a superfluity in the North Sea, and that the naval, like the military, casualty clearing station should be on shore. It is, however, open to question whether the parallel drawn between these hospital ships and casualty clearing stations is as close as this. The casualty clearing stations in France, as also the base hospitals, may be flooded at any time by inrushes of patients, and the same may possibly be said of the hospital ships, but there the parallel seems to end. The military hospitals in France are not certain of being able to evacuate their patients at any moment that may be most convenient to them; their ability to do so depends upon the state of the channel. Bad weather in the channel or floating mines, or the presence of submarines, or a sudden dash down of the enemy's destroyers, may render it impossible to transfer invalids in any number from France to Great Britain for several days. It is well, therefore, that from France the patients should be transferred to England as soon as possible in order that there should never be any risk of the hospitals being choked. But the position in the north of England is different. To clear the hospital ships there at any moment is merely a question of bringing up trains. Besides this, even in the military hospitals in France, the patients are not automatically pushed on; they are kept as long as may be deemed desirable from the clinical point of view, provided nothing in the way of unusual activity on the front is in view. Consequently there seems to be, on the whole, a good deal of weight in the suggestion that, so far as their accommodation permits, patients should be kept in the hospital ships as long as possible. It is sometimes argued that it is better for the patients themselves from the surgical point of view that they should be sent on forthwith to the hospital at which their treatment is to be completed—that is to say, as rapidly as possible after the time at which they are first injured. This view might be accepted if it could be shown that they could be got to the hospital where they are to be treated within twenty-four hours, but if a longer period must elapse the position is quite different. Apparently after the battle of Jutland the average period which elapsed after the action before the wounded could be transferred from the fighting ship was nearer thirty-six than twenty-four hours. There appears to be a suggestion also that even modern hospital ships are not really fitted to treat patients for any length of time, but this opinion does not appear to be well founded, for the hospital ships in use in the North Sea are, we believe, of the same type as those which brought patients home from the Eastern Mediterranean, and have every sort of provision for medical and surgical treatment of the very best type. To compare them with the hulk hospital ship of former ages is to give an altogether wrong impression.

FRENCH PRISONERS IN GERMANY.

Although the Germans have all along treated their British prisoners with special brutality, the French, whom they now profess to love, have had no very pleasant experience of their tender mercies. Proof of this has already been given in the Journal; more is now forthcoming in a report by M. Louis Rénault, of the Institute of France, a very distinguished international lawyer and a member of the Permanent Court of Arbitration at The Hague. The *Times* has published an abstract of this report by its Paris correspondent. After bringing forward a large mass of documentary evidence as to the humane treatment of German prisoners in France, M. Rénault describes the horrors of German camps. At Celle, Heuberg, Landshut, and Sennelager, crowds of sightseers go on Sundays to jeer at the prisoners. "The men are treated like things." At Altengrabow, on the very day of a visit from the Kaiser, a soldier of the 8th Chasseurs was bayonetted because he did not come out when ordered. At Ohrduf, near Berlin, one of the colonial troops was killed by a bayonet thrust in the heart for failing to understand an order. At the same camp, at Würzburg, and at Cassel Niederzwehren, on different occasions and on flimsy pretexts bayonet charges were made in which prisoners were killed and wounded. The punishments—tying to posts and so forth—have been referred to in previous articles in this Journal. M. Rénault says men have died at the stake for such offences as smoking in a hut or not saluting an officer properly. "There are plenty of other fiendish tortures, undreamt of by a Fennimore Cooper savage, such as placing a prisoner barelegged on a tarred roof in the blazing sunshine." Madame Karen Bramson, a Danish

writer, who was quoted in the JOURNAL of November 4th (p. 628) as to the condition of the camp at Gastrow, gives a general description of the German camps. They are divided into three classes: (1) The official "model" camps, which are arranged for inspection by neutrals. (2) The "reprisal camps," where the "severe" treatment of French prisoners has been admitted by the German Government to be intended as a menace to France because of her alleged ill treatment of German prisoners. As it has been conclusively proved that the treatment of prisoners in France is in full accordance with all the requirements of the Berne and Hague Conventions, the German Government can no longer justify the existence of such camps, and has consequently abolished them for the present. (3) The labour camps, where prisoners are used as a source of revenue and live in conditions "so horrible that they should be made known throughout the civilized world as soon as possible." Madame Karen Bramson was authorized by the French Minister for Foreign Affairs to make an inquiry into the prevalence of tuberculosis among French prisoners interned in Switzerland. As the result she charges the Germans with deliberately attempting to undermine the health of the captives by forced labour, so that after the war they will return home hopeless invalids doomed to death by consumption. Well may she say that Germany can never by any sophistry clear herself in the eyes of the world of the guilt of disgraceful ill treatment of her prisoners. Yet in the face of all the damning proof of her brutality, the *Frankfurter Zeitung* dares to speak of "the deep-rooted humanity of our people, which regards the prisoner as no longer an enemy but only as a human being." It goes on to say: "The true chivalry according to which we act, without talking much about it, constrains us to make tolerable the lot of the enemy overcome in honourable battle." Surely even Teutonic impudence could no further go. The world knows by this time all about the "deep-rooted humanity" and the "true chivalry" of the German people, and understands why they do not talk much about it.

VENEREAL DISEASE IN CHRISTIANIA.

CHRISTIANIA is a town with just over a quarter of a million inhabitants. According to its health inspector, Dr. Y. Ustvedt,[1] during the year 1915 its medical practitioners and infirmaries notified 2,424 new cases of venereal disease, of which gonorrhœa accounted for 1,549, acquired syphilis 585, soft chancre 243, and congenital syphilis 47. It is noted that in 20 of the new syphilitic patients the primary sore was extragenital—on the lips in 9 instances, the tonsils in 6, the mouth, finger, and arm in 1 each, and in 2 cases the precise situation was not indicated. In 75 instances the notification enabled inquiries into the source of infection to be made, in 58 with success. In at least 61 of the 2,424 cases the infection was contracted outside Christiania; most of the 61 were seamen. During the year the officials of the Health Commission examined 600 persons presenting themselves to see if they required treatment for venereal disease; such treatment was ordered in 102 cases. The Health Commission commands the services of a woman doctor; in 1915 she had 54 women, 34 of them with syphilis, and 3 children to treat. Wassermann's serum test was applied in 561 instances; and 6 new cases of syphilis occurred in patients who had already had salvarsan treatment. For knowingly exposing others to venereal infection 19 women were prosecuted by the police, and 7 of them were convicted and punished; the law punishes this offence with imprisonment for a term not exceeding three years. The "Odd Fellows' Lodge" home for children with congenital syphilis, containing 20 beds, was kept full all the year. It appears that wives were infected with venereal disease by their husbands in 17 cases, and husbands by their wives in 9. Dr. Ustvedt gives a table showing the number of the new cases of venereal disease reported during each month of the year 1915. It appears that about 140 cases were notified during each of the first eleven months of the year, but in December the figure rose to 853; no reason for this sudden increase is suggested. Another table sets out the number of the cases of venereal disease reported in each year since 1876. In 1876 the population of Christiania was 97,000, and 1,012 cases were notified, or 1.28 per cent. of the inhabitants; in 1880 the population was 119,000, and the new cases of venereal disease numbered 2,258, or 1.89 per cent. of the population. During the last ten years the annual notifications have averaged 0.84 per cent. of the population of the town, and in 1915 the percentage was 0.96. The Christiania Town Council has allowed certain cases of venereal disease to be treated as ambulant patients free of charge since the year 1899; in 1915 this cost them about £150.

[1] *Beretning for den Kgvrske Lazarethvæsening.* Christiania, 1916, xxxvi, 222.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

WITH every succeeding year the need for more rational and radical treatment of the consumptive becomes increasingly manifest. Evidence is forthcoming from institutions all over the country to prove that much more requires to be done if real success is to be achieved. To no one is this fact more obvious than to the superintendents of the larger sanatoriums, and a thoughtful commentary on the whole problem has recently been set forth, says the *Glasgow Herald*, by Dr. James W. Allan, of the City of Glasgow Sanatorium at Bellefield, in the county of Lanark. Emphasizing the fact that years rather than months are needed to induce complete healing of the tuberculous lung, even in its early stage, he puts forward suggestions for dealing with family and individual consumption as occurring at various ages of life and in varying social conditions. In effect the remedy that he advocates is wholesale migration from unhealthy surroundings to properly supervised dwellings in pure air. Parents with incipient disease, but capable of work, should be accommodated apart from their children, but under the same roof, and the dangers of possible infection should be neutralized by skilled control. Single men and women should have sleeping accommodation provided for them in huts, châlets, or cottages on the outskirts of the cities in which they have to work. Children should be treated in specially constructed sanatoriums, furnished with all necessary fittings for school and for recreation but within reach of their parents' homes. The scheme is somewhat utopian at the present time, but no one can have failed to note the marvellously invigorating effect of open-air and hut life upon millions of young men during the last two years. Not less noticeable has been the mental stimulus afforded by the centres for recreation and rest provided by the Y.M.C.A. Every one must realize that a similar course of life, scientifically regulated, for our great army of incipient consumptives might result in the course of a few years in permanent recovery instead of temporary improvement, as at present, and be the means of adding a notable increase to the man-power of the country.

LOAN FUND COMMITTEE.

THE first meeting of the new Committee appointed to consider the formation of a fund to assist by loans those medical practitioners who suffer financial loss owing to taking service with the navy and army, was held on November 15th, at 429, Strand. In response to invitations to take part in the work, temporary representatives were present from the Royal College of Physicians, London, and from the Royal College of Surgeons of England, and representatives from the Royal College of Surgeons of Edinburgh, from Epsom College, and the Royal Medical Benevolent Fund. Two memoranda were submitted for consideration: one on the general aspects of the proposal with an account of investigations thereon, and one on

financial methods. The evidence for the need of such a loan fund was closely debated, and a subcommittee was appointed to investigate the best means of initiating and administering such a fund, so that the liability of each contributor should be limited, and to report speedily on the whole question to the full Committee.

OFFICERS' BENEVOLENT BRANCH, AUXILIARY R.A.M.C. FUNDS.

A PARAGRAPH in an article published in the JOURNAL of last week (p. 694) was so worded as to give the impression that the Officers' Branch of the Auxiliary R.A.M.C. Funds was intended to help officers R.A.M.C. who returned disabled by wounds or sickness. As was stated in Dr. Collier's letter, to which the article refers, and in the appeal printed in the JOURNAL of September 23rd. p. 426, the primary object of the Officers' Benevolent Branch is to assist in the education and starting in life of those orphans of officers who have served during the present war in the Special Reserve, the Territorial Force, or the New Armies, who stand in need of such help owing to their fathers having died without having made sufficient provision for their families.

MILITARY MEDICAL ARCHIVES.

WE are indebted to several members for being so good as to send copies of the issue of the JOURNAL of February 13th, 1915, which is out of print, for transmission to the War Library of the French Army Medical School at Val de Grâce. We have no doubt that Professor Jacob, the Director of the Medical Archives, will desire us to express his thanks to the donors; the set thus completed will shortly be dispatched to him.

COUNT IGNATIEFF, Minister of Public Instruction in Russia, has forwarded to M. B. Sturmer, President of the Council, a memorandum from the Russian universities setting forth their views as to the means of developing the intellectual relations between Russia and her allies. It is suggested that a general congress of the teachers of Great Britain, France, and Russia should be held at Petrograd. The objects aimed at are the development of the teaching of English in Russian institutions for higher education; the sending of young Russian scholars and scientists to British and French universities; the creation of a post of "intellectual attaché" at the Russian Embassies in London and Paris; the organization of educational tours in Russia and Great Britain; and the establishment of a Russian Institute in Great Britain and of a British Institute in Russia.

THE National Herb-Growing Association has been somewhat embarrassed by its own success. It seeks to restore in Great Britain and Ireland the herb industry, and its founders realized at the outset that it must be placed on a sound commercial basis. The response was so good that with the available staff it had difficulty in replying to all inquiries from members. It has now established two sections at head quarters (20, 21 6), Queen Anne's Chambers, Westminster), a co-operative division to carry on training, and an educational division to advise, organize, publish, and distribute literature, and arrange lectures and demonstrations. It has a number of affiliated local centres and five local offices, where the work is done partly by paid workers and partly by volunteers. In the preparation of herbs for the market there are two main processes, the collection and drying. Unfortunately a drying shed opened at Byfleet in the spring was burnt out and a good deal of prepared material destroyed. Nevertheless, one hundred tons of drug plants have been marketed. It is proposed to form new centres and to erect drying sheds, of which it is hoped there will be in time one easily accessible for all centres. New shareholders for the co-operative or trading section, and new subscribing members for the educational division are sought.

Medical Notes in Parliament.

Venereal Diseases in the Army.

MR. HOUSTON, on November 16th, asked the Secretary of State for War (1) whether he would state the number of men suffering from enthetic (venereal) diseases in the British army at home and abroad, as shown by the latest return, and the date of that return; and (2) whether he could state the number of men reported temporarily unfit for duty or service in the British army at home and abroad by reason of enthetic (venereal) diseases, as shown in the latest return, and the date thereof. The Financial Secretary to the War Office (Mr. Forster) said: "The admissions to hospitals at home from the cause in question represent a ratio of 48 cases per 1,000 men per annum, which is slightly less than the ratio in peace time. No figures are available for the troops abroad."*

Mr. Houston asked the Secretary of State for War (1) whether he could state the number of men permanently invalided and discharged out of the army owing to enthetic (venereal) diseases, but temporarily cured of the same, during the years 1914, 1915, and 1916, up to the latest return, and the date thereof; and (2) whether he could state the number of men suffering from enthetic (venereal) diseases who had been discharged uncured from the army at home and abroad during the years 1914, 1915, and 1916, and permitted to return to their homes. Mr. Forster said that no statistics were available, and to compile them would place additional work on a heavily strained department. No men were discharged from the army for these diseases in the infectious stage.

War.

T.N.T. Poisoning.—In reply to Lord Henry Cavendish-Bentinck, the Under Secretary of State for the Home Department stated that the number of deaths for the six months ending October 31st was forty-one. It was impossible to say how many of them were caused by inhalation of fumes, but there was no reason to think that absorption through the skin was the chief danger; there might be absorption by both channels in the same case. In reply to a question about a specific case, the Parliamentary Secretary to the Ministry of Munitions said that a short time since the Ministry, after consultation with the Home Department, had appointed a committee, consisting mainly of experts, to examine the problems arising out of T.N.T. poisoning both from the mechanical and medical points of view, and the recommendations so far made by the committee had been adopted by the Ministry and were being put into effect. Many of the problems were entirely new, and in some cases difficult of scientific investigation.

Export of Morphine and Cocaine.—In reply to a question by Mr. Theodore Taylor on November 16th, the President of the Board of Trade said that the amount of British-made morphine and morphine salts exported in 1915 was 295,572 oz. Of this 281,112 oz. was exported to foreign countries, the greater part—204,742 oz.—to Japan. The amount of British-made cocaine and cocaine salts exported in 1915 was 17,647 oz., a greater amount than in any year since 1911, the year in which such exports were first separately recorded. Lord R. Cecil informed Mr. Taylor that morphine was smuggled into Manchuria and China from Japan.

British Prisoners in Turkey.—In reply to Sir E. Carson, Mr. Hogge stated, on November 14th, that the number of British prisoners in Turkish hands, including Indian prisoners, was believed to be about 12,530. The Turkish Government had not supplied any list in spite of numerous requests, and had refused permission to members of the American Embassy to visit the prisoners' camps. He feared that the conditions were extremely bad, but the American authorities were doing their best under very difficult circumstances. It would be idle to deny that the present situation was unsatisfactory in the extreme.

Asylums as Military Hospitals.—In reply to Mr. Rendall, on November 21st, the Home Secretary said that the Board of Control had been able to render valuable assistance to the military authorities in providing accommodation for wounded soldiers. Thirteen asylums, and a part of a fourteenth, containing over 15,000 lunatic patients, who were transferred to other asylums, had been adapted for hospital purposes and equipped with modern surgical and medical appliances. About 23,600 beds were thus provided, and up to the present date they had been used for over 100,000 sick and wounded soldiers.

(See also page 728.)

* According to the statistics published by the Royal Commission on Venereal Diseases, admissions per 1,000 of army strength from all venereal diseases, which had stood at 224.5 in 1888, had fallen to 56.5 in 1912. The rate had fallen to 93 in 1900 when a large part of the regular army was in South Africa; this was followed by a rise to 131 in 1903, by which time most of the regular and newly raised troops had returned to this country. There was then a rapid decline to a rate of 82 in 1906 and afterwards a slower fall to the rate of 1912.

THE WAR.

CANADIAN ARMY MEDICAL SERVICE.

Board of Inquiry.

THE following official announcement is issued from the office of the High Commissioner for Canada:

For the purpose of obtaining an authoritative finding upon the issue which has arisen out of the recent report on the Canadian Army Medical Service by Colonel Herbert A. Bruce, and the reply thereto by Surgeon-General G. C. Jones, Sir George Perley has constituted a Board of Inquiry, with instructions to report as quickly as possible upon the criticisms made in Colonel Bruce's report, and whether they are justified in whole or in part; also upon the recommendations made by Colonel Bruce, and whether the Board endorses and concurs in them; and, if not, in what respect does the Board differ in opinion, and its reasons therefor. The personnel of the Board is as follows: President, Surgeon-General Sir William Babtie, K.C.M.G., C.B., V.C., nominated at the request of Sir George Perley by Sir Alfred Keogh, Director-General, British Army Medical Corps. Members: Colonel E. C. Ashton, G.O.C., C.T.D., Shorncliffe; Colonel J. T. Fotheringham, C.M.G., A.D.M.S., 2nd Canadian Division, B.E.F.; Colonel A. E. Ross, C.M.G., A.D.M.S., 1st Canadian Division, B.E.F.; and Lieutenant-Colonel J. M. Elder, No. 3 Canadian Hospital, Boulogne.

The announcement may, perhaps, require some explanation beyond that given in the JOURNAL of last week (p. 697). The first Canadian contingent arrived in this country rather over two years ago, and the Director of the Medical Service of the Canadian Expeditionary Force in Europe was Surgeon-General G. Carleton Jones, C.M.G., who was promoted to that rank on September 22nd, 1914, after a long period of service in the Canadian Militia. The medical arrangements for the Canadian contingents were organized and have been carried out by Surgeon General Jones, who has had the assistance of a staff of officers of long experience in the Canadian Militia. The arrangements have involved provision for the medical service of the contingents in this country, in the army zone in France, and for men invalided to this country owing to sickness or wounds. As we said last week, the arrangements were well conceived; they have now been tested by war, and many adaptations and improvements have been made as experience under the special conditions in Flanders and France was gained. The excellence of the work done has been recognized in dispatches, and Colonel Foster, the Canadian D.D.M.S. in France, has received the C.B. The efficiency of the service has been steadily increasing, as was to be anticipated, since its direction and administration are in the hands of experienced officers, who keep open minds, ably seconded in all units by surgeons who are progressive—that is, ready to test every new method and to learn by experience.

Perfection had not been reached, but it was being striven for, and effective means taken to remedy any defects disclosed under the strain of war in a force very greatly larger than Canada has ever put into the field before, when last summer Sir Samuel Hughes, then Minister of Militia in the Canadian Ministry, appointed a commission, of which Dr. Herbert A. Bruce of Toronto was nominated president with the rank of Colonel. We are informed that extracts from the report by him referred to in the official announcement quoted above were published in the Canadian newspapers at the end of October. The report has not been published in this country, nor has the report in reply made by Surgeon-General Carleton Jones. The general tenor of the report of Colonel Bruce's commission is, however, known to Canadian medical officers, both in this country and in France, and has caused much indignation and dissatisfaction. One result of the report was that Surgeon-General Carleton Jones was, as we understand, superseded in the office of D.M.S., and another was that Sir William Osler resigned his position as consultant to Canadian hospitals, and sent the following telegram to Canadian newspapers:

My resignation as consultant at Canadian hospitals was a protest against the injustice done to the Director in the mode of appointment of the hospital commission. The profession and the public should suspend judgement until General Jones's full report has been printed and given to the press. I have not resigned from the Canadian Hospital, Beechboro Park, which is under Imperial authority. During the past two years I have had many opportunities to see Canadian wounded in British hospitals, in which I have everywhere found them well treated.

We hope that the commission now appointed will prosecute its inquiry with all diligence, for the present state of affairs cannot but have an unfavourable effect upon the efficiency of the Canadian Army Medical Corps, which has done such admirable work both for men of the Canadian contingent and for the whole British Army. We fully believe that the tenor of its report will be such as to lead to the reinstatement of Surgeon-General Carleton Jones and to justify Sir William Osler in withdrawing his resignation.

We have received, under date November 10th, the following note from our correspondent in Montreal, which appears to show that it is understood in Canada that the services of Surgeon-General Jones are to be retained:

The announcement of the appointment of Sir George Perley as Canadian Minister of War Overseas, and the news that Surgeon-General Guy Carleton Jones, C.M.G., is to remain in England as Director of the Canadian Medical Services have been received with satisfaction by the profession in Canada. The publication in the lay press of extracts from a confidential report on the Canadian Army Medical Corps, prepared by Colonel H. A. Bruce, C.A.M.C., under the direction of the Minister of Militia, is deplored, as it is felt that this has subjected a branch of the Canadian Expeditionary Force, which has proved itself efficient and done excellent service, to general criticism which is unmerited. It is true, as the report states, that a number of soldiers have been recruited in Canada who upon arrival in England were found to be unfit for active service and had to be sent back to Canada, and that the Canadian Government was thereby put to unnecessary expense, but it is true also that in the medical examination of potential recruits the military exigencies of the situation have sometimes been considered of more importance than the opinion of the examiner, and the keen competition between rival battalions has frequently led to the acceptance of a man who in the opinion of the examining medical officer should have been rejected.

TIBIAL OSTEITIS IN SOLDIERS.

UNDER the headings "Gaiter pain," "Periostitis of the tibia," etc., the Germans and Austrians have published a number of cases the etiology of which is regarded as still obscure. At a meeting of the Aerztliche Verein in Hamburg, Querner[1] reported three cases observed in the autumn of 1915 on the Eastern front. One patient was an officer, and two were Landsturm privates. They complained of most violent pain in the shins, could not walk, and sleep was much broken. The skin was somewhat rough over the tibiae, which were tender. In every case there was a moderate degree of dilatation of the veins, and there were small palpable phlebitic areas over the tibiae. In two cases the temperature was normal; in the third it rose to 38.2° C. on the third day after admission to hospital.

In every case the x rays confirmed the diagnosis of periostitis. There was no history of trauma or overexertion; Wassermann's reaction was negative; there was no sign of tuberculosis or gout; and serum reactions for dysentery and typhoid fever were negative. The officer had worn gaiters, but they had exerted no uncomfortable pressure. Of the privates, one had worn wide, high boots; the other, short lace boots. One of the patients had been cold and wet one night, had subsequently developed a feverish chill, shortly followed by tibial pain, which grew worse. Another patient had suffered from giddiness, palpitation, and lassitude previous to the onset of the pain, which was relatively sudden. The officer had suffered from high fever and violent pain in all the joints and bones shortly before admission to hospital. After a few days all that was left of this attack was the violent pain in the shins. There was therefore in every case a definite history of a chill, and the condition might well be regarded as rheumatic. Another possibility was that the symptoms were related to the phlebitis invariably present. In every case the disease was rather refractory to treatment with aspirin, electrical baths, and packs. The officer was better after two to three weeks, but the privates, three months later, still suffered from the pain after exertion. Tenderness and x-ray signs of periostitis were still demonstrable.

[1] *Deut. med. Woch.*, June 22nd, 1916.

Professors Kraus and Citron[2] have described a special form of osteitis frequently observed among soldiers. It had been mistaken for a great variety of diseases, including even tuberculosis. The bone most often affected was the tibia. The onset of the symptoms was sudden, and they were almost invariably accompanied by slight and usually transitory fever. Sometimes a second rise of temperature occurred after an afebrile interval of several days. The pain was severe even when the limb was at rest and even light pressure was often unbearable. The condition was usually symmetrical, but might begin earlier, and be more severe on one side than on the other. The nerve trunks in the area affected showed no special tenderness, either general or local. Sensory disturbances and atrophy of the muscles, even at a late stage, were never seen, and the joints were practically never involved. There was little muscular tenderness, but great tenderness of the bones. The pain resembled that of syphilitic osteitis, and morphine was frequently required to relieve it. Diffuse swelling of the lower half of the leg below the knee, persisting for some time or disappearing early, was common, but the skin was never reddened. Frequently the affected limb felt abnormally warm, and occasionally severe local perspiration was observed. This condition did not arise only in the trenches, nor could it be associated with any special foot-wear. No connexion with typhoid fever, tonsillitis, or disturbances of nutrition could be established. The febrile onset and the signs of inflammation suggested an infectious condition. A marked increase in the number of the mononuclear cells was found in seven out of eight cases in which the blood was examined. Salicylates relieved the pain, but were not as effective as in articular rheumatism.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

Surgeon C. H. Gow, R.N.

Temporary Surgeon Charles Humphry Gow, R.N., killed in action on November 13th, aged 25, was the only son of the Rev. Henry Gow of Hampstead. He was educated at Westminster School and Emmanuel College, Cambridge, and subsequently at St. Bartholomew's Hospital. On the outbreak of war he volunteered as a surgeon probationer. After serving eight months in the destroyer *Laforey* he returned to the hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1915. He received his commission as temporary surgeon on July 19th, 1915, and served with the Royal Naval Division in Gallipoli and Salonica, and for the last eight months at another front.

ARMY.

Killed in Action.

Captain H. Begg, R.A.M.C.

Captain Henry Begg, M.B., R.A.M.C., who has been killed in action, was the fourth son of Mr. George Begg, of Mains of Druminnor, Rhynie. He received his medical education at the University of Aberdeen, where he graduated M.B., Ch.B. in 1906. He had held the posts of clinical assistant to the Great Northern Central Hospital and the Mount Vernon Chest Hospital. Prior to the war he was in practice in Kentish Town, London.

Captain J. D. Forrester, R.A.M.C.

Captain James D. Forrester, killed in action, was educated at the Peebles Burgh and County High School and George Watson's College, Edinburgh. He graduated M.B., Ch.B.Edin. in 1912. He received a commission as temporary lieutenant in the R.A.M.C. on February 1st, 1915, and was promoted to captain a year later. Prior to receiving his commission he was in practice at Peebles, and had served as senior house-surgeon to the Rochdale Infirmary and house-surgeon to the Royal Halifax Infirmary. He married last year and leaves a widow and daughter.

Captain T. L. Ingram, D.S.O., M.C., R.A.M.C.

In the Journal of October 21st, in announcing that Captain Thomas Lewis Ingram, D.S.O., M.C., R.A.M.C., had been killed in action we gave a short account of his career. We have now received from a colleague, "M.D., R.A.M.C.," the following tribute to his memory:

Of the unusually high degree of attachment that existed between himself and his friends this is not the place to speak, but, to show the honour in which he was held by all who knew him, I will quote a few extracts from letters written by those with whom two years of war had thrown him in contact.

The Brigadier-General writes:

No more gallant soldier or braver gentleman ever lived . . . and his dauntless courage and unfailing cheeriness was worth many men, and the men of his regiment simply worshipped him.

His Colonel writes:

He was the bravest man I have met, and one meets many here. He was beloved by every man in the regiment, and was known and respected by every unit in the division.

A fellow-officer writes:

I shall look on him as the finest, kindest, most lovable man I ever knew. To say anything about his bravery is superfluous, for he earned some decoration every time he went into the trenches, but it is as the kindest and most unselfish of friends that I shall remember him. I am sure that of the many officers we have had each one will consider that the bravest and the one he liked best was the "doc."

Captain Ingram met his end rescuing wounded from the German barbed wire. The bearers he had sent back, as the work was too dangerous for them, but he and another man continued alone.

One may sometimes possibly be tempted to exaggerate the virtues of the heroic dead, but in the testimonies above recorded only the barest truth has been stated, and even then one can add, "The half has not been told."

Lieutenant W. C. E. Bower, R.A.M.C.

We have received from Dr. E. A. Chartres, Deputy P.M.O. in Nigeria, of the West African Medical Staff, the following note about the late Lieutenant W. C. E. Bower, R.A.M.C., whose death in action, on October 20th, was reported in the British Medical Journal of November 11th:

I would like to mention the following incident, which occurred in the North Cameroons when I was Senior Medical Officer in charge of the allied forces.

Lieutenant Bower was reported to me for gallant conduct during the attack on Banyo mountain. Captain Seccombe officially wrote to me that he (Lieutenant Bower) had come up the steep side of the mountain in broad daylight without any cover, in the face of heavy rifle and Maxim fire, to attend him when dangerously wounded. Captain Seccombe felt sure that his life had been saved by the prompt action of Lieutenant Bower. Now that he has fallen in action in France—no doubt due to his unselfish devotion to duty—I feel that this incident may be made known through the medium of your Journal.

I personally regret his loss to our service. He had always shown himself a hard worker and a plucky and loyal colleague.

Lieutenant J. R. Brown, R.A.M.C.

Lieutenant John Ritchie Brown, R.A.M.C., died of wounds on November 7th. He was the third son of the late Dr. J. Brown, of Saltcoats, Ayrshire, was born in Saltcoats in 1873, and was educated at Ardrossan Academy, at Stanley House School, Bridge of Allan, and at Glasgow University, where he graduated M.B. and C.M. in 1897. After acting as house-surgeon at Teignmouth Hospital, he served for about two years as a ship surgeon in the British India Line. When the South African war broke out he took an appointment as a civil surgeon to the forces, and served for eighteen months, till he was invalided. Returning to South Africa he became a district surgeon in Southern Rhodesia, under the British South Africa Company, where he was also medical officer of the Falcon Mines at Umvuna, till he returned to England, towards the end of 1915, and took a temporary commission in the R.A.M.C. Lieutenant Brown and his brother, Dr. W. Mackenzie Brown of Dalry, are the fourth generation in their family to enter the medical profession.

Died on Service.

Lieutenant-Colonel C. S. Rundle, I.M.S.

Lieutenant-Colonel Cubitt Sindall Rundle, Madras Medical Service (ret.), died suddenly of heart disease in Jersey, on November 11th, aged 62. He was born on March 13th, 1854; educated at Edinburgh University, where he graduated M.B. and C.M. in 1877, and entered

[2] *Deut. med. Woch.*, July 13th, 1916.

the Indian Medical Service as surgeon on March 31st, 1880, becoming surgeon-major on March 31st, 1892, and lieutenant-colonel on March 31st, 1900. He retired on May 5th, 1907. The *Army List* assigns him no war service. After retiring from India he settled in Jersey. He was for some time honorary secretary of the Jersey Choral Society, and was himself a musician of considerable ability. At the beginning of the war he volunteered for service, and, when a camp for prisoners of war was opened in Jersey, he was appointed to its medical charge. He leaves a widow, a son, and a daughter. Another son was killed in Gallipoli last year. He was buried with military honours on November 15th, and among the many floral tributes laid upon the coffin was a beautiful wreath sent by the German prisoners of war.

Major C. H. Benham, R.A.M.C.(T.F.).

Major Charles Henry Benham, R.A.M.C.(T.F.), was reported as having died on service in the casualty list published on November 18th. He was born at Ipswich in 1874, the son of Dr. Henry James Benham, was educated at Queen Elizabeth's School, Ipswich, and at University College Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1897 and that of M.R.C.P. in 1906. He graduated M.B.Lond. in 1897 and M.D. in 1899. After acting as house-physician at University College Hospital, resident medical officer of Brixton Dispensary, and medical clinical assistant at Sussex County Hospital, he went into practice at Hove. He was chairman of the East Sussex Medical Committee. He joined the 2nd Eastern General Hospital, Brighton, as a captain in the R.A.M.C.(T.F.) on April 27th, 1908, and was promoted to major in April, 1916.

Dr. L. A. Parry (Hove) sends the following appreciation of his colleague at the 2nd Eastern General Hospital, whose untimely death on active service is deeply regretted by all who knew him: Of his professional and scientific abilities I will say little. His career at University College Hospital was brilliant. His leanings were chiefly in the direction of pathology and bacteriology, and his services were often utilized at the Royal Sussex County Hospital, Brighton. He took a keen interest in municipal affairs, and was a member of the Hove Town Council and of several of its important committees, notably of the Education Committee. I well remember the time of his first election to that body, into the contest for which he threw himself with all the energy and intensity of his nature, being returned at the head of the poll. He was also a prominent Mason and chairman of the St. Elizabeth Guild of Education in the town. His work in connexion with the British Medical Association, in which he held many appointments, including quite recently those of Chairman of the Brighton Division, and Secretary of the Section of Bacteriology and Pathology at the annual meeting at Brighton in 1913, was greatly appreciated by his fellow practitioners. He was recognized as one of the best secretaries of Divisions in the country. His action during the Insurance Act controversy gave rise to a certain amount of criticism amongst some of the members, but it was only those who did not take the trouble to understand all the facts who misjudged him. Just over a year ago he, although over military age and a member of the staff of the 2nd Eastern General Hospital, volunteered for foreign service. He was sent to Salonica, and his work there was greatly appreciated by those best able to judge. He contracted dysentery, and was sent back to Malta, where, after undergoing an operation for hepatic abscess, lung complications ensued, from which he died. He leaves a widow and four young children. He is the first member of the staff of the hospital to make the great sacrifice. His deep sense of duty and patriotism led him to offer himself for service abroad, and his death in the cause of his country is deeply regretted by his colleagues, his friends, and his patients.

Captain V. J. Ruttledge, R.A.M.C.

Captain Victor John Ruttledge, who is reported to have died on service, was educated at Trinity College, Dublin, and took the degrees of M.B., B.Ch., and B.A.O.Dublin in 1891. He subsequently held the office of assistant medical officer to the District Asylum, Londonderry. He received his commission as temporary lieutenant R.A.M.C. in May, 1915, being promoted to captain a year later.

Captain A. Groenwald, M.C., South African Medical Corps.

Wounded.

Captain H. St. A. Agate, R.A.M.C. (temporary).
Captain H. J. Bower, R.A.M.C. (temporary).
Captain J. T. Heffernan, R.A.M.C. (temporary).
Captain J. Sainsbury, R.A.M.C. (temporary).
Captain H. E. P. Yorke, R.A.M.C., attached East Yorks Regiment.
Lieutenant G. Arthur, R.A.M.C., attached Bedford Regiment.
Lieutenant G. C. Linden, R.A.M.C. (temporary).

Captain Agate had previously been reported as wounded a little more than a month ago (British Medical Journal, October 16th).

Prisoners of War.

A list was published on November 15th of prisoners of war taken at Kut in April, and exchanged by the Turks. It includes a few combatant officers, probably sick or wounded, and six officers of the R.A.M.C.: Lieutenant-Colonels H. O. Browne-Mason and J. Hennessy, C.B.; Major E. V. Aylen; and Captains A. S. Case, W. L. E. Fretz, and A. T. J. McCreery.

Captain H. Kay, South African Medical Corps, a prisoner of war, has been released by the Germans.

Deaths among Sons of Medical Men.

Aitchison, Andrew Leslie, Second Lieutenant King's Own Scottish Borderers, son of Dr. H. H. Aitchison, of Wallsend, died of wounds. He was educated at Eskdale College, Newcastle, at Shrewsbury, and at King's College, Cambridge.

Buchanan, H. C. Dudley, Lieutenant Middlesex Regiment, son of Dr. Buchanan, of Arva, co. Cavan, died of wounds. He enlisted at the beginning of the war, got a commission in September, 1915, and was promoted to lieutenant last February.

Caiger, Frederick Howard Stewart, Second Lieutenant Royal Field Artillery, only son of Dr. F. Foord Caiger, killed November 11th, aged 19. He was educated at Doon House, Westgate-on-Sea, and Winchester College. He entered St. Thomas's Hospital for the preliminary science course in January, 1915, and in October of the same year went up to Caius College, Cambridge. Immediately after passing the first M.B. examination in December, he relinquished his medical studies and was gazetted second lieutenant in the Special Reserve of Officers on December 8th, 1915, and after four months' artillery training he went to the front on Easter Sunday last. The colonel of his brigade writes: "He was a most excellent officer, popular with us all, most gallant, lovable, and capable, and though not strong he never lost his good spirits, and was always a most charming companion."

Clarke, William Michell, Second Lieutenant Royal Engineers, younger son of Dr. J. Michell Clarke, of Clifton, Bristol, killed November 11th, aged 19.

Habershon, Leonard Osborne, Captain East Yorkshire Regiment, youngest son of the late Dr. S. H. Habershon, physician to the Hospital for Consumption, Brompton, was killed in action on November 13th, aged 23. His brother, Captain Kenneth Ross Habershon, of the Rifle Brigade, was killed on February 13th last.

Macdonald, Malcolm, Private, Argyll and Sutherland Highlanders, son of James Macdonald, M.D., of Carlisle, killed October 13th, aged 19. He was educated at Carlisle Grammar School, and had just entered Edinburgh University as a medical student when he enlisted. He had been recently recommended for a commission.

McKisack, L. H. W., Second Lieutenant Royal Flying Corps, eldest son of Dr. H. L. McKisack, of University Road, Belfast, killed recently, aged 19. He got a commission in the Special Reserve of the Royal Garrison Artillery on January 22nd, 1915, and had recently been transferred to the Royal Flying Corps.

Rennie, James C., Private, Scottish Rifles (Cameronians), eldest son of Dr. James S. Rennie, of Coatbridge, Glasgow, killed October 23rd, aged 23. He was a medical student.

Stuart, Kenneth Bruce, second Lieutenant Durham Light Infantry, only son of Dr. Robert Stuart, of Durham, killed on November 5th, aged 20. His commission was dated October 5th, 1914.

Medical Students.

Bailey, Ernest, Second Lieutenant King's Liverpool Regiment, first reported as missing on October 28th, subsequently as killed on that date, aged 24. He was the third son of the late Mr. Samuel Bailey, of Blackpool, and was in his final year as a dental student in Victoria University, Manchester, when he enlisted in the Public Schools Battalion of the Royal Fusiliers at the beginning of the war. He had served with them at the front for nine months, when he was given a commission on August 4th, 1916, and returned to the front on September 7th.

McClelland, S. G., Second Lieutenant King's Own Scottish Borderers, reported missing at Loos on September 25th, 1915, now presumed killed on that date. He was the fourth son of Mr. Alexander McClelland, of Pollokshields, and of Buenos Aires, was educated at Dollar Academy, and was a medical student at Glasgow University when he got a commission on on December 16th, 1914.

University of Aberdeen.

For the following particulars regarding the careers of medical alumni who have lost their lives in connexion with the war we are indebted to the Memorial Number of *Alma Mater*, the Aberdeen University magazine.

Died on Service.

Surgeon Herbert Mather Jamieson, R.N., died at Malta on September 26th, 1915, aged 33. He graduated M.B.Aberd. in 1904, and for a number of years served as a surgeon in the mercantile marine. At the beginning of the war his ship was commandeered for transport work, and he volunteered for service with it. He was wounded off Gallipoli, but after recuperating for some time at home, he rejoined his ship, and died whilst still serving at Malta.

Medical Students.

Sergeant John Alexander MacCombie, 4th Gordons, died from wounds received in action on July 23rd, aged 21. He was educated at Gordon's College, and entered Aberdeen University in the winter of 1913 as a medical student, and at the outbreak of war had completed his first professional examination. He was a keen football player, a good shot, and very popular with his fellow students.

Private Gilbert Pirie, 4th Cameron Highlanders, was killed in action in France in August last, aged 21. He was a medical student at Aberdeen University in 1914–15; he entered the army in November, 1915. He came back in March, 1916, and completed his first professional examination while in khaki, and had only been in the trenches three days.

Private David George Melrose Watt, R.A.M.C., who died in hospital at Aldershot on April 26th, 1916, aged 19, was a medical student at the University of Aberdeen. He was not of very robust physique, and the training at Aldershot proved rather severe for him. He contracted influenza, and during convalescence complications set in which proved fatal. At the time of his illness he was arranging to undergo three months' training in a bacteriological laboratory, previous to being sent abroad in the sanitary section of the R.A.M.C.

NOTES.

Honours.

The French Croix de Guerre, gold star, has been awarded to Dr. Mildred E. Staley, who has also been mentioned in French army orders for work done in France and Corfu.

The following members of the personnel of the Medical Corps have been granted the Distinguished Conduct Medal (*London Gazette*, November 14th):

R.A.M.C.—Sergeants J. W. Hastings, A. Maclean, R. P. S. Martin, W. Pearce, F. Sullivan, J. W. Wood; Privates F. Hudson, G. Hunter, J. Lammirman. Corporal H. Meakins, R.A.M.C., receives a bar to his D.C.M.

Australian A.M.C.—Sergeant W. Storey, Private W. H. Turner.

Canadian A.M.C.—Sergeant A. E. Wartman, Private R. S. Collin.

New Zealand A.M.C.—Sergeant-Major H. R. H. Beauchamp.

Hospital for Permanently Disabled Officers.

A special hospital is being established at St. John's Lodge, Regent's Park, N.W., for the accommodation of officers of His Majesty's navy or army who have had to leave either service owing to permanent disability or paralysis caused by gunshot wounds or injury during the present war. Sir John Ellerman is bearing the entire cost of the necessary alterations and of the equipment. He has also undertaken to defray all expenses for one year, and the hospital will be known by his name. It will be ready to receive officers about January 1st, 1917. At present it will not be possible to admit cases needing active surgical treatment. Cases of tubercle, epilepsy, malignant disease, and paralysis due to medical origin are not eligible for admission.

St. John's Lodge, which was until recently the residence of the Marquess of Bute, is not only in the midst of Regent's Park but is surrounded by nearly seven acres of timbered gardens, in which patients will be able to enjoy open-air life in complete privacy, while its nearness to the centre of medical life in London will afford opportunities to them of benefiting by the best medical and surgical skill. Among those who have joined the honorary staff are: Sir David Ferrier, Sir Malcolm Morris, Sir StClair Thomson, Mr. Lewis Smith, Mr. A. W. Ormond, Mr. James Sherren, Mr. Walton Read, and Mr. A. D. Reid. The British Red Cross Society has formed a committee of management, and Sir Arbuthnot Lane is chairman of the house committee. Particulars of all cases recommended for admission to the hospital should be submitted to Dr. R. Fox-Symons, British Red Cross Society, Room 91, Pall Mall, S.W., who will supply a special form of application.

A Proposed Red Cross Museum.

In a letter which appeared in the *Times* of September 11th, 1916, Sir John Furley recalled the fact that several years ago he submitted to the late Lord Wantage a scheme for standardizing ambulance and hospital appliances, especially in relation to the transport of injured persons. For that purpose he proposed that a museum should be established where any object accepted by a committee of experts should be exhibited for a year. If at the end of that period it was found that they had been made obsolete by later invention, the improved models should be substituted for them. In this way an end would be put to what has frequently occurred recently when inventions condemned long ago as unfit for use have been adopted and sent abroad as new and useful vehicles for the carriage of wounded men. A Red Cross museum would include illustrations of the work of the ambulance column and of the various types of splints and bandages, from the rough and ready forms used in first aid to the ingenious inventions devised during the present war. It could be used for the instruction of Voluntary Aid Detachments or men of the R.A.M.C. We agree with the *Museums Journal* that the best plan would be that the British Red Cross Society should take the matter in hand, and instead of discarding from the exhibition appliances which have been considered unsatisfactory or superseded, it would be well to preserve them, with indications of the reasons for which they have been condemned as defective. The historical part of the museum should be kept distinct from what may be called the living section. It would have the twofold advantage of showing the development of inventions for the aid of the sick and wounded and preventing waste of inventive energy in the rediscovery of old things thrown aside. It should not be forgotten, however, that in the scrap-heap of inventions what Falstaff calls the "forgetive" brain of man may find new inspiration. This is a day of revivals in the whole apparatus of war, when devices thought to be dead seem to cry out, *Exoriare aliquis nostris ex ossibus ultor*. This may well hold good in regard to life-saving as well as to murderous appliances.

Gifts to the Belgian Army.

The King and Queen inspected in the grounds of Buckingham Palace on November 18th two new bath caravans and a motor field operating theatre, presented by the Wounded Allies Relief Committee to the Belgian army. The bath vans, constructed to the design of Mr. J. R. Anderson, M.I.M.E., each carry twelve light steel baths, 5 ft. 3 in. by 2 ft. 2 in., nested one within the other, and waterproof sheetings with light spars and poles to form tents, each of which can accommodate six baths. The water is heated by petrol, and it is calculated that a caravan will supply baths for 800 men in fourteen hours. The motor field operating theatre is made after the design of Sir William Collins, and is constructed on the same principle as that recently presented to the Italian Red Cross (August 19th, 1916, p. 271).

Since the beginning of the war the Department of Health of the City of New York has sold £41,000 worth of antitoxin. Two-thirds of the amount has been bought by the Allied powers.

Scotland.

The Aberdeen Roll of Honour.

Alma Mater, the Aberdeen University Magazine, has issued a memorial number in honour of those of her sons who have given their lives for their country. Principal Sir George Adam Smith contributes a foreword, in which he states that of nearly two thousand graduates, students, and alumni who have gone on service, one hundred and eight have already fallen in action, gone down in their ships, or died of disease, while nearly two hundred others have been reported wounded. Of the fallen some thirty-seven were still students from 18 to 24 years of age, most of them not more than 21. Some forty-three had graduated or finished their studies since 1909, and were all under 32. The rest were in the prime of life, only two or three having graduated as far back as the Eighties, and being about 50 years of age. The memorial number is beautifully printed on excellent paper, and contains forty-two full-page photographs. Among them are four of graduates in medicine and seven of medical students. This list includes all who were killed down to August 4th,

1916. To these must be added seven medical graduates and four students who have lost their lives since that date. The number, which will be a touching memorial of the great war to all members of the University of Aberdeen, does the highest credit to all concerned in its production. It is published for the Students' Representative Council by W. and W. Lindsay.

Open-air School in Glasgow.

An open-air school for scholars taking a supplementary course, designed and carried out by the staff of the Glasgow School Board, was opened on November 18th. It stands at the corner of Boden and Bernard Streets, Bridgeton, and the site has an area of 8,071 square yards. The school is in two stories and contains twenty-two ordinary classrooms, each providing 15 square ft. for each of forty scholars. In addition there are two art rooms, two manual rooms, two physical laboratories, two cookery rooms, one laundry room, two dressing rooms, one sewing room, and a housewifery department consisting of two rooms, kitchen, bathroom, and classroom for twenty pupils. A library and a suite of rooms for the medical inspection of children are provided. In a separate building is a drill hall and gymnasium 120 by 30 ft., but capable of being divided by a folding partition. Attached to the drill hall are two dressing rooms and two private rooms for instructors. In a separate building twenty spray baths are provided in separate cubicles. The entrance doors of the classrooms, 8 ft. wide, are hung to open to an angle of 180 degrees so as to give an open-air classroom. The windows are double hung with ventilating screens. The blocks are connected by external corridors. Garden plots have been formed in the playground. There is a rest room for girls, and the cloak rooms are fitted so that each pupil has a double peg with a number. The building is warmed by a low-pressure hot-water system heated by three boilers, assisted by an electric pump.

A Tuberculosis Colony.

The local authorities in the district of Mid-Lanark in Scotland were among the first to appreciate the need for combined effort in the campaign against tuberculosis. By means of sanatoriums, acting in conjunction with hospitals, they have been able to deal with a large number of consumptives in various stages of the disease, but their experience has led them to realize that more is needed. Like so many associations interested in the subject, they have been forced to the conclusion that the expensive treatment of a consumptive worker for three months is only too liable to prove inadequate and wasteful when, on return to work, the insidious disease becomes active once more. Hence the Lanark authorities have decided to adopt a more radical scheme by the founding of a colony in which convalescence can be carried on in favourable hygienic surroundings for indefinite periods, under partially industrial conditions. A large institution is in course of erection at Hairmyres, about eight miles south of Glasgow, on a piece of ground 200 acres in extent. The buildings, when complete, will be spread over 30 acres. The feature of the undertaking is essentially educative as well as curative. The patients, most of them more or less connected with the mining and steel industry, are to be instructed in farming, market-gardening, and forestry; men, women, and children being equally provided for. In connexion with the undertaking a large tract of land, 6,000 acres in extent, is to be utilized for the study and practice of scientific forestry by those patients who have arrived at a stage of convalescence which will enable them to live the open-air life of the lumberman. Dairy farming and the maintenance of a herd of Ayrshire cows specially exempt from tuberculosis will supply occupation for women and pure milk for children. Incidentally it is stated to be a fact that 90 per cent. of the cases of cervical glandular trouble occurring in Edinburgh are due to the ingestion of tuberculous milk. A further prospect of usefulness is held out by the offer of treatment to disabled soldiers. The details of this bold experiment were recently made public by the Chairman of the Middle Ward District Committee of Lanarkshire for the treatment and cure of tuberculosis. The results which it may succeed in achieving will doubtless be made equally public in due course.

Ireland.

At the last meeting of the Dublin County Council a resolution was unanimously adopted calling upon the Government to establish a hospital for Irish soldiers and sailors suffering from incurable diseases arising directly or indirectly from the war, as there was no such institution in the country.

The annual collection for the Dublin Hospital Sunday Fund was made on November 12th in 315 places of divine worship. The fund assists sixteen hospitals and convalescent homes. These hospitals provide about 1,637 beds for the sick poor. The annually receive upwards of 19,105 patients, and relieve many thousands at their dispensaries, while their staffs attend upwards of 4,055 lying-in women at their own homes, and treat as extern patients upwards of 47,161 accident cases.

Doctors of Military Age.

In pursuance of its policy of refusing to sanction the appointment of doctors of military age to dispensary districts, the Local Government Board has refused to sanction the appointment of Dr. McGowan to the Bridewell dispensary district, Athlone, but the guardians have appointed him temporarily. The Local Government Board has also refused to sanction the appointment of Dr. J. O'Mullane to be temporary medical officer of the Slievereagh dispensary district. The guardians, in reply, have stated that they had proposed to make the appointment in view of the fact that the temporary medical officer resided at a distance of twenty-five miles from the extreme end of the district, which was mountainous, so that hardship was inflicted on poor persons.

Anterior Poliomyelitis.

Dr. C. E. Crean, Ballyhaunis, has reported to the Claremorris Council that he found four children at Tavenaghmore, the eldest aged 8 years, suffering from acute poliomyelitis, and that the schools had been closed. The Swinford Council have given notice to adopt the Infectious Diseases (Notification) Act in the district. The Monaghan Urban Council has decided to make poliomyelitis and cerebro-spinal meningitis compulsorily notifiable diseases. An outbreak of poliomyelitis has occurred in co. Cavan, and a few isolated cases about Carrickmacross. A committee was appointed to consider the adoption of a scheme for the care of infant life.

Vaccination Prosecutions.

At the Cabinteely Petty Sessions last week the Rathdown Board of Guardians prosecuted a man for neglecting to cause two of his children to be vaccinated within three months after birth without reasonable excuse. The defendant said that two of his children had nearly died from vaccination, and no doctor could certify that vaccination was an antidote to small-pox. A fine of 3s. 6d. and costs was inflicted in each case, with the alternative of seven days' imprisonment. A similar charge against another man was adjourned for fourteen days, and another was withdrawn owing to the illness of the child.

England and Wales.

An agreement has been sealed between the City of London Corporation and the governors of St. Bartholomew's Hospital for the establishment of a dispensary in the City for the treatment of tuberculosis at an annual cost not exceeding £700.

Midwives and Maternity and Child Welfare in Lancashire.

The Lancashire County Council has had under consideration a report of its Public Health and Housing Committee, which states that a joint subcommittee of the Public Health Committee and the Midwives Act Committee had recommended that a beginning should be made of a scheme for the administration of maternity and child welfare work. The committee was, however, of opinion that it was inadvisable to attempt to bring a complete

scheme into operation during the war. It recommended that for the present a scheme of home visitation should be adopted limited to certain urban districts in which no health visitors have been appointed by the local sanitary authorities. This, with the action already taken by other local authorities, will provide for a population of 1,300,000, leaving about 350,000, principally in rural areas, for which no provision will have been made. Fourteen health visitors will be required and a grant of £3,000 per annum will be needed. The proposal is subject to the approval of the Local Government Board being obtained and to the Board refunding one-half of the expenditure, the remaining cost falling on the districts affected.

The Midwives Act Committee reported that the number of midwives on the county register on September 30th was 930, of whom only 711 were in actual practice. Of the total, the large proportion of 478 were on the register simply by virtue of having been in bona fide practice before the Midwives Act came into operation. The records of sending for medical assistance numbered 590 in the quarter ending September 30th, by far the largest number being for obstructed labour, uterine inertia, need for instrumental assistance, or for treatment of ruptured perineum. During the quarter twenty-three cases of puerperal fever were notified, with five deaths, and information was received from all sources of eighty-five cases of ophthalmia neonatorum. Each case which occurred in the practice of midwives was investigated, with the result that in seventeen cases negligence on the part of a midwife was discovered, the offence in most cases consisting in delay in securing medical attention.

Hong Kong.

Health Report for 1915.

The annual report on the health of the colony of Hong Kong for the year 1915 shows an estimated civil population of 509,160, of whom 495,840 are Chinese; naval and military figures have been omitted since the outbreak of the European war. The birth-rate among the non-Chinese community was 13.2 per 1,000, while among the Chinese it was 8.4 per 1,000; in past years the male births among the non-Chinese have usually exceeded the female births by about 10 per cent., but during 1915 the figures were reversed, and there were only 92.4 male births to each 100 female births. Among the Chinese, however, the proportion was 152 males to every 100 females, which does not differ greatly from the records of previous years.

The death-rate for the year was 9.4 per 1,000 among the non-Chinese and 19.0 per 1,000 among the Chinese. Deaths from pulmonary tuberculosis among the Chinese represented 10.1 per cent. of the total Chinese deaths, while pneumonia was responsible for an even larger proportion of these deaths. There were 366 deaths from malaria, all but 4 being in the Chinese community, and 398 deaths from beri-beri, 5 of which (3 Japanese and 2 Indian) were non-Chinese.

The incidence of plague during the year was light, the total cases numbering 144, as compared with 2,146 in 1914; the proportion of plague-infected rats among the 94,093 examined in the city was only 0.023 per cent., while among the 15,816 examined on the mainland (Kowloon) it was 0.48 per cent.; it is not surprising, therefore, to find that the human cases on the Kowloon side numbered 83 out of a population of 73,100, while on the island they numbered 42 out of a population of 274,950.

Typhoid fever was more prevalent than usual, the total number of cases reported being 198, of which 30 were imported; 36 of these cases occurred among Europeans, and 128 among the Chinese, the remainder being other Asiatics. Paratyphoid fever is now a notifiable disease, and three cases were reported, of which one died. Cholera was responsible for 11 deaths, small-pox for 29, and diphtheria for 55. A European woman arrived from Canton suffering from typhus fever—a disease which is practically unknown in the colony—and was fortunate enough to recover.

It is proposed to establish a research laboratory in memory of Dr. Earl C. Peck, assistant resident physician at the Philadelphia Hospital for Contagious Diseases, who died recently of anterior poliomyelitis.

Correspondence.

STUDENTS AS HOSPITAL HOUSE OFFICERS.

Sir,—Some time ago correspondents in your columns hinted at the possible shortage of medical men, not only at the present time, but after the war also; this latter shortage being due to the number of Royal Army Medical Corps officers being killed, dying on active service, or being maimed. Not only is this wastage of war likely to be felt, but a further loss must result owing to the number of medical students serving as combatants and from the diminished entry of men into our medical schools.

The war has already brought about many changes in our organizations, and the present may be a fitting opportunity to consider and revise some of the features of the medical curriculum.

The shortage may be partly overcome by a process of speeding up the production of medical men. This may be helped by adopting the long-discussed reform of relegating the study of the preliminary sciences to school life and combining the test of their proficiency with the entrance examination. It is to this that I would draw attention and especially to its effects on the hospitals.

At the present time a considerable number of our hospitals have for resident officers fourth or fifth year students. Here, at all events, they have given every satisfaction—indeed, except for the fact of their being unable to give death certificates, one would hardly recognize the difference.

That it would be of the greatest advantage if each student could have a year's residence as house-surgeon or house-physician I suppose few can deny. Those who have held such posts always refer to them as periods of the greatest value, while those who have not must often be painfully conscious of the fact.

Such a period of residency for all might be possible under a rearranged curriculum which would remain at its present length. At the end of the fourth year, under such a revised arrangement, a student would be equal to one of the present at the end of his fifth year—be ready for the final examination. The fifth year should be free from lectures, and should be devoted to resident appointments, the final examination being taken at the end of this period.

This would benefit the hospitals by saving the salaries of the present house officers. Each large institution might retain only qualified resident surgical and medical officers, while the teaching schools might retain the men who have done best in their examinations. Each school might act as a source of supply to the surrounding smaller hospitals, and this constant infusion of new blood as resident students each six months would materially benefit them and their honorary staffs, who would be encouraged to keep up to date and do some teaching. It would help also to distribute students more evenly, for, while some hospitals are overcrowded, others with an abundance of clinical material and facilities for individual work are handicapped by a dearth of helpers. The change would improve the armamentarium of the students by allowing all the opportunities of having cases under their charge, yet under supervision, and would no doubt be reflected in the character of their practice. It would imitate to some extent the old system of apprenticeship, which many lament the loss of to-day, and would also relieve the students financially by giving them board and lodgings for one year.

Whether the hospitals of the country are capable of accommodating the total number of final year men could be easily ascertained. In any case extra residents would greatly benefit many hospitals, and would improve the keeping of records, and allow more research to be carried out than at present obtains.

I believe that by these means considerable advantage would accrue not only to the efficiency of the profession, but to the hospitals and public generally.

The change would involve no very drastic alterations, as it seems likely that before the war is over qualified residents will be unobtainable.—I am, etc.,

Newcastle-on-Tyne, Nov. 11th. Frederick C. Pybus.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—The controversy as regards adequate fees for physicians and surgeons is one which must give rise to difference of opinion according to the standpoint of the man who accepts the remuneration for his services. A general practitioner with a large practice might possibly be in a better position than any one else to estimate the value for money received. Though not in general practice now I can claim to have had many years' experience, and still have many opportunities of observation.

"The higher branch" of the profession—I quote Dr. Mercier—may be underpaid; but why "the higher branch"? Surely the time for this has gone by. But when it comes to describing a surgeon as a mechanic, or as a person employed by a physician to carry out his instruction, the height of absurdity is reached. Personally, I should be very sorry to allow any physician to decide for me that no operation should be performed if I was supposed to be suffering from acute appendicitis, and a surgeon of repute and experience insisted that an immediate operation was necessary; and if the surgeon definitely gave the latter opinion I should consider myself a fool if I called in a physician with a view to overriding this opinion. It seems to me in such a case that it is nonsense to say that the latter is called in to decide the point of operation or not; he is called in because the patient (or his friends) hope for a backstairs escape from operation which the great man of the "higher branch" may offer him. How many lives have been lost by temporizing in such cases? We all know of many. How many, on the other hand, have been saved by immediate surgical interference? Innumerable; and if the patient dies he does not die from the operation, but from the condition for which the operation is done.

Surely the well educated, experienced surgeon of the present day is fully entitled to the fees he earns, and if the physician considers that his remuneration is inadequate, it is up against him to prove to the profession and the general public that his services are of greater market value. This he should be able to do without casting a slur on the professional ability of the surgeon to decide the point as to whether an operation is necessary or not. On what grounds of education, ability, or experience is a physician in any position to abrogate to himself any special knowledge, etc., which a surgeon cannot at any rate equally possess; and the surgeon has in addition a great asset inasmuch as he knows the condition found at, and the results obtained by, the numerous operations he has performed. God help us all, and our patients too, if the ultimate court of appeal as to the question of operation is to be the opinion of a physician.—I am, etc.,

Liverpool, Nov. 20th. C. THURSTAN HOLLAND.

SIR,—The interesting correspondence on this subject in your issue of November 18th raises a point of considerable importance other than the purely financial one. I refer to the question of diagnosis and the responsibility in regard to operations. If the art of the surgeon has been unduly magnified in the past, the responsibility for this rests, I believe, to a great degree with the physicians themselves. I do not think it is an exaggeration to say that the tendency to rely on the surgeon for the diagnosis of a large and important group of abdominal conditions has become more and more pronounced in recent years, and is a result of the failure of the physician in many instances to make the necessary thorough examination by modern methods. There are undoubtedly a few cases in which even after a careful application of the *x* rays, repeated investigation of the stools, and careful bacteriological examination of the urine, the physician may still be doubtful as to the advisability of operation and the best method for operative procedure. But these cases are few in number, and will diminish in proportion to greater thoroughness in our methods.

The trend of modern developments is well illustrated in the case of a young lady, who did not appear to be seriously ill, who consulted me about six months ago. She complained of various symptoms indicative of a general neurasthenic state, largely arising from constipation. She had been advised by lay friends to consult a surgeon. After a general examination, including the limited application of the *x* rays, the surgeon clapped her kindly on the shoulder and assured her that she could never be well until her colon was removed. This recommendation rather alarmed her, and led her to seek medical advice. A careful investigation and appropriate medical treatment, carried out at little inconvenience or expense, served to establish a very satisfactory state of health.

It would be interesting to hear the opinion of others on the point raised. My own position is quite definite. In the course of the last four years, in a series of over 150 cases submitted to operation in my private or hospital practice, I have in no instance—I exclude acute cases—called in a surgeon to assist in the diagnosis. I accept the full responsibility for the recommendation of an operation, and in many instances indicate clearly to the patient that the operation is a necessary preliminary step in the treatment. In that series I have failed on two occasions only to convince the surgeon called in as to the soundness of the procedure recommended. In the first of these I had no difficulty in convincing another surgeon as to the wisdom of the course suggested; the other patient—a nurse suffering from glycosuria with intestinal complications—decided to follow the opinion of the surgeon who saw her for a few minutes rather than the physician who had studied her case closely for weeks. She died some months later from intestinal obstruction.

If there is at present any serious disproportion in the relative emoluments of the physician and surgeon, this will, I believe, soon right itself with the education of the profession and of the public as to the relative importance of the work done.—I am, etc.,

Edinburgh, Nov. 18th. CHALMERS WATSON.

SIR,—Dr. Mercier's remark that a surgeon is the servant of the physician and exists to carry out the latter's behests shows something more than mere bias, and will not, of course, be taken seriously. It is regrettable, I think, to talk of physicians as "the higher branch of the profession." Surely the physician and the surgeon each has his own distinctive place and use, and there should be no question of "superiority" on either side. No surgeon worthy of the name would dream of operating against his own judgement, however many physicians advised him to do so. In many cases the surgeon is more competent than a physician to decide the advisability of operation and the likelihood of success. Perhaps Dr. Mercier will give surgeons credit for occasionally examining the heart, lungs, and urine before undertaking a serious operation!

With his other remarks I fully agree. The disproportion between surgeons' and physicians' fees is ridiculous. When one considers that a surgeon, for perhaps half an hour's work, often receives what a physician would receive for fifty consultations (each taking anything up to an hour) the utter unfairness of the remuneration is apparent. If the surgeon's fee is fair, then the physician's is hopelessly inadequate. I quite admit that the surgeon should receive a good fee, for the patient's life is in his hands, and may be lost through an error in judgement or technique; it takes constant and long practice to acquire the needed dexterity, and the anxiety and responsibility attached to a big operation are great. After all, it is a question of what a particular surgeon's services are worth to the patient, who thinks, rightly or wrongly, that he will do the operation better than any one else, and is therefore willing to pay an "excessive" fee. No one can blame a surgeon for refusing low fees if he can keep fully occupied when charging high ones.

Coming to the other side, I agree with Dr. Mercier that, on the whole, a physician's work is on a higher plane than a surgeon's, and, taking case for case, demands more time and brain work. Physicians should therefore, I think, be recompensed more fully for their work than they are.

When did surgeons' fees begin to rise so greatly, and why? That is, what is the history of the matter? I imagine that one reason is the fact that a surgeon's work is so much more spectacular and the associations of operations so impressive (and the results obvious to even a "dull" patient), whilst a "medical" case on whom no end of care and skill has been expended often hardly realizes the fact. Whilst it is certainly true that the whole scale of fees needs revision, I do not see how this is to be done in surgical cases, although united action by physicians would put them on a better footing.

What has long seemed to me a most pressing need is the provision of surgical aid for patients of moderate means who cannot afford high fees but who are above the hospital class. The lack of such provision results in those

patients getting into hospital, which is both an abuse of the latter (unless they pay something), and, as hospital residents well know, is a gross injustice to poorer patients (often suffering from urgent or painful conditions), who have to wait their turn on the hospital waiting list. One way in which this abuse could, to some extent, be remedied would be by surgeons who can command big fees handing on such cases to their juniors—but perhaps this is utopian. I have tried to discuss the matter fairly as one who is equally interested in both sides of the question.—I am, etc.,

G. W. Thomas, M.B., B.S.Lond.,
F.R.C.S.Eng.

Wakefield, Nov. 18th.

Sir,—I always look forward to a little entertainment and instruction when I see a letter written by Dr. Mercier. His pen is witty, and so far as I know (not being a mental specialist) his ideas are rational. At any rate, I enjoy his views on psycho-analysis.

But I am wondering where of late years he has made contact with surgery. "Scratching a child's throat with the finger-nail" is, I take it, Dr. Mercier's humorous way of referring to the method of removing adenoids which was given up over twenty years ago. I wonder how many throat surgeons receive the thirty guineas for this operation which Dr. Mercier thinks usual.

How would Dr. Mercier like to instruct a surgeon on the subject of gastric ulcer? Would he do it before the operation? Gastro-enterostomy performed upon a pre-operative symptomatic diagnosis (which, by the way, is the only one a physician can make in such a case) may be one of the most disastrous operations in surgery. Or should the physician come to the operation and direct his mechanic "whom he employs to carry out his instructions"? If an ulcer is found, would he then decide for the surgeon whether he should perform partial gastrectomy, exclusion of the ulcer from the stomach, pylorectomy, or gastro-enterostomy, all of which questions arise? How is he with his lack of knowledge of the difficulties and dangers, the methods of obtaining the best results, to direct his mechanic? He would have to be able to do the whole thing himself to be in a position to direct any one else how to do it. Then why employ the surgeon? Thus "the anomaly of the servant (or surgeon) being remunerated on a higher scale than the master (or physician)" would be obviated.

Dr. Mercier says that when the physician acts as his own surgeon he realizes how much more onerous, responsible, and difficult is the task of the former. Surely, but then why not leave it to the surgeon? The question of "on how much higher a plane is the work of a physician than that of a surgeon" might be left to that bold physician and his patient (or the sorrowing relations). Operations are not to be compared with the repairing of a watch. If a watch is ruined you can buy another. You cannot buy a new life.

I will quote once more from Dr. Mercier: "The remuneration for work ought, I suggest, to bear a relation to the gravity of the issue determined, the time occupied, and the skill required." I would add, "and the benefits conferred." Well, for surgical operations, I suggest, it does, and that is why patients are willing to pay the present scale of fees.—I am, etc.,

Joseph Cunning.

London, W., Nov. 20th.

VENEREAL DISEASES IN THE ARMY.

Sir,—Mr. E. B. Turner's plea that it would be hardly expedient to publish the actual figures and facts on which he bases his conclusion that there is a very large amount of venereal disease both at home and at the front inclines one to think that he is qualifying for the diplomatic service or a seat in the Cabinet. He is evidently not an emissary of the *Daily Mail*, otherwise he would not advocate "hide the truth." These diseases may be, and no doubt usually are, contracted in the dark, but that is the greater reason why we should throw a flood of light on them. I have hitherto been under the impression that the only secrecy which medical men were called upon to preserve was the professional secrecy which exists or should exist between them and their patients. Why should Dr. Barrs have the figures for his own private information? If I read Dr. Barrs's letter aright he does not want the information for himself but for the public. My experience is similar to his: out of many thousands of sick and wounded soldiers from all parts of the front I have seen very few cases of venereal diseases. I have no means of accurately ascertaining the incidence of these diseases at the front, but I have been told by officers that such are fairly common—which may mean much or little; nor do I know what preventive measures are being adopted, but I hope they are not following the *laissez faire* method of this country. One young officer told me that there is a small but select health resort for officers in the north of France, but none down the line for the men. I should like to ask Mr. Turner or any one else to investigate the condition which recently prevailed at a camp in this do-nothing country, and I would then ask him, Is it fair to put the virile sons of Australia, who have come over to fight our battles, in a hotbed of disease?

The publication of the figures could not militate against the defence of the realm. In the success of the campaign it does not matter whether the incidence be a tenth per cent. or ten per cent., so long as we can keep a sufficient number of effectives in the fighting line. It does, however, very much matter to the army if we allow these diseases to spread so as to knock the effectives out of the combat. Here, as in every other disease, prevention is better than cure. Venereal diseases can be stamped out, more especially syphilis, perhaps not so easily as in the case of rabies, because those diseases are more widely spread, but the knowledge that such diseases can be eradicated should be a strong incentive to the adoption of stringent and necessary preventive measures. A brick wall, so long as its continuity is maintained, between the infected and the sound imparts absolute security. It is to me pitiable to see members of the Council of the British Medical Association utterly ignoring prevention, and devoting their energy, not so much to questions of treatment, as to how much can be made out of these diseases. Pious resolutions are passed, and fees fixed, though it is highly improbable that they will be consulted by any public body, unless it be to find out how cheaply the work can be done.

No doubt a large number of valuable lectures are given free, preaching sexual abstinence. The soldiers are exposed to temptation and the advice given to them is to "resist the devil and he will flee from you," but if you do happen to get caught come round the corner and a benevolent State which allowed you to contract the disease will cure you for nothing. This homily should surely be sufficient to convince the men that this pleasant sin is after all not so very deadly. The advice of the sergeant to his men, "if you can't be good be careful," is of much more practical value than all these lectures.

If this country follow the lead of a lot of puritanical humbugs who "compound for sins they are inclined to by damning those they have no mind to," in a short time it will become syphilized, if not Prussianized, and no man will be considered respectable and fit to get married until he has undergone a Wassermann test and has had a dose of salvarsan. There are in this country large numbers of men who would rob their grandmothers, and yet pose as highly moral citizens simply because they have no desire to indulge in promiscuous sexual intercourse.

I am sure my friend Mr. Turner knows me well enough to feel certain that I do not place him among the self-righteous pharisees. I am merely using his letter as a peg on which to hang an argument.

I am convinced that when the women get the vote this will be one of the first social problems to be seriously and effectively tackled. Is there no statesman with sufficient intelligence to grapple with the all-important subject of the abolition of venereal diseases?—I am, etc.,

James Barr.

Liverpool, Nov. 18th.

CONTROL OF VENEREAL DISEASES.

Sir,—In your leading article on the "Alleged advantages of compulsory notification of venereal disease,"[1] you remark that the Copenhagen statistics compiled by Professor Pontoppidan (quoted in the same number of the Journal) are inconclusive. This may be true from the statistical point of view, for the evidence is incomplete.

[1] British Medical Journal, October 28th.

On the other hand, when looked at from another point of view, they may be used as an argument in favour of compulsory treatment, at any rate as regards prostitutes. These statistics show that in the seven years following abolition of the regulation of prostitution in Copenhagen the number of males treated in hospitals for venereal diseases was more than 3,000 in excess of the number treated in the seven years previous to abolition of regulation. On the other hand, the number of females treated during the same period showed a diminution of nearly 8,000. The latter figure can be disregarded, for, as Professor Pontoppidan admits, the number of women treated in hospital would naturally diminish after abolition of the systematic examination and compulsory treatment of prostitutes. Now, as the males presumably contracted these diseases from the females, the most probable explanation of the increase in incidence among the males is a general increase in the prevalence of venereal disease after the abolition of the regulation of prostitution. The only other way in which such an increase could be accounted for would be a proportionate increase in the population, concerning which no mention is made, at any rate in the quotation published.

At the recent meeting held at the Mansion House at the request of the National Council for Combating Venereal Disease Sir Thomas Barlow is quoted as saying "that notification is a fetish and compulsory treatment impossible." On the contrary, although the application of such measures to the whole population presents great difficulties, much can be done, and much is being done, by compulsory treatment. The majority of males of the age during which venereal disease is usually contracted are now in the new army, and are under the control of what is practically a system of notification and compulsory treatment. If this system could be applied to the females, who are now under no control and free to spread these diseases, there would be a much greater chance of reducing the prevalence of venereal disease than by means of lectures and pamphlets, which, though excellent in their way, do not reach those who are the most dangerous sources of infection—the prostitutes, both amateur and professional, and the fundamentally vicious.—I am, etc.,

C. F. MARSHALL.

Military Hospital, Prees Heath, Nov. 7th.

SIR,—It is earnestly to be hoped that the recommendations in Captain Curl's letter in the JOURNAL of November 11th, p. 668, will be carried out, especially with regard to making appointments during the war. It would surely be manifestly unfair to those now serving to have permanent appointments made, whilst many men, thoroughly qualified for this type of work, are precluded from applying for them.

The co-operation of civilian medical men and officers of the R.A.M.C. seems the only feasible way of dealing with this problem, at any rate at the present time, when the alleged increase of venereal diseases is occupying the attention of both civil and military authorities.—I am, etc.,

R. M. WALKER, M.D.,
Temporary Captain R.A.M.C.

Cromarty, Nov. 12th.

THE ANTHROPOMETRIC SIDE OF RECRUITING STATISTICS.

SIR,—I have read the article in the BRITISH MEDICAL JOURNAL of October 28th, p. 594, on the anthropometric side of recruiting statistics. I have been discussing this subject for some months with fellow officers, and hoping that the unique opportunities afforded by this physical census of the nations would not be allowed to be wasted.

One very valuable result which could be secured by simple instructions to medical officers is, that at demobilization or previous discharge every man should be weighed, measured in height and chest expansions, and the results entered, with date, upon his Medical History Sheet (A.F.B. 178). This would afford most valuable information as to the result of military training upon the manhood of the country.

Statistics as to diseases prevalent in different parts of the United Kingdom would be useful and easily obtained from the remarks made on the Medical History Sheets by the Recruiting Medical Boards; these vary in fullness of detail, some boards putting very little, and others giving a full statement of conditions found at examinations. I think, however, that a sufficiently large number of medical history sheets would be found fully entered to afford a generous basis upon which valuable generalizations might be founded.

The great frequency of severe varicose veins of the feet as well as leg and thigh in some districts, and their infrequency in others, would be noted, and provoke consideration as to cause.

In some boards large numbers of cases of enlarged thyroids have been found. The occurrence of hernia in certain counties where work is not of a peculiarly heavy nature is a problem awaiting solution. The frequency of appendicitis, retained testicles, retinitis pigmentosa, and severe psoriasis would be easily recorded. All of this could be secured with a minimum amount of trouble. And it is likely that very small additional particulars suggested by an expert on medical statistics might greatly enhance the value of such a research.—I am, etc.,

J. RUTTER WILLIAMSON, Captain R.A.M.C.,
President of a Recruiting Medical Board.

November 10th.

THE USE OF TURPENTINE IN SURGERY.

SIR,—In these days when it is scarcely possible to pick up a medical journal containing no reference to the burning question of the best method of treatment of septic wounds, when new processes are being devised almost daily and being boomed enthusiastically by their sponsors, there is a risk that old and tried remedies may be forgotten. One of these is turpentine.

Who of us practising military surgery has not been confronted with a case of secondary haemorrhage in which the tissues are so rotten and sloughy that to ligature bleeding points seems almost useless, and a recurrence of bleeding inevitable?

In such a case turpentine is most valuable. If the bleeding be arrested, and the wound lightly packed with gauze wrung dry out of turpentine, the result is most gratifying. When the packing is removed in twenty-four to forty-eight hours, the change in the condition of the wound is remarkable. No excess of turpentine should be used, and none on the outside dressing, or else the skin will be blistered, small matter though that is compared with the arrest of the haemorrhage. In eighteen months' practice as a military surgeon all my cases of secondary haemorrhage have been so treated. All have recovered, and in none has bleeding recurred.

The use of turpentine in this way was a favourite remedy of Mitchell Banks, whose opinion is quoted with approval by Jacobson in that most valuable of all surgical textbooks, *The Operations of Surgery*. Nowadays it is unfashionable to be conservative, but not all the old-fashioned remedies are useless.—I am, etc.,

C. A. MOORE, Captain R.A.M.C.(T.).

Clifton, Nov. 6th.

PREVENTION OF CANCER.

SIR,—Much good and very little harm has been done by teaching people how to prevent tuberculosis, and it is perfectly possible to save many lives annually by making public use of the information we already possess as to the prevention of cancer.

On July 1st, 1914, in my capacity as M.O.H., I printed a report summarizing the causes of chronic irritation which frequently results in malignant disease when neglected. This information was so compiled as to obviate all fear of morbid introspection. This was shown by the Local Government Board to the Secretary of the American Society for the Control of Cancer, and their council (consisting of medical men) had it forwarded to all health officers in the United States and Canada.

Why should we withhold preventive treatment until the precise causation and treatment of the disease is assured? In view of the age at which its appearance is most frequent, cannot local and general treatment be adopted, especially after early operation for removal, to keep the cells as virile and healthy as possible and to preserve the normal hormone balance?

If, as I think, cancer implies a resuscitation of ancestral reproductive faculty in cells, preventive treatment will eventually have to be conducted upon such lines—why not now? Why should not the public be informed that pain

is not an early sign of cancer, and that the causes of excessive haemorrhages in middle life should be dealt with?—I am, etc.,

J. ASPINALL MARSDEN,
Lieutenant R.A.M.C.

Lightcliffe, Yorks, Nov 13th.

*** At the suggestion of the Section of Obstetrics and Gynaecology of the annual meeting of the British Medical Association at Exeter in 1907 the Council of the British Medical Association appointed a committee to consider the best means of disseminating knowledge of the importance of the early recognition of uterine cancer. The result of the labours of this special committee was the issue of a valuable memorandum appealing to medical practitioners to promote the earlier recognition of uterine cancer. Appended to the appeal was another addressed to midwives and nurses in which the early signs of cancer were pointed out.

THE POSSIBLE FUNCTIONS OF CEREBRO-SPINAL FLUID.

SIR,—I am glad to see that my address on this subject has aroused the interest of some of your readers. I need say no more than thank Drs. Lyth and Mamourian for their appreciatory remarks, and add the following extract from a paper by Professor Dixon and myself[1] which may be germane to the question raised by Dr. Mamourian. After speaking of the olfactory nerve, we go on to state that:

> Evidence of a like nature exists to show that some fluid finds its way along the sheaths of other cerebral nerves. The optic nerve is certainly the most important of these. . . . In the case of the optic nerve the coloured fluid passed out along the nerve sheath and over the posterior surface of the eyeball by way of the optic subarachnoid into Tenon's capsule.

Dr. Harry Campbell and Dr. James McIntosh both criticize the view that the cerebro-spinal fluid plays the part of the lymph of the brain. I would remind both of them that I accepted this dictum with several reservations. I sincerely hope that this is not the commencement of a long controversy, and will therefore try and reply with becoming briefness. Until Dr. Campbell brings forward proofs of his opinion that the perineuronal spaces contain protein and other substances which exude from the blood capillaries I shall continue to assume that they do not. Such evidence as is available is against Dr. Campbell's supposition. Dr. Campbell's underlying fallacy appears to me to be the idea that a nutrient fluid must necessarily be rich in protein.

Dr. McIntosh states that he cannot accept my views because he has always held other ones. I fail to see the cogency of this argument. In his concluding sentence he states that there is good histo-pathological evidence to show that the brain possesses an independent system of lymphatics which is normally quite shut off from the cerebro-spinal fluid. I shall look forward to his forthcoming paper in *Brain*, where no doubt the evidence he alludes to will be set down in detail. But until I know what the evidence is, I must withhold my opinion as to whether it is good or not.—I am, etc.

W. D. HALLIBURTON.

King's College, London, Nov. 17th.

*** We cannot continue this correspondence.

NURSES' REGISTRATION.

SIR,—Perhaps you will kindly allow me to make some critical remarks concerning the College of Nursing, Ltd. Put briefly, the college is a privately formed body hoping to obtain parliamentary sanction, and its object is to elevate the nursing profession by means of a system of registration, combined with the approval of suitable hospitals as training schools. This object will have the approbation of all thinking men, at least in principle, though one may well look on some of the methods adopted as capable of improvement. But I propose to deal with one aspect only of the matter, wherein it seems that the effect of the college's action can only be detrimental to the nursing profession and to the public.

So far as recognition of training schools goes, it appears that voluntary hospitals to fulfil the conditions must have 40 beds, Poor Law hospitals 250. The other two conditions are the same in each case—namely, a medical man must be in residence and a series of lectures must be given, followed by examination.

It is difficult to see why the relative sizes of the two classes of hospital should be so dissimilar. It is true that a voluntary hospital is likely to have a greater proportion of cases of acute illness and operative work; on the other hand, Poor Law nurses have a much better experience in managing bedridden cases, and this is no small asset. However, let me speak as the acting medical officer in charge of a Poor Law hospital of some 220 beds. Although there is no resident, the Local Government Board has thought fit to recognize our certificate as qualifying nurses for the highest positions in this branch of the profession, so that the College of Nursing comes into conflict with a Government department. But that is by no means all. The smaller Poor Law hospitals have for some years been improving in their standard of nursing and in their efforts to train nurses. If the College of Nursing persists successfully in its present course, all this will be done away with and the conditions of last century must recur. What sensible girl will wish to be trained at a hospital not recognized by the authority at the head of the nursing world? What capable and ambitious trained nurse will apply for a sister's post there? What sort of matron shall we get as the head of such a nursing staff? The answers to these questions are plain. The matron and sisters will be such as are fit for such a backwater; and, instead of probationers interested in their work and anxious to learn their duties, the majority of the staff will be more or less of the "Gamp" type. In place of a nursing school doing a small but (we hope) not bad work, we shall have chaos again. In turn, the patients will necessarily suffer, and all this at an increased cost to the ratepayers, for the "Gamp" will want higher pay than mere probationers.—I am, etc.,

FRANCIS VILLY.

Keighley, Nov. 10th.

AUSTRALIAN UNIVERSITIES AND THE WAR.

SIR,—I am directed by the High Commissioner to inform you that he has received the following cablegram from the Commonwealth Government in regard to the shortened curriculum at the Australian universities for medical graduates, which has been adopted with a view to supplying the graduates necessary for the Expeditionary Force and local service:

> SUPPLEMENT BRITISH MEDICAL JOURNAL August 19th reports action Executive Committee General Medical Council concerning Melbourne Medical Graduates. All Australian universities have shortened curriculum to four years and two-thirds to supply Graduates necessary Expeditionary and Local Service shortening limited to duration of war and still necessary. No Graduate admitted below this limit in any university. Four years under temporary Victorian Act provides for extreme emergency which has not occurred. Communicate Colonial Office and Council so no obstacle registration.

—I am, etc.,

R. MUIRHEAD COLLINS.

Commonwealth of Australia,
High Commissioner's Offices,
72, Victoria Street, Westminster,
London, S.W.,
November 15th.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE following additional subscriptions to the Fund have been received:

	£	s.	d.
Dr. G. D. H. Carpenter (16th and 17th donations—total, £17)	2	0	0
Queensland Branch, B.M.A., per Dr. W. H. Crago (honorary treasurer, New South Wales Branch, B.M.A.) ...	34	16	0
Fund initiated by Otago Division of New Zealand Branch of B.M.A. (second donation—total, £1,012 15s. 2d.); Medical Men in Otago chiefly, but many from other parts of New Zealand; Pharmacists of Otago and South Canterbury; Nurses in Otago; Otago Catholic Association and General Public	407	15	2

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited. Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

A BEAUTIFULLY illustrated volume containing thirty-six memoirs has been dedicated to Dr. Erik Müller, Professor of Anatomy in the University of Stockholm, by friends and pupils on the occasion of his 50th birthday.

[1] *Journ. Physiol.*, 1916, vol. l, p. 312.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Admission of Women to M.B. Examination.

THE grace for opening the first and second M.B. examinations to women was approved at Cambridge on November 18th.

UNIVERSITY OF EDINBURGH.

IT has been decided that no election of a successor to the late Earl Kitchener as rector of the university shall take place until this time next year, when, in the normal course, the term of office of the late rector would have expired.

UNIVERSITY COURT.

At a meeting of the University Court on November 13th Dr. Carstairs Douglas, of the Anderson College of Medicine, Glasgow, was recognized as an extra academical teacher in forensic medicine. Arrangements were approved by which Professor Alexis Thomson will act as interim professor of clinical surgery during the absence on war service of Professor Caird, and Dr. Chalmers Watson will carry on the work of Dr. R. A. Fleming, one of the senior lecturers in clinical medicine, who has proceeded to Salonica with a general hospital. The bust bequeathed by Sir William Turner has been placed, as he desired, in the anatomical museum. The general council has approved the ordinance for the foundation of a Chair of Tuberculosis.

UNIVERSITY OF GLASGOW

GRADUATION CEREMONY.

THE principal, Sir Donald MacAlister, presided at a graduation ceremony in the Bute Hall on November 11th, when the following degrees were conferred:

M.D.—*T. Walmsley, †J. B. M'Dougall, C. K. Stevenson, H. Yellowlees.

* With honours. † With commendation.

UNIVERSITY OF ST. ANDREWS.

UNIVERSITY COURT.

AT a meeting of the University Court on November 18th it was reported that General Sir Douglas Haig had been unanimously elected by the matriculated students to be rector of the university for the usual term of three years, and that a letter had been received from Sir Douglas Haig expressing his gratification at the honour conferred upon him. Sir Douglas Haig is a son of Mr. John Haig of Cameron Bridge, Fifeshire.

Miss Doris Livingstone Mackinnon, D.Sc., has been appointed lecturer on natural history. She is assistant to the professor of natural history at Dundee, and is at present engaged in medical work in a military hospital.

Principal Mackay was reappointed the representative of the university on the General Medical Council.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Meeting of Fellows and Members.

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England was called for November 16th, but when the President, Sir W. Watson Cheyne, took the chair, those present were insufficient to form a quorum. After waiting the legal quarter of an hour, and the numbers wanting still three of the required thirty, the President said that the meeting could not be held, and that the five resolutions on the agenda dealing with the question of direct representation of Members on the Council could not be moved. Several protests were made at this procedure, which was declared to be impolitic even though strictly legal, and the protests were renewed when, immediately after the time limit, several fresh arrivals increased the numbers to over thirty. The President adhered to his decision that the meeting could not be held, but he consented to review the annual report (summarized in the BRITISH MEDICAL JOURNAL, November 11th, p. 670) and to permit some informal discussion.

Lieutenant-Colonel Josiah Oldfield said that the President in his statement last year was reported to have said that he regarded the College as a scientific and educational institution, and that those who were agitating on the representation question desired to make it a political one. The speaker referred to several matters dealt with in the report which suggested that the College was interesting itself in other than scientific and educational matters. He also complained that the Council should have inserted in the report an anonymous statement from a member to the effect that provincial members were not in favour of meetings on the subject of representation being brought forward; the offence was all the greater because, although the resolutions carried last year were printed, no word was in support of them was suffered to appear, while the President's defence was given fully.

Dr. George Lenox, speaking as a barrister, also criticized the statements of the anonymous supporter of the council's policy, saying that the writer's arguments for resisting the proposed change were weak from the legal point of view, and in places the grammatical construction was such as to make the drift of the argument unintelligible.

Dr. S. C. Lawrence said that in refusing to allow the meeting to be held that day the President had made a great mistake of which the last had not been heard. He also regretted that his suggestion of a year ago had not been adopted, namely, that the five or six enemy names should be expunged from the roll of the Honorary Fellowship. He paid a tribute on behalf of the Members of the College to the late Sir Victor Horsley.

Some discussion ensued between Dr. Lawrence and the President with regard to the poll of Members undertaken by the Society of Members in 1908 on the question of direct representation. The President said that he had asked for the numbers of the poll, but they had been refused; if they had been greatly in favour of the demands made, they would surely have been given. Dr. Lawrence said that the President's inference was incorrect, though he was still unprepared to give the figures. Those who did not desire representation were negligible, and even in their case their apathy in the matter was due to the want of interest shown by the Council in the general body of practitioners.

Dr. David Roxburgh proceeded to criticize the Council for dilatoriness with regard to the instruction of general practitioners in the diagnosis and treatment of venereal disease. In London, he said, this matter had been left to the Panel Committee, and he regretted that the College had failed to take a leading part. The President said that the whole matter at the present moment was under consideration by a committee. On Dr. Roxburgh continuing to address those present, the President said that he had already allowed considerable latitude in discussion; it was not a regular meeting, and he must now leave the chair.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following officers were elected on November 6th:—*President:* Dr. Ebenezer Duncan. *Visitor:* Dr. A. Freeland Fergus. *Treasurer:* Dr. W. G. Dun. *Honorary Librarian:* Dr. Alexander Napier. *Representative on the General Medical Council:* Mr. David N. Knox.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. at base hospital desires exchange to home station, London or near neighbourhood preferred; hospital for choice.—Address No. 4600, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

M.O. Cyclist, F.A., Kent, desires exchange to foreign service, preferably France.—Address No. 4599, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Officer R.A.M.C. wishes to exchange from hospital ship to Eastern or London command; send particulars of work. Applicants should be over 45 or for home service.—Address No. 4598, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

DR. THOMAS WHITELAW, of Portobello, Edinburgh, died on November 9th after less than a week's illness. He began life as an inspector of banks, and served in Africa and India. Afterwards he studied medicine at Edinburgh University, and became M.D. in 1891. He settled in Portobello after taking his degree, and practised there until his death. He was keenly interested in the Portobello Sick and Destitute Society, and was member of its executive. He contributed to the JOURNAL, 1896, vol. i, p. 1317, a paper on the relation of haemorrhages to barometric pressure, his attention having been attracted to the subject by the repeated coincidence of what are "colliery warnings," appearing in the daily papers, with urgent messages to attend patients attacked with haemorrhage from the lungs. The funeral took place at Portobello Cemetery on November 13th.

DR. VICTOR COURTELLEMENT, professor of internal pathology at the medical school of Amiens, was killed by a shell on October 16th. At the Salpêtrière, Paris, where he worked under Professor Raymond, and at the Amiens Hôtel-Dieu, to which he was physician for many years, he carried out important neurological researches, and his thesis on the remote sequelae of cerebro-spinal meningitis was a valuable contribution to knowledge.

DR. R. H. VON EZDORF, of the United States Public Health Service, who died on September 8th, graduated at the George Washington University Medical School, Washington, in 1894. He made important researches on yellow fever and typhoid fever, but his special subject of investigation was malaria, on which he wrote much in the public health service reports. He was the author of the article "Malaria" in the *Reference Handbook of the Medical Sciences.*

Dr. Charles H. Hughes, of St. Louis, a distinguished specialist in nervous and mental diseases, died on July 13th at the age of 77. He graduated at the St. Louis Medical College in 1859, and after serving in the Civil War was appointed superintendent of the hospital for the insane at Fulton, a position he resigned in 1871. He was one of the founders of the Marion Sims Medical College and editor and proprietor of the *Alienist and Neurologist*. He was an honorary member of the Medico-Psychological Association of Great Britain, of the Russian Society of Neurology and Psychiatry, and of many other similar bodies.

Dr. David Braden Kyle, of Philadelphia, who died on October 23rd at the age of 53, had been professor of laryngology and rhinology in Jefferson Medical College since 1896. He was head of the department of laryngology, rhinology, and otology at St. Mary's Hospital, Philadelphia, from 1891 to 1893, and president of the American Laryngological Association in 1910 and 1911. He was the author of a textbook on diseases of the nose and throat which has gone through five editions.

Dr. Louis McLane Tiffany, of Baltimore, a surgeon of note, died on October 23rd, at the age of 72. He was a graduate of the University of Maryland, where he was demonstrator of anatomy from 1869 to 1874, and professor of operative surgery from 1874 to 1880. He occupied the chair of surgery from 1880 to 1902, when he retired with the title of emeritus professor. He was formerly surgeon to Johns Hopkins and St. Joseph's Hospitals, and to other institutions in Baltimore. He was a former president of the American Surgical Association, of the Medical and Surgical Faculty of Maryland, and of the Southern Surgical and Gynaecological Society.

Dr. Adoniram B. Judson, of New York, who died on September 20th, was born in 1837 at Maultain, Burma, where his father was an American missionary. He studied medicine at Harvard and at Jefferson College, Philadelphia, where he graduated in 1865. After serving in the United States navy in the Civil War, he settled in practice in New York, devoting himself to orthopaedics. From 1878 till 1908 he was orthopaedic surgeon to the out-patient department of New York Hospital. In 1887 he helped to found the American Orthopaedic Association, of which he was vice-president in 1889 and president in 1890. From 1886 till his death he was statistical secretary to the New York Academy of Medicine. He was chairman of the Section of Orthopaedic Surgery. Dr. Judson was the author of several works on subjects within his special province and on public health.

Medical News.

A meeting of the Odontological Section of the Royal Society of Medicine will be held at the society's house, 1, Wimpole Street, W., on Monday next, at 8 p.m., when the President, Mr. W. B. Paterson, F.R.C.S., L.D.S., will give his address, and a report on the Paris Dental Congress will be presented by Mr. T. A. Coysh, L.D.S.

The Health of Munition Workers Committee, appointed by the Ministry of Munitions, has issued a memorandum (No. 14, Cd. 8387. Price 1d.) on washing facilities and baths. It contains descriptions and working drawings of a washing trough, and of douche baths for males and females respectively.

A mechano-therapeutic department has been presented to Bath War Hospital by Mr. C. Chivers. It provides mechano-therapeutic apparatus, and radiant heat and whirlpool baths. In the latter the whirlpool is produced and air introduced into the water in the manner described by Dr. Nunneley elsewhere in this issue.

The prize of £50 and the medal of the institute offered by the Royal Sanitary Institute for the best thesis setting out a complete and practical scheme for maternity and child welfare work, suitable for adoption by local authorities, has been awarded to a joint essay by Miss Isabel Macdonald, secretary, Royal British Nurses Association, and Miss Kate Cropper Atherton.

A committee has been formed at Springfield, Illinois, to collect £100,000 for the foundation of a memorial to the late John B. Murphy, of Chicago. It is proposed that the memorial shall be "a living power making for the advancement of surgery on both the scientific and the moral sides." It is probable that it will take the form of an institution for surgical research.

It is believed that both political parties in Canada will make compulsory health insurance of wage earners part of their programme for the election which is to come after the war. In the United States a bill providing for compulsory insurance has been drafted by the American Association for Labor Legislation and will be introduced next year in more than twenty State legislatures.

The annual meeting of the American College of Surgeons was held at Philadelphia in the last week of October. It was decided to form an international committee, on which every State in the Union and the Provinces of Canada should be represented, to take steps for the enactment of laws for the protection of the public against untrained surgeons, the prevention of dishonest practices, and the provision of means for post-graduate training in surgery. Chicago was chosen as the permanent head quarters of the college, and Dr. George W. Crile was elected president.

We have received the report of the seventy-fifth session, 1915–16, of the Reading Pathological Society. The most distinctive event in this session was the holding of two of the monthly meetings of the society at the War Hospital, where cases of interest drawn from the wards were shown and discussed. As in the previous session, the annual oration and the summer excursion were abandoned, their place being taken by ordinary meetings. The roll of honorary members has been depleted by the deaths of two orators of the society, Sir James Goodhart and Sir Victor Horsley. Although the attendance of members at the meetings fell below the average of previous years much interesting work was got through and many instructive specimens and patients with various types of diseases were brought forward.

The usual monthly committee meeting of the Medical Sickness Assurance Society was held on November 17th, when Dr. Major Greenwood was in the chair, in the absence, through indisposition, of Dr. F. J. Allan. The reports submitted showed for the previous month a slight upward tendency in sickness claims, due largely to members wounded on active service, but the sickness experience for the whole year up to the end of October was considerably under the expectation, although it is estimated that at least 1,000 of the society's members are on active service in various parts of the world. The new proposals showed a decline on previous figures, but the proportion of new members taking advantage of the new endowment assurances issued by the society is larger than formerly. It has been decided to continue accepting new members who may be either actually in or about to join His Majesty's Forces in the non-combatant branches, as, so far, the society's experience does not justify it in either charging extra rates or discontinuing acceptance of these proposals. Further information can be obtained from the Secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

The Princess Christian opened a "microscopical conversazione" at the head quarters of the Y.M.C.A. in London on Friday evening. The range of the exhibits was certainly a tribute to the labour of many enthusiastic microscopists as well as to the microscopical section, which was thus demonstrating to the public the kind of work it carries on in the military camps and hospitals. The specimens shown ranged from gold dust to water-fleas, and from the shimmer of beetle's wings to a swarm of maggots in a fragment of two-year-old Cheddar. In the large hall cinematographic displays were given at intervals, the subjects being wholly scientific. The films revealed the motions of blood, the action of trypanosomes in sleeping sickness, and of the micro-organisms in relapsing fever. Elsewhere in the building lectures were being delivered, one of them by Mr. F. Martin Duncan on carnivorous plants, and the other by Dr. G. H. Rodman, who has applied the photographic colour plate to photomicrography with excellent results. It was stated that exhibitions and lectures of this kind are constantly being given in Y.M.C.A. huts, and the men of His Majesty's Forces show the most eager interest in this investigation into the world of the minute. We understand that lectures have been prepared by expert microscopists on the action of various micro-organisms, including the *Spirochaeta pallida*.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2594, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

W. asks any user of the auto-wheel to give him his experience of it. W.'s district is moderately hilly.

QUILL-PEN asks for advice in the case of a well-nourished woman, aged about 35, who has suffered from amenorrhoea for about eight years, from biliousness and headache for one to two years, and from a chronic cold with occasional bronchitis and dyspnoea on slight exertion for nine months. There are no physical signs. Blood count: Red corpuscles 6,750,000, haemoglobin 85, colour index 0.6; white corpuscles 14,680, ratio 1 white to 400 red; polymorphonuclears 79.0, small lymphocytes, 17.4, large lymphocytes 3.6, eosinophiles 0.0, mast cells 0.0.

INCOME TAX.

B. P. asks for an expression of opinion as to whether army pay earned during December, 1915, but not paid until January, 1916, should be reckoned in addition to his "civil earnings" assessment, which is based on the 1915 profits, for purposes of his abatement. The 1915 profits did not exceed £700.

*** Income assessed under Schedule E, including army pay, is properly reckoned according to the period of accrual. B. P.'s total income for the present financial year is, therefore, (1) his military pay from the commencement to April 5th, 1917, *plus* (2) the amount on which he is liable to assessment for his civil earnings. Unless, therefore, he can show the amount of his profits for 1916, or 1916-17, to be less than the 1915 figure, and substitute the smaller amount under Section 13 of the Finance Act, 1914 (Session 2), he must lose the benefit of any abatement.

LETTERS, NOTES, ETC.

TREATMENT OF TETANUS.

DR. W. J. YOUNG (Harston, Cambridge) writes: I have not noticed that trial has been given during the war to the method of treatment advocated in the JOURNAL some time ago by Dr. Jasper Creagh, of Buenos Aires. He recommended saturation of the patient with sulphur by giving drachm doses every two hours, and by rubbing in strong sulphur ointment. He said he had never known it to fail.

BOOKS FOR BRITISH PRISONERS.

THE British Prisoners of War Book Scheme (Educational), which is managed by a committee consisting of representatives of the Board of Education and the Board of Trade, the Joint Committee of the British Red Cross and the Order of St. John, the Admiralty, the War Office, and Dr. Hagberg Wright (London Library), exists to provide British prisoners of war interned in enemy or neutral countries with educational books. We are informed that among a large number of requests are some for books on medical subjects. Special books asked for recently are: *Psychological Medicine* (Craig), *Insanity and Insanity* (Mercier), *Criminal Responsibility* (Mercier), *Tropical Diseases* (Castellani). Readers who may be able and willing to contribute one or more of the above works are invited to forward to Mr. Alfred T. Davies at the Board of Education, Whitehall, London, S.W., a list of the books they can offer. They will then be notified as to the acceptance of their gifts. Further particulars of the Book Scheme may also be had on application to him.

ARSENIC IN SYPHILIS.

A CORRESPONDENT writes to say that he believes salvarsan to have no remedial effect in cases of syphilis of the central nervous system, and to suggest that an ideal method for their treatment would be to inject the lymph of arsenic-eating people (Styrians) deprived of its protein into the subarachnoid space. . . . In lack of these animals might be given arsenic with a view to using their lymph." However well worth trying, these suggestions are, unhappily, not without their difficulties. (1) The inhabitants of Styria and the Austrian Tyrol who eat arsenic are Austrian subjects, and there might be a difficulty in getting them to come forward at the present time and be bled for the supposed benefit of their foes. (2) There is reason to believe that tolerance to arsenic depends mainly upon development of the power of not absorbing it from the stomach and intestine. It has not been shown, we believe, that the blood of arsenic eaters is rich in arsenic. (3) It is thought that any arsenic that is absorbed from the alimentary tract circulates in the blood, and is excreted in the urine in the form of an organic combination. It is to be feared, therefore, that blood serum deprived of its protein might also be deprived of any arsenic it might contain.

THE RETURNED SOLDIER.

DR. ROWLAND JONES (Walthamstow) writes: In the SUPPLEMENT of November 4th, p. 125, Mr. Turner, speaking of disabled soldiers, states "that these men should not be discharged, but kept under a certain amount of discipline." Does he not consider that these poor fellows have had just about enough discipline? As an acting M.O. I have had about 2,000 sick soldiers pass through my hands, and there is nothing they appreciate so much as the treatment they receive from a man unfettered by any military code. Surely we medical men, who owe our safety to these men, can undertake to look after them without always considering "How much pay?" As to Mr. Turner's statement about "stand drinks," of course, amongst the millions of soldiers there are plenty of fools, but our army represents the *élite* of the nation. It is the same myopic view as that of the War Office, who do not seem able to grasp the fact that they are dealing with quite a different class of men to what they have heretofore been accustomed. As to the enormous amount of venereal disease at the front and at home, I can only state that out of 2,000 sick soldiers I have only found two cases.

SCHOOL RUNS.

AMAZED writes: I was consulted recently by the parent of a boy at a public school as to whether he should be allowed to take part in the school runs, since he suffered from a "stitch" in the right side, and was compelled to stop running till this passed off; in consequence of this he was caned for not "running off the stitch," although he had not been previously warned that any boy seen to stop running would be so punished. The runs take place when it is too wet to play football. The distance is roughly two miles. The run begins forty-five minutes after the mid-day dinner. Assuming the boy has no organic disease, I would like to have the opinion of your readers on the following points: (1) Whether the "stitch" in the circumstances mentioned is a symptom to be ignored? (2) If not, whether a caning is a justifiable remedy? (3) Whether "running off the stitch" is appropriate treatment? (4) If not, what treatment, if any, should be adopted? (5) Whether a boy's work can reasonably be expected to be good if he has to take part in runs for which he feels unfit, when all the time he knows that he has hanging over his head a caning if he temporarily "falls out"?

INCOME TAX.

DR. J. W. YEATMAN (Auburn, S. Australia) writes: Referring to your editorial on the basis of calculation of income tax in the JOURNAL for July 15th, our experience may be useful. Some years ago the Commissioner of Taxes in Adelaide discovered that the profession as a whole was paying income tax on a cash basis. He insisted on the book debts being taken into consideration, which practically meant that we each had to pay the State double the amount we owed. Since then I have arrived at my income liable to taxation by adding the amount "good on books" at the end of the year to the cash received for current year and deducting from that the amount "good on books" at end of the previous year. This works out at about the same rate as an assessment on cash receipts. The only unfairness was in the first year, and all book debts—good, bad, and doubtful—are taken into consideration. The Commissioner has approved of this method in writing. By adopting this plan and deducting last year's book debts medical men at home would put themselves on the safe side and be saved from having to pay double, when the authorities wake up to the fact that they are only taking into consideration actual cash returns.

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The Horace Dobell Lecture

ON

THE MECHANISM OF THE SERUM REACTION.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.*

BY H. R. DEAN, M.D., F.R.C.P.,

PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MANCHESTER.

THE serum reactions are those which take place between an antigen and its homologous antiserum. Of the chemical nature of antigens we have no certain knowledge. Examples are bacteria and their products, red cells and blood serum when injected into an animal of different species. Substances capable of acting as antigens appear to be attached to protein matter, and have not as yet been isolated in a pure state. Attempts have been made to show that antigens are of a lipoid nature. Antigen-containing substances have been extracted with alcohol and ether, and the material obtained after evaporation of the solvent has been injected into animals (Bang and Forssman, 1906, and others). The results obtained have not been conclusive (Ritchie and Miller, 1913). In this connexion it must be remembered that antigens are active in very small amounts, and that an ethereal solution of lipoids, although apparently perfectly clear, may well contain minute fragments of protein matter in suspension. Moreover, substances not usually soluble in fat solvents may be dissolved or taken up as a very fine suspension in the presence of lecithin. A chloroform solution of lecithin can take up or dissolve such substances as cobra venom, trypsin, rennet, and even oxide of iron. In no case, so far as I am aware, has the injection of a pure substance of well defined chemical constitution been followed by the formation of antibodies. Our definition of antigen is a substance the introduction of which into the animal body is followed by the formation of a specific antibody.

It is usually held (Pick, 1902) that the antibodies are for the greater part precipitated with the globulins of the serum, with the pseudoglobulin fraction in the case of the horse, with the euglobulin fraction in the case of the goat. Moreover, an increase in the globulins of the serum during the process of immunization has, on several occasions, been observed. It is, however, probable that euglobulin and pseudoglobulin merely represent different phases of physical aggregation of their constituent particles, and the difference between even albumin and globulin may be of a physical rather than chemical nature. Viewed from this point of view, the fact that the greater part of the antibody in a serum is precipitated with any particular fraction of globulin yields no information as to the chemical nature of the actual antibody. As a matter of fact it was shown by Ledingham (1907) that the ratio of distribution of antitoxin among the various serum proteins, euglobulin, pseudoglobulin, and albumin, differed considerably at different stages of the process of immunization. We may suppose that the process of immunization is accompanied by a disturbance of the physical state of the serum proteins, and the regrouping of protein molecules may lead to an increase in the globulin fraction.

As to the chemical nature of antigen and antibody we are in complete ignorance. When, however, antigen is mixed with antibody a reaction takes place, and the occurrence of this reaction can be shown by certain phenomena known as the serum reactions. These reactions are:

1. *The Precipitation Reaction.*—When a normal serum or a bacterial extract is mixed with its homologous antiserum a precipitate is formed.

2. *The Agglutination Reaction.*—When a suspension of red blood corpuscles, or bacteria, is mixed with homologous antiserum the bacteria or cells are agglutinated to form clumps.

3. *Lysis.*—When red corpuscles or bacteria are mixed with antiserum or complement the cells are dissolved, or, at any rate, some change takes place which leads to the escape of the intracellular contents.

4. *Complement Fixation.*—When antigen is mixed with antiserum and complement, the complement is used up, and if subsequently there be added a mixture of red blood corpuscles and homologous antiserum, the fixation of the complement can be demonstrated by the absence of haemolysis.

5. *The Opsonic Reaction.*—If red cells or bacteria are treated with antiserum the cells or bacteria are so altered that they are more readily ingested by phagocytes. This reaction is more marked in the presence of complement.

Two main theories have been advanced to explain these reactions—the theory of Ehrlich and the theory of Bordet. The former theory assumes a chemical union between the antigen and the antibody; the other interprets the reactions as adsorption phenomena in which the antibody is adsorbed by the antigen. In spite of some opposition the theory of Ehrlich has acquired a dominant position in medical literature, and its general outline is familiar to all who have even the scantiest knowledge of medical sciences.

According to the views of the Ehrlich school each of the serum reactions is due to the existence of a separate and particular antibody. These various and hypothetical antibodies have been arranged in three classes.

Receptors of First Order.—To this class belong the antitoxins, which possess a haptophore group, a grouping of atoms capable of satisfying the affinities of the corresponding grouping in the haptophore molecule of the homologous toxin. The toxin molecule is thus rendered harmless, for it is no longer able to combine with the cells of the body.

Receptors of the Second Order.—These have, in addition to the haptophore group, a second group, the ergophore group, which by virtue of its chemical constitution is able to bring about the change peculiar to the particular type of antibody. To this class belong the precipitins and agglutinins. The haptophore group of the agglutinin combines with the bacterium, and subsequently the ergophore group proceeds to produce agglutination.

Receptors of the Third Order.—In addition to the haptophore group, the antibodies possess a complementophile group, which combines with a substance called complement, which is necessary to complete the lysis of a corpuscle or bacterium. The antibodies concerned in the complement fixation reaction are held by many to constitute a separate class of amboceptor, and the opsonins or bacteriotropins are also considered to belong to this group.

It is assumed, then, that each serum reaction is an entirely separate and distinct phenomenon, the result of the action of a highly specialized chemical substance expressly manufactured for the purpose. A precipitin is a body which combines with homologous antigen, and then, by virtue of a special chemical formula, proceeds to precipitate it. It is entirely distinct from the complement-binding amboceptor, which is structurally adapted to perform the specific function of complement fixation. It is manifest that the side-chain theory affords no explanation whatever of the mechanism of the serum reactions. It may, as a matter of mere terminology, be convenient to say that any serum contains an agglutinin for *B. typhosus*, but the process of agglutination is in no way explained by saying that the agglutinin possesses two groups, the one a haptophore which combines with the bacillus, the other an ergophore which produces agglutination. We already know that clumping occurs and that the reaction is specific.

Ignorance, however aptly veiled in attractive terminology, remains ignorance. With each addition to the store of experimental fact, new substances have been imagined and endowed with the appropriate functions. To difficulties in the interpretation of the reaction between toxin and antitoxin we owe the coining of such words as prototoxoid, syntoxoid, and epitoxoid. The observation that bacteriolysis does not occur in the presence of a great relative excess of antiserum led Neisser and Wechsberg (1901) to elaborate the hypothetical conception of complement deviation† (*Komplement Ablenkung*). The experimental facts are explained in this case by supposing that free amboceptors have a greater affinity for complement than those which have effected union with the receptors of the bacillus. Ferrata's experiments (1907) showed, by precipitating the euglobulin of fresh serum, that two substances appeared to be necessary for complement action. The names "midpiece" and "endpiece" fraction of the complement were accordingly coined, and the

* Certain tables and charts by which the lecture was illustrated have not been reproduced.

† Comp'ement deviation (*ablenkung*) should not be confused with the more familiar complement fixation (*Bindung*).

diagrams which accompany Brand's article (1907) are examples of the attempt to make new experimental data conform to the limits of a ruling hypothesis.

A theory, right or wrong, is of value as long as it tends to progress and further investigation, and it is notorious that the researches of Ehrlich and his school have yielded results of high theoretical interest and great practical value in the realms alike of diagnosis and therapeutics. Nevertheless the outstanding genius of Ehrlich and the greatness of his discoveries have tended to give to the theory associated with his name a position comparable to that of a well-known law of physical or biological science. New observations have been held to be explained if they were shown to be consistent with the side-chain hypothesis. But agglutinins, precipitins, ambóceptors are mere words, and a passive belief in the existence of such bodies tends to impede rather than advance our understanding of what is actually taking place. In our present state of ignorance of the nature of the reaction it seems undesirable to use a terminology which implies a knowledge which we do not possess.

We know that when substances containing antigens are mixed with substances containing antibodies a change takes place, and we can obtain indirect evidence of this change by observing certain phenomena, such as precipitation, agglutination, or lysis. It seems to me probable that these phenomena are the result of one fundamental reaction which takes place between antigen and antibody. The so-called serum reactions, precipitation, agglutination, lysis, complement fixation, and the opsonic reaction constitute different methods for the indirect observation of one reaction which underlies and is essential to them all.* They are, in fact, accessory phenomena, and their demonstration is dependent on accessory characteristics in the reagents which we employ. For all the reactions which can be demonstrated in a test tube it is only necessary to postulate one kind of antibody.

Precipitation.

This is a reaction which is usually demonstrated by mixing antiserum with an antigen-containing fluid. According to the side-chain hypothesis the antiserum contains an active substance, the precipitin which precipitates the antigen, called in this reaction "the precipitinogen." That any person who had carried out many precipitation reactions should continue to hold this view is not a little surprising. In practice relatively large amounts of antiserum are invariably employed, while the antigen containing serum may be employed in quantities of 0.0001 c.cm., 0.00001 c.cm., or in exceptional cases still smaller amounts. That a fairly abundant and easily visible precipitate could be derived from such a minute quantity of antigen is scarcely conceivable. It is to Welsh and Chapman (1906 to 1910) that we owe a most important observation on this subject. These workers showed by gravimetric methods that, under the usual experimental conditions, the greater part if not all of the precipitate was derived from the antiserum. A paper in the *Proceedings* of the Royal Society (1907) by Welsh and Chapman illustrates this point. On the other hand, the weight of the precipitate is directly proportional to the amount of antiserum, provided that the mixture contains sufficient antigen to precipitate all the precipitable matter in the antiserum.

If, however, the mixture contains an insufficient quantity of antigen precipitation is incomplete and a smaller precipitate is obtained. The proof given by Welsh and Chapman that, under the usual experimental conditions, it is the antiserum which is precipitated by the antigen, is of far-reaching importance. It casts an entirely fresh light not merely on the precipitation reaction but on the other serum reactions as well.

Before leaving the subject of precipitation it is necessary to refer to the importance of the relative proportions of antigen and antiserum in the mixture.

The relative proportions of antigen and antibody constitutes a factor which is present in all the serum reactions. This influence of relative proportions suggests an analogy with the precipitate which is formed when an electro positive is mixed with an electro negative colloid. In this case, if the proportions are optimal, both colloids are completely precipitated. If either constituent is present in relative excess, precipitation is incomplete. Moreschi (1906) concluded, as the result of a series of experiments, that precipitin and precipitinogen unite in variable proportions to form a series of precipitates. This result is at variance with the conclusions of Welsh and Chapman. The matter is one which merits further investigation.

If, then, antigen is mixed with antibody there follows an aggregation of particles with the formation in all probability of an adsorption compound. This aggregation is an essential part of the mechanism of all the serum reactions, not merely of the precipitin reaction, but also of agglutination, lysis, complement fixation, and in all probability the opsonic reaction. If sufficient antiserum is used, and if the proportions of antigen and antibody are correctly adjusted, there is formed a bulky and flocculent precipitate. If the mixture contains a relative excess of either antigen or antibody, the aggregation process is less complete.

It may be here observed that the ordinary method of performing the test in which a few cubic centimetres of the mixture are placed in an ordinary test tube is not an ideal method of observing a finely divided precipitate. A mixture of antigen and antiserum, which looks as clear as water in an ordinary test tube, may appear opalescent or even turbid if viewed through the length of a polarimeter tube.

The Relation between the Formation of a Precipitate and the Fixation of Complement.

Complement fixation, which since the introduction of the Wassermann reaction has become comparatively familiar, was first observed by Bordet and Gengou in 1901. Interest in the subject was revived by Neisser and Sachs (1906), who elaborated a practical method for the identification of the blood of different kinds of animals. As to the explanation of the phenomenon considerable controversy has taken place. Gay (1905) came to the conclusion that the formation of a precipitate was the essential cause of the disappearance of complement. Neisser and Sachs, on the other hand, found that the amount of the precipitate and the amount of complement fixed stood in no direct proportions. They were able to observe marked fixation of complement in mixtures in which no precipitate could be recognized. They considered that the complement united with the complementophile group of an amboceptor in strict accordance with the theories of Ehrlich. The view was accordingly propounded that precipitation and complement fixation were separate and independent phenomena. Muir and Martin (1906) found that the fixation of complement was as a rule closely associated with the formation of a precipitate, but were not convinced that precipitation formed a complete explanation of complement fixation. They cited as an instance a rabbit *v.* guinea-pig serum which produced, when mixed with its homologous antigen, a faint cloudiness but no definite precipitate. The capacity for fixing complement, however, was possessed by this serum to a very high degree. In other experiments they found that, if the antigen was greatly diluted, no precipitate was formed, but nevertheless the mixture was able to bind complement efficiently.

The case for the separate identity of precipitins and complement-binding antibodies rests on the following evidence:

1. Mixtures of antigen and antiserum in which a definite precipitate formed were shown to have little or no power to fix complement.

2. Mixtures containing very small quantities of either antigen or antiserum may appear perfectly clear, and yet be shown to be very efficient for complement fixation.

3. Certain antiserums give excellent results in complement fixation experiments, but yield very small precipitates.

4. If during the process of immunization daily samples of serum are examined, complement fixation can as a rule be demonstrated at an earlier stage than precipitation.

5. If either the antiserum or the normal serum (antigen) be heated, the capacity for forming precipitate may be lost, while the capacity for fixing complement may be retained. Bacterial extract kept for a time loses its power of forming a precipitate with homologous antiserum, but is still useful for the complement fixation test.

* The reaction which takes place between toxin and anti-toxin is not accompanied by any change which can be demonstrated *in vitro*, and appears to be of a somewhat different nature from that which takes place in the serum reactions which are here considered.

If a series of mixtures are prepared by adding various quantities of antigen to a constant quantity of a good antiserum, it is possible to compare the amount and state of division of the precipitate with the amount of complement fixed, and it becomes evident that the proportions of antigen and antibody which produce the largest quantity of precipitate are not those which effect the greatest fixation of complement. Similar results were obtained by mixing a variety of antigens with the homologous antiserums. When antigen and antibody are mixed in the proportions most favourable to precipitation the aggregation process takes place energetically, and large flocculi are rapidly separated. But if the mixture contains a relatively smaller amount of antigen, precipitation is slower and less complete. These are the conditions favourable to complement fixation. Under these conditions the individual particles which form the precipitate are extremely small, but present in the aggregate an enormously larger surface area than the flocculi of a coarser precipitate. It seems probable that there is a direct relation between the surface area of the particles of the precipitate and the amount of complement fixed.

By taking any one antigen and any one antiserum, and by varying the relative proportions of these two ingredients, it is possible to prepare mixtures which demonstrate either precipitation without complement fixation or complement fixation without visible precipitation. The amount of complement fixed is conditioned by two factors: (1) The amount of precipitate formed, and (2) the rate of precipitate formation. Complement is fixed during the very earliest stages of the aggregation process which forms the precipitate. Indeed, after the process has advanced to a visible turbidity, very little complement is taken up. The relative proportions of antigen and antibody which favour rapid and complete precipitation are positively unfavourable to complement fixation.

If a constant amount of antiserum be taken, it will be found, as a rule, that the quantity of antigen which will produce the best complement fixation is many times less than the amount necessary to produce the largest precipitate. The reason why the two reactions do not run a parallel course is not that they are caused by two different sets of antibodies, precipitins, and amboceptors, but because they represent two phases or two stages of the same reaction, and it may not be possible to demonstrate both stages under the same conditions. A flocculent precipitate represents the complete and final stage of a change which can be recognized in its earliest and incomplete stage by means of the complement fixation method. On the other hand, if the mixture contains a very small amount of the antigen, the aggregation process is extremely slow, and may never proceed to the point at which even opalescence is produced. Such a condition is, however, very favourable to complement fixation.

The conditions which we have considered are those in which a relatively small amount of antigen is allowed to interact with a relatively large amount of antiserum. In these cases, although no visible precipitate is formed, the early stages of aggregation afford exactly the physical conditions which favour complement fixation. We must now consider the conditions which obtain in mixtures containing very small amounts of antiserum, and in complement fixation tests a good antiserum can always be used in a dilution of 1 in 100, often 1 in 500, or even 1 in 1,000. If, however, a cubic centimetre of 1 in 500 dilution of antiserum be mixed with an equal quantity of a suitable dilution of the homologous antigen, not even a trace of a precipitate can as a rule be detected, for such a mixture contains far too little of the precipitable protein of the antiserum. What is the mechanism of complement fixation under these conditions? In a series of experiments (Dean, 1912) it was shown that if to a mixture of antigen and antiserum which fixes complement, but produces little or no precipitate, there be added fresh guinea-pig serum, a very definite and flocculent precipitate is produced, although a comparatively long time (up to twenty-four hours) may elapse before precipitation is complete.

In one experiment tubes were used the lower portions of which were narrow and calibrated in order that the amount of precipitate formed could be measured. Only one quantity of antigen was employed (3 c.cm. of a 1 in 20 dilution of typhoid extract) and one quantity of the antiserum (3 c.cm. of a 1 in 20 dilution of antityphoid serum). The amount of precipitate formed by the simple mixture of the antigen and antibody was increased by the addition of guinea-pig serum. In the tubes containing the large quantities of guinea-pig serum the bulk of the precipitate was twice and three times as great as the precipitate produced in the simple mixture of antigen and antibody.

It is difficult to escape the conclusion that the larger precipitates were partly derived from the proteins of the guinea-pig serum.

Similar results were obtained in a large series of experiments in which various antigen-antibody systems were employed. Normal horse and normal sheep serum were shown to be as effective as guinea-pig serum in adding to the bulk of the precipitate. Similar results were obtained if in place of the whole guinea-pig serum a solution of guinea-pig euglobulin was employed. These experiments led to the conclusion that the interaction of antigen and antibody may cause the precipitation of the globulin of normal serum if such is added to the mixture. That this precipitation of the globulin of normal guinea-pig serum is an essential part of the mechanism of complement fixation can hardly be doubted. It will be remembered that if euglobulin is precipitated from fresh guinea-pig serum by distilled water or weak acid, the complement is split in two fractions, the so-called midpiece and the endpiece. The midpiece fraction is carried down with the precipitated euglobulin while the endpiece remains in solution (Ferrata 1907, Brand, 1907, Liefmann 1909, Sachs and Altmann 1909). Moreover, in complement fixation experiments the midpiece is bound to a much greater extent than the endpiece (Skwirsky 1910, Henderson Smith 1910, Sachs and Bolkowska 1910, Amako 1910, and Gengou 1911). It may, however, well be doubted if any such substance as the midpiece fraction of the complement exists. The action of the so-called midpiece may be entirely due to the physical state of the adsorbed particles of euglobulin.

It has already been mentioned that these precipitates, which occurred in mixtures of antigen, antibody, and complement, were often not formed until several hours had elapsed. The tubes were consequently often left overnight in the ice chest. This practice led to the observation that these precipitates are formed most readily at a low temperature, and that if, after the precipitate has formed, the tubes are placed in an incubator at 37° C., the precipitate dissolves and the mixture becomes once more absolutely clear. On replacing the tubes in the ice chest the precipitate re forms. The behaviour of this precipitate, which forms at 0° C. and dissolves at 37° C., strengthens the belief that we are dealing with an adsorption process. At the lower temperature the adsorption of euglobulin by the minute particles of the precipitate is more complete. When the antigen is a cell or bacterium susceptible to lysis, the result of this aggregation of the particles of euglobulin is the concentration of the lytic agent present in the complement (so called endpiece) at the surface of the cell which is to be dissolved. For the subsequent and distinct reaction which causes the solution of the cell envelope a relatively high temperature (37° C.) is necessary, or at any rate desirable. If the fixation of complement is dependent on an adsorption process, we should expect that the reaction would take place with greater facility at a low rather than a high temperature.

Another experiment showed that in a mixture of typhoid extract and antityphoid serum far more complement was fixed at 0° C. than at 37° C. Similar results have been obtained with serum and homologous antiserum and with the Wassermann reaction.

In this experiment duplicate sets of the bacterial extract—the antiserum and the complement—were prepared. Set A was warmed to 37° C., and set B was cooled to 0° C. Antigen, antibody, and complement were then mixed in suitable proportions. Set A was then kept for half an hour at 37° C., and set B for half an hour at 0° C. Both sets were then exposed to room temperature for one hour. Blood and haemolytic serum were then added to each tube, and all tubes were then incubated for two hours at 37° C. The results showed a very marked difference between the two sets.

Moreover, if an experiment be devised to show the rate at which the reaction occurs at the two temperatures, it is possible to demonstrate that although the reaction takes place more rapidly at 37° C., the actual amount of complement fixed is much greater at 0° C.

This result is best explained on the assumption that complement fixation is a process of adsorption.

Agglutination.

The explanation of the agglutination reaction as an adsorption phenomenon has been the thesis of many contributions to the literature of immunity. Bordet (1899) considered that agglutinin is adsorbed by the bacilli as dye is adsorbed by filter paper. The aggregation of the bacilli is then brought about by changes in the molecular attraction between the bacilli and the surrounding medium. The question of agglutination was very thoroughly studied from the adsorption standpoint by Craw (1905). Craw showed that the rate of addition of bacillary suspensions to agglutinating serum is a factor determining the amount of agglutinin fixed by the bacilli. By adding a suspension of bacteria in parts to the antiserum, Craw was able to show that more agglutinin was removed than is the case when the whole amount of bacillary suspension is added at once.

The process of agglutination is probably brought about by an interaction between the antiserum and antigen which has passed out from the bacillus into the medium which immediately surrounds it. The result of this interaction is the aggregation of the particles of the globulin of the antiserum on the surface of the bacillus. In other words, the proteins of the antiserum are adsorbed by the bacillus. For the production of agglutination the presence of precipitable protein is essential. If to a mixture of bacillary emulsion and diluted antiserum there be added a third ingredient—normal serum—the agglutination of the bacteria is rendered more complete. This reinforcement of the proteins of the antiserum by those of a normal serum has been called conglutination. This phenomenon was described independently in 1906 by Muir and Browning and by Bordet and Gay.

The substance present in normal serum which is able to aid the agglutination of red cells or bacteria by the homologous antiserum appears to be the euglobulin (Dean, 1911).

That in such a reaction the euglobulin is actually precipitated may be shown by experiment.

In discussing the merits of rival theories of the mechanism of the serum reactions it has been frequently observed that Ehrlich's hypothesis alone provides an explanation of the problem of specificity. The value of the side-chain theory as an explanation of specificity may, however, be doubted. To say that antigen unites with antibody as a key fits a lock is no explanation at all. It is merely a diagrammatic representation of the supposed facts. Of the nature of the fundamental reaction between antigen and antibody we have, at the present time, no knowledge. But in all the serum reactions which have been above considered the immediate consequence is an aggregation of globulin particles around the antigen. The degree to which the aggregation or precipitation proceeds depends entirely on the experimental conditions, on the relative proportions of antigen and antibody in the mixture, on the nature of the antigen-containing substance, red corpuscle, bacillus, or normal serum; on the presence of some third factor, a normal serum containing complement or conglutinin. In other words, the various serum reactions are various methods of observing and measuring one single reaction. The simplest of these reactions is the precipitation reaction, for in it the formation of the precipitate is directly observed. In the other reactions the aggregation of particles may be less complete, and the change is measured by indirect methods. The main phenomena are most readily accounted for by Bordet's adsorption theory, and no useful purpose would seem to be served by postulating the existence of a separate kind of antibody for each of these reactions. The reactions are no doubt of a very complex nature, as all reactions which occur in a mixture of colloids must be, and it is to be anticipated that great difficulties must be encountered before any entirely satisfactory explanation is arrived at. Similar difficulties have been met with in the past whenever the attempt has been made to explain physiological phenomena in the light of the laws of chemistry and physics. These difficulties will be met, and with a more perfect knowledge of the mechanism of the serum reactions there will be attained a more perfect knowledge of the laws which govern both natural and acquired immunity.

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FIVE CASES OF LABOUR OBSTRUCTED BY A CONTRACTION RING.

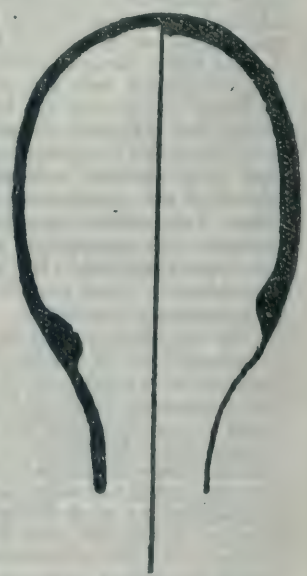
BY CLIFFORD WHITE, F.R.C.S.ENG.,

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THE importance of a localized contraction of the uterus as a cause of obstruction in labour has been recognized more and more during the last few years. In the BRITISH MEDICAL JOURNAL of October 14th, 1916, Mr. H. T. Hicks attempts to describe the type of patient in whom it occurs, and discusses the means of diagnosis and treatment. He states that "in all these cases" the condition is associated with (*a*) primiparity; (*b*) some degree of pelvic contraction; (*c*) thinning of the lower uterine segment; (*d*) a movable presenting part above the brim, with the fundus continuing to contract, but later passing into a state of "tetany."

In five cases under my observation in which labour has been obstructed by a ring, and therefore probably closely related to his cases, most of the above conditions have been absent. There was not contraction of the pelvis, and tetany of the fundus did not supervene. These five patients had been pregnant 2, 5, 5, 0, and 14 times respectively.

It would appear, therefore, that the condition is one that covers a wider clinical area than Mr. Hicks's account would indicate. My interest in this condition of the uterus was aroused by the detailed examination of a specimen removed during labour by hysterectomy. This specimen showed that the contraction ring formed over a depression in the child's body, and that the part below the ring was not pathologically thinned. Thus, the ring has no connexion with the ring of Bandl, commonly called a *retraction* ring. It is usually termed a *contraction* ring, in distinction to the former, and the majority of American writers use this term. In 1912, when describing this specimen, I gave details of three cases, and gave



Left. Right.

Diagram to illustrate, on left, uterus with contraction ring. The lower uterine segment is not thinned, the fundus is frequently relaxed, and the ring forms over a depression in the outline of the fœtus. On the right, uterus with retraction ring (of Bandl). The lower segment is thinned, the fundus tonically contracted, and the ring forms at the junction of the thickened upper and thinned lower uterine segments. It is possible that combinations of these two primary conditions may exist simultaneously.

references to the literature.[1] Since then two more cases have come under my care, and details of other cases under the care of my colleagues seem to indicate that localized spasm of the uterine muscle is a difficult subject, and one which is, at present, very imperfectly understood. Eden, in the 1915 edition of his *Midwifery*, recognizes: (1) Excessive retraction, with the formation of a retraction ring due to the violent efforts which the uterus makes to overcome some mechanical obstruction; (2) general tonic contraction from unsuccessful efforts of a strong uterus to overcome obstruction, or from irritation by drugs or manipulations; (3) local tonic contraction leading to a contraction ring.

The details of the two cases at present unrecorded are as follows:

CASE IV.

Primipara, aged 30, sent into Queen Charlotte's Hospital on August 2nd, 1913, by a doctor who had attempted to hasten delivery by manual dilatation of the cervix and high forceps, which failed. She had been in labour for forty-eight hours.

On admission: Pelvis 9½, 10¾, 7½ in. Child in L.O.P. position, dead. Head in cavity of pelvis. The resident medical officer's notes say: "No pains. It was decided to wait for pains and then perforate." When the fundus occasionally contracted the head was perforated, and with great difficulty he pulled it outside the vulva with the cranioclast, but all efforts to deliver the shoulders failed even after cleidotomy, and the fundus of the uterus now became "irritable."

When I saw her an hour later she was suffering from severe shock, so a 7 lb. weight was tied to the cranioclast, and she was left for transfusion, hot bottles, etc., for 1½ hours. It was then very easy to deliver by bringing the arms down over the head and making light traction, whereas previously the strongest traction had failed to move the fetus at all. The fundus was now "flaccid," and the placenta temporarily retained, so it was removed manually and an intrauterine douche was given. There was no obvious ring obstructing the exit of the placenta, the delay being due to other causes.

The child weighed 8½ lb. The mother recovered, but there was considerable sloughing of the vagina, resulting in the formation of a urethro-vaginal and uretero-vaginal fistula during the second week of the puerperium.

CASE V.

Patient aged 41. Fourteen previous pregnancies without difficulty. Admitted on August 26th, 1915, after being in labour twenty hours. Child dead and an offensive discharge coming from uterus. Previous repeated attempts at delivery had been made, and it was thought to be a case of locked twins, as a foot and hand could be felt high up, but nothing could be brought down below the brim.

I found a very tight contraction ring round the thigh of the child, which did not yield to continuous pressure. The mother being obviously infected, I did not risk a simple Caesarean section but excised the whole gravid uterus. As the vagina was cut through the child fell out, and so a detailed description of the specimen is useless. The mother made an uninterrupted recovery.

RETRACTION AND CONTRACTION RINGS.

It is obvious that these cases have no connexion with the retraction and thinning that occur, for instance, in a case of labour obstructed by a hydrocephalic head, where a retraction ring may form late in labour.

The conclusions arrived at from a study of the numerous recorded cases in 1912 may be summarized as follows:

DIFFERENTIAL DIAGNOSIS.

Contraction Ring.	*Retraction Ring.*
1. A localized thickening of the wall of the uterus due to the contraction of the circular fibres over a point of slight resistance, most frequently over a depression in the child's outline or below the presenting part.	1. The junction of the thinned lower uterine segment with the thick retracted upper uterine segment.
2. The uterine wall at the site of the contraction ring will therefore be thicker than it is either above or below.	2. The uterine wall above the retraction ring is much thicker than it is below it.
3. The wall below is neither thinned nor over-distended.	3. The wall below a retraction ring is both thinned and over-distended.
4. The presenting part is not forcibly driven into the pelvis.	4. The presenting part is or has been jammed into the pelvis.
5. The child may be wholly or mainly above the contraction ring.	5. Part of the child must be below the retraction ring.
6. The body of the uterus above a contraction ring is usually relaxed and not tender.	6. The body above a retraction ring is tonically contracted and hard.
7. Round ligaments are not tense.	7. Round ligaments stand out.
8. A contraction ring may occur in the first, second or third stage of labour.	8. A retraction ring practically always occurs late in the second stage of labour.
9. A contraction ring does not vary in position as labour goes on.	9. A retraction ring gradually rises as retraction of the upper uterine segment proceeds.
10. A contraction ring is rarely felt on abdominal examination.	10. A retraction ring may frequently be felt per abdomen (?).
11. The patient's general condition is good.	11. The patient's general condition is bad.
12. *Causation.*—Premature rupture of the membranes. Intrauterine manipulations.	12. *Causation.*—Obstructed labour.

The position of the ring is, roughly speaking, round the neck in 45 per cent.; below the whole of the child in 21 per cent.; round the arm in 15 per cent.; round the thorax in 9 per cent.; and round the after-coming head in 9 per cent. of recorded cases.

The difference between the condition of the lower uterine segments was well seen recently when attempting to excise a grossly infected tonically contracted gravid uterus without opening it. The tense thinned lower segment would not come up, and on attempting to put on curved clamps, in order to retain the infected fetus within the uterus, the lower segment cracked and ruptured. Whereas in the two cases where similar excision of infected contraction ring cases has been necessary, no such difficulty was met with.

In Dickinson's series of 90 cases, multiparae and primiparae were equally affected; in those that I collected it was twice as common in multiparae. Excluding laparotomy cases the maternal and fetal mortalities were 58 and 63 per cent.

TREATMENT.

Expectant treatment usually fails in a severe case. [Budin waited thirty-six hours, but no relaxation occurred.] Anaesthetics, morphine, and, in fact, all drugs are useless.

Dilatation.—In a slight case manual dilatation has succeeded. In severe cases the method of continuous weight traction advocated by Willett has been successful in several recorded cases. In my fourth case a fistula resulted, but she had had prolonged and repeated efforts made to deliver her before weight traction was used.

Forceps are useless. If the head is suspended by a ring round the neck, they usually slip off. If they do not fall off, intermittent traction merely pulls the child and uterus down together. Embryotomy is always particularly difficult, partly owing to the high position of the child; it is attended by a high maternal mortality and often fails altogether. Cleidotomy, as well as craniotomy, is necessary if the ring is round the neck, but often fails. Attempts to cut the ring from inside have been made, but are obviously futile. In a severe case, if manual dilatation and weight traction fail, laparotomy will be necessary. Laparotomy, in the cases collected in 1912, gave a maternal mortality of 7 out of 19. Now, including Hicks's three cases and my own last, it would be 9 out of 23, but in most of the old cases Caesarean section was not tried till all else had failed. If performed early, there is no reason why its death-rate should be higher than when performed for contracted pelvis.

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ON THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

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IN papers published in the BRITISH MEDICAL JOURNAL on July 1st and October 7th, 1916, the life-history of *Ascaris lumbricoides* was traced from the hatching of the eggs in the alimentary canal of rats and mice to the arrival of the larvae in the mouth of these animals. It has been shown that the larvae reach the mouth on the eighth day after infection and are still present in abundance in the lungs and trachea on that day.

Guided by later experiments, it is now possible to trace the course of the parasite through a further stage. Larvae have been found to persist in the lungs and trachea of

mice on the ninth, tenth, eleventh, and twelfth days after infection and to migrate down the alimentary canal on these days. This migration commences on the ninth day, small numbers only descending the bowel. A proportion of the migrants die during this day, and there is no accumulation in the large intestine. On the tenth day the migration is fully established. The organisms traverse the stomach and small intestine with some rapidity and accumulate in the caecum and large intestine. The process is continued on the eleventh and twelfth days. Up to the present I have not traced it beyond the twelfth day. After arrival in the large intestine, a large number of the larvae are voided in the faeces. I have not, however, worked out this emigration fully as yet, and therefore propose to leave its description to a later date. With this summary the experiments may be described in detail:

Mouse K on September 3rd received a dose of eggs of *Ascaris suilla* which were twenty-five days old. On September 12th, nine days after infection, it was killed. One moribund ascaris larva was found in the stomach, one active and one moribund larva in the upper portion of the small intestine. The caecum and adjacent portion of the large intestine contained very many examples of Oxyuris. One ascaris larva was found among them. The faecal pellets from the rectum did not contain any larvae. Numerous larvae were present in the trachea; none were found in the mouth.

Mouse L received a dose of eggs of *Ascaris suilla* thirty-four days old on September 13th. On the 22nd, ten days after infection, it was killed. No larvae were found in the stomach; two were found alive and active in the small intestine, between forty and fifty in the caecum, and about twenty in the large intestine. The caecum and large intestine contained also many Oxyurids, both adult and immature. The ascaris larvae can be distinguished readily from these forms even under a × 10 magnification. The distinguishing marks are (1) their greater activity—they swim actively with a sinuous movement; (2) their dark colour due to the numerous granules in the intestinal walls; (3) their narrower body form.

The faeces passed by Mouse L on the 22nd were examined after twenty-four hours, and the following numbers of larvae were found in successive faecal pellets: Pellet 1, none; pellet 2, three larvae; pellet 3, two larvae; pellet 4, one larva; pellet 5, twelve larvae; pellet 6, none; pellet 7, one larva; pellet 8, six larvae. The faecal pellets were dry. The larvae did not move in any case, but half were perfectly fresh and unshrunken in appearance. The remainder were only slightly shrunken.

Mouse M received a dose of eggs thirty-five days old on September 13th, and was killed on the eleventh day thereafter. Numerous larvae were found in the trachea and roots of the lungs, none in the bases of the lungs. The stomach and small intestine were not examined. The caecum and large intestine contained many larvae together with Oxyurids. In the faeces of the previous night and of the eleventh day no larvae were found.

Larvae from the large intestine placed in tap water were alive and active after two hours, but had died after twenty-four hours.

Mouse P received a dose of eggs forty-two days old on September 20th, and was killed on the twelfth day thereafter, October 2nd. Active larvae were found in the lungs and caecum. One live and active larva was found in recent faeces, one dry and inactive larva in faeces twenty-four hours old.

Mouse R received a small dose of eggs twenty-four days old on September 26th, and was killed on October 6th, ten days after infection. One larva was found in the lungs, none in the trachea, caecum, large intestine, or faeces.

Measurements of the Length of the Larvae at Different Dates after Infection.

The larvae measured were in all cases killed in weak corrosive sublimate solution either cold or boiling, and were measured in this solution or in normal salt solution.

8th day: From lungs and trachea (alive), 1-1.8 mm.
9th day: From stomach (moribund), 1.3 mm.
10th day: From lungs (alive), 2 mm. (Mouse R). From intestines (alive), 1.3-1.65 mm. From faeces (inactive), 1.4 mm.
11th day: From the trachea (alive), 2.1 mm. From the large intestine (alive), 1.9-2.1 mm.
12th day: From the lungs (alive), 1.25-1.9 mm. From the caecum (alive), 2.02 mm. From fresh faeces (alive), 1.6 mm.

The words in brackets indicate the condition of the specimen before fixation.

It will be observed that the results given above probably supersede two statements made in my second paper on ascaris infection, published in the BRITISH MEDICAL JOURNAL on October 7th, 1916. The statements in question are: (1) "No larvae were found in the respiratory tract later than the eighth day after infection." (2) "It is probable that they" (the ascaris larvae from the lungs of rodents) "emigrate in the saliva of the rodent on to food substances such as bread."

The first statement was based on the following observations:

1. Rat B, killed sixteen days after the first infection and twelve days after the last. No larvae were found in the lungs, trachea, stomach, or intestines.
2. Rat F, killed twelve days after the first and nine days after the last infection. No larvae were found in the respiratory tract; one dead larva was found in the stomach and one in the rectum.

It is, of course, possible that the larvae normally leave the respiratory tract of the rat at an earlier date than is the case in the mouse. The larvae from the intestine of Rat F were identical in appearance with those from the intestine of mice.

The second statement, that the larvae probably emigrate in the saliva of the rodent, rested on the presence of larvae in the mouth, and their power of survival on damp articles of food such as bread, and on the apparent exclusion of the other two possible lines of emigration—namely, through the bowel and through the nares. The following observations appeared opposed to emigration through the bowel:

1 and 2. On Rats B and F—given above.
3. Rat A received large doses of ascaris eggs on four days between April 6th and 10th. It suffered from acute ascariasis. Its faeces were examined on April 17th, twelve days after the first and eight days after the last infection, and again on the two following days. No larvae of ascaris were found in them.
4. Rat B was infected on the same days as Rat A, and suffered from acute ascariasis. The faeces were examined on April 17th and no larvae were found.

It will be noticed in the experiments on mice given above that the appearance of larvae in the faeces is extremely irregular.

5. Mouse D, killed eight days after infection; no larvae were found in the caecum or large intestine.

The following observations were opposed to emigration through the nares:

1. Rats B and F: No larvae were found in the nasal cavities between nine and sixteen days after infection.
2. Mice B and D: Killed on the eighth day after infection; no larvae found in the nasal cavities.

Larvae were found in the mouth on the eighth day after infection on three occasions—in mice H, G, and J.

THE USE OF FILTERED X RAYS FOR THE RELIEF OF FIBROUS BANDS AND ADHESIONS RESULTING FROM BULLET WOUNDS.

BY

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EXPERIENCE in the value of x rays in keloid and hypertrophic skin scars suggested to me that, with the addition of a filter, the same treatment might be of use in removing new fibrous tissue giving rise to trouble in deep wounds. I discussed this idea with Colonel Woolbert, I.M.S., in medical charge of York Place Division of the Pavilion Military Hospital, and he kindly placed certain of his cases for me to treat.

The same method was adopted in each case. The tubes chosen for the treatment were of hardness 7 on the Benoist scale. The rays were passed through a thin filter of aluminium 0.5 mm. A weak coil and a mercury dip break set to give 1,000 interruptions a minute, and requiring about 21,000 to 23,000 interruptions to give a Sabouraud dose of filtered rays, were used.

CASE I.—Bullet wound scars, entrance and exit above elbow joint front and side. The wounds were perfectly healed, but the full extension of the joint was only about two-thirds of the normal. Brachial artery pulsation could be felt to a little below the position of origin of the anastomotic artery, and was then lost; the radial pulse was very weak; there was extensive loss of sensation of forearm and hand, and weakness of grasp. After the first Sabouraud dose of filtered rays rapid improvement followed, the extension of the arm became nearly normal, the sensation returned a little, and the grasp became stronger. A fortnight later a second Sabouraud dose was given, and after a week extension became quite normal, sensation was vastly improved, and the grasp strong. There was no change in the radial pulse. The patient was then discharged fit for active service. The rays in both exposures were discharged in the direction of the bullet track, the tubular speculum of lead glass touching the skin at the scar of entrance.

CASE II.—Wounded July 1st. This patient presented two healed wounds of entrance and exit at the outer side of left arm, a little below the axilla. Abduction was feeble, the forearm wasted, and the grasp very weak. On August 31st rather less than a Sabouraud dose of rays given. This was followed by a steady gain of strength. On September 14th a full Sabouraud dose of rays was administered. Improvement continued; the grasp has become now quite firm. He is to have another dose on September 28th, after which we hope to discharge him for service. As in Case I, the rays were discharged in the direction of the bullet track.

CASE III.—Wounded July 1st. A scar, 8 in. long, of a gutter wound, extending across the elbow-joint, was steadily contracting; a hard fibrous band stood out as a ridge in front; it was hardest where it stretched across the elbow-joint. The patient was sent to York Place Hospital for a plastic operation. On September 3rd an area of scar 5 in. long, the centre being at the elbow-joint, was given a full Sabouraud dose of filtered rays. On September 6th tracings of the elbow-joint showed a distinct increase of the power of extension, which previously had been steadily diminishing. On September 10th the extension was about the same; on September 13th it was not quite so good, but better than before the rays were given. The central (rayed) part of the scar band was decidedly softer than the extremities (before treatment it was harder). In view of the fact that contraction was progressing again, it was considered better to do a plastic operation, and the *x*-ray treatment was suspended.

CASE IV.—Bullet wound, July 25th, at radial side of forearm between the upper third and centre. The bullet was not extracted. The radiograph showed a shrapnel bullet. When admitted to York Place Hospital, under the care of Captain Gamlen, I.M.S., on September 1st, the wound was healed. There was considerable pain on movement in the middle of the front of the forearm; also spontaneous attacks of darting pain. There was no loss of sensation in the arm, but slight weakness. Very light pressure—mere stroking—on the surface of the scar caused the patient to flinch, owing to pain shooting down arm and hand; pinching the scar sideways caused intense pain. On September 13th a full Sabouraud dose of filtered rays was given. The next day the patient felt less spontaneous pain, and this, as also the sensitiveness of the scar to pain on pressure, diminished daily. On September 25th he had no spontaneous pain, even the tingling which at first replaced the pain was almost gone. Firm pressure on the surface of the scar caused only a slight tingling down the thumb, no actual pain; pinching the scar sideways still caused some pain, but very much less than before the administration of the rays.

THE TREATMENT OF WOUND INFECTION.*

BY

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ABOUT a year ago I invited attention to the results I had obtained by treating desperate cases of infected railway wounds by four-hourly irrigation with hot peroxide solution (ʒij to litre), followed instantly by hot carbolic lotion (ʒss to litre), and the application of hot mercury perchloride fomentations (wrung dry). A recent interesting summary by Captain d'Este Emery of his laboratory experiments with different antiseptics encourages me to again ask surgeons to give this method a trial alongside similar cases treated by other methods.

I have given most antiseptics a trial during a continuous hospital experience of twenty-five years, and I hoped that eusol would prove equally efficacious, as the "peroxide carbolic" combination is a serious item of expenditure when used on a large scale in a general hospital. Eusol was employed exactly as prescribed and applied by its Edinburgh advocates in severe cases, like compound fractures, in which streptococci and gas bacilli were in abundance, but it became very soon obvious, when treating similar cases alongside each other by the two methods, that "peroxide carbolic" was far superior; and, moreover, it was frequently noted that, in cases treated with eusol, in which failure was very evident, a remarkable change occurred within three days after the "peroxide carbolic" was substituted, the granulations promptly assumed a healthy bright red appearance, the quantity of pus diminished, the stench disappeared, and there was marked diminution in general toxic symptoms. Both were also tested side by side in cases of pelvic infection (*Bacillus coli*), and the results were identical to those obtained in bemudded mangled wounds of limbs. We have found eusol useful for some indolent wounds, and far superior to any other application in the treatment of bedsores.

Some ten years ago I commenced to use peroxide irrigation prior to employment of carbolic lotion; testing them side by side, I found that the results of the combination far exceeded that obtained by their separate use. Some cases of streptococcic tonsillitis happened to be in hospital at the time, and the same experiment was carried out with a similar result. We consider the joint use of both (gargle or spray every two hours) as specific in cases of common "sore throat." During the past ten years thousands of irrigations have been made with carbolic acid lotion in the British Hospital, and in not a single instance has carboluria been observed.

As to hypertonic solution, with its hydraulic paraphernalia, it suffices to mention that, in 1898, we gave salt solution an ample trial, and found it absolutely useless, not to mention the waste of valuable time, and the supervention of an epidemic of sepsis which I have not seen the like of before or since.

Some years ago I was induced by a paper by Sir William Watson Cheyne to give recent infected wounds one liberal saturation with pure carbolic acid; for the first few days after each application we found that there was an apparent lull in the infective process, but invariably by the end of a week or ten days the germs of destruction were in full swing, and I came to the conclusion that such treatment only deferred the issue, and consequently was bad practice.

I hope Captain d'Este Emery's report will tend to dispel another illusion. Many surgeons still advocate the use of strong mercurial lotion in septic wounds along with carbolic or peroxide or both. I abandoned mercurial irrigation in the Nineties, as I came to the conclusion that any substance which tends to form an albuminate in the tissues is a bad weapon to use against germs.

My clinical experience is quite in harmony with Captain d'Este Emery's deduction that we should not employ any antiseptic that is easily quenchable, and I am of the opinion that the use of any chemical in any strength which may be deleterious to the vitality of the cells, or which may detract from the defensive properties of the serum is only helping the enemy. Consequently, while I am a firm believer in the employment of "peroxide carbolic" lotions, I maintain that both should be used in a strength not sufficient to cause instant death to the invader, but sufficiently powerful to attenuate his virulence.

I am in complete accord with those who state that, without a free exit for discharge, antiseptics are hopeless, and I strongly recommend that, when the general symptoms, as indicated by elevation of pulse and temperature and coated tongue, are combined with a foul discharging wound, ether should be administered, a tourniquet applied well above the lesion, and a few (four to six) incisions made into parts in which fluctuation or bogginess is indicated on digital palpation, always carrying one or two such incisions into or from the original wound. The edges of the wound are drawn apart with retractors and the field mopped dry with gauze sponges. A careful inspection is then made of the interior, while digital pressure is made all round the exterior of the wound; if any leaking into the cavity is observed, a closed forceps or director is pushed into the track, the secondary collection located, and a direct incision made into it. When infection is confined to the subcutaneous tissues one need not worry about drainage if the incision is of such a size as to eliminate the possibility of retention of discharge underneath overhanging edges. The existence of the latter, particularly at the angles of the wound, is proof that the incision is inadequate. The cardinal factor is the conversion of a septic cavity or cavities into one large open sore, and, in nine cases out of ten, if this be properly done, and followed by irrigation every four hours with hot "peroxide carbolic" lotions and hot fomentations, with absolute rest on a splint, the onset of repair is only a matter of hours, or at most a few days. When feasible, submersion in warm peroxide lotion, once or twice daily, is a useful adjunct.

It may be stated that, with rare exceptions, when the seat of infection is situated beneath muscles or between muscular planes, drainage cannot be properly effected without the aid of gravity, and, in order to obtain this, a large counter incision must be made at the most dependent level. As there is a tendency for the edges of tunnel wounds, irrespective of size, to adhere within forty-eight hours, I always pass two large rubber drainage tubes right through such wounds to act as props, in order to secure

* Owing to considerations of space this paper has been shortened by the omission of some paragraphs, but its argument is not thereby altered.

the subsequent patency of the opening; these are changed on the second day, and, if the general and local conditions are satisfactory, the case is left in charge of the sister, who continues four-hourly irrigation and fomentations until the whole wound is free from pus and covered with healthy granulations.

I now wish to invite attention to some details in this method of treatment:

1. As a useful guide to a good counter incision I have found a closed large straight blunt scissors very handy; it can be safely pushed through the tissues, and when approaching the posterior subcutaneous area, expanded to the full (3 to 4 in.), thus indicating two definite distant points for one sweep of the knife. With the same scissors closed, as a blunt separator, the intervening tissues are promptly opened up to a diameter corresponding to the superficial incision.

2. As to the method of irrigation suitable to cases in which there is always danger of contamination, particularly when a number have to be treated simultaneously in hospital, I strongly advocate the use of a one or two litre enamel jug, as more efficient lavage can be obtained by pouring the lotion in a steady flow from it.

3. It is most essential to apply a tourniquet in these cases, as otherwise the part becomes obscured with blood and secretion. When the tourniquet is removed, all spurting vessels are seized with forceps and ligated with fine catgut; any oozing which may continue is checked by the subsequent irrigation with hot "peroxide carbolic." If the latter should not be successful, I pack the bleeding area firmly with large bibules soaked out in hot peroxide; these are removed in six to twenty-four hours by irrigation and gentle traction.

4. The limb is always fixed on a splint by separate bandages above and below the lesion, so that subsequent irrigation can be carried out without removal of splint; soiling of the latter is prevented by the insertion of a piece of rubber tissue between it and the affected portion of limb.

5. When possible, all serious cases should be kept permanently in the open air under a shelter roof, and if champagne is procurable, a really desperate case should not be denied a few bottles of it.

6. I insist on the necessity for absolute rest until the wound is healed.

Tubes do very little draining, but are useful props to keep wounds patent for the evacuation of fluid, and also serve to establish a channel for drainage subsequent to their removal. In abdominal cases I usually omit the tube on the second or third morning; this practice is the result of what I have over and over again witnessed—a considerable rush of pent-up liquid the moment the tube is removed. In other words, tubes, like gauze saturated with secretion, may act as corks, as well as irritating—if not infective—foreign bodies. I change the tube or tubes within forty-eight hours, and substitute a new one once or twice daily until the sixth day, when it should be dispensed with altogether. In septic infection, other than abdominal, I strongly recommend lavage with "peroxide carbolic" each time a tube is taken out, and before a fresh one is inserted, so as to remove the secretion and débris which always hang about the track.

I rarely employ irrigation during operation in septic abdominal cases, as I dread diffusing septic elements into the recesses of the abdomen. I rely on thorough mopping up with dry bibules, and generally insert two large tubes right down to the seat of infection. It is essential to provide ample room around the tube for free exit of secretion; the long diameter of the opening left in the parietal wall should be at least three times the diameter of the ordinary "gas-pipe" tube employed. When the prop is removed on the third morning the factors which govern natural defence have encompassed the infected field with an adhesive barrier, which safely admits of gentle irrigation of the cavity with peroxide carbolic lotions, if such be considered necessary. Tight-fitting tubes in a septic abdomen are, in my opinion, a menace to the existence of the patient.

I have on many occasions attempted to hasten the healing of large wounds by secondary sutures, and while I have had some highly satisfactory results, I must admit that I have had more disappointing ones.

As to the treatment of post-septic wounds, healing up by some intention, my favourite applications are lotio rubri, boracic ointment (gr. x to ʒ j), hot lead or boracic fomentations (ʒ j of each to litre) applied three times a day, *plus* absolute rest on a splint, until the wound is healed. This I combine with plenty of fresh air and a glass or two of stout, beer, or good wine with meals.

NOTE ON ACIDOSIS IN CHILDREN.

BY

A. CAMPBELL STARK, M.B., B.S.LOND.,

WANSTEAD, ESSEX.

IT is probable that acetone, or diacetic acid, or both, are generally present in the urine of young children suffering from gastric disorders, but cases occur in which the amount of these bodies excreted is considerable, and their circulation in the blood causes a definite train of symptoms constituting a clinical entity which, for lack of a better term, may be called "acidosis." Such cases are very common, and form, I believe, a large proportion of the unexplained febriculae in children, but they are not diagnosed because the urine is not examined.

The children are usually between 3 and 10 years old, and the condition is equally common to the two sexes. A doctor is called in because the child is feverish and drowsy, or because it has been violently sick. The clinical features, varying of course in degree in different cases, are as follows:

Fever.—This may range from 100° to 103° F. or more, and in some cases is absent. In any case it is variable, seldom lasts more than one or two days, and exhibits no special features.

Vomiting.—About half the cases are violently sick, the stomach rejecting even water. These cases are those of so-called "cyclical vomiting" in children, but some of the worst do not vomit at all. The bowels are usually confined, but constipation may be absent.

Odour of the Breath.—In most of the cases the breath has an acetonous odour. This may be very faint, or so strong that it is detected on entering the room. It is, perhaps, the most constant symptom, but I have met with severe cases of the disorder in which it was absent.

Urine.—The essential symptom is the condition of the urine. This is generally pale, but it may be high coloured, and sometimes presents a peculiar greenish hue. It is acid, of high specific gravity—1025 to 1035—and contains diacetic acid, or acetone, or more often both. The amount of these bodies must in many cases be large, for a most intense colour reaction is given with ferric chloride, and the nitroprusside test for acetone acts deeply and quickly. Glucose and albumin are absent. A few cases have ended in jaundice, and then bile pigment may be associated with the poisons.

Prostration.—This is often considerable, but the urine may be loaded with the poisons and yet the patient appear fairly well. The child is, however, usually prostrated, half comatose, and obviously feels very ill. In one of my cases, a girl of 4 years, in which there was no vomiting, a definite meningism developed, with delirium attended by pronounced Kernig's sign. Complete recovery took place.

Treatment.—The obvious indications are to neutralize the poison and eliminate it. It is useless to give sodium bicarbonate. Despite the acid present, the blood still contains alkaline sodium salts, and nothing will be gained by attempting to introduce more. Potassium bicarbonate (as in the case of gout) is more effective. Reasonably full doses should be given, plenty of water administered, and fats excluded from the diet. The urine soon becomes alkaline, and the poisons disappear. The bowels should be freely opened with calomel.

I have recognized perhaps a hundred cases, and have not yet seen a fatal one, but the clinical picture is often very alarming.

As to the cause of the condition, little is definitely known. Imperfect metabolism of fats may produce the poisons, but what is the determining cause of this it is difficult to say. I have not been able to trace any case to any special error in diet. It appears to occur often in epidemics, and probably nervous disturbance, as in the recent air raids, may be a predisposing cause.

CONGENITAL CYSTIC DISEASE OF THE KIDNEYS.

BY THOMAS HOLMES, M.S., M.D.LOND.,
SURGEON TO CHELTENHAM GENERAL HOSPITAL.

THE account of Mr. Malcolm's case in the JOURNAL for June 24th recalls a case of congenital cystic disease in which localized suppuration occurred in both kidneys.

The patient, who came into hospital under my colleague, Dr. Collins, for "abdominal pain" in August, 1914, was a married woman, aged 37, with seven children, all healthy. She said that she was very ill always at her confinements, and felt a sensation as if the stomach were dropping down. She felt this twelve years ago, when her youngest child was born, and the doctor noticed a lump, quite easily felt, on the right side. Her present illness had lasted a fortnight. She had had to go to bed on account of pain; she vomited twice but still had nausea; there had been diarrhoea for a week accompanied by spasmodic griping pain; micturition was normal; temperature 101.8°, pulse 116.

She was considerably emaciated, but lay comfortably in bed. The apex beat was inside the nipple line, and the heart sounds were normal, and the pulse regular and of fair tension. Blood pressure 110 mm. mercury. The abdomen was distended, showing an obvious "ladder pattern." There was a large swelling in the left loin, moving slightly with respiration; it extended between the last rib and the crest of the ilium towards the left semilunar line. This swelling was elastic, irregular on its surface, and very tender, but no definite fluctuation could be detected in it. On percussion there was a band of resonance on its front aspect.

The abdomen was too distended for the right kidney to be felt, but my colleague Dr. Hebblethwaite, who had examined her some years before, told us that the right kidney was then palpable, and had an irregular knobby surface.

The conclusion was therefore drawn that we had to deal in all probability with a case of congenital cystic disease of the kidneys, and owing to the acute history—pain and tenderness, with pyrexia—we concluded that something had gone wrong with one of the cysts.

On August 13th I operated by an oblique incision over the tumour, which was found to consist of the left kidney; firmly adherent to it and tightly stretched over it was the descending colon, which was flattened. The kidney was much enlarged, irregular, and knobby, and consisted of a collection of multiple cysts. The largest prominence was opened and the finger inserted; it was found to be formed by a bag of pus, from which there was no opening. The inner surface of the cavity was occupied by knobby elevations, evidently other cysts; as none of them were softening I saw no object in breaking down any more, but mopped out the cavity and drained it.

The next day the patient was much easier and better, and the diarrhoea ceased. On the tenth day the temperature rose again, so I explored the sinus and kidney with the finger; some pus followed, possibly from the breaking down of another cyst. The drain was reinserted, and after some time everything cleared up and the patient left the hospital well.

As the abdominal distension became less it became possible to feel the right kidney, and this was found to be also enlarged, with irregular knobs on the surface.

In June, 1915, the patient came into hospital again, this time with a painful, tender swelling in the right loin. She was admitted under my colleague, Mr. Braine Hartnell, who kindly transferred her to me. I concluded at once that she had got a cyst infected in the right kidney, as again she had fever and loss of appetite, and was beginning to lose flesh. On exploring through a lumbar incision, the swelling turned out to be an irregular cystic kidney, with one cyst very prominent; it was opened, and, being found full of pus, was evacuated and drained. This time her convalescence was quite straightforward, and I am informed that she still keeps well.

When she first came in, the urine was acid, specific gravity 1015, and contained some blood, which soon disappeared, then the urine became normal.

I have seen at least four cases of congenital cystic disease of the kidneys in my own practice and those of others; in three cases the diagnosis was confirmed by operation. The case now reported is the first one I have seen or heard of in which the cysts became infected and so caused an abscess of the kidney. On the left side the infection might be explained by the adherent colon, which could not easily be stripped off, on the right side there was no adherent bowel.

No urine ever escaped through the drainage tube in the left kidney, and though it was reported on one occasion that there was an escape of urine from the right kidney wound, I could never satisfy myself that this was the case.

The condition of the circulatory system as investigated by Dr. Collins is worthy of note, as it was practically unaffected.

RETURN TO WORK—LEGAL AND OTHER IMPEDIMENTS.

BY SIR JOHN COLLIE, M.D.

THE medical advisers of injured workmen frequently experience considerable difficulty in inducing them to return to work after an accident, even in cases in which such a course would be beneficial to recovery. Return to work does not, as most workmen think, imply the admission on the workman's part that the consequences of a recent accident have ceased, for obviously, in the event of his breaking down again as a result of his injury, he could successfully claim half wages.

There are two circumstances in which difficulty might arise:

1. *Where new and unthought-of symptoms declare themselves after return to work and are due to the injury from which the workman supposed he had wholly recovered.*

Here in no sense is reference made to wilful malingerers, nor even to those who obviously endeavour to shirk work, but to a large class of respectable working men who entertain a very natural reluctance to do anything which might interfere with their right to compensation.

A return to work, provided the employer has had notice of the accident, cannot affect a man's right to compensation if he is in fact afterwards found to be incapacitated as a result of the accident. I have no hesitation in saying that there is no ground for the reluctance to return to work which too many working men display, and it is the duty of the medical man, when such cases arise, to point this out.

I have known cases in which delay in resuming work has proved prejudicial to the workman's rights. I refer, of course, to work of a suitable character. Obviously it is a man's duty to endeavour to work in order to preserve his rights to compensation, as the following case demonstrates:

In Turner *v.* Brooks and Doxey, Ltd., the county court judge found that the refusal to return to work was due to nervousness which an average reasonable man could overcome, and he therefore declined to allow compensation. Upon the hearing of the workman's appeal against this decision, the court of appeal upheld the county court decision.

The haunting fear of an indefinite, chronic disability coming on in the distant future without any warning, without either the workman or his doctor having any idea of the likelihood of its incidence, is greatly exaggerated, and although sometimes advanced in litigious cases is not really shared in many cases by the medical advisers of the men.

It is important, therefore, that the working man should appreciate that, in order to keep the door open, as it were, and to maintain the right to compensation which an unexpected incapacity would carry with it, he will be well advised to resume work when able.

If I were a working man under the circumstances referred to, I would go to a medical man whose judgement I trusted, preferably the hospital surgeon whose skill I had relied on when injured, and ask his unbiassed opinion, and do exactly as he advised. Unfortunately, what usually happens is that, instead of going to his doctor, he consults a lawyer who specializes in running-down cases. The effect which litigation has upon the mind of a workman, and the nature of the advice which he so frequently receives from his solicitor, are factors which profoundly influence him in his attitude towards return to work. The result is that it is very difficult in many instances to satisfy a man recovering from an injury that his rights will not be compromised if he returns to work before complete recovery. His idea frequently is that the evil effects of his injury will unexpectedly face him after his return to work, and when (as he thinks) his claim is for ever closed. I sometimes wonder what legal advice working men get on this point.

2. *Where a man having had an injury, has admittedly not fully recovered, returns to work, receives but does not earn his full wages, and then again breaks down, or who still has an obvious physical disability although earning full wages.*

It is not unusual for an employer to take back into his employ an injured workman after he has more or less

recovered from the effects of an accident, and to pay him his ordinary rate of wages, although he may not be able to carry out his duties to the full extent. In this way he *receives* although he does not *earn* his full wages. This arrangement is often satisfactory to both parties; to the workman because he receives as much as he did before the accident, and to the employer from charitable motives, or because, at no great addition to what he would have had to pay as compensation, he is able to ensure his employee regular employment.

There is no doubt also the employer expects—and has a right to expect—that he will by this service receive the employee's goodwill, for a man partially incapacitated would probably be unable to find, or might experience much difficulty in finding, employment in the open market before his restoration to full working capacity.

It will be an evil day for the working classes when large employers cease to give what they now so frequently do, a helping hand to men who are recovering, for no one knows better than the working man that half wages mean semi-starvation where there is no club money, or where sick club benefits have run out, as is so often the case in prolonged illnesses.

There is, however, another suggestion, although I am convinced it is not of frequent application: it is alleged that an employer sometimes takes back into his employ at the old rate of pay a workman who is not in fact able to earn full wages; and although the employee receives that sum, after a time—with a view to ridding himself of liability—the employer discharges the man and contends that as he paid full wages to the workman it is evidence of his ability to earn them; in other words, that the workman has recovered from the effects of the accident, and therefore liability is at an end. There is then cast upon the workman the onus of proving the contrary. It should be borne in mind that the Workmen's Compensation Act does not give a workman any right to compensation in respect of his injuries, but only in respect of wages which he is unable to earn as a result of the accident. The effect of casting upon the workman the onus of proof of continuing incapacity in some cases may prove a distinct hardship to him, although it seldom happens in practice that the man is unable to prove his incapacity, if in fact it exists.

Then, again, a working man may have returned to work comparatively well, the ultimate disabling effect of the accident lying, as it were, dormant. The effects may not show themselves for a considerable time after the injured man returns to work. The difficulty from the workman's point of view might be increased if, upon his return to work, he has been actually receiving or even earning full wages.

In such a case the workman's interests can be protected by filing in the county court what is sometimes called a declaration of liability or a memorandum of agreement. The filing of a memorandum of agreement is clearly recognized by the Act, and by this means the fact of an accident having happened is recorded, and the workman's right to compensation thereby kept alive, a nominal sum of one penny a week as compensation being usually agreed. The fear (which I feel sure keeps many men from working when they might) that they will be paid full wages for a short time and then dismissed, would then have no foundation.

An army of working men now partially disabled, but certainly capable of much, though not of full work, and who are living miserable existences on half wages, and in a state of semi-starvation, might be living in comparative happiness, receiving full, or something approaching to full, wages, if they would either trust their employers or arrange for a memorandum of agreement to be filed with the court. This spirit of distrust is unfortunate from the workman's point of view, for *light* work and employment for men not wholly fit for work is, except for disabled soldiers and sailors, becoming more and more difficult to obtain.

If the course suggested, of filing a memorandum of agreement reserving a nominal weekly payment, is followed, and if it should subsequently be found that the workman is suffering from the effects of the accident, he is entitled, upon satisfying a county court judge or an arbitrator under the Act of his incapacity, partial or otherwise, to have the weekly payment reviewed, that is, by increasing the weekly payment according to the necessities of the case. On the other hand, the employer is entitled to claim a review—that is, the termination of the weekly payment. The effect of this procedure is to reserve to both parties all the rights they possessed at or after the accident, notwithstanding the lapse of time since it happened, and precludes any questions arising as to whether or not the accident was one to which the Act applied, or as to notice of the accident to the employer, or other suchlike questions.

From the point of view both of the employer and the workman it is more in consonance with the Act that the agreement to be filed should reserve payment of a nominal weekly sum, for, as before pointed out, the Act gives either party power to have a weekly payment reviewed; and unless there is some weekly payment reserved, difficulties may occur, inasmuch as there will be no weekly payment to review!

Assume that the time has come when a workman has wholly recovered and remained well for a long period of time; the employer rightly wishes his liability for an accident (the effects of which are now non-existent) to cease. When he applies to the court to have the agreement removed from the register, it is obviously most desirable that a nominal weekly payment should have been reserved. He must, of course, be in a position to satisfy the judge or an arbitrator that there is no possibility, or at least no reasonable probability, of a recurrence of incapacity on the workman's part, and this can only be done by medical evidence. Without a medical examination it is difficult to see how he could be in a position to prove his case, and the medical examination is therefore a *sine qua non*. Here the employer, unless he has agreed to pay a nominal weekly sum, may be met with serious difficulty, for unless a claim for compensation has been made, arbitration proceedings commenced, or a weekly payment is being made, the workman is not bound to submit himself for medical examination, and it might therefore be contended that, if a mere declaration of liability and no memorandum of agreement reserving a nominal weekly payment is filed, there is no compulsion on the part of the workman to submit himself to medical examination.

What probably gives rise to the objection on the part of the workman to return to work is the provision which is contained in Schedule 11 (9) (*b*) of the Act.

> Where a workman seeks to record a Memorandum of Agreement between his employer and himself . . . and the employer . . . proves that the worker has in fact returned to work and is earning the same wages as he did before the accident and objects to the recording of such Memorandum, the Memorandum shall only be recorded, if at all, on such terms as the judge of the county court, under the circumstances, may think just.

If the workman first returns to work and is earning full wages, and *after his return* wishes to record an agreement, the master may object; but he would have to satisfy the judge that the man was actually *earning* and not merely *receiving* full wages, and that there was no reasonable fear of his again becoming incapacitated, otherwise the judge can record a memorandum, and so keep the employer's liability alive on such terms as he thinks fit.

Take the case, for instance, of the loss of an eye, not an unusual accident in my experience. It is obvious, where the remaining eye is healthy, that after a definite period of time, amounting it may be to only a few weeks, the workman has wholly recovered as far as his working capacity at the moment is concerned. But he has now only one eye instead of two. If he returns to work with his old employer, and remains for the rest of his life with that employer, receiving the same wages as before the accident, well and good. But suppose that, either from fear on the part of the master of another accident to the remaining eye, reasonable timidity on the part of the man with regard to working amongst machinery with a diminished range of the visual field, or for some such reason, the workman finds himself without work in the industrial market, a permanently damaged article as a result of the accident, with diminution of working capacity which must be obvious to every one to whom he applies for work, his chances of re-employment are small indeed. He is in such a case still entitled to compensation if he has taken the proper steps to protect himself. It is elementary justice that such a one should have his right to compensation preserved.

If he has no memorandum of agreement recorded in his favour, he may at any time be a victim of his circumstances and drift into the ranks of the unemployed or the unemployable, as the result of his want of foresight. My experience with large public bodies is that when this is pointed out (and I make the suggestion as occasion arises) they are prepared to arrange for the necessary memorandum of agreement to be filed with the court for this and similar disabilities.

Notice of Accident.

I have referred previously to the necessity of notice of an accident being given to the employer, and it may be useful to refer to the requirements of the Act in this respect.

Section 2 provides that proceedings for the recovery of compensation shall not be maintainable unless notice of the accident has been given as soon as practicable after the accident and before the workman has voluntarily left the employment in which he was engaged at the time it happened, and unless the claim for compensation has been made within six months from the date of the accident. The want of, or any defect or inaccuracy in, the *notice*, however, does not bar the workman from recovering compensation if it be found that the employer is not prejudiced thereby, or that the want of, or defect or inaccuracy in the notice was occasioned by mistake, absence from the United Kingdom, or other reasonable cause.

The *notice of accident* and *claim for compensation* must not be confused. They are entirely separate matters. The notice should be given as soon as possible after the happening of the accident, but the claim is a matter which is usually one for the lawyers at a later stage; when this becomes necessary, it is generally because the employer has refused to recognize liability.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE RADICAL CURE OF URETHRAL STENOSIS.

UNDER the term "urethral stenosis" I include stricture and some obstructions at the neck of the bladder, often considered "senile prostate," and treated as such by prostatectomy. In the BRITISH MEDICAL JOURNAL, June 15th, 1907, I described a mode of internal urethrotomy which in my experience always led to radical cure of stricture, the principle being to cut the obstruction fully where its mass most presented, and to cause the wound to heal without the formation of the usually desired "cicatricial splice," thus restoring normal calibre. I have operated on 125 cases with most satisfactory results and have not lost a case.

Full dilatation combined by heat will often secure radical cure of at least many deep strictures. It is vain to expect that a narrowing at a part of a urethra the normal size of which at that site is, say, 40 mm., will be cured by instruments a little more than half that size.

Amongst other there are two methods to which I would like to draw attention. One, the gradual splitting of the stricture by flat, wedge-shaped sounds up to, but not beyond, the natural size of the canal. The edges of these wedges are not sharp enough to cut; they split but do not burst the morbid tissue, and this is usually on the urethral floor. All the advantages and none of the disadvantages of divulsion and rapid and forcible dilatation are obtained. In the latter modes, however gently carried out, the stricture bursts at the weakest part of the ring, and a further mass of cicatricial tissue (the very thing to avoid) repairs the injury where inflicted, usually in the roof. In the case of a split made by the wedge, if managed by the means I advise, epithelium will cover its sides and bottom, and a permanent gap will be the result.

A second mode is, given a massive stricture which is felt from the outside, it can often be cured without injuring the mucous membrane at all. It can be cut through from the outside down to the mucous membrane, gradual dilatation being then carried out per urethram.

Stenosis about the bladder neck is a common condition, which might be treated with advantage by less heroic means than prostatectomy. This includes some fibrotic prostates, fibrosis of the neck itself, certain enlargements of the "middle" lobe, and badly classified states included under the terms "collars," "bars," etc.

Obstruction to urine and instruments at a senile age does not necessarily mean "senile prostate." The old may suffer as the young from the result of prostatitis. Prostatectomy in many of these cases should never be attempted; prostatotomy is the remedy. It may have to be perineal or suprapubic, but personally, with some others, I have been satisfied usually with simpler means. I often employ an incisor—merely a small lithotrite in which the jaw of the male blade is shortened and sharpened on both aspects. This will cut the obstruction, and the subsequent use of wedges will ensure a gap being left. I have also used a strong urethrotome. The question whether to use an incisor or a punch should be decided on examination. I abandoned Bottini's instrument on account of risk and the atrocious after-pain.

London, E.C. JAMES MACMUNN.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

TANKERTON HOSPITAL, WHITSTABLE, KENT.

A CASE OF ARTERIAL HAEMATOMA OF THE SECOND PART OF THE AXILLARY ARTERY OF UNUSUAL TYPE.

(By ERNEST W. WITNEY, M.B., B.S.)

PTE. J. D., a Canadian, was admitted on July 24th. He had been wounded by a bullet in the left pectoral region three days previously; the injury had been followed by brisk haemorrhage for two or three minutes.

On admission he presented a small punctured wound situated 2 in. below the left clavicle and 2 in. internal to its outer end. The wound was covered with a scab. There was no wound of exit. Deep to the wound and distending the outer part of the pectoralis major was a swelling the size of an orange. There was no expansile or conducted pulsation of the swelling. No thrill was to be felt nor bruit to be heard over it. The radial pulse on the left was equal to that on the right. The left arm was warm, and there was no indication of any interference with its circulation.

There was tactile anaesthesia on the inner side of the left arm in the area of distribution of the lesser internal cutaneous nerve, but no other evidence of nerve injury. A skiagram revealed nothing abnormal. The patient had some pain over the swelling and a burning pain on the inner side of the left arm.

He was kept at rest in bed and watched for three weeks. During that time the temperature ranged between 100° at night and 97° in the morning. The pulse varied between 74 and 110; respiration was normal. The pain gradually increased in intensity and became severe, and the swelling gradually enlarged until it reached the size of a small cocoanut. The left clavicle was pushed upwards by it. Laterally the swelling extended to the front part of the inner wall of the axilla and became superficial beneath the lower margin of the pectoralis major. It could be felt to fluctuate here, but nowhere else. The skin covering the swelling on the inner wall of the axilla became oedematous and slightly reddened. There was still no pulsation, bruit, or thrill in the swelling, and no evidence of any interference with circulation in the arms. The anaesthesia remained the same.

A diagnosis was made of a suppurating haematoma, and on August 19th a small incision through skin and fascia was made over the fluctuating area. A small amount of blood clot expelled itself through the incision and was followed by severe arterial haemorrhage. The blood came out with a "swish." An exploring finger plugged the wound and examined the limits of the cavity of the haematoma. This extended upwards as far as the upper entrance into the axilla and outwards and backwards to the middle line of the inner wall of the axilla. The pectoralis major formed the anterior wall of the cavity. As the patient was suffering from shock the wound was tightly plugged with strips of gauze. This effectively

controlled the haemorrhage. A tight bandage was applied, and the patient returned to bed. The left radial pulse still remained equal to the right, but in the following two days the left arm became slightly oedematous.

On August 21st, with the kind help of Major Reason of the Canadian A.M.C., I again operated. The patient was given a preliminary subcutaneous infusion of normal saline. A preliminary incision was made above the left clavicle and through this digital compression was maintained on the subclavian artery. A second incision was made beneath the clavicle and the haematoma was exposed by dividing part of the clavicular attachment of the pectoralis major from the clavicle. The blood clot was turned out and the plugs removed; digital compression through the upper wound failed at this time to control the haemorrhage completely. This, however, was effectively done by digital compression of the first part of the axillary artery through the lower wound.

On retraction of the muscles a wound of the second part of the axillary artery was clearly exposed. It was situated on the anterior wall of the artery, between the outer and inner cords of the brachial plexus and just above the outer and inner heads of the median nerve as they crossed the artery anteriorly. The wound was about three-quarters of an inch long and a quarter of an inch wide. There was no visible lesion of the surrounding nerves.

At this stage the patient suddenly collapsed and died, although there had been no severe haemorrhage or any difficulties met with during the operation. A *post-mortem* search failed to find any bullet.

The case seems to be unusual in the facts that, beyond the gradually enlarging swelling and the paralysis of the lesser internal cutaneous nerve, there were no other signs to lead one to diagnose an arterial haematoma of the axillary artery, and that there was so little nerve injury with a wound of the artery in this situation.

Reports of Societies.

CEREBRO-SPINAL FEVER.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on November 24th, Lieutenant-Colonel Sir SHIRLEY F. MURPHY, Vice-President, in the chair, Dr. W. H. HAMER read a paper on the epidemiology of cerebro-spinal fever, and Captain M. GREENWOOD, junior a paper on the outbreak of the disease at Salisbury in 1914–15.

DR. HAMER sustained the thesis that cerebro-spinal fever was an ancient disease standing in close epidemiological relationship to influenza. He pointed out that Ozanam, writing in 1835, regarded the outbreak at Genova in 1805, frequently asserted to be the first instance of an undoubted epidemic of cerebro-spinal fever, as merely the last of a long series. Dr. Hamer also called attention to the chronological relationship between the periods of pandemic influenza and Hirsch's "prevalences" of cerebro-spinal fever, the former invariably preceding the latter. The inference was that cerebro-spinal fever might be regarded epidemiologically as associated with the "trailing epidemics" of influenza which follow the great pandemic waves, that there was good ground for "suspecting that the epidemic form of cerebro-spinal fever may represent the particular type assumed on the development of a 'trailing epidemic' of influenza, in certain individuals belonging to communities which have already suffered more or less severely in a preceding pandemic outburst." Dr. Hamer described the statistical evidence adduced by him in his annual report to the L.C.C. (1914) of an unexpectedly close association between the development of cerebro-spinal fever and a previous history of influenza, and criticised the hypothesis of healthy carriers.

Captain GREENWOOD'S paper was devoted to a statistical analysis of the outbreak among the civilian population at Salisbury in 1914–15. During this outbreak Dr. W. J. Pond, of the Lister Institute, in collaboration with the local medical profession, secured the inoculation of more than 4,000 inhabitants of the city with a vaccine prepared from local strains of meningococci. The problem was to determine whether the incidence of the disease were significantly less upon the inoculated than upon the uninoculated inhabitants. Captain Greenwood showed that, although no cases occurred among the inoculated, the magnitude of the epidemic (44 cases) was not sufficient to provide absolutely conclusive evidence, but the fact, among others, that of 190 close contacts who had been inoculated none acquired the disease, while of 50 uninoculated contacts 4 fell victims, was sufficient to establish a prima facie case in favour of prophylactic inoculation which should, in Captain Greenwood's opinion, be generally adopted. The papers were discussed by Dr. E. W. GOODALL, Captain M. CULPIN, Professor W. J. SIMPSON, Dr. J. BROWNLEE, and Lieutenant SHAW.

FUNCTIONAL GASTRIC DISTURBANCE IN THE SOLDIER.

AT the quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland on November 21st, when Lieutenant-Colonel DAVID G. THOMSON, M.D., President, was in the chair, Dr. COLIN MCDOWALL, temporary Captain R.A.M.C., read a paper on functional gastric disturbance in the soldier, which, he said, was a common accompaniment of neurasthenia, from which many soldiers returning from the war were suffering. Anorexia arising from the mental state was not unusual. Sometimes patients who had been on a special diet for a period on account of organic disease found themselves unable to resume normal diet when the time had arrived for them to do so. So long as they were treated as invalids they remained such. A neurasthenic was usually reasonable, and much good resulted from making his thoughts run along new lines. The exact mechanism of the production of the symptoms was not clear, and how much was due to vagal stimulation was uncertain. The vagus could influence not only the secretions but the state of motility of the stomach muscle. Vagal stimulation, performed experimentally, could produce turbulent gastric peristalsis, which might readily change into retrograde peristalsis, and vomiting might ensue. The practical point was that the vomiting was due to emotional stress, and the treatment should be directed to the offending emotional tone. This could be done by giving the patient a true insight into his symptoms, removing any worrying element, and gradually restoring to him the self-confidence which he had lost. Each case must be dealt with individually and on its own merits.

Dr. R. H. STEEN commented on the fact that many of the patients showed a hereditary predisposition to the condition described, and to nervous instability. With regard to the strong influence which the emotions exerted on the bodily state Cannon had shown that it made itself felt not only on the gastro-intestinal tract but also upon the adrenal glands. He could understand vomiting following a definite emotion, but why did it persist? Dr. R. ARMSTRONG-JONES thought the thesis had supported William James's theory—that the emotion was not the cause of the vomiting, but the vomiting produced the emotion. The temperature was raised in some cases of shell shock he had seen in whom vomiting was present. A strong emotion would often raise the temperature. Dr. J. NOEL SERGEANT discussed the subject from an intimate personal experience, and expressed the view that the victims of shell shock who vomited did so because they did not realize that the vomiting was due to the shock, but attributed it to some organic lesion. They continued to vomit because their dread acted as a continual mental irritant. Dr. FOTHERGILL and Dr. DRAPES (Enniscorthy) also spoke, and the PRESIDENT said that he had found vomiting in shell shock cases comparatively rarely, but the cases which the author saw were sent to his special institution, therefore he would see more of them.

THE first Spanish Congress of Physical Education will be held at Madrid some time next year, under the presidency of Senator Dr. José Gomez Ocaña, professor of physiology in the University. The work of the Congress will be divided among eight sections: The scientific bases of physical education; the physical education (*a*) of the child in the home and the school; (*b*) of the adolescent; (*c*) of women; (*d*) of the soldier; (*e*) of the adult according to profession; games and amusements; medical gymnastics.

Reviews.

WHEN TO ADVISE OPERATION.

MR. RENDLE SHORT, of Bristol, has already placed many general practitioners, living far beyond the West of England, under a considerable debt of gratitude to him by the publication of his readable, useful, and suggestive volume, *The Newer Physiology in Surgical and General Practice*. The very title is enough to show that he has grasped one of the essential needs of the man in general practice, who longs to keep himself up to date, but has neither the time nor the opportunity to read many of the special journals. The same sympathetic insight is shown in Mr. Short's choice of subject for his newest book. It is entitled *When to Advise Operation in General Practice*,[1] and is really a simplified digest of the more technical and elaborate *Index of Prognosis and End-Results of Treatment*," by many collaborators, recently published under his editorship. No doubt Mr. Short had therein a rich supply of material to work upon, but for the less experienced reader, for whom this book is designed, the process of its digestion into simpler elements is a not less important matter, and it has been thoroughly well carried out. The author has succeeded in steering an even course between the "mere recapitulation of the views of authorities, untinged by personal experience," on the one hand, and on the other the enumeration of dogmatic and possibly "freakish" rules which would influence no one but their author and perpetrator.

Practically every condition in which the services of a general surgeon may be required is considered in this book, with the exception of those in which the necessity of an operation is so obvious as to need no discussion.

The first chapter is appropriately enough devoted to appendicitis, and presents in the fairest possible way the pros and cons of operation in the various types of the disease. A summary at the end of the chapter puts the whole thing in a nutshell. In the section on the acute abdomen we are glad to see that the author emphasizes the possibility of acute pneumonia simulating an abdominal catastrophe. But to go through a book of this sort chapter by chapter is unnecessary. It is more useful to say that in all his opinions Mr. Short appears to us to adopt a very sound position, not unduly conservative, but—and this is of the highest importance for the particular audience to which his book is addressed—never inclined to advocate operation except on very good grounds.

Written throughout in easy fluent style, the book owes much to brief narratives of the author's personal experience. But such a style may become too familiarly colloquial, and we submit that such a sentence as "Any discharge from the bowel simply shouts for examination" might be equally emphatic, even although it were expressed in English. Also, to talk of a "King Edward VII class of appendicitis" may be telling from the point of view of teaching, but in our opinion it is not desirable.

This is a book that should be in the library of every country practitioner.

TREATMENT OF INFANTILE PARALYSIS.

SINCE 1907 America has suffered increasingly from epidemics of infantile paralysis. Indeed, the epidemic in New York, which has not yet ended, produced over nine thousand cases down to September 30th, with 2,286 deaths. During the last few years most valuable discoveries as to the etiology and spread of infantile paralysis have been made in American laboratories; in addition, important contributions to the methods of treating the muscular paralyses resulting from the infection have been made by American authors. Dr. R. W. LOVETT, of Boston, already well known in this country as a writer on the subject, has recently published a book, *The Treatment of Infantile Paralysis*,[2] containing an account of his methods of ascertaining the exact extent of the muscular palsy left behind by an attack of the disease, and the lines of treatment best suited for its treatment. Just as the pathologists have shown that the microscopical lesions in the brain, medulla, and cord in any case of infantile paralysis are far more extensive than the clinical signs suggest, so Dr. Lovett, by his exact and extensive system of muscle testing, has proved what has long been known in a general way—that an accurate clinical analysis demonstrates partial involvement of many more of the muscles or groups of muscles than is at first sight apparent. He fully confirms the view that the loss of motor function is much more often partial than total, and that the disease must be regarded as a general infection (of the central nervous system) with a widespread and irregular loss of power of a mild grade in most muscles.

Dr. Lovett's book contains seven chapters. Five of these are devoted to treatment in the various phases of the disease—the acute phase, when rest and the prevention of deformity are indicated, the convalescent phase, the chronic phase, and, perhaps two years after the onset, the phase when operative treatment may be required. The book is clearly written and well illustrated. It is primarily a book for the orthopaedic surgeon, but it should be in the hands of all who are responsible for the treatment of the paralyses and deformities left behind by infantile paralysis. It is in "muscle-training," to which he devotes a special chapter, that Dr. Lovett looks for the greatest benefit in treatment.

PULMONARY TUBERCULOSIS.

DR. H. G. SUTHERLAND'S *Pulmonary Tuberculosis in General Practice*[3] is a book designed to meet the needs of the general practitioner. The author is a pupil of Sir Robert Philip, and his text gives abundant evidence of the thoroughness of the Edinburgh school and system of combating phthisis. He takes the view that pulmonary tuberculosis is a systemic disease, and constantly reminds his readers to take the larger view and to look for and treat the systemic troubles to which the local pulmonary infection gives rise. He gives a good account of the etiology and pathology of phthisis, followed by chapters on its symptoms, signs, and diagnosis. Other chapters are allotted to the clinical classification of patients, to pleurisy, and to haemoptysis. The last six chapters deal with treatment. Dr. Sutherland is a firm believer in treatment by any amount of fresh air, with good food, and as much exercise as the patient can take with advantage. Tuberculin he regards as a double-edged weapon, to be used with care by experts; in his own practice he makes use of a "polyvalent tuberculin" containing eleven different tuberculins mixed together, seven-tenths of the whole being composed of Koch's old original tuberculin (T.O.A.) and a similar preparation made from tubercle bacilli of the bovine type (P.T.O.). This mixture he has employed for five years, in selected cases, with good clinical results. In an appendix he gives a list of simple rules for tuberculous patients, drawn up to prevent the infection of others and to promote the cure of the disease. Dr. Sutherland writes clearly, and his book contains a great deal of sound practical advice. It is well illustrated, and it may be recommended to the attention of all medical practitioners and students in search of a sensible account of the very important subject with which it deals.

Professor FISHBERG of New York, who has had a large experience in the diagnosis and treatment of phthisis in that city, has summarized what he has learnt therefrom in a book written for the benefit of the general practitioner of medicine. It is entitled *Pulmonary Tuberculosis*,[4] and in it the reader will find a clear and connected account of etiology, diagnosis, prognosis, and treatment, fairly documented with references to the literature—mainly the American literature—of the subjects discussed. Professor Fishberg holds his own views on many of the disputed points with which he has to deal, and succeeds in expressing them temperately without doing injustice to other

[1] *When to Advise Operation in General Practice*. By A. Rendle Short, M.D., B.S., B.Sc.Lond., F.R.C.S.Eng., Captain R.A.M.C.(T.). Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916. (Cr. 8vo, pp. 285; 6 figures. 5s. net.)

[2] *The Treatment of Infantile Paralysis*. By R. W. Lovett, M.D., Boston. London: W. Heinemann. 1916. (Med. 8vo, pp. 171; 113 figures. 8s. 6d. net.)

[3] *Pulmonary Tuberculosis in General Practice*. By H. G. Sutherland, M.D Edin. London, New York, Toronto, and Melbourne: Cassell and Co., Ltd. 1916. (Demy 8vo, pp. 304; 6 plates, 42 figures, 9 charts. 10s. 6d net.)

[4] *Pulmonary Tuberculosis*. By Maurice Fishberg, M.D. Philadelphia and New York: Lea and Febiger. 1916. (Post 4to, pp. 639; 91 engravings and 18 plates. Cloth, 5 dols. net.)

writers whose views are not the same as his own. He is a strong advocate of the prolonged and careful treatment of consumptive patients in their own homes whenever possible, while admitting the excellence of institutional treatment and treatment at sanatoriums. The specific treatment of phthisis with tuberculin does not obtain his support; this potent poison is mostly given, he says, for its psychic effects, and is likely to meet with success only in those forms of phthisis which are spontaneously curable. He finds it gives the best results in intelligent patients who are under the impression that they have mastered the theoretical aspects of infection and immunity and of specific therapy; given in cold blood to unintelligent people, tuberculin, he thinks, rarely does any good. The general practitioner, according to Professor Fishberg, should not use tuberculin at all. A full account of the pneumothorax treatment of phthisis is included. The book covers the whole ground of the subject of pulmonary tuberculosis, and contains plenty of sound advice on many practical points in diagnosis and treatment. It is, perhaps, a little long, and perhaps also a little overweighted with scientific and theoretical data that do not appeal directly to the practical man and are not of immediate applicability. These faults, however, if faults they be, are faults on the right side.

Dr. LAWRASON BROWN'S little book of *Rules for Recovery from Pulmonary Tuberculosis*[5] gives an admirable account of what a phthisical layman should learn to do and to avoid in the treatment of his disease. It is short, explicit, easily intelligible, and yet thorough. It is a book that may safely be placed in the hands of consumptives and those who have charge of them.

AT THE WAR.

LORD NORTHCLIFFE'S book, *At the War*,[6] is something of a surprise in appearance—a substantial octavo of some 300 pages. Opening it at hazard, we light on the phrase, "Our soldiers are individual. They embark on little individual enterprises"; and, in a way, this may serve as the keynote of what is said in the first part of the book of the British soldier, his deeds, and his leaders. Individuality ordered, but not crushed out, by discipline. The idea comes out in the chapter on the war doctors. Lord Northcliffe has watched them from the dressing dug-out in the trench to the base on the northern French coast, and on to the hospital ship, and he finds one continuous enthusiasm throughout the medical service. Many of us have read, when it was first published in the *Times*, his fine tribute:

"If there be degrees of chivalry, the highest award should be accorded to the medical profession, which at once forsook its lucrative practices in London, or Melbourne, or Montreal, in a great rally of self-sacrifice. The figures of the casualties among them bring home to those who have only the big hospital idea of the war doctor, sad facts that should lead to due understanding of this not sufficiently known but veritable body of Knights in the Great Crusade."

The chapter on the medical service is appropriately followed by a sympathetic account of the Red Cross organization, and its many activities at home and abroad, including its search for the "missing"; only those who have received that intimation concerning some one near and dear to them can know how the agony of suspense is in some sort relieved by the thought that a well planned organization is searching. The penultimate section of the book describes the Italian operations which ended in the winning of Gorizia and the fighting in the mountains to the west of Cadore and the Dolomites, the last chiefly with German activities in some neutral countries. But we will turn back to one of the earliest chapters, headed "Joffre." There is no man whose name is better known the world over to-day, but few of whom it has proved more difficult, in spite of many articles in British and French papers, to get any steadfast picture. Lord Northcliffe gives one in a few words which seems to fit the man with the great grey head, the iron chin, the kind—rather sad—eyes, in his loose pale-blue tunic, "speaking slowly, and with no more gesture than a Scotchman, in the rich accent of the Midi."

The book would be well worth buying for itself even were not all profits from its sale to be given to the Joint War Committee of the British Red Cross and the Order of St. John.

NOTES ON BOOKS.

THE third edition of Sir ARBUTHNOT LANE'S well-known monograph on *Cleft Palate and Hare Lip*[7] gives a full account of his views on its operative treatment, with details of the technique he has found it best to employ. A chapter by Mr. MacMahon describes the training in speech advisable in these cases, and Mr. W. James gives a description of the dental treatment of patients with cleft palate, whether they have been treated by operation or not. The book is excellently illustrated, and may be recommended to the attention of all those who have to deal with these difficult cases.

The second series of the late Sir T. LAUDER BRUNTON'S clinical and experimental *Papers on the Circulation and Respiration*[8] contains sixty-eight articles that appeared in various British and Continental medical and scientific journals between the years 1883 and 1915. Thirteen of them were first published in the BRITISH MEDICAL JOURNAL, the last of them some four years ago. Most of these papers deal with questions of practical medicine, and exhibit the way in which the results of physiological and pharmacological work have been brought into relation with treatment. The volume is well got up, and is furnished with excellent indexes. Its perusal throws a vivid light on the mental activity of its author, the thoroughness of his scientific work, and the ready skill with which he brought both theory and science into line with medical practice. It should appeal to a wide circle of readers.

Mr. B. D. JACKSON'S *Glossary of Botanic Terms*[9] provides scientific readers with a most serviceable dictionary, giving brief definitions of some 21,000 of the scientific terms used by botanists of every kind. Derivations of the terms are commonly given; sometimes, too, the names of their inventors or users. To botanists, particularly those who find a difficulty in the spelling or pronunciation of the monstrous and often hybrid terms employed, the book should be invaluable. It is apparently the ecologists who are the worst offenders in the matter of inventing new botanical terms; even Mr. Jackson has struck at the inclusion of the compound word "carex-sieversia-polygonum-coryphium," or its vernacular equivalent "the sedge-smartweed-Alpine meadow formation."

[5] *Rules for Recovery from Pulmonary Tuberculosis: A Layman's Manual of Treatment.* By L. Brown, M.D. Second edition, [illegible]. Philadelphia and New York: Lea and Febiger. 1916. (Pp. viii + 192. 1 fig. 3s. 6d. net.)

[6] *At the War.* By Lord Northcliffe. Published for the Joint Committee of the British Red Cross Society and the Order of St. John of Jerusalem by Hodder and Stoughton, London, New York, and Toronto. 1916. (Demy 8vo, pp. 295. 1 portrait. 5s. net.)

[7] *Cleft Palate and Hare Lip.* By Sir W. Arbuthnot Lane, Bt., M.S., F.R.C.S. Third edition. London: Adlard and Son. 1916. (Roy. 8vo, pp. 102; 57 figures. 10s. net.)

[8] *Collected Papers on Circulation and Respiration.* By the late Sir T. Lauder Brunton, Bt., M.D., LL.D Edin. and Aberd., M.D. Hon. Dublin, F.R.C.P., F.R.S. Second Series: *Clinical and Experimental.* London: Macmillan and Co., Ltd. 1916. (Demy 8vo, pp. 850; 256 figures. 5s. net.)

[9] *A Glossary of Botanic Terms, with their Derivation and Accent.* By B. D. Jackson, Knight of the Polar Star, Hon. Ph.D. (Upsala). Third edition, revised and enlarged. London: Duckworth and Co.; Philadelphia: J. B. Lippincott Co. 1916. (Post 8vo, pp. 438. Price 7s. 6d. net.)

NURSES' REGISTRATION.

WE have received from the honorary secretaries of the Central Committee for the State Registration of Nurses a long statement concerning the negotiations between that committee and the College of Nurses, Limited, with the object of drafting a conjoint nurses' registration bill. We have also received a letter from the officers of the Royal British Nurses' Association, stating that they are not in agreement with several of the statements published in the first-named communication, and protesting against its publication. In the circumstances, it seems sufficient to print the concluding part of the statement of the Central Committee for the State Registration of Nurses, which defines its present attitude:

"At its meeting on September 28th the Central Committee resolved to inform the council of the College [of Nursing]

that if four amendments which were set out were not adopted by the College, the committee would not continue negotiations, but proceed with its own bill. This was without prejudice to the further consideration of minor amendments.

"The four amendments to which the Central Committee attached so much importance were those relating to the constitution of the provisional and permanent nursing councils, to the registration of nurses in practice at the time of the passing of the Act, and to the qualifications of nurses after the passing of the Act. The committee was of opinion that there was no guarantee that either of the nursing councils formed in the manner proposed by the council of the College of Nursing would be representative of the interests concerned, and therefore desired to have it plainly stated in the bill what bodies should appoint or elect the members of the provisional and permanent councils.

"In respect of the other two points, the Central Committee was of opinion that the clause in the bill of the College of Nursing relating to the nurses in practice at the passing of the Act was not satisfactory, in that the conditions for admission to the *Register* are not explicitly stated, and that the clause which specified the conditions of registration of nurses after the passing of the Act was too vague, as it did not enforce any hospital training or examination before registration.

"There is, moreover, the fundamental objection in the bill of the College that a voluntary college is to be associated with a statutory council. It is one thing for the College of Nursing to be represented on a statutory general nursing council; it is quite another for the Council of the College to *be* the General Nursing Council.

"As in the communication received from the College it did not signify its agreement to the amendments considered essential, the Central Committee, at its meeting on October 21st, reaffirmed its intention, by a majority of 20 to 2, to proceed with its own bill, in connexion with which it considered, and agreed to, certain amendments in order to bring it up to date, and reaffirmed the fundamental principles as follows:

"1. That provision should be made for a statutory general nursing council to regulate the qualifications of trained nurses and provide for their registration.

"2. For direct representation of the nursing profession on the General Nursing Council, and the insertion in the bill of the authorities empowered to nominate the Council.

"3. For a three years' term of grace, after the passing of the Act, for the registration of nurses in practice—who hold a certificate of training, or produce evidence of training satisfactory to the council—without further examination.

"4. For the provision at the expiration of the said term of grace that a nurse must have had not less than three years' training under a definite curriculum prescribed by the council in the wards of a hospital, or of hospitals, approved by the council, and that such person must have passed such examination as the council may prescribe."

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

The Problem of Car Repairs.

It was at the least unfortunate that the latest order issued by the Ministry of Munitions concerning car construction and repair for other than munitions work could not have given a greater margin of time, that medical men in particular might have had the opportunity to get their cars put thoroughly in order before the coming into force of the prohibition on November 22nd last. As it was, there was not sufficient grace for attention to be drawn to the matter in the press, and for arrangements to be made to put repair work in hand before the prohibition order came into operation.

In its effect on the construction and erection of new cars it is of practically no importance to the medical man, because he either owns a car, or, at a pinch, can buy one example or other of the imported varieties, stocks of which are still in the country; or, again, he can pick up a second-hand car.

But in the matter of repairs and the obtaining of spare parts the situation affects him very seriously, for he has the hardest season of the year to face.

What the Situation has been.

When the problem of getting repair work and spare parts was placed on behalf of the British Medical Association before the Ministry of Munitions, the reply (September 15th, 1916) was to the effect that a certain doctor about whom inquiry was made had been

> authorized to place his order for spare parts required for his car under Class "B" for the purposes of Circular L. 33, that is, he has been authorized to inform the . . . company that the execution of his order is necessary for the efficient conduct of the war. . . . When doctors apply to this department, assistance, so far as possible, is always given them to obtain prompt execution of the necessary repairs to their cars, and that therefore medical practitioners already receive special consideration in respect of repairs, just as they do in respect of the supply of petrol.

But by October 17th the same department wrote:

> I regret that it is impossible to class your repairs to Dr. ——'s car as war work. I enclose, however, a Priority Instruction Class 5, which gives the order preference inside Class "B." Beyond that I regret that it is impossible to go.

How this works out in practice in the average case in face of the actual situation in which the manufacturer finds himself I shall discuss in a moment. In the meanwhile, apropos of the latest order which is the subject under discussion, on November 16th, 1916, before it came into operation, the following notice was issued to clerks of Insurance Committees in Scotland by the secretary of the Insurance Committee in that country:

> I am directed by the Scottish Insurance Commissioners to inform you that, their attention having been directed to difficulty experienced by medical practitioners in obtaining spare parts for "Ford" motor cars, they communicated with the Munitions Department, by whom the supply of these spares is controlled, with a view to securing preferential treatment for doctors. The Munitions Department, in cases where a doctor makes application to them, will give him the grade of priority entitling him to preference over orders placed for spare parts for commercial vehicles other than those directly and continuously employed on munitions work.

At the time these notes leave me I am not informed whether that notification is to be taken as applying to Ford cars only. The present situation is open, and leaves the matter in doubt inasmuch as that make of vehicle is said to be so largely used by doctors in Scotland that, perchance, the Insurance Commission may not have thought it worth while to say anything about other cars. Against this, however, is the fact that, as to the manufacturing parts proposition, the Ford enterprise is not at all on all-fours with other motor firms in these islands.

In England nothing seems to have been done in the general way; albeit, a certain number of applications from individual doctors have been forwarded, through the Medical Secretary of the British Medical Association, to the Director-General of Munitions. In most cases, if not in all, a permit was eventually issued. But all this is prior to the coming into operation on November 22nd of the latest series of regulations, and refers only to such cases as I have cited under dates September 15th and October 17th last.

The memorandum of the Ministry of Munitions on "New procedure affecting supplies of materials," which is addressed to firms, states that,

> as a general rule, the customer should make the application for permission, classification, or priority, and not the stockholder or manufacturer of the materials. Such applications, giving full and precise particulars of requirements, together with a brief statement of the purpose for which the goods are required, and reasons in support, should be made to the Director-General of Munitions Supply, Priority Branch, Whitehall Place, London, S.W.

How the Prohibition Operates.

In the meantime let us consider the new situation created by the latest regulation, bearing in mind that, in any case, the issue of a permit is one thing, and the actual getting of the job done is another. The granting of a permit to every applicant would be no guarantee whatever that the holder of the permit could thereupon get the given work executed.

Therefore, to trace the operation of the latest rules to their source, we must perforce begin with the position of the manufacturer. In this country his establishment is of course a controlled one. That means that representatives of the Ministry of Munitions or, more probably, officers of the services, are resident in charge. Their instructions

are to prohibit all manufacturing and erection work other than that for munitions, and to permit no repairs of any sort on the establishment. Were this all it might be possible to make shift, because, at the risk of car butchery, the work could be done at some local garage, to which the necessary spare parts were supplied by the manufacturer. But here is another problem: the controlled motor manufacturers, otherwise the entire British industry, may neither machine, cast, or otherwise make spare parts for other than the services. Nor is this all. If their standard product has been supplied to the Government during the war, they may not take spare parts out of stock for repairing examples of such standard types as are in the hands of the public.

A ray of hope appears to be extended to those whose cars are 1914 or earlier. In the original instance I find many manufacturers were forbidden to supply parts for anything later than 1913 vehicles. But by pointing out that the 1914 manufacturing year was practically completed by the time war broke out, in most cases, if there is any stock of 1914 parts, items may be issued from it to owners of 1914 cars requiring them for replacement.

THE CASE OF SPARE PARTS.

One presumes that the vast majority of medical men have cars of 1914 or earlier date of production, and have therefore some sort of chance of getting spare parts for them. But it must be remembered that practically no manufacturing of such spare parts has been undertaken during the war and none may be done now. Therefore, as the demand for them has continued during the campaign at the ordinary rate, it follows that in most cases stocks are very much on the low side at the moment.

For the rest, the regulations issued by the Ministry of Munitions touching repair and displacement work do not mention that such work must be done for those obtaining special permits. Nor do they specify who is entitled to secure a special permit. Hence it seems that it would be well that the case of the medical profession in general should be presented to the authorities in order to obtain a ruling for the special reasons, among others, which I have striven to summarize. I have not come across any officer in charge of a motor works who has yet authorized any such work to be undertaken for a holder of a permit, nor who has seen such a permit issued on or since November 22nd last.

Consequently, the first thing for the medical man to do, even if his car is running well to-day, is to ascertain whether or not any part of it looks like giving out or being in need of replacement for other reasons within, say, twelve or eighteen months. As soon as he discovers what items are likely to be concerned, he should write to the manufacturer or the concessioner concerned to ascertain whether or not he can have such a part. If he can, he ought to buy it forthwith and hold it in reserve, for, if the prospects of obtaining necessary spares are slender at the moment, assuredly they will be utterly remote in a few months' time when the motor vehicle using public in general will have come to a full realization of the new situation created by the recent order.

RISKINESS OF PRESENT-DAY REPAIR WORK.

As to how the work of repair is to be undertaken, the answer is that, in general, this must be a pure gamble. Firstly, because it cannot be done at any of the car factories; and, secondly, because all the skilled men have been taken away from practically every garage in the country. Here and there by a piece of good fortune a medical man may be able to get a trustworthy mechanic to undertake any overhauling or replacement work in his vicinity, but in the vast majority of cases I am afraid that will prove impossible. Of course it is only jumping out of the frying pan into the fire to let amateurs and know-nothings start operations on a car.

It follows that there is urgent need to give some hints to medical men as to how they can best protect themselves pending what I would suggest should be undertaken on their behalf collectively, namely, the making of official representations to the Government with a view to ensuring that members of the medical profession, as constituting that which is vital for the needs of the community, should be given special permit to allow them to secure spare parts and to have repair work undertaken on their cars, which were never more essential than to-day, when one practitioner has to suffice where three were available before the war.

THE CASE FOR THE MEDICAL PROFESSION.

None can show better cause than doctors. Deprive the doctor of his car and the health of the community is endangered. That is the case for the profession in a sentence. It may be elaborated, as, for example, by drawing attention to the number of medical men who are no longer able to employ the services of motormen to maintain their cars.

Consequently cars are perforce receiving less attention than ordinary, and that at the precise time when they are being worked more than usually hard and have to run in some instances on indifferent fuel.

The medical man may do much to alleviate the situation by giving very careful attention to the manner in which he either drives the car himself or allows it to be driven for him. Never drive on the brakes, for that is not merely extravagant of tyres, it besides strains the whole transmission mechanism, and it is desirable to relieve that of stress to the utmost possible extent at a period when repair work cannot be undertaken.

It will prove economical at this juncture to buy the best motor spirit available, and have next to nothing to do with alternative fuels, because investigation of them has not yet been carried to an exhaustive extent by the industry. The main thing to have in mind is the vital necessity for the gas in the cylinders to be of such a quality that it will be perfectly combusted, and will therefore not cause any trouble through unburnt particles of fuel percolating past the piston rings and doing damage to the lubricating system. Besides, imperfect combustion means a dirty engine; a dirty engine of the poppet valve type is an inefficient one; an inefficient one is a trouble to drive and maintain, and has sooner or later to be taken to pieces and cleaned out, it being nevertheless desirable that the necessity of these operations should be reduced to the minimum while all the skilled mechanics are either making munitions of war or taking more active part in the campaign.

HINTS FOR THE WINTER SEASON.

Now that the colder weather has come, take no risks about cracking cylinder castings or bursting radiators through the water freezing in the system when the car is not in use. In this connexion it may be recalled that in the first winter of the campaign the three and a half ton transports used by the Expeditionary Force were remarkably immune from troubles of this character, though often parked in the open, because tarpaulin "tea cosies" and such devices were improvised for slipping over the bonnets of them. An adaptation of this scheme that is not expensive and which is most effective has been evolved by the Rover Company in the form of a neat little cover of a leather of sorts, with cloth or quilted lining, the whole being designed to be a little deeper than the radiator, and having a hole just sufficiently large to slip over the radiator cap, whereby it is held in position, and will keep the cooler warm for hours.

This is precisely what the doctor needs when on his rounds—something designed for the purpose, always immediately available for dropping over the cooler without fitting of any sort, while visiting his patient. In petrol economy alone it will save its cost easily in a season, apart from minimizing the risk of freezing the water and ensuring that it will be very much easier to start the engine again, whether by electrical means or by hand cranking, whenever it is desired to resume the journey.

Lubrication is another matter in regard to which it will well repay the medical man to be more than common cautious these days. This does not mean always having too much oil in the engine system. On the contrary, it means that the supply must be checked at more frequent intervals to ensure, on the one hand, that there is never an excess even for only fifty miles of going, and on the other, that there is never any dropping below the minimum supply for a single mile of service. Nor is this all.

LUBRICATION POINTS.

While a goodly proportion of the lubricating oil employed on a car engine, as distinct from an aviation one, is burnt, nevertheless a certain amount is retained in the system

and re-used, but there is a limit to its ability to perform its function properly when being re-used. Therefore it is better to err on the extravagant side by emptying the used oil out of the system at comparatively frequent intervals and replacing it with fresh oil than, in the endeavour to economize lubricant, to employ it for an unduly long period in the motor. Most manufacturers supply with their cars instructions as to the intervals at which this should be done. In peace time most owners paid little heed to these instructions, being for the most part content to replace supplies a little at a time. But at this juncture it will pay handsomely to put in an entirely fresh stock of lubricant at the minimum intervals specified by the manufacturers. Particular care should also be given to the brand of lubricant used. Broadly, vegetable oil, otherwise castor oil, makes carbon of a dusty character, whereas mineral oils carbonize in a gummy state, and therefore foul the engine details.

In point of fact, the lubrication system of car engines has nothing like reached its full development. It is generally overlooked that two quite distinct functions have to be performed. On the one hand, a film of oil has to be interposed between the two metal surfaces to be lubricated, whereby that one of them which is the moving member is floated on this film. In performing its work, however, it generates heat, which is communicated to, and absorbed by, the film of oil. Means has, therefore, to be provided for replacing as frequently as possible the oil film, so that the heat may be taken away by the particular oil that constituted the given film a moment ago.

In connexion with aircraft engines of high output and light weight for their volume, this problem is solved by running them with a dry base-chamber and keeping the oil in a separate tank, usually placed in the slip stream of the propeller and designed with fins, or what not, to ensure its being cooled to the maximum. Pumps suck the oil from this tank to the engine and draw it away from the engine, returning it to the tank by separate piping.

As the future of the motor-car engine is all in the direction of increasing power output for volume and weight, it may well be that in a few years car engines will also be designed with the dry base-chamber system. Meantime, however, they carry their lubricating oil in the base-chamber, hence the importance of giving heed to the points I have raised.

THE MEDICAL RESEARCH COMMITTEE.

SECOND ANNUAL REPORT.

THE second annual report of the Medical Research Committee has been issued; it deals with the year ending September 30th, 1916. Of the original schemes of work sanctioned and begun in 1914 before the war, some have been continued, but during the year under review nearly the whole of the available funds and scientific resources have been devoted to the solution of medical questions of immediate national urgency in war time. The Medical Research Fund exists for the advancement of the medical sciences, and it was considered that it would be a negation of that purpose to use the fund in any large measure for work aimed at a distant future during a time when so large a part of the whole population is exposed to the special risks arising from war, whether during active service abroad or in the performance of other work at home. Moreover, few, if any, of the workers available would have been free or willing to undertake or continue work remote from present national necessities when the alternative presented itself to them. Further, the conditions of war, with the special opportunities given for disciplined study and repeated observation, have already allowed in some directions a more rapid progress of medical knowledge in a few months than had been seen in many previous years.

Pathologists are now almost without exception engaged upon work of naval or military value, and the performance of purely routine work in the services by trained observers has suggested and allowed valuable new observations to be made. Their services, therefore, though changed in place, have still been in the sphere of pathology. The loss of trained laboratory attendants by enlistment has been a serious handicap, and the Ministry of Munitions has allowed the Committee to grant war badges and certificates to a certain number of skilled laboratory attendants. The Committee has encouraged the rapid training of women as pathological assistants, and many with a previous scientific education in other branches of biology have been able to fit themselves in a short time to give most efficient service. The Committee has also made grants for the whole or part time scientific employment on its behalf of some twenty women; some are giving only skilled routine assistance, but others are engaged in definite research work.

The difficulty experienced through the scarcity of apparatus, and especially of suitable glass apparatus, felt acutely in the earlier part of the war, owing partly to the fact that the usual supplies were unobtainable from enemy countries, and partly to the enormous increase in the demand for bacteriological apparatus for the routine work in numerous military hospitals, has been in a great degree met, for British firms have applied themselves with great energy and increasing success to the manufacture of glass apparatus.

The Committee now has in working order five departments—bacteriology, biochemistry and pharmacology, applied physiology, statistics, and clinical research.

THE DEPARTMENT OF BACTERIOLOGY.

The work of this department, which is under the direction of Colonel Sir Almroth Wright, has been conducted at No. 13 General Hospital, Boulogne, and at St. Mary's Hospital Inoculation Department, where twenty-five beds in special wards have been maintained.

Sir Almroth Wright has devoted his chief attention to the study of wound infections, and the principal results he has reached have been published in our columns at various times during the last fourteen months. "Surgical testimony," the report states, "is still divided upon the respective value of Sir A. Wright's treatment by salt solutions alone without antiseptics on the one hand, and, on the other, treatment by irrigation with the eusol or Dakin's hypochlorite solutions, though both methods now have very wide application in practice." The researches which resulted in the preparation of eusol by Professors Lorrain Smith and Ritchie at Edinburgh, and of the solution which bears his name by Dr. Dakin at Compiègne, and in the Committee's biochemical department in London, were both subsidized by the Committee, and the results have been fully reported in our columns at various dates during the last eighteen months. Upon the general subject of the treatment of wounds the report contains the following observations:

> It may be remarked that the use of the hypochlorite solutions in irrigation does not stand in the same position of opposition to Wright's methods as did the older classical method of repeated isolated applications of antiseptics like carbolic acid. The hypochlorite solutions, when properly applied, appear to encourage the free flow of lymph outwards from the wound as do the hypertonic salt solutions, and in whatever terms this action of these latter is properly to be described, there is evidence that the hypochlorites, unlike antiseptics of many other classes, have an adjuvant effect upon some of the newly recognized bodily processes of natural defence against invading organisms. Further inquiries into this question are still in progress.
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> It has become more and more clearly apparent that the successful treatment of infected wounds by either method depends not so much upon the particular solution employed—whether the hypertonic salt solution or the hypochlorite solution—as upon the actual technique of its application to the wound. Both Sir Almroth Wright and Dr. Carrel have, as already mentioned, developed systems of irrigation and treatment in which small details have high importance. Clinical "trials" of the salt or the hypochlorite solutions have been found to be valueless where the surgeon, regarding the solution as an independent curative agent, has left the technique of application in its details to the nurse or orderly, or has failed himself to study at first hand the necessary practical methods. The aim of both systems is to obtain such surgical cleanliness of the wound as to allow early suture and healing without prolonged suppuration and later scar formation, and highly successful results of this kind have been reported by the advocates of each.
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> It may be noted here that the use of salt or of hypochlorite solutions, both of which are very cheap, has led to a great saving in hospital expenditure. The Committee have been informed of instances in which a single patient for whom the use of other antiseptics in common employment earlier would have cost several shillings, has been treated with greater efficiency by hypochlorites at the cost of a penny or two.

Although hypochlorite solutions when introduced into the blood by intravenous injection are too rapidly absorbed by the blood proteins to remain available for any but a

negligible bactericidal action, they yet appear to effect removal of chemical poisons passed to the blood from the bacteria at the site of infection. This aspect of the matter is still under investigation, but the report goes on to make a lengthy reference to Dr. Dakin's observations on the mode of action of hypochlorites, the principal result being that related in the paper which, in conjunction with Professor Cohen and Dr. Kenyon, he contributed to this JOURNAL in January, 1916. It appeared that the antiseptic action of hypochlorites depended not upon their oxidizing properties, as had been commonly supposed, but on the formation of chloramines from proteins; this observation led to the manufacture on a commercial scale of chloramine-T (toluene sodium sulphochloramide). This substance has proved of great value for general antiseptic purposes, and being non-toxic it is specially useful in lesions of the mouth and wounds of the jaws. Chloramine-T is absorbed readily by textile fabrics, and gauze can take up 40 per cent. of its weight. Experience, the report states, has shown that even 4 per cent. chloramine gauze has a much higher antiseptic value than any other upon the market.

Recently Sir Almroth Wright has turned his attention to the perfecting of irrigation apparatus in the treatment of wounds by salt solutions, and his work is being supplemented by Captain Douglas, Dr. Colebrook, and Dr. Fleming in the treatment of special cases of severe wounds sent to the Committee's beds at St. Mary's Hospital. They are using special forms of irrigation, and adapting treatment to the results of a close study of the changing bacteriology of particular wounds. "The 'flora' of an infected wound change greatly, as is well known, as time passes, but more knowledge of these changes and the proper relation of treatment to them is much needed." The bacteriology of wounds, especially in the later stages, has been studied by Professor Dean of Manchester, who published his results in this JOURNAL last January, and by Dr. Kenneth Goadby of the Royal Herbert Hospital, Woolwich, the work in both cases being done on behalf of the Committee. Sir Almroth Wright has instituted a series of prophylactic inoculations against sepsis in wounds, and Dr. Goadby is engaged upon the study of the results of treatment with autogenous vaccines in selected cases of wounds.

STATISTICAL DEPARTMENT.

The work of this department overflowed from the house taken in Guilford Street, when the Army Council accepted its services for the compilation and analysis of the army medical statistics, into the new Copyright Department of the British Museum. The normal work has been continued so far as concerns the inquiry into the epidemiology of phthisis and the investigation into the periodicity of measles epidemics, the latter being part of an inquiry into the periodicity in infectious diseases, one of the first-fruits of which was the paper by Dr. Brownlee "On the Curve of the Epidemic," published in this JOURNAL last July.

The greater part of the time and energies of the department over which he presides was, however, given to the compilation and analysis of the army medical statistics. The basis is provided by the admission and discharge books maintained in every military hospital, supplemented by the medical case sheets, and certain other sources of information. It is recognized that registers made abroad during military operations must suffer from incompleteness during times of emergency and pressure; nevertheless, the greater number of the records so far transmitted have been maintained with great efficiency. On the other hand, the registers kept at the Territorial, Military and Auxiliary hospitals in this country, which now number over 2,000, were at first in many instances gravely imperfect. This involved a great deal of extra work, and it was found necessary in constructing a card index to make separate cards, each containing a complete extract of the entry regarding one individual in each hospital register. The cards, when gathered from all the separate institutions, come together upon sorting for the general index. At the beginning of this year the work was simplified owing to the War Office deciding to call in the hospital records at stated periods, and the Army Medical Department established a card index system in all hospitals in the United Kingdom from May 1st, and subsequently extended it to all hospital units of the British Expeditionary Force in France. These cards are uniform with the card index compiled by the Committee, to which they will be added. The Canadian statistics are being compiled by the Canadian Army Medical Corps on similar methods on behalf of the Canadian Government. The hospital registers recording the nature and results of the surgical operations performed are also being indexed on special cards.

Although the work has been heavy and the cost considerable, it has been recognized that the card index when completed will serve a national purpose of the highest importance, in addition to its immediate military and scientific value, for it will provide the only means of checking claims for pensions in the future. The experience of the United States in connexion with pension claims advanced after the War of the Rebellion shows the value and importance of such a card index of hospital records, for the American Government sustained heavy financial loss in consequence of the incompleteness of temporary records during the war.

Another need which the Statistical Department is fulfilling is that for what may be called current information. Owing to the rapidity with which the wounded are evacuated from France and other areas of operations, medical officers have had difficulty in gaining information as to the later history of a case, or group of cases, for guidance in future treatment, or as to the immediate past history of a case to guide present action. In the early months of the war the Secretary of the Committee arranged to secure by a system of postcards voluntary information from medical officers in this country, which was supplied to individual officers abroad who sought it for special reasons. This plan has now developed into an organized and official system for the collection and interchange of information. Major T. R. Elliott, M.D., F.R.S., R.A.M.C., was appointed by Sir Arthur Sloggett to represent the Medical Research Committee in this part of its work in France, and with him was associated Lieutenant-Colonel Guy Stephen, R.A.M.C. The system now in force is as follows:

1. Printed forms are provided for officers—chiefly those in casualty clearing stations—desiring information about any patient sent down to the base. After being filled up by the officer at the base, the card is posted back to the officer at the casualty clearing station.

2. Similar forms are supplied with the patient sent to this country, and the medical officer here posts the documents back as addressed.

3. Another set of forms is supplied for use by officers appointed at head quarters to inquire into the results of treatment, early or late, of selected groups of cases. The card which accompanies the patient is posted to the secretary in London, who dispatches a request and schedule for the information sought. The schedule, when filled up, is transmitted to the officer in charge of the inquiry in France. Such schedules are now being posted at the rate of over sixty a week. The subjects already treated under the schedule system are abdominal wounds, amputations, chest wounds, fractures, head wounds, disorders of the heart, wounds of joints, trench nephritis, neurological (functional) cases, and spinal injuries.

4. Special envelopes are supplied for non-confidential clinical notes which accompany the patient from hospital to hospital until his final disposal, when the notes are sent for addition to the case-sheets at the Statistical Department.

5. Blank illustrative diagrams have been supplied for the assistance of medical officers in note-taking.

The Statistical Department at home is also undertaking the classification and indexing of medical case-sheets, and from them Dr. Matthew Young has been able to provide summary reports upon large groups of cases of particular kinds at the request of consulting surgeons and physicians to the forces. The whole system has enabled the Committee to give help to medical officers engaged in particular inquiries by the supply of apparatus.

The Committee has also been able to give direct and indirect help to the formation of a national collection for the Army Medical Department of pathological specimens. In this it has collaborated with Professor Keith, who is superintending the indexing and temporary reception of the specimens received at the Royal College of Surgeons of England from units at home and abroad.

(To be continued.)

British Medical Journal.

SATURDAY, DECEMBER 2ND, 1916.

"A SCORN AND A DERISION."

IT is a bitter humiliation to the great body of the medical profession, which has shown itself so willing and able to rise to the height of the crisis through which the nation is passing, that the President of the General Medical Council should have felt compelled to utter two warnings against conduct on the part of some of its members which is involving the profession of medicine in the deepest disgrace.

In speaking of the call for trained practitioners to meet the needs of our ever-growing military forces, the President paid a well-deserved compliment to the central medical war committees established in England and in Scotland to assist the profession and the Government in securing a proper allocation of the available medical men between the military services and the civilian necessities. These professional committees, he said, had to decide what men can be spared from civil practice, and also to protect the interests of those absent on war service; with the help of local committees they had devised schemes under which local practitioners who remained at home might co-operate in attaining this end. While in some districts every practitioner had given this co-operation, there were, he said, others in which some had declined to do so; and he went on to utter the warning that if the voluntary organization of the profession, which had attained so great a measure of success, should, by reason of their defection, fail to meet all the requirements of the military services, some form of legislative compulsion for districts backward in their response might be enforced. "It may even be," he continued, "that increased disciplinary powers may be conferred on the Council, in order that it may be the better able to deal with individual cases of unfaithfulness to the special duty imposed upon medical practitioners by the present national emergency." These statements are perhaps less perspicuous than those we are accustomed to hear from him, but one meaning which may be attached to them is that, should certain medical men, whether of military age or not, persist in a course of conduct detrimental to the interests of those of their colleagues who have responded to the call of patriotism, the Council will seek powers for declaring such conduct infamous in a professional respect.

The other warning of the President was not less grave. It is bitterly humiliating that he should have to tell us that he had received from several important Government departments communications which made it clear that in some parts of the country there was an impression that some medical practitioners who remain at home have been induced to relax their usual vigilance in the matter of medical certificates. The departments had alleged that medical certificates came before them which were of little value as evidence of a man's actual condition of health or capacity for work. Such accusations have been frequently made during the last six months or more, but matters must have gone very far before Government departments think it necessary to address the President of the General Medical Council on the subject. Which Government departments had communicated with him he did not tell us, but we know that the Ministry of Munitions recently addressed a letter on the subject to the Council of the British Medical Association, which used all the means in its power to make public an appeal to the profession to exercise more care. We shall, perhaps, not be far wrong if we guess that among the other departments are the War Office and the Admiralty, for proceedings of tribunals reported in the press from very many parts of the country show that these bodies have sometimes found reason to regard medical certificates produced before them by appellants with grave suspicion.

The giving on insufficient grounds of a medical certificate which may be used before a tribunal to support a claim for exemption on the ground of physical unfitness, must be due to carelessness, incompetence, or dishonesty, and the fault in each case is aggravated by the fact that the giving of such a misleading certificate is a failure to discharge impartially a patriotic duty and to fulfil a responsibility laid upon the medical man by the nation. As the President said, the State is entitled to assume that a registered practitioner's certificate may be accepted as evidence of fact ascertained by an expert and attested by a man of honour.

It is bad enough that, through carelessness or complaisance, certificates should be given to help shirkers to escape their obligations, but it is worse to be told that medical certificates have been given upon which the only interpretation that could be placed by persons competent to judge their medical import was that they were deliberately designed to deceive the tribunals. Such a statement seems almost incredible, but the allegation is frequently made. Can we not purge ourselves of this reproach? Must we wait for the public scandal of proceedings before the General Medical Council? That Council can be, and we are sure will be, no respecter of persons, and if the scandal comes it must deal out even-handed justice alike to the struggling practitioner in a poor area and to the consultant or specialist in a fashionable street. A man's sense of honour and justice should preserve him from becoming the centre of such a scandal, but if they do not, then his own selfish interests should tell him how his conduct in the future must be directed. The patience of Government departments is not inexhaustible, and if a case is brought before the General Medical Council and established, it will be bound to act promptly, and without fear or favour. It issued some years ago a very clear warning with regard to the care necessary in drawing up and signing a medical certificate. It has been published more than once, and the medical press has called attention to it again and again—in our own columns last so lately as November 4th, 1916.

A man who sins again after these warnings will deserve no pity. He makes us "a reproach to our neighbours, a scorn and a derision to them that are round about us." Any such man, whatever his standing, should clearly understand that he is on the brink of ruin, and that his lapse from honesty will be execrated by the public not less than by the profession he disgraces.

GUNSHOT WOUNDS OF THE HEAD.

A REPORT[1] on the later results of gunshot wounds of the head, made by Lieutenant-Colonels P. Sargent and Gordon Holmes, R.A.M.C., on an investigation carried out by direction of the Medical Department of the War Office, will be of great interest to

[1] *Journal of the Royal Army Medical Corps.* September, 1916, vol. xxvii, No. 3.

surgeons, although the conclusions are of a tentative kind, owing to the relatively short period which has elapsed after the wound in the majority of the cases studied. These conclusions are distinctly conservative and encouraging, in spite of the fact that the statistics were obtained from hospitals to which cases of serious cerebral injury were by preference sent. After excluding scalp wounds without any bony or cerebral injury, and cases in which the nature of the injury was uncertain, as well as those in which the latest information was too recent to be of value, sufficiently accurate records of 610 patients were obtained, and over 75 per cent. of them were seen or had been examined more than three months after the infliction of the wound. For the purpose of estimating the percentage of mortality, however, all patients who had died after head wounds, at whatever interval after their arrival at home, were included. Of the 1,239 cases of gunshot wounds of the head admitted to eight hospitals in London, the records of which were examined, 46, or 3.7 per cent., died. This figure includes a certain number of serious and hopeless cases evacuated to England from the base hospitals in France as quickly as possible, on whom no operation was performed, or in whom exploration showed that there was no reasonable prospect of recovery. Nine such cases died within two weeks of their arrival at home, and in the majority of the others death occurred within three months. Only five patients are known to have succumbed after this period. In almost all instances spread of septic infection was the cause of death. Thirty-four of the forty-six fatal cases had been operated upon before their evacuation to England; in six no operation had been performed, and in the six others definite information on the point could not be obtained. The reporters distinctly state that they have traced and have heard of no case in which death occurred in England when the dura mater had not been lacerated by the wound, and had not been opened by operation.

It is, they say, now generally recognized that much of the paralysis, sensory and visual disturbances, and other symptoms seen in the early stages is due, not to local destruction of the brain, but to concussion, oedema, and vascular disturbances that often extend widely beyond the primary injury. Allowing for this, they state that they are yet, on the whole, surprised at the amount of improvement that has occurred. A small proportion of men with penetrating and perforating wounds of the skull originally seen with paralysis, sensory disturbances, hemianopia, and other symptoms, had already returned to active service, and others were employed in wage-earning capacities. The amelioration of symptoms was especially striking in many of the cases of hemiplegia, diplegia, or quadriplegia, due to injury of the superior longitudinal sinus. As improvement is generally slow and continuous over long periods, it is to be expected that a considerable proportion of men with even severe head injuries will be able to lead useful and active lives.

Though during the early stages after the infliction of the wound many patients present symptoms of some degree of mental deterioration, especially dullness, loss of memory, irritability, and childishness, the records tend to show that in the majority of cases these symptoms disappear or diminish. Cases of mental disturbance or actual insanity necessitating confinement under certificate were found to be surprisingly rare. During a period of twelve months only eight men wounded in the head were admitted with mental symptoms to the Napsbury War Hospital, the special institution to which cases of insanity attributable to conditions of service are sent for observation and disposal. Four of these had been discharged cured, or sufficiently improved to be at large; one had previously been invalided from the army as insane, but rejoined for the war; another was recorded as a case of dementia praecox, in all probability independent of the injury. In only two cases, therefore, could the persisting mental symptoms be attributed to the head injury. The results of the inquiry, which extended to all the London County Council asylums, confirmed the statement made some years ago by Dr. F. W. Mott, that he was sceptical as to the theory that any large number of cases of insanity arose from traumatic causes. An investigation then made had led him to the definite conclusion that head injury, apart from syphilis, alcohol, and hereditary neuropathic taint, was seldom the cause of mental affection.

With regard to epilepsy, the results of the investigation were equally reassuring. Among the 610 cases of which complete notes were obtained, fits had occurred after evacuation to England in thirty-seven, or 6 per cent.; but in eight only one convulsion had occurred, and in only eleven were the convulsions frequent. In a considerable proportion of the cases only one or two seizures occurred after arrival in England, and in several of the others they were arrested by the administration of bromide, and it is suggested that it is advisable to give bromide regularly to all serious cranial injuries until the wound is healed, and for some months afterwards. In five of the cases secondary operations were performed with good results; in two small abscesses were drained and in three spicules of bone were removed. Among the cases invalided out of the army various forms and degrees of paralysis, sensory and visual disturbances, and other symptoms due to the primary cerebral injury or to further damage to the brain by septic infection, hernia formation, or in the course of treatment, were common. Various subjective symptoms which could not be attributed to local injury were also remarkably frequent; the most common was headache, increased by noise, fatigue, exertion, or emotion, as well as attacks of dizziness, nervousness, and deficient control over the emotions and feelings. Many exhibited a change of temperament, becoming depressed, moody, irritable, or emotional, and unable to concentrate attention on any physical or mental work. In a few there were major hysterical symptoms, such as paralysis, anaesthesia, or visual disturbances. The symptoms were very similar to those seen in neurasthenia, especially of traumatic origin, and although they incapacitated the subject from active service were not irrecoverable. They were entirely independent of the site or severity of the original wound, were often as severe when the scalp had been injured as in a serious compound fracture of the skull, and seemed to develop equally whether an operation had been performed or not.

Of the cases evacuated to England with cerebral hernia death occurred in 24.16 per cent. Of cases in which bullets, shrapnel balls, or fragments of metal were lodged in the brain ninety-seven were traced; the foreign body had been removed before transference to England in twenty-seven instances, but in many of them the bullet or piece of metal was only just inside the skull, and was removed along with the fragments of bone. Of these, three died, all within three months, others were heard of alive at varying periods up to twelve months after the infliction of the wound. The fate of sixty-nine cases sent to

England with the missile still in the brain was traced. In all the foreign body was at some considerable distance from its point of entry; a few were rifle bullets and a few shrapnel balls, but the great majority were smaller or larger fragments of shell, often multiple and inaccessible, yet only four died. Of these four, two were sent home in what appeared to be a hopeless condition, and both died within two months; one died six weeks after an unsuccessful attempt to remove a bullet which lay close to the falx cerebri, and the fourth died from rupture of a cerebral aneurysm, the fatal issue being wholly unconnected with the continued presence of the missile. Of the sixty-five surviving cases, twelve had been wounded less than three months before they were inspected, twenty-five between three and six months, twenty-one between six and twelve months, and seven over a year. In 76 per cent. the wounds were soundly and completely healed, and in 30 per cent. complete recovery had occurred, and no symptoms of cerebral lesion were present. In 40 per cent. the neurological symptoms had improved to a remarkable extent; in 10.5 per cent. much disability (hemiplegia, hemianopia, neurasthenia, etc.) persisted, but its existence depended on the damage done by the missile in its course, and not on its presence. Fits were observed in only four cases, and in two of these they occurred early and were transient.

Among the 610 cases of which complete records were obtained, fifty-three were submitted to operations in England; in thirteen of these the operation was clearly of a trivial character, consisting merely in the removal of sequestra from an unhealed wound; twelve were for intracerebral abscess, and ten of these recovered, a remarkable result in view of the very much higher rate of mortality in cerebral abscess of otitic origin. In three cases in which an operation was performed for the removal of a projectile, one proved unsuccessful and the patient died, another was also unsuccessful but the patient did not die, and the third was successful and the patient recovered. In three cases a cerebral hernia was shaved off, and two of them died of meningitis. The third, although cerebro-spinal fluid escaped from time to time after the operation, survived, but he still had a hernia cerebri.

In summing up the results of their investigation the authors say that the later results of head wounds seem to be much more satisfactory than had been generally expected. Later complications, such as cerebral abscess, are relatively rare, and serious sequelae, such as insanity and epilepsy, much less common than had been foretold, but they recognize that this conclusion is subject to the qualification that in only 15 per cent. of the cases had it been possible to learn their condition after more than one year. Still, as they say, even such facts as are available are a safer guide to treatment than opinions based merely on *a priori* reasoning.

Another conclusion they draw is that there are no grounds for supposing that more radical operations abroad are called for. "It seems," they say, "extremely doubtful if surgical intervention other than that necessary for the drainage and healing of the wounds diminishes appreciably the risk of later complications, or can modify, except in a harmful direction, the course of these cases from the functional standpoint. Every possible step should, however, be taken to prevent the development of a hernia cerebri. Our records also show that many patients with foreign bodies lodged deeply in the brain recover, and are scarcely more liable to serious complications than men in whom the brain has been merely exposed and lacerated. Any attempt to remove them which may involve spread of infection or further destruction of brain tissue is consequently inadvisable."

THOMAS WILLIS, ANATOMIST AND PHYSICIAN.

ECCLESIASTICUS enjoins us to praise famous men. Among "the leaders of the people by their counsels and by their knowledge of learning meet for the people" there are none who better deserve to be held in remembrance than the men who have enlarged the empire of medicine; yet there are none of whom it may more truly be said that "some there be which have no memorial, who are perished as though they had never been." Like the builders of the old cathedrals, their work lives but their names are forgotten. It is all the more pleasing, therefore, when public honour is done to a discoverer like Thomas Willis, whose name no longer *volitat per ora virom*. With the yearly recurrence of St. Martin's Day an annual festival is held at Fenny Stratford, which had its origin in the devotion of Dr. Browne Willis, LL.D., not so much to the famous Bishop of Tours as to the memory of his own grandfather, Thomas Willis, who lived in St. Martin's Lane, London, and died on St. Martin's Day. It was in the parish of St. Martin-in-the-Fields that the physician gained the wealth which enabled his grandson to build the parish church of Fenny Stratford and dedicate it to St. Martin. This year the festival was observed with rites of special interest. The chief feature was an address by Sir William Osler, who is as happy in making the dry bones of old medical literature live again as in tracing out the mysteries of a new disease. Willis was born in 1621, and after graduating in medicine at Oxford in 1646 practised as a physician in that city for twenty years. During that period he was intimately associated with William Petty, Christopher Wren, who made drawings for him; Lower, who also did a good deal of work for him; Robert Boyle, Seth Ward, and other members of a remarkable group out of whose meetings grew the Royal Society. In 1666 Willis exchanged Oxford for a larger sphere in London, where, in the words of Antony à Wood, "in a very short time he became so noted and so infinitely resorted to for his practise that never any physician before went before him or got more money yearly than he." He died in 1675 and was buried in Westminster Abbey, the inscription on his tomb informing the passer-by that "the most celebrated Thomas Willis, whose praises the sepulchral tablet cannot contain," lies there. The praise, though fulsome in tone, is not undeserved, for Willis really was a great man. His name is written in the circle of blood vessels at the base of the brain which he described; he first recognized diabetes mellitus; he wrote on the pathology of the brain and nerves, on convulsive diseases, and on hysterical and hypochondriacal affections. He studied fermentation, and, as Sir William Osler says, made the mystery still greater. He was one of the first to describe typhoid fever in epidemic form; he was also one of the first to give an accurate account of childbed fever. His large work, *Pharmaceutice Rationalis*, which deals with the action of medicaments on the human body, makes a reader of the present day—if any such there be besides Sir William Osler, who owns that the study of Willis's works in preparation for his address gave him many sleepless nights—profoundly thankful that modern medicine has so largely freed itself from the thraldom of drugs. Although Willis in his conception of pathological processes on some points anticipated modern science, and although he looked at Nature with his own eyes, his observation was sometimes at fault. One bad mistake is recorded in a notebook kept by James Molins, who was a student at St. Thomas's Hospital in 1674–77; it was published by J. F. Payne in

the *St. Thomas's Hospital Reports*, vol. xxiii. The case is too long to be given in detail here, but the essential fact is that Willis diagnosed as a wen an aneurysm of the aorta as large as a man's fist. The aneurysm burst, and on *post-mortem* examination it was found that the artery "was dilated by the magnitude that it would containe an egg." The patient was the wife of the famous physician's coachman, and the story recalls an old picture in *Punch*, where Sir Toby Bolus's cook, who has been treated by the great man, is depicted as asking if she may see a regular doctor as she had got no good from her master. A better diagnosis was made by Willis when called in to one of the sons of the Duke of York, afterwards James II; he gave his opinion in the words *Mala stamina vitae*. This reflection on the conduct and constitution of the father not unnaturally gave offence, and the uncourtier-like physician was never consulted by the Duke again. Antony à Wood has left a picture of the man which may be quoted, although that gossipy writer is not always to be trusted: "Thomas Willis was a plain man, a man of no carriage, little discourse, complaisance, or society, yet for his deep insight, happy researches in natural and experimental philosophy, anatomy and chemistry, for his wonderful success and repute in his practice, the natural smoothness, pure elegancy, delightful unaffected neatness of Latin style, none scarce have equalled, much less outdone him, how great so ever."

SPIROCHAETOSIS ICTEROHAEMORRHAGICA IN FRANCE.

EPIDEMICS of acute infectious jaundice, or Weil's disease, as it has commonly and mistakenly been called during the last thirty years, have recently been studied with much attention in many countries. In 1914 certain Japanese bacteriologists investigated an epidemic of the disease occurring near Tokyo, and in 1916 published a full account of their discovery of the *Spirochaeta icterohaemorrhagiae*, the cause, or possibly only one of the causes, of such epidemics. An account of their work will be found in the BRITISH MEDICAL JOURNAL of April 1st, 1916, page 491. A note on the disease as it has occurred in our army in Flanders was printed in the BRITISH MEDICAL JOURNAL of September 23rd last, on page 413; here Captains Adrian Stokes and J. A. Ryle give a preliminary account of their clinical observations and their experimental work with the infecting agent. The current medical literature of both Italy and Germany shows that in these countries also this form of jaundice is being investigated, and the same is the case in France. At a recent meeting of the French Academy of Medicine, Drs. L. Martin and A. Pettit,[1] who describe a visit to the laboratory of Captain Stokes "somewhere in France," produced experimental evidence to show that icterohaemorrhagic spirochaetosis is occurring also among the French soldiers. They found three cases of the disease among over fifty patients with jaundice; the inoculation of guinea-pigs with blood from these three patients caused the animals to succumb to haemorrhagic jaundice in from seven to twelve days, with internal lesions similar to those described by the Japanese and British authors quoted above. Drs. Martin and Pettit draw attention to the highly infectious nature of the malady. One of their colleagues, a very careful worker, engaged in transmitting the virus from guinea-pig to guinea-pig on September 2nd and 4th, was seized with violent fever on September 10th, and developed jaundice on September 16th. Next day the urine contained the characteristic spirochaetes; and this incident is taken to show that the period of incubation of the disease may be six or eight days. For its treatment hydrotherapy is recommended as giving ease to the patient; arsenical drugs seem to be indicated, as in other diseases caused by spirilla, but Drs. Martin and Pettit feared the destructive action arsenic might have upon the hepatic and renal cells, and so did not give it to their colleague. They think that it will probably be possible to prepare a specific antiserum, and that this will be found to be the best remedy for the disease. They dilate upon the injustice, from the historical point of view, of describing this form of jaundice as "Weil's disease." The older literature contains many descriptions of it that antedate Weil's account published in 1886. Thus it was met with by Larrey at Cairo during Napoleon's Egyptian campaign about 1800. It was described as "grave essential icterus" by Ozanam in 1849, as "essential haemorrhagic icterus" by Monneret in 1859. Further, the disease came under the observation of the elder Laveran in 1865, Lancereaux in 1882 ("icteric fever"), Landouzy in 1882, and Mathieu in 1886 ("hepatic typhus"), and, no doubt, other clinicians as well. There seems to be no good reason, therefore, for continuing to employ the term "Weil's disease" for acute epidemic jaundice; the name should be dropped.

[1] *Bull. de l'Acad. de Méd.*, Paris, 1916, 3rd S., lxxvi, 247.

GROWTH IN LENGTH.

THE late Dr. Richard Assheton delivered three lectures at Guy's Hospital in 1913 on growth in length. They have now been printed, along with an article he contributed to the *Archiv für Entwicklungsmechanik der Organismen*[1] in 1910. Assheton's interests were always centred in the very earliest stages of the vertebrates, and in the first part of this book he deals with gastrulation, the fate of the blastopore, and the functions of the early growth centres. He divides the vertebrate into those parts—the fore-brain, eyes, heart, mouth, etc.—which are derived from the gastrula itself, and those which are derived from the lips of the blastopore. The distinction between these protogenetic and deuterogenetic centres of proliferation is insisted on throughout the book. The deuterogenetic centre, or "germ-ring," is situated round the edge of the blastopore; by its growth it produces a strictly cylindrical body—that is, one which is radially symmetrical in transverse section. The blastopore itself is the definitive anus. Insistence on this retention of radial symmetry for a short time after the embryo has passed out of the gastrula stage is an essential feature of the book. The bilateral symmetry of all later stages is implanted on this. In this matter Assheton found himself in disagreement with most other embryologists, who accept the view, first propounded by His in 1874, that the blastopore lips coalesced from side to side, and so produced at once an elongate, bilateral symmetry. Assheton always tried to explain the phenomena of embryogenesis in terms of physics and chemistry. We may instance his hydrodynamic explanation of the origin of the amniotic cavity, owing to fluid distension of a closed archenteron. He recognized the limitations of physico-chemical explanations, and was always a convinced vitalist. He rejected Driesch's conception of entelechy, deeming it too mystical. He wished to substitute for it a number of more defined forces. In the latter part of this book he studies intracellular attraction, or cytokinesis, which he regards as one of the forces characteristic of living matter. It is shown by the parallelogram of forces that cytokinesis is sufficient of itself to produce gastrulation of a blastula under certain well-defined conditions, and that the centre from which it acts corresponds to the position of the centrosome. For gastrulation to occur an eccentricity of the centre of action of some of the cells of the blastula is necessary, and this eccentricity appears to be produced by the irregular distribution of yolk granules. Dr. Assheton is able to reconcile this hypothesis with Roux's observation that single blastomeres of the two or four cell stage of the frog's egg may proceed as far as gastrulation or further, though those from the eight-cell stage cannot do this.

[1] *Growth in Length: Embryological Essays.* By R. Assheton, M.A., Sc.D., F.R.S. Cambridge: The University Press. 1916. (Demy 8vo, pp. 115; 42 illustrations. 2s. 6d. net.)

The vital forces acting at the deuterogenetic centre are less easily analysed than those which may be believed to produce gastrulation. Assheton's style was vigorous, but constantly recalls the fact that he was a man whose enthusiasm and originality were blended with the most unfailing courtesy. This posthumous volume is well illustrated, and contains a bibliography of all the published work of its author.

AN OLD YPRES SURGEON.

Of Ypres it may now almost be said *etiam periêre ruinae*. Yet but lately it was a prosperous city full of interest for antiquarians and lovers of art. In the fourteenth century there was no country more advanced than Flanders in civilization and none in which arts and industries were in a more flourishing state. How successfully surgery was cultivated is shown by a treatise written by Maître Jehan Yperman who was born at Ypres in the last quarter of the thirteenth century. The records of the city show that he was granted a subsidy out of the public funds to enable him to study surgery. For that purpose he went to Paris, where he worked under the famous surgeon Lanfranchi, driven by stress of politics from Milan. In 1303 or 1304 he returned to Ypres and was immediately appointed surgeon to the Belle Hospital. In 1325, when the citizens of Bruges went to war with the Count of Flanders, Yperman was appointed surgeon to the Ypres contingent. The manuscript of his work, of which there are only two copies in existence—one of them in the library of St. John's College, Cambridge—is written in old Flemish and is illustrated by very rough drawings, mostly of needles, knives, forceps, chisels for operations on bones, and other instruments. In laying down rules for the stitching of wounds he shows himself familiar with the practice of secondary suture after freshening the edges. He has much to say about the stoppage of bleeding. Among the methods indicated are compression and the action of cold and heat; when these fail recourse must be had to ligature or torsion of the bleeding vessel. Trephining is described in detail; Yperman preferred the gouge, but also used the chisel and mallet. He recommends that when hernia cerebri occurs, a small plate of lead or thin wood should be placed over the opening in the skull after reduction of the hernia. A long chapter is devoted to sinuses of the limbs, which are said to be due to the presence of fragments of necrosed bone; the clinical course and the operative treatment are clearly described. Of wounds of the intestine, he says that their gravity differs according as it is the large or small gut that is injured. If it is the small intestine the wound is mortal, for the escape of pus and faeces into the abdomen inevitably produces complications. In a wound of the large intestine, on the other hand, there is hope of recovery. If the wound is long it should be stitched, the sutures being left hanging out. Care should be taken to reduce the herniated intestine, and stress is laid on the necessity for keeping the abdominal wound open till the sutures come away. If any loops of intestine escape and there be any difficulty in reducing them the wound should be enlarged; "but," says our author, "do not forget to keep the intestine warm with hot wine." Yperman's work throughout bears the stamp of independent observation. He based his teaching on experience, and in this respect this forgotten treatise is far in advance of the majority of medical writings of a much later date. The modern reader can scarcely fail to be struck by the clinical insight, good sense, and practical wisdom of the old Flemish surgeon. Like Mondeville, Clowes, and the old surgical writers generally, he was fierce in his denunciation of the unqualified or "lay" practitioner. In regard to fees he held that the rich should be made to pay well, while the poor should be treated as friends. The date of Yperman's death is unknown, but there is no mention of his name in the archives of Ypres after 1329.

THE WOUNDED SOLDIER.

Lieutenant-Colonel Guy Stephen, R.A.M.C., has contributed to the *Journal of the Royal United Service Institution* for November an article entitled, "The Via Dolorosa of the Soldier," which is not only of great interest to every one to-day but will become a document of historical value. It describes how the R.A.M.C. has been expanded and its methods adapted to meet the special conditions of the war in France and Flanders; these conditions will probably never recur in the same form in future wars, but they must have a permanent influence on military medicine. We will not follow him through the various sections of his article, for most of what he has to say is already familiar to our readers, much of it through his own contributions to our pages. But we may direct particular attention to his observations on the casualty clearing station, which he describes as in some respects one of the most notable developments of the war. In such an institution the wounded soldier finds himself in surroundings which are in fact, if his wound be at all serious, precisely those of a hospital in peace time in all but external appearances. There are skilled surgeons, each, whatever his particular work may be, carefully chosen for it; skilled nurses, operation rooms with all the usual annexes, and beds in the wards, whether these be tents, huts, or civil buildings transformed for the purpose. The administrative work of such a unit calls for the highest capacity, and there is no other unit which makes so strong an appeal to the visitor whose interest is chiefly in clinical matters. As Colonel Stephen says, nothing "better brings home both the pitiful and splendid sides of this war than the sight of a casualty clearing station on a fairly rainless day an hour or two after the arrival of a convoy." In his concluding paragraphs he pays a tribute to the general body of civilian practitioners and the readiness it showed from the very beginning to join the army in France. It is an essential component of the organization, for without it the Royal Army Medical Corps could not have been brought up to the necessary strength in officers, and it is an effective component "because the medical men concerned bring to the work the professional experience of civil life, coupled in many instances with the moral assistance of great reputations, and in almost all cases with a readiness to fall in with the spirit of the original corps itself and perform the duties assigned to them conscientiously and without question." Finally, that the success has been so great is largely due to the fact that the members of the original Royal Army Medical Corps early recognized the greatness of the task before them, and that it could not be performed with efficiency unless they set aside a thousand inherited military scruples and preconceptions.

Medical Notes in Parliament.

The Board of Pensions Bill.

At the beginning of the Committee stage of the Board of Pensions Bill in the House of Commons on November 27th Mr. Hogge, on behalf of a number of members, moved the first of a series of amendments designed to have the effect of unifying the whole pensions administration. The amendment was resisted by the Government, but a discussion, which lasted about two hours, showed that the general sense of the House was in favour of unification. Eventually Mr. Henderson accepted the amendment, and undertook to bring up a series of amendments to meet the wishes of the House.

The amendments put down by Mr. Henderson on behalf of the Government change the scope of the bill in many material respects.

Clause 1. The amendments propose to constitute in place of a Board of Pensions, a Ministry of Pensions, with a single

Minister, to be advised by the Parliamentary Secretary of the Admiralty, the Financial Secretary of the War Office, and the Parliamentary Secretary of the Local Government Board.

Under Clause 2 there would be transferred to the Minister of Pensions (*a*) the duties of the Admiralty with respect to pensions and grants; (*b*) those of the Chelsea Commissioners with respect to the grant and administration of disability pensions other than in-pensions; (*c*) the powers and duties of the Army Council and the War Secretary with respect to pensions and grants, including those to nurses, other than service pensions; (*d*) the powers and duties of the Statutory Pensions Committee, except the power to supplement pensions and grants out of funds not derived from moneys provided by Parliament.

Amendments to Clause 4 provide that the powers and duties of the Statutory Pensions Committee shall be exercised under the control and in accordance with the instructions of the Minister of Pensions.

A new Clause 5 reserves the powers and duties of local pensions committees.

Food.

Bread.—Mr. Partington asked, on November 22nd, whether national bread in France contained maize flour and rice flour, and, if so, in what proportions. The Parliamentary Secretary to the Board of Trade replied that wheaten flour now used in making bread in France was required to contain not less than 80 per cent. of the weight of the wheat. The admixture of flour other than wheat flour was not compulsory in France, but was permitted on condition that bread made from such mixed flours was sold under a name accurately describing its nature. In reply to a question on November 23rd Mr. Pretyman said that no authority had been given by the Board of Trade for the quartern of wheaten bread to be made partly of maize meal, and a suggestion by Captain Bathurst that maize meal did not blend satisfactorily with wheat flour and was less palatable than either oatmeal or barley meal would be borne in mind. In reply to Mr. Glanville he said that the *Gazette* price of British wheat was in the third week of July, 1914, 3 s.; in the year ending July 31st, 1915, 48s. 1d.; in the year ending July 31st, 1916, 52s. 6d.; and for the period from August 1st to November 18th, 1916, 60s. 11d. The Parliamentary Secretary to the Board of Agriculture said, in reply to a question by Mr. Carew, that the feeding of any millable wheat to pigs, or the using of it for any purpose other than human food was strongly to be deprecated, and steps might have to be taken to prevent it. On the same day, in reply to questions as to new bread, Mr. Pretyman said that considerable economy could be effected by not consuming bread until twenty-four hours after it was baked, and he hoped that the publicity given to this opinion would tend to diffuse the knowledge of the fact amongst consumers. The question whether the sale of new bread could be prohibited had been considered, but was found to be impracticable, mainly owing to the lack of storage accommodation in bakeries.

Rice.—The Parliamentary Secretary to the Board of Agriculture stated, on November 23rd, that the policy of forbidding the polishing of rice, by which the most nutritive portion of the grain was removed, was under consideration.

War.

Disabled Soldiers.—Lord Henry Cavendish-Bentinck asked, on November 23rd, whether the Secretary of State for War had come to a decision whether or not the army authorities would assume responsibility for the complete restoration to health of the disabled soldier. Mr. Brooks asked whether any scheme was being considered whereby soldiers discharged from the army as unfit for further military service would be trained in suitable civil employment and retained with the colours at their regular rates of pay during such period of training. In a written reply to these two questions, Mr. Lloyd George stated as follows: "A scheme has been prepared, and has now been submitted to the different authorities concerned for their remarks. When these remarks have been received, I hope to be in a position to make a further statement."

Hospital Stoppages.—Mr. W. Thorne, on November 21st, asked whether the Government was considering the advisability of paying a soldier when he was in a hospital through no fault of his own the full rate of soldier's pay, and whether, while a soldier was being treated in a hospital 7d. a day was stopped from his pay. Mr. Forster recalled that on an earlier day he had informed Mr. Hogge that deduction was made only when men were in hospital in circumstances which in the discretion of the commanding officer were held to justify the deduction. He now said that a full stoppage was never made except when a man had to go into hospital through his own fault. There was no stoppage if the man was in hospital in consequence of wounds or disease incurred through service. If a man was admitted to hospital for other causes, but through no fault of his own, it rested with the commanding officer to make a stoppage or not. Except where a man went into hospital in consequence of disease incurred through his own fault a stoppage was not made. Mr. M. Barlow asked, on November 23rd, whether in the case of soldiers sent to certain hospitals half pay was deducted, and whether in view of the fact that soldiers were usually insured persons such deductions would be made good out of insurance funds. Mr. Forster said that the soldier was not entitled to any hospital treatment from National Insurance funds during service with the colours, and did not pay any contribution in respect of such benefit.

Frostbite: Compensation.—The Secretary to the War Office stated in a written reply on November 16th that it had been decided that in the case of officers incapacitated by frostbite, as well as other cases of injury arising from some special risk due to war conditions, and where reasonable precautions were not neglected by the officers, the cases might be treated for compensation purposes as though they had occurred in action.

Ration Allowance.—Mr. Goldstone asked, on November 23rd, whether in view of the increased prices of food the ration allowance at home stations, which had been reduced to 1s. 7d. a day, would be increased. Mr. Forster, while declining to admit that increased prices generally applied equally to the soldier and the civilian, said that the rate of ration allowance was under consideration.

Fees for Medical Examination of Recruits.—On November 28th Mr. Cowan asked a question as to the fees paid for the medical examination of recruits, which were at the rate of 2s. 6d. each for the first sixteen recruits, with a limit of £2 for any one day, resulting in some cases in Scotland in an average rate of less than 6d. a recruit; and whether, considering the inadequacy of the rates actually paid in Scotland for the professional services rendered, the payment would now be authorized to such Scottish doctors of such sums as might be necessary to place them upon an equal footing with their colleagues in the Eastern Command. The Financial Secretary to the War Office said that £2 was considered a fair maximum for a full day's work in the medical examination of recruits. Authority had been given to exceed this maximum in certain exceptional cases in which a rate per head was promised without imitation as to total, but it was not considered that a similar arrangement in other cases could be justified. Mr. Cowan asked whether this was fair treatment of medical men, who in some cases were not told until their work was done what the conditions of remuneration would be, but Mr. Forster said that he was unable to come to any other conclusion than that he had stated. Mr. Hogge then asked whether any of the money paid to doctors for passing into the army men who were medically unfit had been recovered. Mr. Forster replied that, speaking from memory, he thought that a certain amount had been recovered, and offered to obtain particulars.

Grants for Military Patients in Civil Hospitals.—In the House of Lords, on November 28th, in reply to Lord Devonport, who called attention to the inadequacy of the grant for military patients in civil hospitals, the Earl of Derby said that in regard to the 3s. grant to the auxiliary departments new arrangements were being made with the Joint Committee of the Red Cross and the Order of St. John under which a grant of 6d. a day would be made under certain conditions for every unoccupied bed. Much had been done to improve the administration, and there had been an actual decrease in the cost per bed during the last six months, notwithstanding the rise in prices, and without any decrease in the efficiency of the hospitals. It was considered that the new grant would place the hospitals on a satisfactory footing.

Amalgamation of Poor Law Unions in Ireland.—In reply to a question by Mr. Hugh Law, on November 23rd, Mr. Duke said that the Local Government Board in Ireland was most desirous of giving effect to schemes of amalgamation, or schemes for the closing of workhouses and the transfer of the inmates to adjoining workhouses. He understood that at the instance of the Donegal board of guardians arrangements were being made for the holding of a county conference, and it was true that in the Dunfanaghy Union there were as many union officials as inmates of the workhouse.

THE late Dr. Magnan, a former president of the Paris Académie de Médecine, has left to that body a sum of £1,000 to found a triennial prize to be awarded to the author of the best work on a psychiatrical subject.

THE Italian Minister of War recently invited medical women to offer themselves for military service. Graduates of more than five years' standing are to have the rank of sublieutenant; those of more than fifteen years' standing that of captain. Signora Filomena Cervini is the first woman who has received a commission. She has been appointed to the 9th Army Corps for service at the front.

THE WAR.

TREATMENT OF THE DISCHARGED DISABLED SOLDIER.

THE problem of what should be done for the soldier who is found to be suffering from some disability which will prevent him from again serving in the army in any capacity has not yet been solved. It is probable that no definite step will be taken by the Government until the bill for the establishment of the Ministry of Pensions, which is now in the melting pot, emerges in its final form.

One suggestion that has been made is that the disabled soldier should continue to be paid at the ordinary army rates until his treatment is completed. Another is that he should be discharged, but that arrangements should be made for his treatment as an out-patient at a military hospital, whether a general hospital or a special hospital, such as an orthopaedic hospital or section, on the recommendation of the local pensions committee. The questions of the provision of the accommodation and personnel at the hospitals may in some instances place difficulties in the way of the realization of the scheme; another difficulty would arise in housing the discharged men while undergoing out-patient treatment. There are obvious objections to billeting in the neighbourhood of the hospital, but there would be objections also to establishing special barracks for them.

At the same time the problem of the treatment of the disabled soldier, who, if precedent were followed, would be discharged from the army, given a pension, and left to get such treatment as he chose to seek or could obtain, is one that presses for solution, and we trust that in any attempted solution due weight will be given to the experience and opinions of the civil medical profession.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON G. A. WALKER, R.N.

Surgeon Godfrey Alan Walker, R.N., was killed in action on November 14th, aged 28. He was the second son of Mr. J. Henry Walker, of Mirfield, Yorkshire, was educated at Epsom College and at the London Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912. After filling the posts of house-surgeon and ophthalmic house-surgeon at the Royal Infirmary, Sheffield, and resident medical officer of Baythorpe Infirmary, he took a temporary commission as surgeon in the Royal Navy in August, 1914. He served for a year at Cromarty, then went with the Royal Naval Division to Gallipoli, and, after serving for some time in a hospital at Tenedos, was transferred to another front. His brother, Second Lieutenant Gerald Walker, Yorkshire Light Infantry, was killed on July 1st last, and his youngest brother is a prisoner of war at Ruhleben.

SURGEON J. S. WARD, R.N.

Surgeon John Scott Ward, R.N., was returned as killed in action in the casualty list published on November 24th. He was educated in the school of the Royal College of Surgeons, Edinburgh, and took the Scottish triple qualification in 1907. He entered the Royal Navy as a surgeon on May 6th, 1910.

Wounded.

Surgeon F. B. Eykin (temporary).
Surgeon J. N. McB. Ross (temporary).

ARMY.

Killed in Action.

CAPTAIN I. M. BROWN, R.A.M.C.

Captain Ian Macdonald Brown, R.A.M.C., who was killed in action on November 15th, aged 28 years, was the younger son of Dr. and Mrs. Macdonald Brown, of Upper Berkeley Street, W. He was educated at St. Paul's School and Downing College, Cambridge. He graduated B.A. (Natural Science Tripos) in 1910 and M.A. in 1914. After a year's study in medicine at the University of Edinburgh he entered the London Hospital and took the diplomas of M.R.C.S., L.R.C.P. in July, 1914. He had intended to present himself for the final examination in medicine at Cambridge in the December of that year, but immediately war was declared he volunteered his services, and was given a commission (temporary) in the R.A.M.C. After spending a considerable time in the service at Aldershot he was sent out to Gallipoli in June, 1915, and was invalided home in August of the same year. From that time until the middle of September of the present year he held various regimental and hospital posts at Cosham, Winchester, and other centres of the Southern Command. He was sent out to the front in France, where he acted as surgeon, first to the New Zealand Division and subsequently to the 190th Brigade, R.F.A. It was while attending to the sick and wounded under shell fire that he was killed. His Colonel writes: "We are so very sorry to lose him, as we liked him so much, and he was such a good man at his profession, and is a very great loss to us." A brother officer, in writing to his relatives, says: "I cannot tell you how sorry I am, but you must bear it as bravely as he lived out here." One of the gunners writes: "At the time he received his mortal wound he was returning from 'D' Battery after visiting the sick men, to whom he devoted all his time. The loss of the captain is very deeply felt by all the boys of the brigade, with whom he was so very popular." He leaves a young widow and an infant son.

CAPTAIN I. A. MURRAY-MITCHELL CLARKE, R.A.M.C.

Captain Ian Alexander Murray-Mitchell Clarke, R.A.M.C., was killed on November 16th, aged 23. He was the elder son of the Rev. Dr. Clarke, of Mossgreen Manse, Crossgates, Fife, and was educated at Edinburgh University, where he was a final year medical student when the war began. He then took service under the Red Cross Society, and served abroad for some time. Returning in 1915 to Edinburgh, he graduated as M.B. and Ch.B., and immediately after took a temporary commission as lieutenant in the R.A.M.C., being promoted to captain on completion of a year's service.

LIEUTENANT G. W. GUTHRIE, R.A.M.C.

Lieutenant George Watson Guthrie, R.A.M.C., was killed in action on November 13th He was the son of the late Rev. David K. Guthrie, of Liberton, Midlothian, and was educated at Edinburgh, where he graduated M.B. and Ch.B. in 1900. He used to practise at Tunbridge Wells, but was recently living at Lima, Peru. His commission was dated May 29th, 1916.

Died on Service.

LIEUTENANT-COLONEL H. K. BEAN, AUSTRALIAN A.M.C.

Lieutenant-Colonel Harold Knowles Bean, Australian Army Medical Corps, died on board the hospital ship *Kanowna* on September 25th, aged 59, from illness contracted on active service. He was the only son of the late Dr. Dex Bean, of Mossley, Lancashire, and was educated at Edinburgh, where he graduated M.B. and M.D. After practising for a few years in partnership with his father, he went to Australia in 1887. At first he settled at Heidelberg, Victoria, but after a few years moved to Wallsend, New South Wales, where he practised for the rest of his life. He served as a lieutenant in the New South Wales forces in the South African war, and, retaining his commission in the State militia, in 1914 had risen to the rank of major. He was then promoted to lieutenant-colonel, and went to Egypt in command of a field ambulance, and from Egypt to Gallipoli, whence he was invalided to England. Three months later he was sent to France on special duty, and then returned to Egypt, where he contracted the illness which proved fatal. He leaves a widow and a daughter.

MAJOR C. H. BENHAM, R.A.M.C.(T.F.)

A. F. H. writes: As one who had the pleasure of working with Major C. H. Benham in Salonica during the first six months of this year, I should like to add a note of appreciation to the obituary published in the JOURNAL of November 25th. He was head of the medical division of the 29th General Hospital, where he did most admirable

work. He organized a "heart squad," which enabled large numbers of men, who would otherwise have been invalided home for functional cardiac disorders, to return to their units, as under his direction graduated exercises were found very effective in the earlier stages of "soldier's heart." He helped to found the Salonica Medical Society, and represented his hospital on the committee. He took an active part in many of the discussions, and gave a masterly address on the diagnosis of paratyphoid fever from the other fevers prevalent in Salonica, at the last meeting held under the chairmanship of Surgeon-General Macpherson. The remarkable efficiency of the hospital was in no small degree due to his keenness, and the gap he leaves will be difficult or impossible to fill. Major Benham is the second officer of the hospital to die from the effects of dysentery, as Lieutenant F. Whitaker, who was a popular figure as the referee in hospital boxing contests, and whose untimely death occurred recently in Egypt when on his way home, was one of his surgical colleagues.

Died of Wounds.

LIEUTENANT-COLONEL H. B. CONNELL, R.A.M.C.

Lieutenant-Colonel Harry Bertram Connell, R.A.M.C., was reported as having died of wounds in the casualty list published on November 26th. He was born on June 5th, 1876, educated at Birmingham University, and took the Scottish triple qualification in 1902, subsequently taking the Liverpool diploma in tropical medicine in 1914. After acting as house-surgeon to the Birmingham General Hospital, he entered the R.A.M.C. as lieutenant on January 30th, 1904, becoming captain on July 30th, 1907, and major on July 1st, 1915. On February 1st, 1916, he was promoted to the temporary rank of lieutenant-colonel. He had previously seen service in East Africa, where he served with the King's East African Rifles from December 31st, 1904, to August 21st, 1907.

Wounded.

Captain F. Irvine, R.A.M.C., temporary.
Captain J. I. Lawson, R.A.M.C.(S.R.)
Captain W. A. Miller, D.S.O., M.C., R.A.M.C.(temporary).
Lieutenant J. B. Stevenson, R.A.M.C., temporary.

DEATHS AMONG SONS OF MEDICAL MEN.

Boggs, Charles Edwin Grant, Black Watch, son of Mr. John Anstie Boggs, L.D.S., of Glasgow, died of wounds on November 21st.

Boys, Richard Harvey, Lieutenant Bedford Regiment, youngest son of Dr. A. H. Boys, of St. Albans, Herts, killed November 14th. He was born in 1899, educated at Marlborough, enlisted in the Artists Rifles at the beginning of the war, and served in the ranks in France. He got a commission on March 20th, 1915, was wounded on May 17th, 1915, at Festubert, and went to the front again in July, 1916.

Browne, M. Campbell, Captain Royal Marine Light Infantry, youngest son of Dr. Sam Browne, R.N.(retired), of Esher, killed November 13th, aged 28. He was educated at Cheltenham College and at Heidelberg, and got a commission in November, 1914. He took part in the defence of the Suez Canal in February, 1915, and in the landing at V Beach in Gallipoli, and was wounded in May, 1915. On July 12th and 13th he held a trench, without food or water, for nearly two days, until only four men, and himself, all wounded, were left out of his platoon. For this he was promoted to captain, and received the Distinguished Service Cross. He went to the front again last June.

Corridon, Vesey Richard, Second Lieutenant Royal Sussex Regiment, only son of Captain W. J. Corridon, I.M.S.D., adjutant of hospital ship *Krimpera*, died on October 8th of wounds received on October 4th.

Corry, Ivan, Royal Fusiliers, fifth son of the late Dr. W. Corry, of Anerley, died of wounds in hospital on November 26th, aged 20.

Edwards, Ronald Wilson Hurst, Second Lieutenant Gloucestershire Regiment, third son of Dr. A. W. Edwards of Pearl House, Lower Parkstone, Dorset, killed on November 13th, aged 21. Before the war he was a medical student at Bordeaux. He came to England in October, 1914, and enlisted in the Gloucestershire Regiment, getting a commission in the same regiment in September, 1915. After serving for some time as an instructor at the officers' school at Pembroke he went to the front last May, and was attached to a trench mortar battery.

French, R. Dongray, Second Lieutenant London Regiment, aged 18, killed in action on September 15th, was the eldest son of Dr. French, of Finedon. He was educated at Epsom College, and was a first year student at the London Hospital. He was in the University of London O.T.C., obtained his commission in October, 1915, and went to the front in May last. His Colonel, in communicating with the parents, said: "I can assure you of my great regret, for your son was a promising young soldier, and the battalion could ill spare him."

Girling, Charles John, Second Lieutenant Hampshire Regiment, elder son of Dr. Girling, of Cranborne, Salisbury, formerly of Birstall, Yorkshire, killed October 23rd, aged 19. He was educated at Wellington, where he was head of Picton House and a college prefect, head of gymnasium, and a member of the football fifteen, and also won many prizes. In December, 1915, he got a mathematical scholarship at Corpus Christi, Oxford. At Wellington he was a cadet lieutenant in the O.T.C., and on leaving at Christmas got a commission in the Special Reserve, was attached to the Hampshire Regiment, and went to the front last July.

Heathcote, R. N., Second Lieutenant East Yorkshire Regiment, only son of Dr. Heathcote, of West Didsbury, Manchester, died of wounds received on November 13th, aged 30. He was in Japan when the war began, came home to join the army, and got a commission on January 18th, 1915.

Liddell, J. H. T., Lieutenant King's Royal Rifle Corps, son of Dr. Liddell, of Harrogate, died on November 17th of wounds received on November 13th, aged 25. He was educated at Winchester and at Pembroke College, Oxford, and was a member of the Inner Temple. He got a commission on August 8th, 1914, was promoted to lieutenant on January 1st, 1915, and went to the front in September, 1914. He was present in the battles of the Marne, the Aisne, and Ypres, and was wounded on October 31st, 1914.

Mackenzie, Aubrey Murray Mitchell, Second Lieutenant Seaforth Highlanders, son of the late Dr. Alexander Flyter Mackenzie, Glasgow, died of wounds on November 21st. He obtained his commission in the Seaforth Highlanders in November, 1915, and went to the front last August.

Stock, James Mulock Thomson, Lieutenant East Lancashire Regiment, younger son of the late Lieutenant-Colonel John Nugent Stock, R.A.M.C., of Langholme, Cheltenham, killed November 16th. His commission was dated January 3rd, 1915. He was educated at Cheltenham College and at Keble College, Oxford.

Sulivan, Gerald Henry, Captain Royal Marine Light Infantry, younger son of Dr. H. N. Sulivan, of Limekilns, Fife, and grandson of the late Admiral Sir James Sulivan, of Bournemouth, killed November 13th. He was educated at Shrewsbury, took the degree of B.Sc. at London University, and was a master at Sedbergh before the war. He got a commission in July, 1915, went to Salonica in December, and to another front in May. He was gazetted captain three days after his death.

MEDICAL STUDENTS.

Hart, Arthur Reginald, Sublieutenant R.N.V.R., killed on November 13th, aged 25. He was the son of Mrs. H. A. Hart of Brighton, and was educated at Christ's Hospital. He gained the Sambrooke scholarship at London University, and the first Arts scholarship at Westminster Hospital, where he was a fourth year medical student at the beginning of the war. After serving for a year as a dresser in the R.A.M.C., he got a commission in the R.N.V.R. in November, 1915.

Hawkridge, J. Arnold, Second Lieutenant Royal Fusiliers killed on November 6th, aged 21. He was educated at St Dunstan's College, Catford, where he was in the O.T.C., and at St. Mary's Hospital, where he was studying medicine. He got a commission in October, 1915, and while training at Fermoy was sent to Dublin, where he served in the suppression of the rebellion of last April. He went to the front last June, and in September was attached to the Royal Sussex Regiment.

McGibbon, Richard Forsyth, Second Lieutenant Highland Light Infantry, died of wounds on November 16th, aged 21. He was the only son of Mr. George McGibbon of Paisley, and before the war was a medical student at Glasgow University. He got a commission on April 5th, 1915, and went to the front last May.

HONOURS.

SPECIAL Supplements to the *London Gazette* issued on November 25rd and 25th contain lists of awards for gallantry and devotion to duty in the field. The lists include the names of forty-three medical officers, five of whom receive the D.S.O., thirty-six the M.C., one a second bar to the M.C., and one a bar to the M.C.

D.S.O.

Major (temporary Lieutenant-Colonel) Hugh Herbert James Fawcett, R.A.M.C.

For conspicuous gallantry in action and devotion to duty. He tended the wounded continuously for seventy-two hours. He has on many previous occasions done very fine work.

Surgeon-Major Edward George Peck, R.F.A.

He attended to wounded men under heavy fire, quite regardless of his own personal danger. Later, he again attended wounded men under heavy fire and personally superintended their evacuation. He displayed the greatest courage and determination throughout.

Temporary Captain Donald Olsen Riddel, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under intense fire, displaying the greatest courage and determination. Later, during a very heavy enemy bombardment, he walked up and down our trenches and administered to the wounded.

Major Gerald Fitzgerald Rudkin, R.A.M.C.

Captain George Vincent Stockdale, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He led his stretcher bearers continuously for five days, under very heavy fire, and on several occasions rescued wounded men by himself. He has on many previous occasions done very fine work.

Military Cross.

Captain Richard Andrew Austin, R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He has previously done very fine work.

Captain Robert Eric Barnsley, R.A.M.C.(T.F.).
For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. He tended the wounded under heavy hostile shell fire when impossible to bring them to the dressing station.

Temporary Captain Tobias Rustat Hemsted Blake, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He dressed the wounded for seven hours in an open trench under very heavy fire. Later, he tended the wounded in the open, displaying great courage and determination.

Temporary Lieutenant George Bent Buckley, R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. He was wounded.

Temporary Captain Leeming Anderson Carr, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He continually led stretcher-bearers under very heavy fire, and on many occasions he himself rescued wounded men. He set a splendid example of courage and determination.

Captain Charles Leopold Franklin, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He personally led parties of stretcher-bearers under very heavy fire, successfully rescuing and evacuating the wounded. He showed great courage and determination throughout.

Temporary Captain Robert Masson Greig, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led a stretcher party under heavy fire, and personally superintended the collection and evacuation of the wounded for thirty hours. He displayed great courage and determination throughout.

Captain Charles Frederick Hacker, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. Later, he rescued a wounded officer from "No Man's Land" under very trying circumstances.

Captain Richard William George Hingston, M.B., I.M.S.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded continuously under very heavy fire at close range regardless of his own personal safety.

Temporary Captain Patrick Joseph Lane, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led parties of stretcher-beare s under heavy fire, displaying great courage and skill. He worked continuously for forty-eight hours, and was himself wounded. He set a splendid example to the men under him.

Temporary Lieutenant Gerald James McGorty, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself very severely wounded, he supervised the work of tending to five other wounded men. He displayed great courage and determination throughout.

Temporary Captain George Barbour Macgregor, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, with great courage and determination. He has on many previous occasions done very fine work.

Temporary Captain Timothy Meagher, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination throughout the operations. He has on many previous occasions done very fine work.

Temporary Lieutenant Douglas Macleod Moffatt, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He set a splendid example throughout.

Temporary Captain William Morrison, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself wounded, he tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Temporary Captain Basil Newman Murphy, R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself wounded, he tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Captain Arthur Herbert Norris, R.A.M.C.(T.F.).
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. He has done very fine work throughout the campaign.

Captain Harold Gordon Oliver, R.A.M.C.
For conspicuous gallantry and devotion to duty. He organized and led stretcher parties under very heavy fire with great courage and determination.

Captain John McCallum Orme, M.B., R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. Later, after his battalion had been relieved, he remained behind evacuating the wounded.

Temporary Captain John McLean Pinkerton, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under heavy fire with great courage and determination. He has previously done very fine work.

Temporary Lieutenant Samuel Pool, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led his bearers through a heavy fire and collected a number of wounded in the open. He worked continuously for forty-eight hours, displaying great courage and determination.

Temporary Captain Charles Derwent Pye-Smith, M.B., F.R.C.S., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under intense fire throughout the operations with great courage and determination. He has on many previous occasions done very fine work.

Temporary Captain William Russell, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded of four regiments under intense fire, displaying great courage and determination. He set a splendid example to all ranks.

Temporary Captain John Carruthers Sale, R.A.M.C.
For conspicuous gallantry and devotion to duty. He rescued many wounded men under intense fire by carrying them on his back, displaying great courage and coolness. He set a splendid example throughout the operations.

Temporary Lieutenant Malcolm Sommerville, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Captain Thomas Ainsworth Townsend, R.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in rescuing several men who had been buried under heavy fire. On three previous occasions he has done very fine work.

Temporary Captain John Wright Turner, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He worked incessantly by day and night, bringing in wounded from shell-holes and tending them in dug-outs. He displayed great determination and a total disregard of personal safety throughout.

Temporary Lieutenant Reginald Fowke Williams, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He rescued a wounded man under very heavy fire. Later, although himself wounded, he continued to dress the wounded, displaying great courage and determination.

Temporary Captain Eric Wordley, M.B., R.A.M.C., Devon Regiment.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, with great courage and determination. He set a splendid example throughout.

Temporary Lieutenant Charles Stuart Wynne, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He worked all night tending and dressing the wounded in the open, thereby saving many lives. Later, he carried out his fine work continuously for three days.

Captain Douglas Dunbar Jamieson, Australian A.M.C.
For conspicuous gallantry and devotion to duty. With two drivers and a man he went with a sandcart to the left flank. He rescued two wounded men and loaded them into the cart under intense fire. Later he searched the front for more wounded men.

Captain Geoffrey Hampden Vernon, Australian A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under heavy fire, displaying great courage and determination. Later, he remained out all night with a wounded man.

Captain Henry Harold Argue, Canadian A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination throughout.

Captain William Brown, Canadian A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded continuously for forty-eight hours under very heavy fire. He displayed great courage and determination throughout the operations.

Captain Harold Wigmore McGill, Canadian A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination.

Captain Graeme Scott Orbell, New Zealand Medical Corps.
For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire with great courage and determination. On one occasion he carried two wounded men on his horse to safety.

Second Bar to Military Cross.

Temporary Captain William Howard Lister, M.C., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led his stretcher-bearers under intense fire, dressing and evacuating the wounded. He displayed great determination and an utter disregard for his personal safety throughout the operations. (The Military Cross was awarded in the *London Gazette* dated June 23rd, 1915. The first bar was awarded in the *London Gazette* dated October 20th, 1916.)

Bar to Military Cross.

Temporary Captain George D'Rastrik Carr, M.C., R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself wounded, he continued to tend and dress the wounded, displaying great courage and determination throughout. (The Military Cross was awarded in the *London Gazette* dated February 2nd, 1916.)

The Rev. R. J. B. Irwin, M.C., has been awarded a bar to the Military Cross, and the following temporary chaplains to the force the Military Cross for assistance rendered to the wounded: E. A. Bennet, A. P. Daniels, E. F. Duncan, H. F. F. Sawbridge, C. H. Weller, W. E. Kidd (Canadian), R. F. Thompson (Canadian), C. Houchen (New Zealand).

NOTES.

THE Rizzoli Orthopaedic Institute of Bologna has organized a competitive exhibition of artificial limbs to be held in that city in February, 1917, and offers a prize of £200.

The Wounded Allies Relief Committee opened a sanatorium at Allington Manor, Eastleigh, for Belgian soldiers suffering from tuberculosis in August, 1915. Down to November, 1916, thirty-one tuberculous men were admitted. It is stated that 16 per cent. have been cured and 26 per cent. greatly improved.

England and Wales.

MEDICAL EDUCATION OF WOMEN IN LONDON.

A REPORT of the subcommittee of the Academic Council of the University of London on medical education of women in London has been issued. The committee consists of the Vice-Chancellor (Sir Alfred Pearce Gould), the Chairman of the Council (Dr. M. J. M. Hill), Professor F. W. Andrewes, Sir Edward Busk, Professor S. W. Green, Sir Cooper Perry, Miss M. J. Tuke, Mr. H. J. Waring, and Professor Waller.

In December, 1915, the subcommittee addressed a letter to the deans of the medical schools of the university, in which it was pointed out that the University of London was the first British university to open its medical degrees to women, and that it had always regarded the medical education of women with special interest. The letter went on to state that it was understood that, owing to the recent large entry of women students, and the desire of other women to enter several of the schools of the university to which women students had not hitherto been admitted, the subcommittee had recently been considering the advisability of their admission. It deprecated isolated action by individual schools, thinking that concerted action by the schools of the university would probably be advantageous to the general interests of medical education of women in London. In reply to that letter a number of communications were received, and the subcommittee heard a number of witnesses. It was ascertained that in the large majority of schools outside London there was co-education for men and women, and the subcommittee therefore considered it desirable to consider the matter in its permanent as well as in its temporary aspects, and to investigate the question whether it would ultimately be to the advantage of women students in the University of London that they should continue to be restricted to a school, or schools, providing education for women only, or whether they should be admitted to other medical schools on a co-educational basis. The subcommittee recognized that it was the policy of the university to afford equal educational opportunities to all students without distinction of sex, and came to the conclusion that no valid objection could be maintained against the co-education of men and women medical students, and that this was the only system by which the general policy of the university could be effectively carried out. It also expressed the opinion that adequate facilities for the medical education of women would not be provided in any hospital or medical school unless resident medical and surgical appointments were open to men and women on equal terms. At the same time it was recognized that so far-reaching a change could not be urged by the university on the hospitals and medical schools at a time when financial difficulties were exceptionally acute, and when a large number of the teachers were absent on active service. Meanwhile, it had noted that if a relatively large number of medical schools now open only to men were simultaneously to open their doors to women, the number of women in any single school would probably be insufficient to allow of the proper organization of work, teaching, and social life among the women students.

Since the subcommittee began its inquiries matters have advanced. The London School of Medicine for Women has entered into temporary arrangements with St. Mary's Hospital Medical School for the provision of clinical facilities, and St. George's Hospital Medical School, which had admitted five women students as an exceptional measure, has resolved to increase the number to ten during the continuance of the war, and to allow such women to complete their studies for qualification should the war come to an end before that date.

Charing Cross Hospital Medical School on October 20th notified that women students were admitted on the same terms as men, that no distinction of any kind with regard to the teaching of students of the two sexes was officially recognized, that the question of opening the resident appointments in the hospital to qualified women had not yet arisen, and that it was not proposed at present to allow the total number of women students to exceed that of men. Students of this medical school attend for their preliminary and intermediate medical studies at King's College, and that college has decided that for the present the number of women students in the department of anatomy shall be limited to twenty at a time.

The Professorial Board of University College, while agreeing with the statement that the policy of the university is to afford equal educational opportunities to all students without distinction of sex, and that this is, in fact, a statutory obligation of the university, pointed out that equal educational opportunities did not necessarily imply identical educational opportunities. Two main reasons were given by the Professorial Board for deferring the admission of women to the department of anatomy in University College, one being that the provision of clinical facilities for women students in London should precede their admission to the department of anatomy, and the other that the structure of that department of the college as at present housed is not suitable for the admission of women.

The report of the subcommittee to the Academic Council gives some particulars of the arrangements in existence for the admission of women in other universities, and states that when medical education of women was introduced at Glasgow in 1890 they were taught separately from the men, but that now all the subjects except practical anatomy and chemistry are taught to men and women in common, though some wards of certain hospitals are reserved for men. The separate teaching of chemistry is due to reasons of a purely practical character. The subcommittee also mentions the important change which has taken place in the general position, owing to the action of the University of Edinburgh in admitting women students; instruction is given for the most part on a co-educational basis, but no arrangements have been made for women to hold hospital appointments.

In transmitting its report to the schools of the University of London in the Faculty of Medicine which provide courses for the first degrees in medicine, the subcommittee offers to arrange, under the auspices of the university, a conference on the medical education of women in London, in the hope of arriving at an agreement for a term of years between the medical schools of the university on the subject of the admission of women students.

SCHEME FOR THE TREATMENT OF VENEREAL DISEASE IN LONDON.

Since the publication of the Local Government Board circular enjoining the formation of schemes by county councils and county boroughs for the provision of facilities for the diagnosis and treatment of venereal diseases, the officers of the Metropolitan Counties Branch of the British Medical Association have been in frequent communication with the officers of the Public Health Committee of the London County Council. By direction of the Branch Council the County Council was asked to receive a deputation of the Association to confer with the Public Health Committee on the form of the draft scheme before it was submitted for acceptance to the County Council. The conference took place on November 23rd; Messrs. E. B. Turner, W. H. F. Oxley, and Bishop Harman represented the Branch Council of the Association. The draft scheme of the County Council had been forwarded to the members of the deputation. At the conference the deputation expressed their agreement with the general principles of the scheme, as agreeing with the recommendations of the Representative Body, and indicated certain modifications in the draft which would tend to remove ambiguities likely to lead to difficulties. In particular, the deputation urged that special note should be made of the desirability of appointing to the clinical assistant posts in the new clinics a due proportion of general practitioners residing in the locality of the hospitals concerned. The Chairman of the Public Health

Committee replied that note would be taken of the points raised, some of which were already under consideration.

The scheme prepared by the Public Health Committee was considered by the County Council on November 28th. It would include the areas bordering on the county, and associated with it are the county councils of Buckingham, Essex, Hertford, Middlesex, Surrey, and Kent, and the borough councils of Croydon, East Ham, and West Ham. Arrangements for diagnosis and treatment and the provision of laboratory facilities have been made with the following hospitals: Charing Cross, Guy's, King's College, London, Middlesex, Royal Free, St. George's, St. Mary's, St. Thomas's, University College, Westminster, West London, Great Northern Central, the Hospital for Sick Children, Great Ormond Street, Miller General, Greenwich, Seamen's Hospital, Greenwich, Lock Hospitals, male and female, St. John's, St. Paul's Hospital, Holborn, South London Hospital for Women, Clapham, and the New Hospital for Women, Euston Road. Each institution is to appoint a committee of the hospital staff to draft a scheme for carrying out the special work at the hospital, the appointment of a staff, the provision of beds, the treatment of out-patients, including evening sessions, the supply by the hospital of organic arsenical compounds, the supply to practitioners of apparatus for taking specimens and the furnishing of reports to such practitioners, the examination of specimens sent by practitioners, the supply of statistical information of work done, the provision of free instruction for practitioners and students, opportunities for practitioners to act as clinical assistants at approved rates of remuneration, the employment of women doctors in clinics for women, and the issue of printed instructions for the guidance of patients as well as practitioners.

From the pooled contributions of all the participating authorities the hospitals will receive payments in respect of (*a*) the work of the treatment centre, including the supply of salvarsan or approved substitutes for patients treated, and any pathological examinations of specimens from those patients; and (*b*) the pathological examination of specimens sent to the hospitals by medical practitioners in the areas of the various authorities. These payments will amount in 1917 to £33,500, of which London's share will be £19,550. The cost to the council of the supply of drugs to London practitioners during the first year is estimated not to exceed £20,000. To this must be added the cost of supplying salvarsan, etc., to Poor Law infirmaries and district and Poor Law medical officers, amounting to about £7,500, making a total of £27,500. As regards the supply of salvarsan, etc., to approved medical practitioners, the council can either arrange for the supply of drugs to the hospitals or pay direct to each hospital the actual cost incurred.

The Committee also proposes certain publicity arrangements, including instructional lectures and the publication of information, and presented the following estimate of expenditure for the financial years 1916–17 and 1917–18:

	1916–17.	1917–18.
Treatment at hospitals for in-patients and out-patients and pathological examination of specimens sent by medical practitioners	£9,775 ...	£20,000
Supply of salvarsan or its substitutes to practitioners (including Poor Law practitioners)... ...	£6,875 ...	£27,500
Publicity arrangements	£1,000 ...	£1,500
Totals	£17,650 ...	£49,000

Seventy-five per cent. of this cost will be refunded to the council by the Local Government Board, but no portion of the grant can be paid until after the close of the current financial year, and therefore the council was called upon to vote the gross amount. The Finance Committee concurred in the proposals, and stated that the net expenditure to be borne annually by the county rate, after deducting the 75 per cent. repayment of the gross cost by the Local Government Board, would be £12,250, assuming that the estimates proved accurate. The scheme is to come into operation on January 1st, 1917, and is at present limited to one year.

In the discussion of the scheme criticism was confined to details. Sir John Benn was surprised at the smallness of the amount allocated to publicity arrangements, and trusted that this side of the scheme would be more generously developed. The Rev. J. Scott Lidgett, chairman of the Literature Committee of the National Council for Combating Venereal Diseases, hoped that the need for educational propaganda would be very thoroughly considered by the Education Committee. Mr. Edward Smith complained that among the scheduled hospitals there was only one for East London, to cover an area comprising an immense population, where the conditions were specially difficult owing to the proximity of the docks. That one institution was the London Hospital, which at present was very much over-burdened. A similar complaint was made by another member on behalf of the north-eastern area. Mr. W. C. Johnson regretted that while the neighbouring county and town councils had come into the arrangement the City Corporation should have remained aloof. Mr. F. R. Anderton, the chairman of the Public Health Committee, said in reply that the publicity arrangements had not yet been tackled owing to the desire to get the main features of the scheme into operation. As to the suggested inadequacy of the hospital provision in certain areas, it was to be remembered that this was not a permanent scheme, but was limited to one year and was necessarily experimental. When it came up for review in the light of practical experience, other hospitals might be added to the list. He did not agree that East London had cause for complaint, because, although there was but one hospital, it was the largest of all, and was entering most heartily into the scheme. The Committee had followed the advice of the Local Government Board in using the large general hospitals, at any rate in the first instance. He had received a letter from the Board entirely favourable to the scheme. The council then unanimously agreed to the estimates of expenditure for 1916–17 and 1917–18, and also approved the scheme itself.

THE MUNITION WORKERS' TAVERN.

An interesting social experiment is being carried out by the Central Control Board (Liquor Traffic). The Board has the power to acquire, compulsorily or by agreement, the licensed premises in munition, transport, or camp areas, and to manage them directly. Up to the present this power has been exercised in three districts only. On November 27th Mr. E. S. Montagu, the Minister of Munitions, opened a transformed tavern at Enfield Lock. The Greyhound, an old corner public-house, has been taken over by the Board and adapted to the special requirements of the neighbouring factory, becoming virtually, though not exclusively, a munition workers' canteen. It is the first of four public-houses, all in the immediate neighbourhood, which have been acquired compulsorily, and have been or are being reconstructed. Although the Greyhound has a bar for alcoholic drinks, the emphasis of the place is on the feeding arrangements. The action of the Board in this instance was taken because it became evident that the outside accommodation for the midday meal was altogether inadequate to the growing population of the factory. The newly opened tavern accommodates 350 men at each of the two midday dinner sittings, and one of the other houses, when completed, will have twice this capacity. The attendants in the kitchen number nine, and in the front of the house seven, and in order that no minutes of the precious dinner-hour shall be wasted, each man fetches his own plate from the kitchen counter, which runs along one side of the canteen, and has a separate window for every dish on the menu. The fact that the large kitchen is level with the dining-hall makes the latter rather odorous, but at least each man is assured of an unhurried meal at a decent table, with sufficient room to use his knife and fork, and cheerful surroundings. The tavern is altogether inviting, both within and without. There is a large open fireplace, and the large windows and white walls make the place airy and light. At the bar every kind and strength of alcoholic liquor is sold, and the hours of opening conform to those of all licensed houses, except that the place is open for an hour at midnight to cater for men on the night shift. Special regulations have been framed by the Board for the conduct of this and other houses under Government control, and, as in the public-house trust system, the manager (who is, when possible, the former licensee) is not pecuniarily interested in the sale of liquor, but is offered inducements to promote the sale of food and non-

intoxicants. One feature of the scheme is the appointment of a small committee of the working-men customers to transmit complaints or suggestions as to catering. Although, as Mr. Montagu said, the house has not been organized to experiment with anybody's fads, either as to food or drink, there is at the back of the scheme the idea that if the hardworking man can obtain a sufficiency of wholesome food at a reasonable tariff, under healthy conditions, the drink problem in industrial areas is on the way to solution. The whole enterprise, in the words of Lord D'Abernon, the Chairman of the Board, who presided at the opening, marks a step towards the better provision of refreshments for munitioners, and not for munitioners only—for the house is open to the public—but for the general body of industrial toilers.

Scotland.

At the annual meeting of the subscribers to Stirling Royal Infirmary it was stated that the endowment fund now amounted to over £27,000. Although the receipts showed an increase of nearly a thousand pounds the deficit on the expenditure for the year, which amounted to £4,205, was £850.

A public meeting was held in Glasgow on November 20th, under the presidency of the Lord Provost, to appeal for increased financial aid to the Royal Infirmary. The Lord Provost announced that the response to his appeal had been a promise of subscriptions to the amount of £30,000, and, in addition, about £11,000 had been received in response to the appeal by the secretary of the infirmary. A much larger sum, however, was required, for a quarter of a million of money was needed for the infirmary if the voluntary principle was to be maintained.

State Control of Liquor Traffic.

At a conference in Glasgow to discuss the State control of the liquor trade in Scotland Lord Balfour of Burleigh, who presided, said that hitherto the elimination of bad houses increased the value of those that remained. State purchase was not put forward as a rival to other reforms, but as one way to make the path of reform easier, and he implored persons with other ideas not to bar the path. If private interest were eliminated, all the political and social influence that went with it would disappear; licensed premises would be reduced in number; hours would be shortened, and there would be no necessity for compensation or time limit. On the most liberal estimate it was calculated that the capital cost of the value of the retail trade in intoxicating liquors in Scotland was hardly more than the cost of one day of the war. A resolution was adopted by a majority to the effect that, while many persons would prefer a measure of prohibition, the conference was of opinion that the State should acquire complete control of the sale of intoxicants in Scotland by purchasing on equitable terms the interests at present held by private traders, and recommending that the Scottish Temperance Act be brought into immediate operation. The provisions of this Act, which was passed in 1913, do not, with certain exceptions, come into operation until June, 1920. It provides that a local authority shall, upon receipt of a requisition properly signed, cause a poll of the electors in the area to be taken. The questions to be submitted to the electors on a poll would be the adoption of (*a*) a no-change resolution, or (*b*) a limiting resolution, or (*c*) a no-licence resolution. In the case of a no-licence resolution 55 per cent. of the votes recorded must be in favour of it, and not less than 35 per cent. of the electors on the register must have voted in favour thereof. A limiting resolution would be carried by a bare majority of the votes, provided that not less than 35 per cent. of the electors on the register voted in favour of it. In the case of a no-change resolution it would be carried if a bare majority voted in favour of it, or if no other resolution were carried. If a no-licence resolution were not carried, the votes recorded in its favour would be added to those in favour of the limiting resolution. While a no-licence resolution remains in force no certificate (licence) shall be granted except that the licensing court would have power to grant one or more certificates for an inn and hotel, or for premises used as a restaurant. In an area where the limiting resolution was carried it would not be lawful for the licensing court to grant a greater number of certificates than 75 per cent. of the number in force at the date at which the resolution was carried.

The Edinburgh Town Council received a deputation on November 21st to present a petition in favour of the prohibition or restriction of liquor traffic in the city. The Lord Provost, after the deputation had withdrawn, said that, in conformity with a previous resolution of the town council, a special meeting would be held for the consideration of the subject.

Ireland.

Two fresh cases of poliomyelitis have been reported in Mayo—the one from Ballyhaunis, and the other from Swinford.

The Newry Guardians have prosecuted 120 parents under the Vaccination Acts, with the result that in the majority of cases penalties of from 1s. 3d. to 2s. 6d. and costs were imposed. The Local Government Board has called on the Enniscorthy guardians to institute legal proceedings against the more persistent of the 3,000 vaccination defaulters in the union area.

The Letterkenny Board of Guardians recently appointed Dr. McGinley, whose age was given as 21, to be medical officer, but the Local Government Board refused its sanction, on the ground that he was of military age. The Board also refused to sanction his appointment temporarily. The board of guardians has now obtained an opinion from counsel to the effect that the power claimed by the Local Government Board to reject a duly elected medical officer on the ground of his being of military age was not warranted by any legal principle. The guardians have decided to make a new appointment.

Richmond, Whitworth, and Hardwicke Hospitals.

One of the great difficulties in the way of carrying out any structural improvements in these hospitals is the lack of any fund for such a purpose. Hospitals receive a Government grant, but the charitable public have generally overlooked the fact that this must be spent on the ordinary running of the hospitals. Large sums are urgently needed for rebuilding the Fever Hospital, Extern Patients' Dispensary, and resident students' quarters. For some years past the governors have been anxious to obtain two houses in order to complete the frontage of the new Richmond, and let more light and air into the Hamilton wing. They have recently acquired the leases of these two houses, and to complete the purchase money appeal to the public for donations.

Correspondence.

MEDICAL EXAMINATION OF RECRUITS.

Sir,—If you could publish this letter you would be doing a kindness to the medical men examining recruits, to the general practitioners who give certificates without knowing the existing regulations, and to those non-judicial bodies, the tribunals, who do not sift statements properly, but always believe that the official examiners must be wrong, although they illogically praise the same men when serving abroad.

Up to some period in this year the question was: Is this recruit fit for active service or not? If not fit, he was unfit for anything. Now it is: If not fit for active service, what is he fit for? Under the general service class are six others, according to a man's constitution and defects, the final being sedentary at home. In this class go all those with special defects, even compensated heart cases, if earning a living in safety at certain work, for if they can do that in safety for themselves they can do it for the nation. Also certain minor defects which under the former examination unfitted a man for active service do not do so now if they will not mature into inefficiency in

three years, the examiners having now only to look ahead that time instead of twelve years.

For want of knowledge of these facts we are constantly getting certificates saying the recruit is unfit for any service (meaning on the old scale); when graded to a lower class he thinks he is badly treated, and complains to his tribunal. The latter then act upon the certificates without troubling to inquire what was the idea in the doctor's mind when he wrote them.

Then tribunals accept certificates without scrutinizing them; they accept them *ex parte*, if an applicant states they have not been favourably considered by the examiners. To be accepted they must be definite: it is no good to say that a man has heart trouble, or a valvular murmur; it is no good to say a man suffers from epilepsy; there must be the statement that the certifier has seen the man in a definite attack and the date.

We constantly get certificates from a man admitting that he is carrying on his occupation, that he is unfit for any service; he does not want to serve, and goes to the tribunal with a tale of inefficient examination, because it has not confirmed his doctor's opinion, the latter not knowing the degrees of possible classification.

Again, we are not credited with using terms with a definite meaning; any one must be right except a doctor. For example, a man who had lost the sight of an eye was sent back for re-examination; he had been graded according to his occupation which he had followed for years with one eye. He was sent back because he had "lost" an eye, and had not been classified as such. But in our rules he had not lost an eye; that term means there has been total excision. And yet his definition was accepted before the medical examiners', as is usually the case. My excuse for troubling you with this letter is that it appears to be no one's duty to give explanations which, if understood, may be beneficial to the public policy.—I am, etc.,

November 23rd. EXAMINER OF RECRUITS.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—In reference to the discussion as to the fees of physicians and surgeons, and their relative responsibility for operation, I should like to make some remarks first about responsibility for operation, and then say something with regard to fees.

It seems to me that the ideal condition is a knowledge by the surgeon of the diagnosis and prognosis of the case, and the value of medical treatment, equal to that of the physician, to which he adds a knowledge of the prognosis after operation, how best to carry out the operation, and the after-treatment of the patient. The surgeon has an advantage and a disadvantage as compared with the physician. As has been pointed out in this correspondence, he learns from his operations what conditions may give rise to certain symptoms, or that with certain symptoms, which the physician is inclined to think must be due to some definite organic lesion, no definite organic lesion may be present. Of course the physician is able to check his diagnosis in the *post-mortem* room in a certain number of cases, but the surgeon gets an opportunity of seeing the morbid condition at his operation in an earlier stage, and may find many diseased conditions which would never have been fatal. On the other hand, the surgeon has the disadvantage that he does not see so many cases of the kind, which do not require operation.

In many abdominal and renal cases the surgeon should have the ideal knowledge which I have mentioned, and if he has, his opinion is really more valuable than that of a physician with regard to the question of operation; and if a surgeon recognizes that he has such knowledge, he would of course decline to operate on any case which he judged was not suitable for operation, however much a physician might press him to do so. Apart from abdominal or renal cases, I may mention exophthalmic goitre as an illustrative disease, usually under the care of the physician, and yet often operated on. In such a case, whatever might be the views of the physician, unless I felt, after the most careful consideration, that the case was one in which operation should be performed, I should not undertake it.

But there are some cases in which most surgeons, and perhaps many physicians, have not the ideal knowledge for diagnosis and prognosis—cases of complicated cerebral and spinal diagnosis and localization, and then it seems to me that the surgeon, if he has confidence in the diagnostic and prognostic ability of the physician, must accept the position of the skilled mechanic. But the right position of the surgeon is that of the "operating physician," as it has been called. He ought really to be able to act as physician and surgeon to the case. It is almost more necessary for the surgeon to go very thoroughly into the numerous obscure abdominal cases that are sent to him for operation by the general practitioner than for the physician, for the important question of operation is the matter under consideration. The physician may say to some of the many cases of obscure abdominal pain which are sent to him and which he cannot diagnose, "You had better see a surgeon"; but the surgeon has got to decide for or against operation, and it is often a most worrying and difficult decision to make because of the obscurity of the exact nature of the morbid condition.

When a surgeon is called in consultation with a physician in a case in which the question of operation has to be decided, the patient and his friends expect the surgeon to share with the physician the responsibility for the recommendation of operation, as well as to take the responsibility of carrying it out, and they will assuredly blame him as well as the physician if the finding at the operation does not agree with the diagnosis, or the result of operation is disappointing. My experience has been that the physician is generally quite ready to share this responsibility with the surgeon. Therefore surgeons must give their best attention to the diagnosis and prognosis of those diseases which, though they come under the care of the physician, yet may require operative interference.

With regard to the relative money value of the work of the physician and surgeon, with which this correspondence opened, it seems to me that even if the surgeon is only acting as the skilled mechanic and the physician makes the diagnosis and recommends the operation, yet the technical skill of the surgeon is so important and has cost him so much labour to acquire, that it is deserving of considerable remuneration; but the very thorough investigation of the case either by the physician or surgeon certainly demands considerable time, experience, and mental exertion, and is also well worthy of a large fee. I do not see that the fees of consulting physicians and surgeons are too high, compared with those of consulting members of the legal profession, but I do think that people with very limited incomes ought not to be charged the large fees for operation which are commonly asked, with the alternative of going into a general hospital ward in company with people of very different habits and ways. This is a very real hardship, as one correspondent has pointed out. What is required is a hospital for such people, where they can have private rooms, and get all the surgical equipment of a good hospital. In order to prevent abuse, they should be obliged to submit to an investigation as to their means, and the charges should not be such as to make a serious demand on their means if really very limited. It would also be necessary to ascertain that any applicant for admission was of such a class of society that it would be a real hardship for him to associate with the patients in the general ward of a hospital. Many really well-to-do publicans could afford to pay an ordinary operation fee, and ought, therefore, to be rigidly excluded from such a hospital, but, if they could not, they would not be the class of patients for whom such a hospital ought to be accessible, as they could perfectly well go to an ordinary hospital ward. But some lady who has all her life associated with people of refined manners, and may be in such reduced circumstances that she has to act as companion to another lady or as a lady's help, would find it a great hardship to have to go into the general ward of a hospital, and for such, or clerks, or business men with small incomes, or their families, such an institution as I have suggested would be a great boon.—I am, etc.,

Bristol, Nov. 26th. CHARLES A. MORTON.

SIR,—I feel sure the profession, while extending its sympathy to Dr. Mercier, in that a man of his eminence in his speciality is unable to command a more adequate fee than from 3 to 5 guineas for his important opinion, will equally reprobate his dog-in-the-manger attitude with regard to the fees received by surgeons.

Dr. Mercier makes a bald statement which is not only contrary to fact, but insulting to the surgical profession, when he says, "The surgeon is a person employed by a physician to carry out his instructions, and it is anomalous that the servant should be remunerated on a higher scale than the master." When a surgeon is called in to meet a physician, or is called in by a physician, my experience is not that he is regarded in any sense as an inferior or that he goes in a menial capacity, but as an equal, who may be able not only to help in the diagnosis, but, what is of much greater importance in the eyes of the friends, effect a cure which the physician is incapable of performing; if any other proof of the surgeon's position is needed, it is that in ninety-nine cases out of a hundred his advice is followed, and if he thinks an operation is not needed or should be deferred, it is seldom indeed that his opinion is questioned or another surgeon summoned; in other words, if he disagrees with the physician, he assumes the whole responsibility, but in any case it becomes his, if an operation is performed.

If we admit, for argument's sake, "on how much higher a plane is the work of the physician than that of the surgeon" with his mechanical occupation, how comes it that the physician is so inadequately remunerated? There are, I think, two factors in the case—the practitioner and the public.

The practitioner, while recognizing the profound learning and the ability of the physician as a diagnostician, looks at the matter from a practical point of view, and says, "even if I get the valued opinion of the physician we shall be little for'arder; the opinion only will not satisfy the friends or effect a cure, while if I call in a surgeon, if an operation is needed, as it probably will be, not only is valuable time saved—a most important point—but the person who is to take the responsibility of the operation will also have the responsibility of deciding for or against it."

The public naturally do not object to paying an adequate fee to the person who, even if by mere mechanical skill and elaborate technique, can not only save a life, but possibly save many doctor's bills; while they naturally object to paying a long fee for an opinion, if the patient is to be no better.

The law certainly does not recognize what appears to be Dr. Mercier's attitude. The responsibility of an operation rests with the surgeon who performs it, and not with the physician who may recommend it.

By all means let the fees of the physician be raised if he can persuade the public to pay them, but no benefit to the profession in general or the physician in particular is likely to be gained by railing against the surgeon's fees, which, too, are often very inadequate.

No, Sir; Dr. Mercier's views are as antiquated as what I presume he intends as a description of the operation for adenoids.—I am, etc.,

London, W., Nov. 21st. DOUGLAS DREW.

SIR,—There are two points in connexion with this subject which would seem worthy of further emphasis.

The first is that the modern surgeon can in no way be considered the handmaid of the physician. Harvey Cushing expressed this view succinctly in his address at the International Congress of Medicine in 1913, when he stated that the physician had become his own surgeon. For example, a modern abdominal surgeon is one who, after a complete study of his patient—a study which is based on evidence derived from all sources—decides whether an operation is necessary or advisable. To do this he must know as much abdominal medicine as a general physician. He often knows more. Or, again, an orthopaedic surgeon, dealing, for instance, with a case of rheumatoid arthritis, must, in addition to the mere mechanical or operative treatment of the disabled joints, be able to direct the investigation of the metabolic disturbances and to carry out therapeutic measures which may be classed as medical.

The second point is that in most instances an operation fee includes the necessary after-care of the patient whilst in the nursing home. This may extend over a period of some weeks, and involve numerous visits. When the actual fee is compared with the number of visits, which are all equivalent to consultations, the surgeon's remuneration in many cases is as "inadequate" as that of the physician.—I am, etc.,

Manchester, Nov. 25th. HARRY PLATT.

SIR,—Dr. Thurstan Holland makes the common mistake of assuming that the present day physician claims to set up his opinion on the necessity for operation as more valuable than that of a surgeon of repute and experience. For his argument he quotes cases of appendicitis. The attitude I take is, that the experienced physician is more capable of deciding whether or not an attack of abdominal pain, etc., is due to appendicitis or some other condition. In such cases the surgeon is biassed in favour of the "look and see" policy; he wishes to be on the safe side. It is frequently the lot of the physician to find that the illness for which operation has been advised is non-existent, or at any rate there is no sufficient evidence thereof. On the other hand, his diagnosis may be erroneous, and the necessity for operation be apparent a few hours later. No doubt every one has had the experience of insisting on operation, although the surgeon has refused to agree with the diagnosis; and equally has seen the reverse side of the shield.

Still, if a surgeon gets a large fee for operation, and a physician a mere three guineas for saving the patient from operation and a considerable tax on his pocket, there is no justification for asserting that surgical fees are too high. Up to a certain fairly well-recognized standard the surgeon is justified in charging a fee appropriate to his position and the means of the patient. Physicians and surgeons, in their capacity as such, may be compared with high-class brands of champagne. If the public want the best, and are prepared to pay the price, they choose a well-known brand. In doing so they are most likely to get a first-rate article, whereas an unbranded specimen may or may not be of extremely good quality. Let me repeat Dr. Holland's closing sentence slightly altered—God help us all, and our patients too, if the ultimate court of appeal as to question of diagnosis ("operation" in his letter) is to be the opinion of the surgeon ("physician").—I am, etc.,

London, W., Nov. 27th. EDMUND CAUTLEY.

THE SCOPE OF AN INFANTS' WELFARE CENTRE.

SIR,—The letter which appeared recently in the *Times*, asking for a sum of £10,000 to provide the babies of the poor with a particular recipe, for which it was claimed that it invariably conferred health on all babies, and the wise rejoinder which it provoked from Sir Thomas Barlow, should open our eyes to the dangers which surround infant welfare work. From the folly of searching for a curative diet other than mother's milk, which shall be universally applicable to all the ailments of all babies, even medical men are not free. We may define the normal child as the child which possesses the capacity of thriving upon any diet which is rationally constructed, and the limits of rational construction are fortunately fairly wide. The abnormal child—that is, the child whose tolerance for certain constituents of the diet has been lowered by chronic infection or persistent catarrhs, or who suffers from an inborn weakness of digestion—may exhibit symptoms of disturbance even when fed upon a rational diet. Not only the lay public but medical men are apt to be misled by the spectacle of a large number of normal children thriving upon some particular rational diet, and to make for it the claim that it possesses universal curative properties, and should be used for all children suffering from dyspepsia. Citrated whole milk, for example, is no doubt a rational diet, but it is curative only when the previous feeding has been irrational. Often when dyspepsia has occurred the high percentage of fat in whole cow's milk aggravates the symptoms, and we are forced to adopt a therapeutic modification of the diet—to give less fat and more carbohydrate. The manufacturers of patent foods know well that in many cases of malassimilation and dyspepsia the digestion of carbohydrates remains less impaired than the digestion of fat, and provide, for the most part, foods which offer a variety of the most easily-assimilated carbohydrates. Such diets are therapeutic prescriptions, to be replaced in turn by the rational diet when recovery takes place. To claim that any one diet, whether it is a rational diet or a therapeutic diet, invariably confers health is equally ridiculous.

The distinction between these two sorts of diet, the diet of health and the numerous modifications which may be forced upon us in illness, is important because it corresponds

to the distinction, too apt to be obscured, between the preventive work of an infants' clinic and the curative work of hospital or dispensary. I have no hesitation in saying that it seems to me essential for the proper working of an infants' welfare centre that all the babies should be fed upon some one rational diet, and that if an infant persistently fails to thrive upon this standard diet, it should be transferred to an ther place for treatment by modification of the diet or otherwise. The advantage of using one and the same standard diet in all infant centres would lie not in the superiority of any one rational diet over another, but in the simplification of the work which would result. Statistics in any one centre would then be comparable from year to year, and a comparison between the results in different centres could be instituted. If in an infants' centre many forms of diet are used, and attempts are made to treat symptoms by changes of diet, the work of the centre is curative and not preventive, and becomes indistinguishable from that of a dispensary or hospital. Attention is concentrated on the ailing child and diverted from those for whom the centre exists—the healthy—while the mothers are quick to conclude that they need no longer bring their babies unless ailing.

The task of the infants' centre is threefold—to instruct the mothers, to divert the sick babies to a place where they may be treated, and to provide the rest with a certificate of health in the shape of a steadily rising weight curve achieved upon the breast, or, failing that, upon some standard rational diet. Those who placed their signatures to the letter in the *Times* would appear to confuse preventive with curative work, and to imagine that infant welfare work is concerned with ailing babies. We can hardly blame them when we hear that at least one endowed infant centre is considering the appointment of a salaried dispenser of drugs.—I am, etc.,

London, Nov. 26th. H. CHARLES CAMERON.

SIR,—The Association of Infant Welfare and Maternity Centres, as parent society of some 500 affiliated infant welfare centres, has received many inquiries with reference to the so-called "Steade system" of infant feeding, and the appeal for £10,000 made in the public press to demonstrate its universal applicability. The association has been unable to glean further particulars of the system than those which have appeared in the press. It would, however, advise inquirers to satisfy themselves as to the following points before lending adherence to the proposed scheme:

1. Is any part of the £10,000, for which appeal is made, to be expended in purchasing the rights of the "Steade system"?

2. Is there anything new about this system not already known to the medical profession as a whole, or to those specially engaged in infant welfare work at one or other of the 800 centres which already exist?

As the system up to date has been kept secret, presumably it has not received any medical endorsement, nor, indeed, can it do so, without an infringement of medical ethics, until it is made public.

Signed on behalf of the A.I.W.M.C.,
ERIC PRITCHARD, Chairman.
FLORA SHEPHERD, Honorary Secretary.

London, W.C., Nov. 22nd.

SAFEGUARDING THE PRACTICES OF MEN ON ACTIVE SERVICE.

The Central Medical War Committee's Appeal.

SIR,—Having deserted my practice since the early months of the war in favour of army work I think I may claim to be disinterested in criticizing the scheme of the Central Medical War Committee embodied in the circular recently issued and reprinted in the SUPPLEMENT on November 18th for safeguarding the practices of men on active service, issued, presumably after grave consideration, in this, the third year of the war.

I fear that the friendliest verdict will be that the Committee means well. The scheme is brimful of lofty sentiment and kindly feeling, but it betrays a painful lack of the sense of actuality on the part of its framers as well as marked loss of memory for recent events.

The altruistic policy it formulates presumes a standard of ethics which would only be appropriate in the case of a chivalrous member of a noble profession dealing with members of a lay community possessing the morals of high class biblical characters. How little warranty there is for assuming such a utopian standard the fiasco of the National Insurance Act should have taught them. What could be more fanciful and impracticable than No. 7?—

"New patients introduced by the patient of an absentee should be regarded as belonging to the absentee's practice."

I fear the Committee would not believe me if I told them that one of my female relatives, whilst staying at a boarding house, found that by casually referring to me in general conversation she had aroused the curiosity of a medical honeymoon couple as to the locality of my deserted practice. Apparently they looked upon it as derelict and possibly a good find.

The proposed safeguards are intended, I take it, for private practices in general throughout the kingdom. As a fact, there are three kinds of practice in which it may work well—for example, a purely panel practice, a country practice of the "little opposition" type, and the practice in which appointments yield the greater part of the income. Unfortunately these are just the kind which least require protection.

I fear, from personal experience, that the man with the practice in which panel and appointments do not form an important part will find the safeguards in action only a snare and a delusion. Such a suburban or town practice is always in a fluid condition, as in peace time patients are constantly being lost through removals, whilst their place is taken by fresh arrivals. Besides this, there are patients who, while not actually leaving the neighbourhood, wander from one doctor to another. This, of course, complicates the problem, and is not allowed for in the Committee's scheme, which goes on the simple but fallacious principle of considering patients as chattel.

What actually happens in an absentee's practice run on the half fee principle is that even friendly colleagues often forget to ask a newcomer if he has been previously attended by the absentee, whilst naturally they never dream of putting the question to one of their old patients who returns to the fold after an unaccountable absence of several years. Another factor not allowed for by the Committee is that the majority of patients think that they get better attention at first than at second hand, and therefore not only seldom volunteer the information, but often deliberately conceal it.

Another class of patient is the ultra-loyalist who adopts expectant treatment rather than go to a strange doctor. The estimated loss under this heading will of course vary directly with one's egoism, so I will not attempt a guess, but I do know that in my practice during the first year the takings showed an actual decrease of 90 per cent.

I do not repine. I went into war work for the sport of the thing, knowing what I might expect to happen to my practice, as I had previous experience of the unostentatious and quiet way in which my brethren of the panel temporarily relieved me of any worry concerning the health of my working-class patients.

The world, although it smiles on them, is not yet as perfect as the Committee would seem to imagine, and war is a miserable business in which it is the lot of the good and heroic to achieve glory and death, whilst the undeserving quietly rake in the dollars.

This letter is devoted solely to destructive criticism because the constructive variety should not be offered unless the need for it is appreciated.—I am, etc.,

FRANCIS HEATHERLEY,
M.B., B.S.Lond., F.R.C.S.Eng.,
November 19th. No. 3, Medical Board, Manchester.

MASSAGE OF THE HEART.

SIR,—A successful application of the method of cardiac massage to a case of heart failure under an anaesthetic is reported in your issue of November 11th, p. 652. A mixture of chloroform and ether was administered to a child, aged 6, for the purpose of removing tonsils and adenoids. The child struggled during the removal of the second tonsil, and, what is termed in the report, "shock" supervened. Now, the only cause to which can be attributed, under the above-mentioned conditions, such a total cessation of the circulation as occurred in this case is

fibrillation of the ventricles of the heart. The conditions essential for the production of ventricular fibrillation were present—namely, an imperfect degree of chloroform anaesthesia as a predisposing cause, and operative procedure and struggling as exciting causes, one or both of which may be efficient.

There are only two chances of the restoration of the ventricles from fibrillation to a normal beat of which I am aware. One chance is that of spontaneous recovery, which is rare, and the other is through digital manipulation of the ventricles, such as was applied in the case reported. Artificial respiration alone, as generally practised, does not hold out any prospect of resuscitation.

Cardiac massage should be performed without undue delay in all cases of ventricular fibrillation, once the condition is recognized. Sudden pallor and complete cessation of the pulse followed by a phase of exaggerated respiration or convulsive movements, is a clear indication for cardiac massage, and if immediately preceded by evidence of semi-consciousness, assurance is made doubly sure. Only in cases of overdosage with chloroform, in which some evidence of respiratory failure precedes the heart failure, and in which the latter is gradual and not sudden, is cardiac massage contraindicated, for in such circumstances artificial respiration is sufficient to restore the patient.

The following quotations from what I have already written upon this subject[1] defines the course to be adopted when ventricular fibrillation is established:

> The only remedy so far effective is massage of the ventricles. It is not advisable to attempt this at once, for the heart may recover spontaneously; two minutes' grace is all I would advise. . . . At the end of two minutes, if there is still no indication of cardiac action, open the abdomen, and with the hand compress the ventricles between the diaphragm forcibly and rhythmically. Artificial respiration should be maintained meanwhile, so that the heart may not die from asphyxia, for a measure of circulations is maintained by the cardiac compression.

Cardiac massage of this nature is not a certain remedy. Still better than cure is prevention, and the class of syncope illustrated above may be entirely avoided by the use of effective chloroform anaesthesia. Operations under light chloroform anaesthesia entail a risk of sudden death through ventricular fibrillation, and are therefore, in my opinion, unjustifiable.—I am, etc.,

London, W., Nov. 13th. A. G. LEVY.

Obituary.

ADAM ROBERT TURNBULL, M.B., C.M.EDIN.,

LATE MEDICAL SUPERINTENDENT, FIFE AND KINROSS DISTRICT ASYLUM.

It is with regret that we record the somewhat sudden and unexpected death from cerebral haemorrhage of Dr. Adam Robert Turnbull, on November 17th, at Colinton, near Edinburgh, where he had lived since his retirement from the post of medical superintendent of the Fife and Kinross District Asylum. He was 62 years of age.

Dr. Turnbull was a brilliant student of medicine at the University of Edinburgh, and took very high places in all his classes. He gained ten medals during his undergraduate career with over 90 per cent. of the available marks in each subject; in midwifery he obtained 98 per cent. He graduated M.B., C.M. in 1875, with first class honours, and was awarded the Ettles Scholarship, the prize given to the most distinguished student of the year. He was also senior president of the Royal Medical Society.

After graduation Dr. Turnbull first became a resident physician in the Royal Infirmary, and then, in 1876, an assistant physician in the Royal Asylum, Morningside, under the late Sir Thomas Clouston. He here acquired a knowledge of asylum administration and the care of the insane, and succeeded Dr. Brown as medical superintendent of the Fife and Kinross Asylum at Springfield in 1881. He occupied this post and discharged its duties to the entire satisfaction of the District Board till February, 1915, when he retired on a pension.

Although possessing great intellectual gifts, Dr. Turnbull was of a retiring and unassuming disposition, and his rich stock of knowledge was never displayed for show or effect. His friends could, however, always depend upon getting from him thoughtful views on most subjects and sound judgement in difficulties of all kinds. He was a hard worker all his life, as well as an efficient and a most conscientious one. It was characteristic of him that some years ago he should be found during an official visit at his post carefully discharging his duties when very seriously ill. Since then he has been a semi-invalid, and he bore his afflictions with patience and fortitude.

Dr. Turnbull was a highly valued and respected member and official of the Medico-Psychological Association. He was in 1910 chosen President of that Association, but was obliged, owing to the state of his health, to resign the honour before the time came for him to undertake its active duties. He will always be remembered for having initiated the modern method of caring for insane sick male patients by the employment of female nurses entirely. In a new hospital which the District Lunacy Board were building in 1895 Dr. Turnbull designed a special sick room, with easy supervision, for this purpose. The arrangements were on a modest scale, and females were employed by day only, but the success of this departure formed the beginning of a great movement, which, under the fostering care of the Board of Lunacy, spread over Scotland. Since the war began it has been adopted over the whole kingdom, adding to the comfort and well-being of the insane and to the military strength of the empire by liberating male attendants from sick-room duties.

In private life Dr. Turnbull was a most gentle and amiable man, beloved by all and without an enemy. His consideration, often approaching deference, for the views and feelings of others, was a perpetual lesson in courtesy and self-denial. In his younger days he took a keen interest in cricket, and was himself a capital batsman. Latterly, he was fond of shooting and spent part of the autumn in Northumberland for that purpose. Shortly after going to Fife he married Miss Georgina Hughes, of Middleton Hall, Northumberland, who predeceased him many years ago.

E. L. DOYEN, M.D.,

PARIS.

DR. EUGÈNE LOUIS DOYEN, who died in Paris on November 21st, was born at Rheims in 1859, studied at the medical school of that city, and afterwards in Paris, where he graduated in 1885. He had the advantage of starting life with a considerable fortune, and soon left the slow road of official promotion to found a private surgical clinic. He was a bold, rapid, and skilful operator. He was one of the first to use the cinematograph as a means of demonstration, and at the annual meeting of the British Medical Association in 1898 he exhibited several films showing the manner in which he performed various operations, including that of craniectomy.

He was the author of works on the treatment of cancer, published in 1904 and 1909; an atlas of anatomy and of a treatise of surgical therapy and operative technique, the first part of which appeared in 1907; the work is still incomplete. In 1901 he announced the discovery of an organism producing cancer to which he gave the name *Micrococcus neoformans*, and in the same year he began to treat malignant disease by injection of toxins and vaccines prepared from its cultures. His first communication on the subject was made to the Académie de Médecine in December, 1901. In 1904 a commission consisting of MM. Berger, Kirmisson, Monod, Nélaton, and Pierre Delbet was appointed, which, after an investigation extending over five months of cases offered by M. Doyen himself as instances of success, reported that it had not seen a single case showing improvement. The report, which was published in the *Bulletin et mémoires de la Société de Chirurgie de Paris* for July 18th, 1905, ends with the following verdict: "Moreover, it seems to us that M. Doyen has been the victim of the illusions which so easily carry away inventors to confound their hopes with reality, and we unanimously conclude: Nothing that your committee has observed warrants the belief that M. Doyen's treatment has a favourable action on cancer." A later invention of M. Doyen was a preparation he called "mycolysin," which he said would prolong life and prevent and cure most infectious diseases.

[1] *American Year-book of Anaesthesia*, 1915, 132.

Although the Ministries of Marine and the Colonies were induced to sanction the inclusion of this elixir among authorized medicaments, it seems, so far as it has any effect, to do no more than stimulate the resistance of the leucocytes. M. Doyen is another illustration of the vanity of the search for such elixirs. He said at a congress in Geneva some years ago that the preservation of man's life through several centuries depended solely on himself, yet he died at the comparatively early age of 57. M. Doyen's manner of announcing his claims exposed him to much criticism by his professional brethren, and his position for some years before his death was one of open antagonism to his profession. His book *Le malade et le médecin*, published in 1904, is almost a declared defiance of the accepted rules of medical ethics. A few years ago he delivered a public address on *Le Malade Imaginaire*, in which he deplored the want of a twentieth century Molière to expose the wrong-doings of the doctors. Yet when this pontiff of professional morality separated the xiphopagous twins Radica and Doodica, he gave a full account of the operation in the *Echo de Paris* of February 10th, 1902. It is a pity that one so gifted should have condescended to such devices in search of a notoriety which was quite unnecessary for his success.

DR. A. FRAENKEL, for many years director of the medical section of the Urban Hospital, Berlin, died on July 6th. He was born in 1848; he was a nephew of the celebrated physician, Traube, and was one of the earliest pupils of von Leyden. His name is known as the discoverer of the pneumococcus of pneumonia, and he made other important contributions to the study of respiratory diseases. He was a founder and for many years president of the Berlin Association for Internal Medicine.

DR. ENRIQUE B. BARNET, who died recently, was one of the founders of the health department of Cuba, and for many years took the chief part in the organization and direction of sanitary work in the island. When the Junta Nacional de Sanidad was formed in 1902 he was placed at its head. That position he held till 1909, when political influences caused his transfer to the office of chief of the library of the Secretariate, in which he rendered valuable service. Later he organized the library and press section, of which he was head at the time of his death.

The Services.

EXCHANGE.

CAPTAIN R.A.M.C. at base hospital desires exchange to home station, London or near neighbourhood preferred; hospital for choice.—Address No. 4600, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

Medical News.

COLONEL W. H. BULL, A.M.S.(T.), K.H.S., F.R.C.S., of Stony Stratford, has been appointed a deputy lieutenant for the county of Buckingham.

AT a meeting of the Section of Surgery of the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, December 13th, at 5 o'clock, a paper will be read by Miss Frances Ivens, M.S., of the Hôpital Auxiliaire No. 301 at Royaumont, on a clinical study of anaërobic wound infection, with an analysis of 107 cases of gas gangrene.

A SPECIAL sanitary bureau has been established in connexion with the Italian Ministry of War. The new department is a first step towards the realization of the scheme of hygienic reform designed to meet the needs of the army which is being promoted by the Minister, Leonardo Bianchi, in co-operation with General Morrone.

As announced in our advertisement pages, the Walter and Eliza Hall Institute of Research in Pathology and Medicine, established in connexion with the Melbourne Hospital, require the services of a director of medical research in pathology and medicine, at a salary of £800 per annum and a yearly premium of £75 for retirement. The institute is controlled by a board representing the trustees, the University of Melbourne, and the Melbourne Hospital.

THE medical department of the Belgian War Ministry has resolved to begin with the new year the publication of a periodical—*Archives médicales belges*—in which reports of the medical work of the exiled Belgian nation will be published. Research laboratories have recently been founded in the principal Belgian hospitals, and both hospitals and laboratories have been greatly enlarged, so that it is expected that the material available from these sources will be sufficient to put the new periodical in a leading position. It will also contain abstracts of publications in other countries.

THE foundation stone of a new hospital dedicated to San Juan de Paula was laid in Madrid on June 23rd. The King of Spain was present at the ceremony. The buildings cover an area of 13,000 metres in the Cuatro Caminos, and the hospital, which is intended for working people, is equipped in accordance with the most advanced ideas. It owes its foundation to the beneficence of Señora Doña Dolores Romero. Another hospital lately opened in the Spanish capital is that of the Santisima Virgen y San Celedonio, the cost of which has been defrayed out of a fund bequeathed by the Count de Val.

DR. BACRI, a French army surgeon, has reported to the Académie de Médecine the results of the treatment of thirteen cases of tetanus by large and repeated doses of antitetanic serum. Although in eight cases preventive injection had not been given, all thirteen recovered. His practice was to give a subcutaneous injection of 50 to 60 c.cm. in one dose on each day, every day, for six days. The total quantity of serum given varied from 160 c.cm. in a case in which the diagnosis was made very early, to 420 c.cm. Improvement was generally noticed on the third day. The treatment should be commenced as soon as the first symptoms of trismus are noted, and continued even though the symptoms be slight.

AN inter-allies dental congress was held recently in Paris to discuss especially the treatment of wounds of the jaw; at the same time a museum of drawings, photographs, and appliances was brought together. At the meeting of the Odontological Section of the Royal Society of Medicine on November 27th Mr. T. A. Coysh gave some account of both, which, unfortunately, owing to circumstances apparently beyond his control, was very incomplete. He praised the French records of cases, especially by colour photographs, and spoke of American ingenuity in the construction of appliances, referring especially to Pope's swivelled bar. He mentioned with appreciation Dr. Gilleat's demonstration of restorative plastic work, and described visits to the American ambulance at Val-de-Grâce, and to the British base hospital at Camiers, where from 1,500 to 1,800 dentures are made each month. The president, in his address to the section, in reviewing the changes brought about in the treatment of fractured jaws by war experience, noted and commended the disuse of wiring, the saving of bone fragments, and the growing tendency to extract septic teeth, or teeth near the line of fracture.

WE have received from Dr. Ralph G. Mills a review of current Japanese medical literature by the staff of the Research Department, Severance Union Medical College, Seoul, Korea, of which he is director. It is issued as a serial every two months. Among the papers abstracted is one on the development of the supposed last stage in the life-history of *Paragonimus*, the "fur" crab (*Eriocheir Japonicus*, De Haan), by K. Nakagawa, of the Sinchiku Hospital, Formosa, published in the *Journal of the Perfection Medical Society*, Alumni Association of Kanazawa Medical School, vol. xxi, January, 1916. It is regarded as the second intermediate host of the lung distoma. In a report to the Japan Pathological Society in April, 1915, Nakagawa, on the basis of a number of experiments on dogs and cats, concludes that the young parasites are taken into the intestinal tract of man encapsuled in the flesh of crabs, and quickly reach the ileum. They hatch in twenty-four to forty-two hours, and, working their way into the peritoneal cavity, pass up through the diaphragm into the lung, sometimes directly, in other cases after penetrating the liver. The first intermediate host is a snail of which he found two likely forms—the *Melania libertina* (Gould), and the *Melania obliquegranulosa* (Smith). Kakami, in *Chosen I Ho*, February 1st, 1916, gives the results of an investigation of the lung distoma (*Paragonimus Westermanni*) in South Ham Kyung Province, Korea. He doubts whether crabs or crayfish play any part in the production of the disease in man, because, although the Koreans never eat uncooked crabs, 50 per cent. of the population is affected. On the assumption that the intermediate host is the *Melania libertina*, raids on the snails were organized by police order. It is estimated that in the last two years 210,000,000 snails had been destroyed in the infected district, and that only a few years would be required to get rid of them altogether.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2631, Gerrard (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

DR. H. D. O'SULLIVAN (Burton-on-Trent) wishes to obtain statistical information regarding living children extracted with the knife in cases of extrauterine gestation later than the report of thirteen cases collected by Dr. Lusk in 1894.

B. A. S. M. writes: Having had occasion to deal with a number of cases of anal papillomata having the typical appearance of the condition commonly described as venereal warts, I should be much obliged for information as to whether such growths are invariably due to unnatural practices. My own experience leads me to believe that such is the case.

INCOME TAX.

SEPTUAGENARIAN VENDOR asks for an expression of opinion as to whether there is any liability to income tax in respect of three equal instalments of the unpaid purchase money of his late practice.

*** We gather that a purchase price was agreed on, and that the future payments are merely postponements of portions of that price, and we are of opinion that there is no liability. The protecting clause quoted from the agreement does not seem to affect the question of liability.

B., who has for 1916–17 a larger fractional share of the partnership profits than formerly, asks what should be the basis of calculation in computing his income tax for 1916–17, the average of B.'s *shares* of the past profits, or his *present* fractional share of the average profits.

*** Sec. 20 of the Finance Act, 1907, seems to be conclusive in favour of the second alternative. It reads, "the income of the individual from the partnership for the year to which the claim to relief [that is, in respect of earned income] relates . . . shall be deemed to be the share to which he is entitled during the said year in the partnership profits, such profits being estimated according to the several rules and directions of those Acts"—the latter phrase covering the direction to assess on a past average. It may, perhaps, be worth while pointing out that, apart from a fall in profits, there would be no unfairness in this method, as it would approximate more closely to the actual income of the year, and that if the profits fall during the current year, redress should be sought under Sec. 13 of the Finance Act, 1915 (Sess. 2), reducing the assessment to the average of the firm's profits for 1914, 1915, and 1916.

E. B. C. joined the R.A.M.C. in May, 1915. His private practice, he says, has disappeared as he left no locumtenent; two local medical men are doing the work for two public appointments, receiving half the fees. Can he deduct the expense, or any portion of it, of his private house?

*** We fear the answer is in the negative. The only legal justification for deducting such an expense is that the house, or a portion, is used for professional purposes. Apparently that is no longer the case as he has "no private practice left," and the public appointment work is no longer done at our correspondent's house. We assume that E. B. C. is assessed for 1916–17 on one-half only of the appointment fees.

CAPTAIN R.A.M.C.(T.) joined the forces in June, 1915, arranging to pay 50 per cent. of the gross income of his practice to the friends who are carrying it on for him. He has been assessed "for 1917" on the three years' average.

*** He is entitled under Sec. 13 of the Finance (No. 2) Act, 1914, to base his liability on the actual earnings of the financial year. For 1915–16 he has apparently paid tax on the average earnings of his practice, and should be able to obtain some repayment for that year, his liability for civil earnings being for one quarter on the previous year's average and for three quarters on the actual earnings after deducting the payments made for carrying on his practice. If the total of this revised assessment plus his military pay to April 5th, 1916, and any other income he may have, is below £1,000, then the rate of tax should be 1s. 9d. instead of 2s. 1½d., and further repayment would be due to him accordingly. With reference to 1916–17, he is entitled to have his civil assessment reduced to the actual earnings of his practice, which again may affect the rates of tax at which he may be charged. The local surveyor may be able to arrange for the payment of any tax for 1916–17 to be postponed until our correspondent is in a position to lodge a statement of his actual earnings for the year, more especially as he certainly seems to have overpaid for 1915–16.

ANSWERS.

J. M.—We are not able to find any trace of evidence of "post-hemiplegic epilepsy" subsequent to vaccination, whether the vaccination has been performed on the upper or the lower limb. Many children have been vaccinated on the leg and remained perfectly healthy. We have no report of cases vaccinated on the foot.

LETTERS, NOTES, ETC.

SCOPOLAMINE-MORPHINE IN LABOUR.

MR. IAN JEFFERISS, Surgeon to St. Bartholomew's Hospital, Rochester, says that he has been using scopolamine-morphine in labour for over two years, and offers to allow any medical man, or responsible person, who applies to him in writing, to visit a home and converse with the mothers.

VAGITUS UTERINUS.

DR. W. L. DICKSON (Brighton) writes: I recently attended a patient in a case of confinement, and having occasion to use forceps I left the bed for a few moments, during which time the nurse remarked that she thought she heard the child cry. I returned to the patient and took the instruments, and I immediately and quite distinctly heard the cry twice. The child on coming into the world was at first lifeless and partially asphyxiated but very soon began to show signs of life, and is now a splendid child.

*** Many obstetricians and physiologists insist that what has been described as vagitus uterinus is a sound produced outside the uterine cavity. Cries from the fetus when its head is in the vagina are, they declare, not very rare, and have misled many observers. They are sure that air cannot gain access to the uterine cavity in sufficient quantity to support respiration, others hold that fancy may mislead a doctor or nurse in the course of an anxious case. On the other hand, many doctors feel certain that they have heard a child cry while still in the uterine cavity. Telfair of New York has summed up opinion in favour of this view (*New York Medical Journal*, October 11th, 1913, p. 711), adding to the memoir a rich bibliography. Two factors, he believes, are necessary—namely, ruptured membranes and the presence of air in the uterus, hence more than half the reliable cases reported were observed in operative deliveries. The fetal mortality is large, and, according to Telfair, long efforts are necessary to establish respiration in many of the survivors. The suggestion is that air enters the uterine cavity when the hand or forceps is passed into it, and the stimulus of air on the fetal skin sets up respiration. In Telfair's own case, during a version the left foot of the fetus was brought down, and when his assistant touched the sole the child at once gave a prolonged cry. Telfair, like Preyor and others, considers that the change in the placental circulation during labour is not the essential cause of respiration. In nearly all instances of vagitus uterinus recently reported in the JOURNAL the cry was heard after the introduction of the hand or forceps (as in the case recorded above) into the uterus, or after rupture of the membranes. Dr. Kelvin of Belfast, on the other hand (JOURNAL, 1898, vol. i, p. 1258), heard a fetal cry repeated during a natural labour several times within two hours, at the end of which space of time the child was born spontaneously, and did not require artificial respiration.

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An Address
ON THE
WORK OF THE NATIONAL MEDICAL RESEARCH COMMITTEE.*

BY
SIR CLIFFORD ALLBUTT, K.C.B., M.D., F.R.S.,
HONORARY COLONEL R.A.M.C.,
PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

GENTLEMEN,—To dwell upon the large and profound changes which, even in my lifetime, have transformed the art and science of medicine would make a long story. But if, as you were good enough to suggest, I offer you some brief narration of the establishment and work of the National Medical Research Council and Committee, I shall illustrate thereby certain chief features of the new development. When some of us were consulted, not on the creation or management of a National Health Insurance but on certain of the scientific bearings and effects of the measure, we were rejoiced to find in the Minister who introduced it a far-seeing conviction of the opportunities of the Act for rekindling, reinforcing, and expanding that newer and wider life of medicine of which I have spoken.

The new life of medicine consists mainly in the advance from methods of description only to methods of description and analysis, an advance which, if pre-eminent in our own day, did not, of course, arise with us. This advance may be illustrated by the like reanimation of the methods of "natural history" by those of biology. By analysis we penetrate, below our observation of superficial likenesses and unlikenesses, to a closer and more experimental recognition of deeper affinities. In this way we attain to larger and more subtle appreciations of biological series, and so of causes, both proximate and remote. This movement, elaborate and exacting as its claims may be, is not only of infinite value in the functions of medicine, but indeed is of the essence of all technical art. The remonstrance, still not infrequently heard, that fiddling with instruments of precision is blinding us, or narrowing our view, on the side of clinical description, seems to me to have in it but little, if any, justice. Pedants there have been in all times and in all callings, but surely we, who champion scientific medicine and the establishment of quantitative upon qualitative methods, may ask in reply how it was that it remained for the recent scientific phase of medical history to distinguish clinically such maladies as those depending upon excess or defect of thyroid efficiency, many of those depending upon the chromaffin system, the two series of symptoms but lately distinguished as typhus and enteric fever; and so forth: distinctions open to the naked clinical eye but which nevertheless awaited the acumen of physicians of our day. At the same time, true it is that the arming of the naked clinical eye with instrumental means of observation, and, in therapeutics, the addition to our means of large and costly plants furnished in great part by the applications of modern physical science, have made what we call general practice, if it is to depend on the unaided labours of the individual practitioner, so exacting in time and skill as to be almost impossible. Yet, after all, personality goes, and must go, for as much as ever it did. How then are we to get over this problem of piling ever new claims upon the time and skill of the family physician with an abiding regard for the personal relations between doctor and patient? The sick man will resent, and reasonably resent, being deprived of these intimate and human relations of acquaintance and sympathy, and being committed to the colder benefits of a repairing manufactory. His malady would have no beginning and no history; the several specialistic interviews would be as pearls without a string. No machinery can make us forget the incalculable influences of the family physician; his intimacy with the earlier and later history of his patient, and the phases of his case; his wise friendship in times of personal suffering and family trial, his sagacious hopes and encouragements. All these and such influences are of the essence of cure.

How, I repeat, is this dilemma of pathological elaboration on the one hand and personal co-operation and sympathy on the other to be solved? First, by continual increase of the public, impersonal, preventive, side of medicine; secondly, by organized research to provide for the medicine of the future; thirdly, by arming the family physician with every reasonable resource of laboratory and consultative assistance which he may need.

Now during the last fifty years preventive medicine, in the State and Municipal sense—Public Medicine, as we call it—has made a considerable growth. The salaries of medical officers of health in all ranks of the service are too poor, and their increases during individual service too small, too capricious, too subject to illiberal local wrangling, and again the professional prizes too few, to attract the ablest men into public medicine. The lawyers who draft Acts of Parliament secure for their own profession—as county court judges, stipendiary magistrates, and the like, spheres of work certainly of not greater importance or difficulty—salaries and pensions of twice the amount, and protected against factious carping and paring. Still, under many disadvantages, and largely by the unrewarded public spirit of medical men, our system of public medicine is on the whole being fairly and soundly built. As regards our third requirement, the establishment throughout Great Britain of clinical laboratories, such as to be within the reach, and equal to the needs, of general practitioners in all districts, save perhaps the most remote, a provision I have fervently advocated for many years, our progress has been very tardy and imperfect. It is true the increase of the few university and municipal laboratories has done something for this end, but locally, incidentally, and fitfully. It is an open secret that Mr. Lloyd George, with his usual sagacity and ardour, not only saw this lack very clearly, but also was working out certain comprehensive schemes to supply it, when the calamity of the great war crushed this and many another, beneficent project. Happily, before the war there was just time to establish the second of the institutes of which I have spoken; namely, an organ of research, a systematic means of investigating disease with a view to the greater medicine of the future. To carry all the opportunities of the realized medicine of to-day to every considerable district in Great Britain will be a more costly adventure; it will mean not only the positively large, if relatively small, outlay of £120,000 a year at least, but it will be necessary also to train up for this function a school of peculiarly equipped clinical pathologists.

However, to establish and continue a school of medical research, an annual grant of about £60,000 was set apart for the Research Committee; although national adversities have since cut down some of the revenue of the Committee, and many of the proposals for expending it profitably. On the other hand, it was fortunate that before the war the Committee, under the able direction of Lord Moulton, had so far appointed the staff and organized its duties that, on the outbreak of it, the Committee was enabled to offer much assistance to the Medical Department of the War Office. As the Minister felt assured that there would be no difference of opinion in the Advisory Council as to the devotion of all the resources of the research organization to the service of the war he did not think it necessary at a time of strain to call a special meeting of the Council. And I may venture to add that Sir Alfred Keogh, Director-General A.M.S., has more than once made generous acknowledgement of the assistance of the Committee, which in its turn has to express to him its gratitude for much encouragement and many advantages. Of the surgical researches of Sir Almroth Wright in certain military hospitals this audience is no doubt well aware. And happily the duty of the Committee and the furtherance of its special purposes have not been divided. We now recognize that the occasions and events of the war have given opportunities for disciplined study and for consistent and extensive observation such as to have carried forward research in certain subjects towards results which in time of peace would have been obtained far more slowly, if at all.

I need not take up your time with the details of the initiation of the Research Council and Committee, nor of the conditions and instructions thereupon; I will quote parts of one sentence only: "the field of research is not limited, and is to . . . include . . . all researches bearing on health and disease, whether or not such researches have any direct or immediate bearing on any particular disease or class of diseases"; and so on. That is to say,

* Read at the annual meeting of the North Staffordshire Medical Society.

the work of the research authority is to be directed not only to temporary utilities but also to the creation of the medicine of the future.

And we have for the Advisory Council and the Committee even a wider ambition than this. Gradually, as it wins the confidence of the world of medical science, not by drill nor by the thraldoms of a formal institution, but by the natural ascendancy of merit, by first-rate thinking and achievement, it should lead, concentrate, and inspire the manifold activities of medical research throughout the kingdom.

The first question of means which we had to decide was whether we should use our grants to co-ordinate, to strengthen, and to fertilize the many and various places of research in the universities and technical schools of Great Britain, or should devote the whole of our resources to the creation of a large and wholly independent research factory in London. My own prepossessions were in favour of the former alternative, others of us leaned to the latter. On both sides there was much to be said; more than I can now repeat or fully indicate. But upon certain arguments in favour of at least some kind of central hospital for research I may touch briefly, arguments which, indeed, had led us ten years ago in Cambridge to establish a research hospital independent of the Addenbrooke's—namely, that in a general hospital a certain routine of daily management is hardly variable; also that patients must be discharged, or allowed to come and go, independently of any courses of observation and experiment; and again that even in chronic cases they must be submitted to immediate and continuous therapeutical and other technical interferences which baffle the stricter methods of research. Furthermore, in chemical and other problems of medical research, the services of experts of various orders, who are not on the staffs of general hospitals, are continually called for; moreover the intricacy of research funds with charitable funds would be more or less inextricable. Here and there, as at St. Mary's, a hospital may be able wholly to surrender a couple of wards for research purposes, and to place them at the disposal of an independent research staff not primarily concerned with healing the inmates; but few hospitals have the room or the conveniences to admit such a rule within a rule. In a research hospital the system and conditions of admission are so drawn up as to avoid these perplexities.

One more argument I will quote—namely, that the miscellaneous mass of research reported and collected from all quarters must, if any clear, consistent, and permanent results are to come of it, be revised, appreciated, and controlled by experts of the highest competence, such as those we have secured; and these controllers must obviously have a house and laboratories of their own. For these reasons, and some others, it was decided by the Committee and the Advisory Council to divide the grant and to devote so much of it to a central department in London as would not cripple its means of subsidy for research elsewhere. For this end the hospital at Mount Vernon, a building well suited to the purpose, was purchased. Thus a portion of the grant was set apart for a comparatively small but highly efficient central research hospital where certain scheduled diseases could be studied intensely and controls carried out, and the rest devoted to inspiring, strengthening, and extending research in all and any of those institutions throughout Great Britain which should satisfy the Committee of full competence for the work. All the larger and more important of these centres have been visited more than once by members of the Committee, and consultations held with their chiefs. In every centre the proposals of the Committee have been cordially received, while on the other hand the Committee in its turn has received much valuable aid and information.

The Statistical Department must of course necessarily be centralized.

The names and distinctions of all the senior and of many of the junior staffs are probably well known to you, and justify themselves. The hospital at Mount Vernon, purchased by the Committee for its central clinical and laboratory research, has since been required by the War Office, and the military medical staff there is now engaged in the investigation of the cases which I may equivocally allude to as the "soldier's heart"; Sir William Osler, Sir James Mackenzie, and myself being the consulting officers. Much good work on these problems, both pathological and therapeutical, is being done under the supervision of Dr. Thomas Lewis, who has now accepted a position upon the permanent scientific staff of the Research Committee. Owing to the exigencies of the war this staff has been changed from time to time, but Captain John Parkinson, formerly with Sir James Mackenzie at the London Hospital, Major Meakins of the Canadian Army Medical Corps, and other officers, have done a great deal of good work; first, in invaliding out of the army men with permanent heart affections, and, secondly, in the study and treatment of the cases of so-called "irritable heart."

These patients are first tested by systematic exercises carried on under medical supervision, and then treated by these and similar methods. By these methods, instead of some weeks or months of indefinite invalidism, the cases are cleared up in a month or less; those patients who are not likely soon to be fit to return to service being drafted out, and the return of the more fit expedited. Although this work is rather for utility than for research, yet much research into the nature of these troublesome cases is involved in the system. By means of orthodiascope, polygraph, string galvanometer, pharmacological tests, and so forth, much information of a strictly scientific kind is obtained. Digitalis is found to be useless, or without any good influence, in these "irritable" heart cases, and is, as a rule, discarded. Moreover, Mr. Barcroft of Cambridge has applied his well-known methods of gas analysis to determine the hydrogen-ion concentrations of blood, or at any rate the balance of its reactions, in these cases; researches which suggest that the explanation of the breathlessness may prove to be due to a deficiency of certain salts in the blood of metabolic origin.

I have said that many departments of the comprehensive schemes carefully planned out by the Research Committee before the war have been almost entirely held up. Not only has the staff been surrendered, but everywhere the pathological laboratories are depleted of expert assistants. Too many skilled laboratory attendants, instead of being secured for military laboratories, have been enlisted as combatants. For instance, research into the subject of rheumatic infections—in which I am warmly interested as being a peril of young life almost as dire as the tuberculous—into thyroid perversions, oral sepsis, diabetes, have been, wholly or in great part, suspended for the present. Some work, however, is in progress on the study of acetonuria; and, more generally, on the urinary excretion of acid, the control of respiration by the mid-brain, and the sensitiveness of the respiratory centre to acidity.

One of the chief original duties of the Research Committee—the investigation of the incidence of phthisis upon particular occupations and industries—has received a good deal of attention. A large number of visits have been paid to boot and shoe factories, leather and hide works, and printing shops. In this research the Statistical Staff also has taken a considerable part. A report on the boot and shoe industry is already published. The evil elements in bad ventilation are being detected, and the changes of the respiratory mucous membrane under changes of temperature recorded. For this and certain other trades special sanatoriums are recommended, so equipped that the patients can be set to work, each on his own trade, under the direction and vigilance of the physicians in charge. Like inquiries are on foot in Birmingham, Bradford, Leicester, Manchester, Sheffield, Cardiff, and Belfast.

At Midhurst, and again under Dr. Gauvain at Alton, and at the Peamont Sanatorium (Dublin), researches are on foot to determine the value of tuberculin treatment. Using the clerical and visiting assistance provided by the Committee, Dr. Bardswell has completed an extensive report, to which the Clinical Prize of the College of Physicians has been awarded. It is hoped that this important manuscript may soon be published. On the types of bacilli in tuberculous infection, especially on the occurrence of bovine and human types respectively in children, work is in progress in the Dublin and Edinburgh pathological laboratories under Professor McWeeney and Dr. A. P. Mitchell; while Dr. Stanley Griffith, at the Field Laboratories in Cambridge, is continuing his well known studies upon the types, the attenuations, and the mutations of the bacillus, and upon bone and joint tuberculosis. Important work on a method much in need of

development—namely, radiography in the diagnosis of phthisis—has had to be suspended.

As regards purity of milk supply, the Committee, with the consent of the Local Government Board, invited Dr. Janet Lane-Claypon to prepare the excellent monograph and critical review of this subject which has had so cordial a reception by our profession; and undertook to pay her fee and the costs of publication. This monograph, it is hoped, may be the first of a series. At Reading Dr. Williams is studying the tuberculous infection of pasture lands by the dung of tuberculous cattle or otherwise. Two cows, apparently healthy in all respects except that tubercle bacilli are contained in their dung, have now been obtained from different sources, and careful experiments, with suitable scientific controls, are being carried out on pastures hired by the Committee. Methods of electrical purification of milk are still under investigation at Birmingham by Sir Oliver Lodge and Professor Leith.

I must not forget the pressing need of farther research on dust inhalation, for which a scheme has been drawn up. You are aware, no doubt, that one seat of these investigations is your own district; that Dr. Mellor is investigating the chemical and physical characters of dangerous dust particles, and Dr. Barwise, in Derby, the pathology of gritstone phthisis. For the farther investigation of this subject and on some aspects of the hygiene and the perils of mining, the Committee has placed the whole-time services of Dr. Mavrogordato at the disposal of Dr. Haldane, whose fruitful researches for the Home Office are too well known to need my commendation.

Some other lines of research, more or less actively in hand under the auspices of the Committee, I must do no more than indicate. For example, in London and the provinces, researches are on foot on the ductless glands, on bacilluria, on diphtheria, on the lipoid contents of organs, on the so-called status lymphaticus, on the Binet scale for the blind, on the grading of alternative mental tests, and so on. On the surgical side much attention is being given to gunshot wounds of the chest, to skin-grafting on wounds, and to wounds of the brain and of the spine; while a heterogeneous collection of cases under such descriptive names as "shell shock," are, with other functional nervous disorders, under the charge of Professor Mott at the Maudsley Hospital, Denmark Hill, of Major Rowe and Dr. Rivers of Cambridge at Maghull, Liverpool, of Dr. Head at the London Hospital, and elsewhere. At the Neurologists' Conference in Paris, last April, Dr. Head represented the Research Committee, and recommended a certain scheme for the record and organized study of neurological cases. In this department the Committee has been fortunate enough to secure the eminent services of Dr. Sano of Antwerp, who, expelled from his own laboratory, now gives his whole time at Claybury and Denmark Hill. The brilliant work of van Gehuchten, of Louvain, recommenced under like circumstances at Cambridge, was unhappily cut short by his lamented death not long afterwards.

One of the earliest undertakings of the Committee, a scheme of work on rickets, including a study of tetany, and of the thymus and the parathyroids, has been delayed. On another grievous disease however—rheumatoid arthritis—Dr. Strangeways, on a part-time grant, has continued to prepare his reports upon the large bulk of material which for some years he has been collecting at the Cambridge Research Hospital. His report on the morbid anatomy is now being completed by another on the histology of the disease.

I think it only remains for me to say in this part of my address that in one way or another, by grants, plant or personnel, pathological assistance has been given by the Committee to about thirty of the chief military hospitals. Much of the scientific work thus assisted in these centres is no doubt of a routine kind; but in time of war it is impossible to distinguish very closely between routine and research. Indeed, it is often in the course of practical experience that new problems and new lights appear which in the laboratory would never have arisen.

[Much more of my discourse was given to a sketch of the outlines of the many and various researches carried on by the staff of the Committee into the nature of disease, and to recognition of many more of its investigators, nearly all of them for full or part time on the staff, or offering facilities as heads of laboratories. As however the report of 1915-16 is now published, it is needless to reproduce all those paragraphs. In their place let me attempt a brief survey of the general trend and character of the work completed or in progress.

During the war the diseases which command attention are, of course, those belonging especially to armies in the field; namely, the poisoning of wounds by many microbes, aërobic and anaërobic, and the effects of associated conditions, such as the tryptic and antitryptic. Closely upon them follow such inward infections as the various diarrhoeas and dysenteries, including summer diarrhoea and asylum dysentery, their causes, symptoms, and carriers—men, water, flies, etc.—with the corresponding methods of prevention and counteraction, and so on. The great, almost complete, success of vaccination against the several kinds of typhoid fever, and of prophylactic serum in tetanus, have received the verification which confirms the universal impression of all observers; while a new method of disinfecting ships without injury to fittings or decorations, and at a small expense, has proved invaluable in this part of the medical service. On the diseases of civil life, which in the long run are even more destructive to mankind, on such diseases as tuberculosis, rickets, rheumatic fever, diabetes, rheumatoid arthritis, etc., some steady work is in progress, but under the disadvantages of diversion of individual energies, and the depletion of laboratories for the combatant and medical services. Cerebro-spinal fever, "trench fever," "frostbite," animal parasites, have been under continual study.

To make a summary of the methods is a more difficult task. By bacteriological methods, by chemical study, as of colloids, lipoids, alkaloids, enzymes, hormones, catalysts, and of toxins, protein and other, of amino acids, of immunity phenomena and anaphylaxis, of the relation of the saline, carbon dioxide, and other constituents of the blood to muscular, cerebro-medullary, and other functions, the secrets of disease are being besieged on many lines, frontal and flanking—lines which it is to be hoped are on the whole convergent. Thus with some dismay we perceive that to organize a campaign against disease from all these directions seems to presume in the inquirer accomplishments which no one man can command. No man can be a clinician, a pathologist, a physiologist, a chemist—and chemistry has now its physical as well as its physiological side — and a physicist; scarcely, indeed, can he master any two of them. This is true; and the need is met, in part of course, by division of labour—but only in part.

Many men, clerks of science as one may call them, work assiduously and intensely at multitudinous small points, and, seeing each his own point and little more, yet do excellent service in accumulating facts under the direction of other and maturer minds. Nevertheless, if a young scientist has the ambition to excel in pathological research he must try ever more and more to see something of the whole. For example, it may be that Ehrlich's hypothesis is now failing to explain all the facts; but if this be so, the hypothesis has been of invaluable service in giving a large imaginative conception of morbid processes, a breadth of view which has lifted up the ideas of all who have followed him. But Ehrlich could not have reached this elevation of outlook had his vision been confined, let us say, to bacteriology. Like Pasteur, he had at least some mastery of the more general ideas of chemistry and physics.

By its hierarchy of workers and choice of methods the Research Committee fosters this breadth of view as well as inquisitiveness and accuracy in detail. If then all research into the nature of disease must radiate from physiology, for all disease is but a perversion of the normal, or a declension from it, the investigator, if he is to be successful, must have some mastery of chemistry and physics also. To the physiologist, indeed, the animal body is but a congeries of microbes, which, from such simple aggregation as in the sponge, becomes so differentiated and combined, both in structure and function, that in the mammalia perhaps no group of cells has escaped construction into organs, as these again are organized in the whole. And each kind of these cell microbes has its own product—that which physiologically we call a secretion or excretion, pathologically a toxin; the difference being one of relative utility. The production, for example, of ptyalin from a salivary microbe is analogous to that of the toxin of a bacterium; the enzyme of a septic organism to that of a pancreatic cell. Trypsin is useful or mischievous according to the sphere of its occupation.

As it is the precious service of the artist or moralist to lift the ideas of mankind into the highest spheres which thought and imagination can reach, or even vaguely discern, so, as one William from Ockham has told us, it is the property, not always delectable, of science to reduce phenomena to their lowest possible categories. Science now boldly asks what evidence we have—evidence likely to resist analysis—of any "suprachemical" mode or modes of energy. Thus it is that no physiological research can be exhaustive unless the student be in possession at least of the ruling principles of chemistry. If not, he may be working on a false bottom, with the chemist mining below him. But this is not all; far from it. Below chemistry comes, as I have said, the physicist, also driving his adits under the chemist, the physiologist, and the pathologist. We have scarcely ceased to admire the phenomena of phagocytosis, and distributed to this function the language of war, when the physicist comes in and shows signs of sweeping the whole "biological" conception of it down into his own category. He tells us, or is threatening to tell us, that these phenomena may be explained by the laws of surface action. And into the same net he is prepared to gather "opsonins," "agglutinins," and other phenomena which hitherto had lain quietly in the lap of the biologist. So again, what is to be the interpretation of catalytic functions? What of enzymes? That many catalysts—bodies that is which quicken the rate of molecular disintegration—are inorganic, we know. How much of catalysis then is reduceable to the category of physics? We say sometimes that as in chemistry we expect quantitative relations between cause and effect to be calculable, as, for instance, in the case of certain alkaloidal products of bacteria, and presume therefore that such a function as anaphylaxis, wherein quantitative proportions seem subordinate, must be "suprachemical"; yet do we feel sure that, even here, enzymic and catalytic processes may not prove to have physical explanations as well as physical conditions? We admit that if most enzymes are protein, such is not the case with all of them. Again, the action of lipoids and recent researches upon adsorption carry us down again past chemistry proper to the ground floor of physics. Many strange perversions of the mind of man are explicable by purely physical relations between the nerve cell and some accessory substance outside it. Consider again the drop we have had from animal and vegetable food, from the "life-giving blood," from the store of courage we were taking in when we ate the heart of a lion, to nourishment by amino acids! One of the most wonderful experiments of the laboratory is the continuing function of the separated heart, fed only by Ringer's, or Ringer and Lock's, fluid. In like manner some kinds of dyspnœa seem to be due simply to a faulty crasis of the salts of the blood. And at the other end of the scale we have the relations between bacteria and the amino acids, and the present need for an advance of chemical bacteriology to the commanding position already attained by its morphology.

In medical research then we shall not regard in one set of cells the liberation of hormones as an exceptional endowment, or in another the liberation of a stimulant or catalytic product, and so on; we shall realize that, variously differentiated, some such effluence is the endowment of all cells, from the simple ptyalin of saliva to the toxins of pyogenic or anaërobic bacteria, the ricin of castor-oil or the juice of the poppy; each kind of cell having worked out its peculiar function. The amazing thing is the infinite variety of cell effluence in the animal and vegetable world; a variety presumably potential in the simplest organisms. If for a moment we can imagine in the animal body the secretion of every several kind of cell to be tinted with its own colour, and the tissues to be transparent as glass, we should see from every organ, even no doubt from bone itself, the peculiar dew of each streaming into the passages of the body, mingling into a general iridescence, and yet each, selecting and selected, ministering to its peculiar service of nourishment, integration, reinforcement, degradation, or elimination.

My desire in this address has been to give some idea of the dimensions and scope of the work in progress by the Committee, and generally in the field of medical research, and some sense of the large and intense vitality of the movement and of the army of workers. In the next twenty years, as in the last twenty, medicine will, we trust, be so enlarged and illuminated in many directions that the art and the science will again be transformed. And upon these new conceptions, new discoveries, and new auxiliaries will be based a new therapeutics to give us a command over disease as great again as that ascendancy which already has distinguished our own generation.

One pleasant duty remains—namely, to express to you our grateful sense of the really brilliant services, both in organization and in intellectual aid and counsel, of our secretary, Dr. Walter Fletcher. The Committee's report for 1915–16 is shortly to be published. Both from this and his previous report I have borrowed largely, and in many passages have not hesitated to make direct quotations.

In conclusion, gentlemen, I owe you sincere thanks for your indulgent attention to an address which owes whatever of interest it may contain to its subject, and little or nothing to the speaker.

Abstract of a Lecture

ON

A CASE OF ARSENIC CANCER.

DELIVERED AT THE MIDDLESEX HOSPITAL, 1916.

BY

SIR JOHN BLAND-SUTTON, F.R.C.S.

SURGEON TO THE HOSPITAL.

"AUXETICS" is a term applied to chemical and physical agents capable of stimulating epithelial cells to unwonted activity. In pathology the term is more particularly applied to agents that can provoke such changes in epithelium as to predispose them to become cancerous. It has long been known that soot, lime, pitch, tar, arsenic, and caustic soda are auxetics in the stricter sense. To these have been added during the last twenty years x rays and radio-active substances such as radium. Chronic ulcers caused by burns and scalds are also liable to become cancerous.

Quicklime is indirectly an auxetic; it burns the skin, and chronic ulcers caused in this way sometimes become cancerous. This change has been noticed in scars on the conjunctiva left by lime burns. Davis published some curious evidence connecting lime with cancer of the cheek occurring in the natives of the Philippine Islands who chew betel nut. This nut is the fruit of the betel palm; slices of the fruit are dried, wrapped with a pellet of lime and an aromatic like cardamoms, or turmeric, in a leaf of the betel vine. This mixture is called buyo. When chewed buyo causes a copious flow of red saliva that dyes the lips and gum, but blackens the teeth. It is supposed to sweeten the breath and stimulate digestion. The practice of chewing betel nut is common in the Philippine Islands. Cancer frequently attacks the mucous membrane of the cheeks of men and women who chew buyo. The natives attribute the disease to buyo chewing. Davis considers the lime to be the essential cause. The lime used for buyo is obtained by burning the shells of molluscs.

Some of you may remember that I showed you, about three years ago, a forearm amputated on account of an extensive cancerous ulcer. The man, aged 69, to whom the arm belonged, was employed to wash telegraph cups in a solution of caustic soda. One day he splashed his arm with the solution, and this caused an ulcer; it never healed. Two years afterwards he came to the hospital with a typical cancerous ulcer, enlarged lymph nodes at the bend of the elbow and in the axilla. The lymphatics along the median basilic vein were so permeated with cancer that I dissected them out like solid cords. On microscopic examination, the tissue around the edge of the ulcer had the usual characters of squamous celled cancer and a lymph node from the bend of the elbow was stuffed with similar material.

The dermatitis caused by x rays and radium is, in essence, a chronic ulcer, and, like chronic cutaneous ulcers in general, becomes, by slow and insensible stages, cancerous. As a result of x-ray treatment a rodent ulcer may become transformed into a squamous celled ulcer. A woman, aged 50, under my care had an ulcer involving the skin of the lower eyelid. The ulcer was excised and examined microscopically; the appearances were those

characteristic of a rodent ulcer. A year later ulceration recurred, and received energetic *x*-ray treatment for two years. The appearance of the ulcer changed; its edges became raised and hard. The *x*-ray officer became dissatisfied, and asked me to excise the ulcer. This was done, and on examination the new ulcer presented the characters of squamous celled cancer. Other surgeons have had similar experience.

I chose this subject for the lecture to-day because of a chance that enables me to show you an unusual example of what is called arsenic cancer.

A woman, aged 60, came under my care in the hospital with a large ulcer just below the left knee; it had the usual signs of cancer of the skin. In shape and position the ulcer so resembled a patch of psoriasis that I instinctively uncovered the right leg to see if there were any patches of psoriasis. The scaly, onion-like patches peculiar to this disease were present on her legs and elbows (Fig. 1). The following story was elicited:



FIG. 1.—Cancer arising in a patch of psoriasis on the leg of a woman aged 60. (From a photograph by Mr. M. C. Sarkies.)

For thirty years she had suffered from psoriasis, and during this period taken more or less continuously arsenic in the form of liquor arsenicalis. In 1913 a pimple appeared at the lower border of a scaly patch on the skin, just below the patella. This pimple gradually became an ulcer that was frequently scraped and cauterized. In spite of this treatment it increased in size; in 1916, when she came under my care, it had become a typical cancerous ulcer as big as the palm. There were enlarged lymph nodes in the groin. On August 23rd I removed the lymph nodes from the groin, ligatured the common femoral artery, resected the upper two inches of the internal saphena vein at its junction with the femoral vein, and amputated the limb through the middle of the thigh.

Tissues from the edges of the ulcer had the microscopic characters of squamous celled cancer, but there were no cell nests. The big lymph nodes from the groin were examined and found free from cancer, but they showed the changes common to nodes enlarged from septic infection. The patient made a quick and satisfactory recovery after the amputation.

Cancer of the skin covering the trunk is unusual, but it is common on the skin of the face and limbs, and always arises in some pre-existing lesion, especially a chronic ulcer. In the case of arsenic cancer, the order of events is somewhat in this style: Arsenic taken internally for a long time—years—leads to thickening (keratosis) of the skin, especially on the palms and soles. These thickenings crack and allow bacteria to enter and infect the skin; in rare instances these chronic linear ulcers become cancerous. Psoriasis is an intractable skin disease for which arsenic, especially in the form of liquor arsenicalis, was regarded as a specific.

A remarkable case has been reported in which a cancerous ulcer appeared in a patch of psoriasis on the skin of a finger under a wedding-ring. The patient had taken arsenic (R. J. Pye-Smith). It is said that this form of cancer does not infect lymph nodes, and the investigation of inguinal lymph nodes in my patient supports this statement. Let me conclude the lecture with a parable.

The dead trunk of a pollarded willow stood in a hedge-row bordering a busy highway. Dust, conveyed by wind, filled a depression in the head of the willow; a gooseberry bush flourished in this scanty soil. It is probable that a bird had eaten ripe gooseberries and then muted excrement containing the seeds in the soil on the crown of the willow. The seed sprouted, took root, became a bush, and bore fruit. The woman with cancer at the knee had, with great faith, swallowed liquor arsenicalis at intervals for thirty years with the hope of curing her psoriasis, until one day a crack appeared at the edge of one of these curious skin patches, and in a fortuitous way the germs of cancer entered, took root, and led to the formation of a large, stinking, cancerous ulcer. Some day the cause of a cancerous ulcer arising in a patch of psoriasis, a lupus patch, or in a chronic ulcer left by a burn will admit of an explanation as simple as the presence of a gooseberry bush on the head of a dead willow, but of this we may be sure: Many will see more chronic ulcers that have become cancerous than gooseberry bushes growing, and bearing fruit, on the summits of dead willows. There can be little doubt that a better knowledge of symbiosis will enable surgeons to know how chronic sepsis tills the soil in the human body to make it receptive for the germs of cancer.

CASES OF GUNSHOT WOUNDS OF BLOOD VESSELS FROM MESOPOTAMIA.

BY

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(With Special Plate.)

DURING the past eighteen months of the Mesopotamian campaign, twenty-four cases of bullet wounds of large blood vessels have passed through the Colaba War Hospital, Bombay, including three cases treated by operation prior to admission, to which no further reference is made in these notes.

As this hospital has received fully 80 per cent. of all cases of severely wounded British troops, these twenty-four cases probably represent the great majority of wounds of this nature which reached the overseas base in Bombay without previous operative treatment. All these cases were due to bullet wounds, and in this connexion it may be mentioned that the great majority of wounds treated here have been bullet wounds caused either by the pointed German bullet used by the Turks or the large leaden Arab bullet.

The cases have shown a considerable degree of variety; four were obliterative lesions, eight were arterio-venous aneurysms, nine were diffuse false aneurysms.

The obliterative lesions showed absence of the distal pulses, with no other marked sign of lesion of the vessels in question. One of these was operated on twelve weeks from the date of injury for lesion of the brachial nerve cords; here the axillary artery in its third stage was found to be completely divided, with each end occluded by a firm clot; the axillary vein was thrombosed. There was no local effusion of blood. Another was operated on for lesion of the median nerve in mid-arm, and a similar condition was found, but the ends of the artery could not be detected amongst the scar tissue surrounding the nerve. The other two cases were of wounds involving the superficial femoral artery. One had apparently undergone spontaneous cure from the effect of a tourniquet applied on the field, and left on for forty-eight hours. It had cut into the subcutaneous tissues, leaving a definite scar on the inner side of the thigh, with only gangrene of about half of the great toe as a result. The other showed a very small haematoma over the mid-third of Hunter's canal, with no pulsation or bruit, and absent distal pulses.

The arterio-venous wounds included one of the subclavian vessels, one axillary, one common femoral, one superficial femoral, and two popliteal, one peroneal, and one acromio-thoracic; the second and two last were operated on in the hospital; the others were transferred to England under expectant treatment.

All the cases of diffuse false aneurysm were treated by operation in the hospital. Notes on these and the other three cases requiring operation are as follows:

CASE I.—*Traumatic Aneurysm of Right Axillary Artery.* (Fig. 1.)

Wounded in Mesopotamia. Wound of entry below the middle third of the right clavicle; bullet lodged.

On admission there was a large pulsating tumour under the great pectoral muscle, extending from the middle third of the clavicle into the axilla and over the upper part of the chest wall, internal to the axilla. The shoulder was drawn up, and traction on the arm did not alter the deformity and caused great pain. There was a loud and harsh bruit over the tumour. Compression of the subclavian artery, which could not be carried out efficiently because of the position of the shoulder, caused pulsation and bruit to diminish to a limited extent. Circulation in the hand and arm was sluggish, there was slight oedema, and the radial pulse was absent. Temperature varied between normal and 99.4°. Pain was very severe, and interfered very much with sleep. There was complete right wrist-drop.

As the increase in size within a few days was definite and marked, it was decided to operate without delay.

Operation.

On April 24th, 1916, the third part of the subclavian artery was ligatured as a preliminary measure. Much difficulty was experienced in this part of the operation on account of the upward displacement of the clavicle.

A second incision was made from the middle third of the clavicle to a point over the neck of the humerus, and the line between the great pectoral and deltoid muscles defined. Part of the clavicular origin of the great pectoral was divided, and the muscle strongly retracted inwards. The sac wall was now exposed, and consisted apparently of the much stretched and thinned pectoralis minor muscle and the clavipectoral fascia; the wall burst on gentle manipulation, and a large quantity of clot and fresh blood was removed with swabs and hot water; very severe haemorrhage occurred from the distal end of the injured artery, and much difficulty was experienced in examining the lesion and applying pressure forceps. Firm pressure in the axilla helped temporarily to control the haemorrhage, and the proximal end was caught; traction on this end helped to control the distal end, the wound being somewhat valvular. Ligatures were applied above and below the lacerated area, which involved half an inch of the line of the axillary artery in the second stage. It was an irregular tear without much gaping of the edges. Arterial haemorrhage still occurred and was found to be due to a small included branch; when this was ligatured, haemorrhage ceased. The pectoralis major muscle was sutured and the cephalic vein, which had been injured, was ligatured.

The wound was then closed in two layers, a rubber tube being inserted at the lowest point.

Serous oozing occurred for several days, and a small collection of fluid, which did not escape by the tube, was drained on May 4th. The wound had healed by May 14th and the patient was transferred to England on May 22nd. There was no improvement in the musculo-spiral paralysis.

CASE II.—*Arterio-venous Aneurysm of Right Acromio-thoracic Trunk.*

Wounded in Mesopotamia. The wound of entry was below the centre of the right clavicle; bullet lodged. Wounds healed on admission. There was a pulsating tumour, the size of an orange, felt in line of axillary artery below middle third of clavicle; pressure on subclavian artery caused pulsation to cease and sac to partially empty. The tumour varied in size and tenseness on movement of the upper extremity. There was a soft bruit. The radial pulse was good. There was no nerve involvement. A fortnight after admission a definite increase in size was noticed.

Operation.

On May 4th, 1916, the subclavian artery was ligatured in its third stage. All pulsation in the tumour ceased.

A second incision was made in the interval between deltoid and pectoralis major muscles; the latter muscle was drawn inwards and the pectoralis minor exposed; it was stretched over the tumour. The axillary artery was defined and was found to be uninjured; a much enlarged branch (thoracic axis) was seen to disappear into the tumour, which lay below and internal to the axillary artery. This branch was ligatured and the sac opened. The clot was removed; some of it was organized and some fresh. Regurgitant haemorrhage from the distal end could not be controlled by ligature as the external anterior thoracic nerve was involved in the sac wall. A purse-string suture was laid as close to the bleeding point as possible and caused it to cease. Another pedicle posterior and internal was ligatured. The sac was intimately associated with the pectoralis minor muscle, which was atrophied and spread over the sac wall. It was almost unrecognizable as muscular tissue. The sac was lined with tunica intima. The wound was closed without a drain. Circulation in the arm and hand remained good. There was no return of the radial pulse. The patient was transferred to England on May 22nd.

CASE III.—*Arterio-venous Aneurysm of Left Axillary Vessels.* (Fig. 2.)

Wounded in Mesopotamia, January 21st, 1916. The wound of entry was below the left coracoid process, and that of exit near the inferior angle of the scapula.

Wounds healed on admission. History of severe pain from time of injury, with no improvement. Left elbow semiflexed and stiff. Hand contracted, fingers bluish and cold; slight voluntary power of extension at wrist-joint. No other movement in forearm or hand. Distal pulses absent; no sign of aneurysmal swelling in axilla.

Operation.

On February 17th, 1916, operation was undertaken for the relief of pain. Incision along axillary border of left pectoral muscle. An extensive mass of hard scar tissue was found in the line of the axillary vessels at lower border of axilla. The origin of the brachial artery was identified; this did not pulsate. The axillary vein contained a clot near its origin; about two inches above this point a small sac, non-adherent to the surrounding tissues anteriorly, was seen to pulsate. It was disc-shaped, very clearly defined, purplish-red in colour, and about one and a quarter inches in diameter; it was adherent to the wall of the axillary vein, but did not communicate any pulsation to it; its connexion with the axillary artery was not visible, but the pulsation of the latter could be felt an inch above the aneurysm, and pressure here stopped its pulsation. Since a ligature could not be applied to the axillary artery above the aneurysm, a second incision was made in the line of the fibres of the great pectoral muscle; the artery was exposed here—that is, about two inches above the lesion—and a ligature applied. Pulsation then ceased abruptly. The sac lay across the median nerve near its origin. Above and below the sac the nerve was very oedematous. The sac was opened and was found to be lined by tunica intima all through and to contain no openings. On freeing its posterior wall from the median nerve the latter was found to be flattened to the thickness of a finger-nail by the pressure of the sac wall.

While an attempt was in progress to free the ulnar and musculo-spiral nerves from scar tissue, free haemorrhage, apparently unconnected with the aneurysmal sac, occurred from three separate sources deep in the posterior wall of the axilla. It was impossible to control any of these points with pressure forceps, and the patient had lost so much blood within a couple of minutes that it was necessary to pack the axilla and give an intravenous infusion of saline. The upper incision was then closed, the axillary wound roughly sutured over the packing, and the patient returned to bed.

After-History.

Subsequently very great difficulty was encountered in the after-treatment owing to infection of the axilla and repeated secondary haemorrhages. These occurred on the fourth day, when the packing was changed, and on three subsequent occasions during the first fortnight after the operation. A pulsating area deep in the axilla was noticed twelve days after the operation covered by sloughs and recent clot. Daily packing of the axilla with antiseptic gauze plugs, aided by the pressure of wool pads behind the shoulder, was resorted to, the subclavian artery being compressed during the dressing. There was no further haemorrhage, and the pulsating area had disappeared two weeks later. By then the terminal phalanges of the fourth and fifth fingers had become gangrenous, and showed a line of separation. There were superficial sloughs over the inner condyle of the humerus, on the flexor surface of forearm, and over the styloid process of the ulna. There was no power of movement in the upper extremity, and no sensation below the axilla. At the end of April sensation had returned in the arm and over an irregularly distributed area in the upper third of the forearm. There was weak voluntary flexion at the elbow-joint.

The patient was transferred to England in June. His general condition then was excellent. There was still a small granulating area in the axilla. The slough in the forearm had healed. The nutrition of the upper extremity was good. Movement at the elbow-joint was good and improving. The wrist was stiff, and had no voluntary movement; its passive movements were improving. The phalangeal joints were stiff, and there was a tendency to contraction of the fingers. This disability was improving under passive movement and massage, and the hand was plump and well nourished, except where the tips of the fourth and fifth fingers had become gangrenous. Electrical reactions were normal above the elbow-joint. The wrist flexors gave a weak reaction to galvanism; no reaction to faradism.

CASE IV.—*Traumatic Aneurysm of Left Axillary Artery.* (Fig. 3.)

Wounded in Mesopotamia, April 9th, 1916. Wound of entry over the deltoid muscle in the upper third of the left arm. Bullet lodged, having fractured the shaft of the humerus and penetrated the lung (there was haemoptysis for fourteen days after the date of injury).

On admission the wound was healed. There was a history of severe and constant pain in the axilla and on the radial border of the forearm. There was marked oedema in the hand and forearm and about the elbow. A deep sloughing pressure sore existed over the inner condyle of the humerus. The left arm was completely paralysed. Loss of sensation was complete

below the axilla; there was atrophy and stiffness of the muscles of the forearm. *X*-ray examination showed an oblique fracture of the upper third of the shaft of the humerus, without comminution.

A marked swelling existed over the anterior surface of the shoulder-joint, limited internally by the outer border of the great pectoral muscle, but diffuse and extending under the deltoid muscle externally; it also filled the floor of the axilla with a tense ball-like mass. There was pitting on pressure over the swelling, which had the appearance of a brawny cellulitis covering a deep suppurating focus. Pulsation could not be detected in any part of the swelling, but pressure on the subclavian artery eased the tension—in the axilla. There was no bruit. The radial pulse was absent.

During the three weeks in which the patient remained in hospital prior to his operation no improvement occurred in his condition, and the swelling did not decrease in size. The pressure sore at the elbow became more extensive and the general condition disimproved steadily from pain and lack of sleep. The temperature varied between 100° F. and 101° F., and the pulse 80 to 90. The shape of the swelling became more definite and pulsation was just visible at the anterior fold of the axilla on May 20th, and was palpable in the floor, which was very tense and painful.

Operation.

On May 24th a crescentic incision from near the inner end of the clavicle to the insertion of the great pectoral muscle was made, and continued deeply in its inner third. The pectoralis minor muscle was freely exposed by separation of the fibres of the atrophied great pectoral muscle; the former was then divided and reflected, exposing the axillary artery fully as far as the origin of the long thoracic artery. During this part of the operation the acromio-thoracic vein was injured, and was ligatured and divided.

Exposure of the third stage of the artery was continued as far as possible distally, until it became buried under the inward projection of the aneurysmal sac, and a ligature was then applied as low as possible—that is, between the long thoracic and subscapular arteries.

The distal part of the incision was then continued deeply. Retraction of the great pectoral and deltoid muscles displayed the anterior portion of the sac wall, which was formed by the spread-out fibres and aponeurosis of the coraco-brachialis muscle. A vertical incision was made in this covering, and, with the aid of strong retraction and partial division of the great pectoral muscle near its insertion, the cavity was exposed. Free haemorrhage was then occurring from the injured artery; the proximal part was seen and clamped, and pressure by tourniquet high in the arm controlled haemorrhage from the distal end sufficiently to enable its identification and control by pressure forceps to be effected. Ligatures were then applied above and below the injury, which was incomplete and ragged, involving half the circumference of the artery. The axillary vein was uninjured. There was no further arterial haemorrhage, and when the cavity, which was very extensive, had been flushed with hot saline the oozing soon ceased.

The patient's condition did not allow of a full examination of the accompanying nerve injuries. The ulnar nerve was adherent to the lower part of the false wall of the sac and matted with clots. The musculo-spiral and musculo-cutaneous nerves were identified and did not show any lesion within the cavity. The median nerve could not be identified.

The wound was closed and drained with a rubber tube at the lowest corner. There was a serous discharge for eight days.

After History.

The patient's general condition improved rapidly, oedema rapidly disappeared, and pain was relieved. The pressure sore at the elbow improved, and had healed when the patient was transferred to England on about July 4th. There was then no return of power in the arm or hand but full sensation had returned as far as the elbow-joint. There was a weak reaction to faradism in the wrist flexors.

CASE V.—*Traumatic Aneurysm of the Left Brachial Artery.* (Fig. 4.)

On April 24th, 1916, this patient was shot through the left upper arm; he stated that the wounds healed in some five days, but that the injury was immediately followed by much local swelling, which went down to the elbow, and subsequently grew less and localized to the middle of the arm.

On May 19th, on admission, the entry wound, 1½ in. below the insertion of the pectoralis major, and the exit wound in the mid-posterior surface of the arm, 3 in. above the elbow-joint, were both healed; a small aneurysm of the brachial artery in the direct track of the wound was present, about the size of a walnut; its pulsation and harsh murmur were both controlled by pressure on the artery above; there was much severe pain in the median nerve area below, and some definite paralysis of the muscles of the first and second digits supplied by the nerve; pulse at wrist could not be felt.

Operation.

On exposure of the aneurysm, on May 25th, the median nerve lay on it, that is, internal to it, and was adherent to it. It was dissected free, and the condition of the nerve appeared good; the brachial artery above and below the tumour was small (about the size of the ulnar artery in the forearm). The sac of the aneurysm was on its outer side, and only a small communication with the artery existed. The artery was ligatured above and below the tumour and the intervening portion removed, including above the aneurysm a small annular dilatation of the vessel. The remainder of the sac, which was thin, was left, after being emptied of blood clot.

Primary union followed, and the patient's convalescence was only complicated by an attack of catarrhal jaundice, which began ten days after the operation and cleared up in three weeks' time, when he was sent to Egypt. By that time the pain in the median nerve area had become much less, though still slightly present, and the paralysis also had cleared up but for the flexor profundus action in the index finger, which was still mostly absent.

CASE VI.

Wounded in Mesopotamia; penetrating wound of the right arm in mid third; wounds healed on admission.

There was a small aneurysm in the course of the brachial artery at the centre of the arm, with a distinct pulsation and bruit. Compression of the brachial artery above the lesion caused a reduction in size and cessation of pulsation. There was a slight radial pulse. There was pain in the area of distribution of the median nerve, with paresis of the flexors of the fingers.

Operation.

On May 23rd an incision was made over the tumour, after the application of a tourniquet. The sac was exposed; the median nerve was stretched over it, it was flattened and injected; at the lower part of the wound it was oedematous. The ulnar nerve was involved in scar tissue; it was easily freed and was found to have been perforated by the bullet. The sac of the aneurysm was about the size of a pigeon's egg. The artery had been almost completely severed, and only existed as a thin band in the inner side, along the half-inch of its course that was involved.

The sac was dissected from its bed and the artery ligatured above and below. The sac was in part lined by tunica intima. The median nerve was wrapped in a fascial sheath. The sheath of the ulnar nerve was sutured and adhesions were dissected away. There was no scar tissue amongst the axons. The nerve was wrapped in a fascial sheath. The wound was closed without drainage and healed without complication.

Pain had disappeared completely from the hand when the patient was invalided.

CASE VII.—*Traumatic Aneurysm of Right Superficial Femoral Artery.*

Wounded in Mesopotamia, November 22nd, 1915. Tourniquet applied at time of injury. Note with patient on arrival stated: "Tourniquet applied for two hours daily."

On admission on January 2nd, 1916, an extensive non-pulsating tumour existed on the inner and anterior area of the upper third of the right thigh, limited above by Poupart's ligament. The wound of entry was 4½ in. below Poupart's ligament in the line of the sartorius; inside, the bullet had been removed from the fascia over the adductor muscles 2 in. below the perineum. There was no infection of either wound. The patient stated that the swelling had commenced when the wound occurred, and had gradually increased for several days. Circulation in leg and foot was good; no oedema of leg or foot. Both anterior and posterior tibial pulses present, but very much modified. There was no bruit over the swelling. Pain was constant, but not severe.

Operation.

On January 13th a slight leakage occurred from the wound of entry during the night; it was decided to operate immediately.

Tourniquet control being impossible on account of the high upper limit of the swelling, the limb was sterilized and emptied as far as possible of blood by a Martin's bandage and elevation. Digital compression was made on the common femoral artery at Poupart's ligament.

The tumour was incised in the line of the vessels, and large masses of old and recent clot removed. Haemorrhage from both ends of the injured vessel still occurred. Exposure of the injured portion of Hunter's canal showed a gross lesion of the artery 1½ in. below the origin of the deep femoral artery. Pressure forceps were applied above and below the injury.

The bullet had invaded the vessel sheath on its inner side, lacerating the inner wall of the artery for half an inch of its length, leaving the anterior and outer wall maintaining the continuity of the vessel, devitalized and irregular, like a piece of torn rag. A small sac, the size of a walnut, and composed of tunica intima, lay to the outer side of the vessel, and had evidently developed as a diverticulum in the main blood cavity from a piece of the lacerated inner wall. It was filled with semi-organized clot.

Ligatures were applied ½ in. above and ½ in. below the limit of the lesion, two included branches being tied. The vein and internal saphenous nerve were uninjured. The cavity was irrigated and closed in layers without injury.

The result was satisfactory. The distal pulses were obtainable within twenty-four hours; no interference with the circulation in the foot or leg occurred. A small haematoma was drained ten days later. The patient was transferred to England on March 6th, 1916; the wound was then healed.

CASE VIII.—*Traumatic Aneurysm of Left Deep Femoral Vessels.*

Wounded in Mesopotamia. The wound of entry on the posterior and inner surface of the left thigh in its upper third, exit antero-externally at the same level.

A note with the patient on admission stated, "Fracture of femur in mid-third, lesion of great sciatic nerve." Operation was undertaken for relief of pain in foot, scar tissue removed from the great sciatic nerve. The wounds were healed on admission.

On May 2nd, 1916, the pain in the left thigh was very severe and caused insomnia, the pulse was 120, and the temperature 103° F.

On May 3rd examination showed an extensive and tense swelling involving the middle and part of the upper third of the left thigh antero-externally and postero-internally. There was no swelling directly over Hunter's canal. There was much tense elasticity in the swelling with no pulsation and no bruit. Compression of the common femoral artery at Poupart's ligament eased the tension, and looking horizontally at the swelling from the outer side it was seen to rise rapidly on release of the artery. The pulses were present and weak in the anterior and posterior tibial arteries. The patient's general condition was not good; anaemia was intense.

Operation.

Operation was undertaken at once, a tourniquet being employed. The peculiar position of the swelling, with the presence of the distal pulses, suggested that the superficial femoral artery was not involved, but its extensive nature decided an incision over Hunter's canal. This opened into a mass of recent clot lying external to the sartorius muscle. This was cleared away, and examination of Hunter's canal showed that no lesion of the superficial femoral artery had occurred. The great mass of the clot lay external to the canal and extended backwards, lateral to the shaft of the femur.

The intermuscular septum between the vastus internus and the adductor muscles was opened and a mass of fresh clot, almost as extensive as that in front, was evacuated. With difficulty the deep femoral vessels were exposed, and were found to be the cause of the haemorrhage. On loosening the tourniquet, free haemorrhage, 1 in. from the origin of the deep femoral artery, occurred. The vessels were ligatured. Troublesome oozing from deep in the adductor muscles and from the neighbourhood of the shaft of the femur followed. This was stopped by pressure forceps and ligature. The wound was then closed and drained by a large rubber tube.

After-History.

The patient's condition was critical for some days after the operation, the pulse being poor and restlessness extreme. A small haematoma developed after the tube had been removed. Three days later, when this was drained, the wound healed without further complication, and pain completely disappeared. When the patient was transferred to England some weeks later his general condition was good. Foot-drop remained.

CASE IX.—*Arterial Haematoma due to Injury to Branch of Left Deep Femoral Artery.*

Wounded in Mesopotamia. The wound of entry was on the outer surface of the mid-third of the left thigh, that of exit through the adductors at the same level. The bullet also traversed the right thigh.

On admission, on May 2nd, 1916, the patient was anaemic and debilitated, with a temperature of 102° F. and a pulse of 100. There was a large and hard haematoma in the inner and upper third of the left thigh. The wound of entry was healed, and the wound of exit granulating, with a serous discharge. The distal pulses were present and weak. There was no bruit and no pulsation over the swelling. Compression of the common femoral artery at Poupart's ligament did not affect its tension. The superficial femoral artery had been ligatured in Hunter's canal on the way home from Mesopotamia.

The temperature and pulse-rate fluctuated for several days after admission, the pain was considerable, and complete rest with elevation of the limb was adopted. On May 15th a slight leakage occurred from the wound of exit and continued for two days with increase of pain. On May 17th a sudden marked increase in tension occurred, with severe pain and blanching of the limb below the knee. The pulse-rate increased to 140.

Operation.

A tourniquet was applied and an incision made over the tumour below the sartorius muscle. Much old and recent clot was evacuated, and haemorrhage was found to be caused by a large branch of the deep femoral artery, which had been severed and projected into the cavity. Ligature of this branch checked haemorrhage completely. There was much local laceration of the tissues, from which free oozing occurred after removal of the tourniquet. The wound was then closed and drained by a tube.

After-History.

The patient's general condition improved rapidly after the operation. There was a free discharge for several weeks, which was found to be infected with *Bacillus pyocyaneus*. There was no further haemorrhage, and the patient was transferred to England with the wound still draining.

CASE X.—*Traumatic Aneurysm of Left Superficial Femoral Vessels.* (Fig. 5.)

Wounded in Mesopotamia, March 8th, 1916. The wound of entry was near the left adductor tubercle, and that of exit 4 in. above the knee-joint through the biceps muscle.

On admission to the convalescent ward on March 20th there was oedema below the knee, and also drop-foot. There was no swelling in the thigh.

On March 26th the patient got out of bed without leave; some bleeding then occurred from the wound of entry. The same night a swelling developed over the inner and lower third of the thigh, and increased gradually. When seen on March 29th an extensive bulgy swelling existed, filling the inner and posterior area of the lower third of the thigh. There was severe local pain. There was no visible pulsation. The swelling was tense and resilient. There was no bruit. Compression of the common femoral artery at Poupart's ligament relieved the tension considerably, and on sudden release of the artery the swelling was seen to increase in extent when a horizontal view was taken of its outline. Oedema of the limb below the knee was marked; circulation in the foot was poor, return of the blush on the ball of the foot and over the malleoli being slow after pressure. The distal pulses were absent. The patient was in acute pain, with a temperature of 102° and a pulse of 128. There was then no bleeding from the wound of entry.

First Operation.

On March 29th a tourniquet was applied in the mid-third of the thigh. Incision in the line of the sartorius muscle; masses of recent clot were evacuated. The artery lay unprotected in the outer wall of the blood cavity. The vessel wall was severely devitalized for 3 in. above the opening in the adductor magnus. There was an extensive irregular laceration at the centre of this portion. An adherent clot lying behind the artery evidently sealed an injury in the wall of the vein. The artery was ligatured 2½ in. above and just below the injury, three included branches being also tied; one of these was the anastomotic.

On removal of the tourniquet a rush of blood from the injured femoral vein occurred, but soon stopped; the vein was not disturbed. The cavity was packed and drained by a tube in one corner, the remainder of the incision being closed in layers.

After-History.

After the operation the general condition improved, but the leg and foot were dusky and cold. Recovery of the circulation took place except in several local areas, chiefly in the distribution of the external popliteal nerve, and a deep slough subsequently developed in the mid-third of the leg, involving a small portion of the bellies of the peroneal muscles; superficial sloughs developed over the heel, the terminal phalanx of the great toe and the outer malleolus. Apart from those very local areas, circulation recovered in the leg and foot.

The temperature and pulse-rate fell rapidly after the operation, and remained nearly normal. There was a serous discharge from the operation wound for three weeks. The wound had completely healed by May 10th.

An operation was then undertaken for examination of the nerve lesion. There was loss of epicritic sensation on the posterior surface of the leg, and complete loss of sensation below the ankle-joint except over the inner malleolus.

There was no voluntary movement in the foot or toes.

Second Operation.

An incision in the upper part of the popliteal space revealed an extensive lesion of the sheath and fibres of the external popliteal nerve at its origin, with less severe injuries to the sheath and fibres of the divisional point of the great sciatic and the upper two inches of the internal popliteal nerves. A mass of dense and very hard scar tissue involved all three nerves. When the nerves were freed from the scar it was found that the fibres of the external popliteal had been severely lacerated and denuded of sheath; the scar tissue was removed as far as possible, and the injured area wrapped in a coating of deep fascia.

Several nodular masses of scar tissue were removed from amongst the fibres of the great sciatic and internal popliteal nerves, the incisions in their sheaths were closed with fine catgut and the injured areas wrapped in fascia.

The patient was transferred to another hospital (Dehra Dun) for electrical treatment and massage three weeks later. The sloughs were then granulating.

CASE XI.—*Traumatic Aneurysm of the Left Superficial Femoral Artery.*

Wounded in Mesopotamia on April 15th, 1916, by a bullet passing through the left thigh. The patient stated that the wound was followed at once by marked swelling in the track of the wound and followed by slight increase in size for three days, after which it kept stationary.

On admission, on April 30th, there was a healed entry wound three inches above, and external to, the left patella; the exit wound was on the postero-internal surface of the the thigh very slightly higher up, and was represented by a shallow granulating wound the size of a halfpenny. There was a hard fixed swelling on the antero-internal aspect of the lower third of the thigh; pulsation in it was only felt with difficulty, no murmur was heard, and no dorsalis pedis or posterior tibial pulses were felt below, though the circulation in the foot was good. Movement of the knee was impossible owing to the pressure of the tumour; its size was not altered by controlling the femoral artery above, though its pulsation was. No pressure symptoms on nerves were present.

On May 1st the patient's temperature rose from normal to 100° and his pulse from 90 to 120, suggesting possible infection of the aneurysm from the granulating wound of exit.

Operation.

On May 2nd a tourniquet was applied, and an incision in the line of the femoral artery made over the tumour after the granulating exit wound had been treated with pure carbolic acid and gauze covered; it lay posterior to the incision. About a pint of black blood clot was evacuated and the lower end of the femoral artery lay in the wound with a round hole in it the

size of a large pea; suture of the vessel, owing to the possibility of infection of the aneurysm, was not entertained, and the artery was ligatured above and below the wound in it, with a small branch in the intervening portion also. No bleeding followed the removal of the tourniquet; the vein, which lay in the common sheath, intimately connected with the artery, was uninjured, though it did not fill with blood after the removal of the tourniquet.

The wound was drained with a small tube through a counter incision on the outer side of the thigh through the vastus externus aponeurosis.

The circulation in the foot kept well, free oozing from the draining tube of dark blood-stained fluid occurred for a few days. The operation wound healed by first intention, the exit wound of the bullet in fourteen days, and the drainage sinus was nearly healed on the discharge of the patient from hospital for Egypt on May 29th; the knee movements were then good.

CASE XII.—*Arterio-venous Aneurysm of Right Peroneal Vessels.* (Fig. 6.)

Wounded in Mesopotamia. The wound of entry was over the crest of the right tibia, and the exit was in the mid-third of the leg, posterior surface.

The wounds were healed on admission. A pulsating oval swelling, the size of a large egg, existed over the upper part of the outer head of the gastrocnemius muscle. There was a soft humming bruit, but no thrill.

Pressure on the common femoral artery at Poupart's ligament emptied the sac and caused the bruit to disappear. The anterior tibial pulse was present and normal; the posterior tibial pulse was present but weak. There was no paralysis or other sign of nerve involvement, and no pain, while the circulation in the foot was normal. An *x*-ray examination showed incomplete fracture of the upper third of the shaft of the fibula with a small separated fragment.

The following increases in the size of the swelling occurred:

Measurement of circumference of leg,	May 3rd ...	11¼ in.
,, ,, ,,	May 7th ...	12¼ in.
,, ,, ,,	May 10th...	12⅝ in.

This rapid local enlargement of swelling caused operation to be decided on.

Operation.

A diagnosis of arterio-venous aneurysm of the peroneal vessels being made, an incision 4 in. long was made over the tumour in the calf, the deep fascia, outer head of gastrocnemius and soleus muscles being incised before the sac wall appeared. On account of adhesion of the sac wall to the injured area of the shaft of the fibula and surrounding tissues it was impossible to clear it fully. The inner wall was cleared until the posterior tibial nerve and vessels were exposed; it appeared that these were the vessels involved. They were accordingly ligatured proximally. Further dissection showed that the posterior tibial vessels were uninjured, the lesion having involved the peroneal vessels a quarter of an inch from the origin of the artery. These vessels were ligatured proximally. An examination of the sac showed it to be composed of tunica intima; its parietal wall was closely adherent to surrounding structures, and its extent when empty was considerable. A long cul-de-sac passed forwards under the tibialis anticus muscle through the injury in the interosseous membrane. The outer wall of the main sac encroached on the medullary cavity of the injured fibula, the inner wall was limited to the area lateral to the line of the posterior tibial vessels.

On removal of the tourniquet there was free arterial haemorrhage in the outer wall of the sac. This was controlled with difficulty, as the bleeding point lay under cover of the shaft of the fibula. This was evidently the distal end of the peroneal artery.

After-History.

There was troublesome oozing from the deep part of the sac and from the branching veins in the inner wall; as this could not be completely arrested the sac was packed with gauze and the wound closed in layers. Two days later the gauze packing was removed and healing occurred without complication. The patient was transferred to England some weeks later.

SUMMARY.

Treatment of the series of twenty-one cases has suggested the conclusion that bullet wounds of large blood vessels coming under observation on an average four weeks from the date of injury, most frequently show signs of either diffuse false aneurysm or arterio-venous aneurysm, and that the former and more urgent cases can be successfully treated by a local operation at this period, provided that the circulation above can be efficiently controlled, either by tourniquet, digital compression, or, in the case of the upper extremity, by ligature of the main artery at some point above the lesion, thus confirming, as far as experience of this limited series of cases is concerned, the experiences of previous campaigns.

The advantages of the exposure of the vessel at the point of injury as against proximal ligature seem clear, particularly in cases involving the lower extremity. First, it can be definitely ascertained whether the main vessel or a branch is involved. The importance of this is illustrated by Case IX. where secondary haemorrhage occurred after proximal ligature of the superficial femoral artery; the second operation showed a branch of the deep femoral to be the true cause of the condition. Secondly, all available channels are thus left open for the maintenance of the collateral circulation. Thirdly, the extent of the injury to the vein or neighbouring nerve trunks can be observed and perhaps dealt with.

Operative measures were confined to the cases presenting urgent indications for operation. These indications were:

1. Secondary haemorrhage.
2. Signs of supervening infection.
3. Marked increase in size.
4. Severe pain, due either to (*a*) tension, (*b*) nerve involvement.

Most of the cases operated on presented more than one of these indications.

The five cases of arterio-venous aneurysm sent to England without operation showed none of these indications while in hospital; on the contrary, in all but one there was decrease in size to some extent.

The presence of a normal or slightly modified distal pulse has an interesting bearing on the diagnosis as being strong evidence in favour of a lesion not involving the main arterial trunk (Cases II, VIII, and IX). This sign cannot, however, be invariably depended on. In Case VII the anterior and posterior tibial pulses were present, although weak; and a second very interesting case, not in this series, operated on by Captain Harmer, R.A.M.C., in the Freeman Thomas Hospital, Bombay, showed only slightly modified distal pulses, thereby causing considerable embarrassment to the operator. In this case, a diffuse false aneurysm of the axillary artery, there was a good radial pulse; the inference was that a branch was involved. The subclavian artery was therefore not ligatured as a preliminary measure. The operation was successful, and the patient recovered, but haemorrhage was so severe as to be nearly fatal at the time of operation.

Repair of these gross gunshot arterial lacerations by suture was quite impracticable in almost every case; local destruction of half or two-thirds of the circumference of the vessel wall with an area of apparent devitalization extending for a quarter of an inch or more above and below the torn area quite precluded any attempt at suture. The apparently extreme rapidity of the establishment of collateral circulation argues that attempts at repair of the vessel where the limb is healthy is unnecessary, except in the case of lesions above the division of the common femoral artery.

Evidence of the establishment of a free collateral circulation at this date after the receipt of the injury, under what are undoubtedly unfavourable conditions, may here be mentioned as a feature of these cases, as, at a period of one month (the average length of time between the date of injury and the operation), collateral circulation seems to have been fully established in almost every case, and its establishment in a sufficient degree to carry on nutrition of the limb seems capable of taking place at a much earlier date. It is inconceivable that vessels as severely lacerated as those concerned in Cases VII and X can maintain a circulation in their continuity of any appreciable extent.

In spite of the fact that septic organisms were present in the discharge occurring in two of the cases after operation, there was only one case of secondary haemorrhage (Case III), and in this case the arterial haemorrhage had not been fully controlled by ligature at the operation. Silk ligatures were used in all cases. Free drainage was adopted in every case where the possibility of infection was suspected; the results suggested that the treatment of such conditions on the lines of ordinary septic wound is unattended by any danger.

The frequency of the involvement of the main nerve cords of the limb, either directly by the bullet, or by the pressure of the blood tumour or pulsating sac wall, has influenced the treatment in several cases. In Case IV pain alone was an urgent indication for operation, and in Cases III, V, and VI the pain due to nerve involvement was the main indication. The severity of the injury to the great sciatic nerve and its branches in Case X probably accounts to some extent for the occurrence of necrotic superficial lesions in this case.

Conclusions.

The conclusions drawn from experience of these cases are:

1. Cases of diffuse traumatic aneurysm require early operation in all cases.
2. Results of operation at the point of the lesion are satisfactory.
3. Fifty per cent. of arterio-venous aneurysms benefit, temporarily at any rate, by delay in operative treatment, considering the known results of operation in these cases.
4. Considering the proportion of obliterative lesions, care in the early treatment and good transport arrangements probably reduce the incidence of diffuse false aneurysms.
5. Where the advent of sepsis is suspected in cases of diffuse false aneurysm, free drainage after operation is unattended by danger of secondary haemorrhage.
6. Efficient collateral circulation is established in most cases of destructive gunshot arterial lacerations within a month of the date of injury.

TRAUMATIC ANEURYSM DEALT WITH BY OBLITERATIVE ARTERIORRHAPHY.

BY

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THE aneurysm in the following case was a true traumatic aneurysm. The coats of the artery were wounded by the bullet, and one of two events happened: either the wound healed but the scar subsequently formed stretched, or the outer coats were ruptured, and in course of time the intima, with probably part of the media, bulged through the gap to form an aneurysmal sac.

Pte. R., aged 37, was admitted to the Rochdale Infirmary suffering from septic shell wounds of the back. He had also been wounded in the left arm by a rifle bullet. The missile had entered the posterior and outer aspect of the forearm about 2 in. below the line of the elbow-joint, and, travelling upwards and inwards, had emerged just above the internal epicondyle of the humerus. The patient stated that there had been little haemorrhage from the wound at the time of infliction, and that it had healed within five days. Two weeks after admission a pulsating swelling appeared in the antecubital fossa. As the injury had been caused by a small bore bullet, and the man's general condition, by reason of the septic shell wounds, was very poor, it was considered best to await developments.

At the end of another four weeks, however, the swelling was the size of a hen's egg and still increasing. It was accordingly decided to deal with it by arteriorrhaphy, and a tourniquet having been applied to the arm the sac was laid open and the contained clots turned out. Three openings into it were discovered; one was small, situated on the inner aspect of the sac, and leading upwards and backwards. This was, in my opinion, a common trunk of origin of the anterior and posterior ulnar recurrent arteries. Two larger openings in the lowest part of the sac were distant about ½ in. from one another and connected together by a deep groove. From them a probe travelled upwards and downwards along the tracks of the brachial and ulnar arteries respectively. A probe sharply bent could be passed into the upper opening and then immediately downwards along the course of the radial artery. Thus the condition was an aneurysm at the highest part of the ulnar artery.

The interior of the sac was well scrubbed with iodine to promote adhesions, a continuous suture of fine chromic catgut on a fairly curved intestinal needle was taken, and the smallest opening closed with four points of suture. In a like manner the upper opening was closed and the suture continued along the groove to close the lower opening. Following the recommendation of Matas, the sutures were made to evert the sac wall rather wide of the margins of the openings and the sides of the groove. In this way was produced a firm approximation of as large a marginal surface as possible. The tourniquet was now removed and complete haemostasis seen to have been secured. A second row of sutures was now inserted about half way up the walls of the sac. The skin flaps had not been dissected at all from the subcutaneous surface of the sac and so were lined with smooth sac wall. Two retention sutures were then put in on each side to complete the obliteration and silkworm gut sutures brought the skin edges into apposition. Recovery was uneventful and the result quite satisfactory.

The only alternative treatment worth discussing in this case is that of excision of the sac. Excision of the sac would have required a much more extensive dissection than simple opening and stitching up from the inside. Further, excision would have, in my opinion, necessitated in this case ligature of the brachial artery at its bifurcation, and so have also obliterated the radial artery as well as the ulnar. The foregoing considerations are, no doubt, not of paramount importance here, but in other situations they might well be of much greater significance.

To state the matter shortly, arteriorrhaphy deals with aneurysm by a comparatively simple method in which the sac is little disturbed and the collateral circulation not interfered with.

REPORT ON 170 CASES OPERATED UPON UNDER SPINAL ANAESTHESIA.

BY

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I VENTURE to publish the following series of cases in the hope that they may be of interest to those who, like myself, are advocates of spinal anaesthesia.

The cases were operated upon by me at the Station Hospital, Lucknow, during 1914 and 1915. The majority were British soldiers, about a dozen were sepoys, three were women, and one a child. The solution used in each case was Barker's stovaine-glucose solution.

For operations upon the abdomen and lower limbs the lateral posture was used for the injection; for perineal, the sitting-up posture. The height of anaesthesia reached in each case was carefully noted and found to be usually the nipple line, although in some cases it extended a little higher.

The average time at which anaesthesia was complete was found to be three and a quarter minutes, the moment of injection being carefully recorded in each case. The duration of the anaesthesia was found to be ample for the cases under consideration, lasting usually fifty to sixty minutes, though in some cases longer.

Three complete failures to obtain anaesthesia occurred, but in each of these I have reason to believe that I was myself to blame for faulty technique, as they were all early cases. No failures occurred in the later cases.

After-Effects.

No serious untoward effects were observed either during or after the injections. A few patients experienced slight dyspnoea during abdominal operations if the anaesthesia reached above the nipple line, but this disappeared rapidly on slightly elevating the shoulders and head.

Slight headache occurred in one or two cases after operation, but was immediately abolished by the administration of phenacetin and caffeine. I believe that this headache is entirely due to unskilful handling of the patient, because I notice that if the patient be moved with extreme care no headache occurs. To minimize the shaking of the patient it is a good plan to have under the body a canvas stretcher upon which the patient can be moved from the table to his bed by the insertion of two bamboo poles—the table having previously been wheeled alongside the bed. If great attention is paid to these details I am sure no headache should ever occur.

Cases.

The total number of cases was 170. The more important were as follows:

Appendicectomy	23	Hernia	28
Removal of loose cartilage	11	Hydrocele	8
Circumcision	14	Varicose veins	11
Aneurysm of popliteal artery	1	Varicocele	20
Amputation of thigh ...	1	Wheelhouse	1
Haemorrhoids	19	Salpingitis	1

Advantages.

The principal advantages of spinal anaesthesia are the perfect relaxation obtained in abdominal and rectal operations. The portability of the necessary apparatus is also a great advantage, especially under tropical conditions where it is often difficult to obtain an anaesthetist. Shock and respiratory disturbance are also greatly diminished, and this tends to a healthier convalescence. As regards the patient's choice, I have always found that when patients have submitted to both general and spinal anaesthesia they invariably prefer the latter. It was very noticeable that in a regiment soldiers frequently asked to

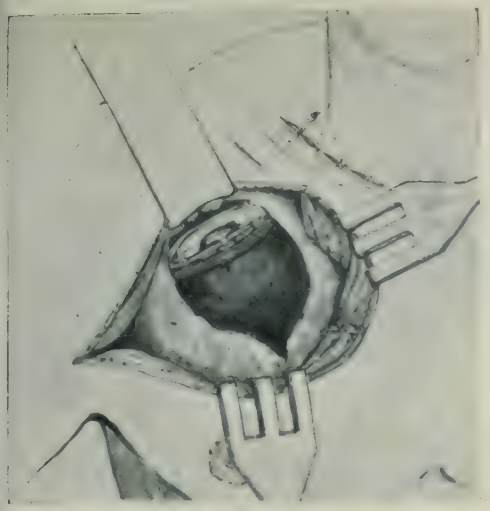


FIG. 1.—Case I.

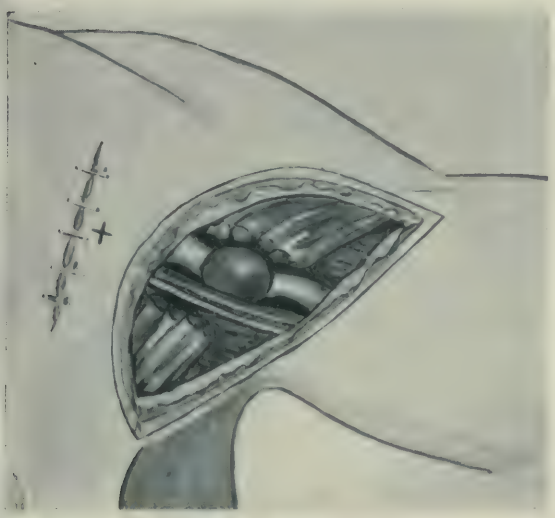


FIG. 2.—Case III.

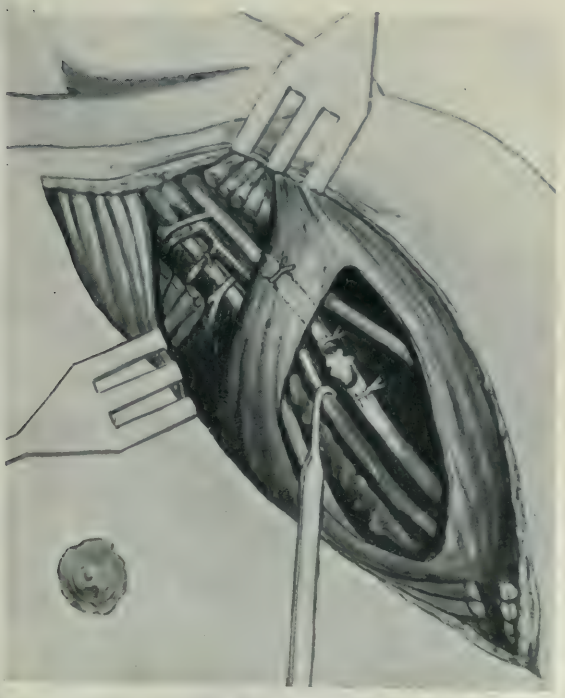


FIG. 3.—Case IV.

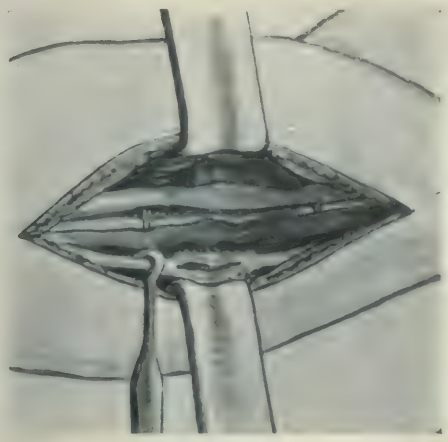


FIG. 4.—Case V.

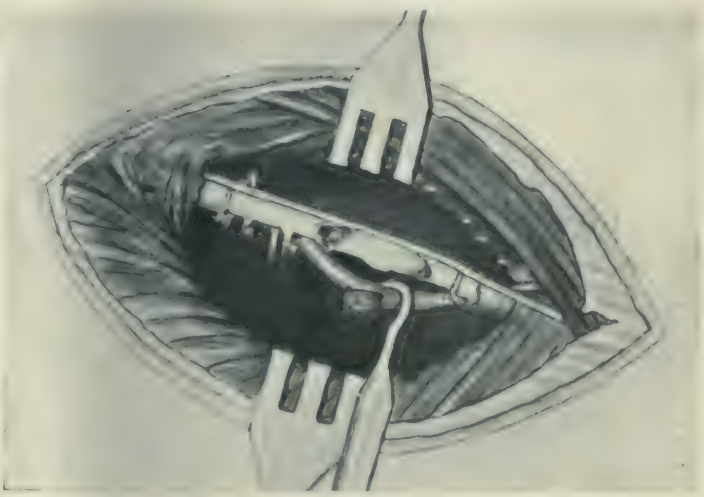


FIG. 5.—Case X.

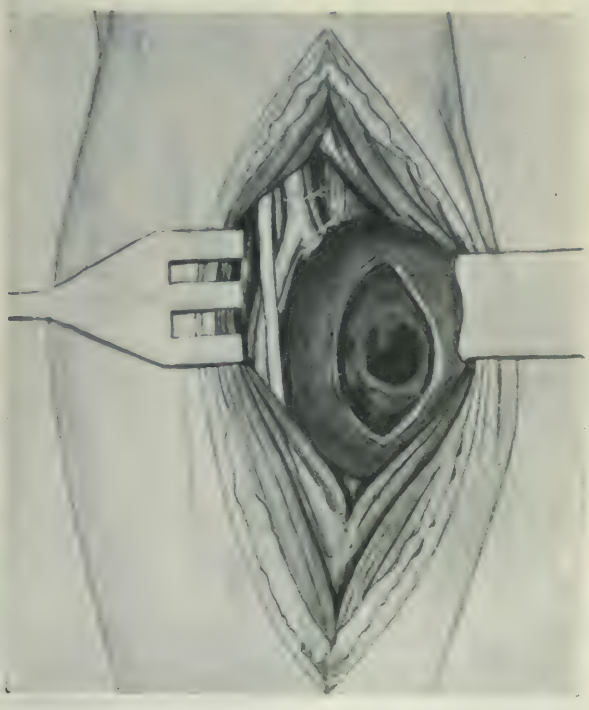


FIG. 6.—Case XII.



FIG. 1.—Right humerus; anterior view. Photograph taken at time of accident.



FIG. 2.—Right humerus; external view. Photograph taken at time of accident.



FIG. 3.—Right humerus; anterior view. Photograph taken twenty-four days after operation.



FIG. 4.—Right humerus; external view. Photograph taken twenty-four days after operation.

have spinal anaesthesia "because their pals had had it," in preference to a general anaesthetic.

Disadvantages.

These are mostly attributable to lack of experience, the more practised one becomes in the technique the less do the disadvantages become. The main one, however, is the limitation of the sphere of the operation to parts of the body below the nipple line.

COMMINUTED FRACTURE OF THE HUMERUS PRODUCED BY MUSCULAR ACTION.

BY

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AND

P. L. GIUSEPPI, M.D.LOND., F.R.C.S.,

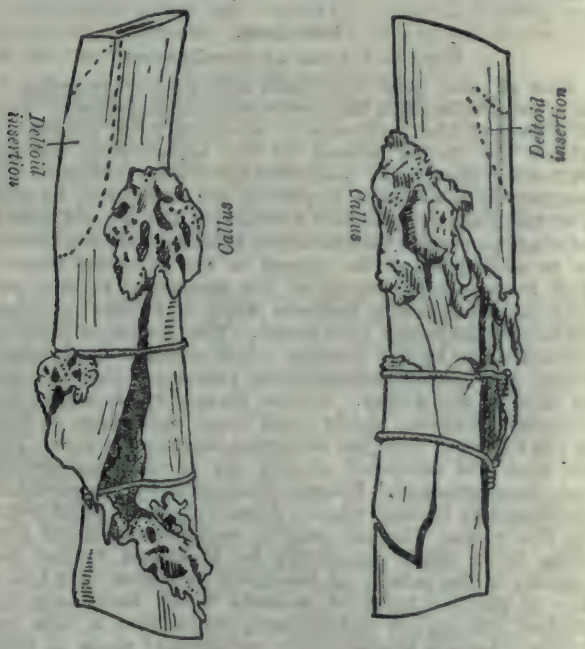
CIVIL SURGEON, CLIFF MILITARY HOSPITAL, FELIXSTOWE.

(With Special Plate.)

THE interest of the following case lies in the fact that there can be no doubt that the fracture was due to sudden and forcible contraction of the deltoid.

Corporal A. B., aged 33, was admitted to the hospital on April 26th, 1916, having sustained a fracture of the right humerus.

The accident had occurred half an hour previously. He was being instructed with a squad of other men in throwing hand grenades. The grenades are known as



Anterior view. Posterior view.

RIGHT HUMERUS.

"Mills," and were being used empty. They are about the size of a duck's egg, made of steel, and weigh just over two pounds. They should be thrown by an action somewhat similar to that of bowling in cricket. This man, however, not understanding the method, raised the grenade up to and behind his shoulder, as in the first position for "chucking it," as one would do in throwing a stone, and he did this suddenly and with a jerk. He felt his arm break, and it and the grenade, which had not yet left his hand, dropped. The officer in charge of the party saw the accident happen, as did several other men, and there is no question as to this having been the exact method of its occurrence. The patient was an exceedingly muscular man, with thirteen years' service, who had never had any serious illness nor previously broken a bone. He went to the front in December, 1914, and in January, 1916, was wounded by shrapnel in the right elbow. The wound was superficial, and no fragments penetrated, although, owing to sepsis, it took two months to heal. No disability of the arm resulted.

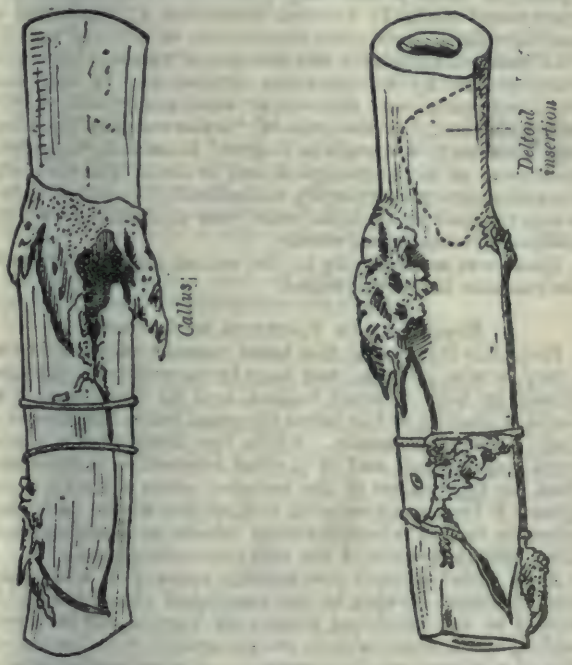
X-ray photos showed the fracture to be comminuted. There was a spiral fracture of the shaft, and apparently three fragments. In the lateral view a portion of the shaft at about the middle of the bone was separated and lying loose. The upper fragment, into which the deltoid was inserted, was abducted.

Operation.

On May 1st a free incision was made on the outer aspect of the arm, and after considerable trouble, caused by the thickness of the muscles, the site of the fracture was exposed. It was not found possible to plate the fragments, and accordingly two stout silver wires were passed round the humerus after first detaching the musculo-spiral nerve from its groove and holding it aside.

On completion of the operation the fragments were found to be rigidly held together by the wires. The arm was put up on a triangular splint. At the time of the operation no osteomyelitis or other disease of the bone could be detected. Early massage, movements, and electrical treatment were employed, and good union and function resulted.

On June 10th—a month and a half after the accident—the patient suddenly died under an anaesthetic, which was being administered in order to break down a few adhesions in the elbow-joint. *Post-mortem* examination showed fatty changes in the myocardium and well-marked healed tubercle of the apex of each lung. Examination of the fracture revealed good union, and



Internal view. External view.

RIGHT HUMERUS.

no evidence whatever of any disease of the bone, nor was any necrosis present.

It was found that there were four fragments, the largest of which was the upper one, into which the deltoid was inserted. The fragments were well held together by the wires, even after the specimen removed at the *post-mortem* examination had been boiled.

We have published this case, as it must be rare to find an instance of comminuted fracture of the humerus produced by muscular action and to have the opportunity of examining it, whilst still recent, *post-mortem*.

Drawings made by one of us of the *post-mortem* specimen are appended, as are also the radiograms taken at the time of the accident and after wiring. (See Special Plate.)

The *post-mortem* specimen may be seen in the War Office collection at the Museum of the Royal College of Surgeons.

PROJECTILE INJURIES OF BLOOD VESSELS;

WITH SPECIAL REFERENCE TO ANEURYSM AND THE INTRASACCULAR OPERATION.

BY

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THE surgery of the vascular system has received considerable attention in recent years, and owing to the work of Carrel, Matas, Murphy, Halsted, and others, suturing and plastic work on blood vessels have become established as rational surgical procedures. It may be anticipated that such advances can be extensively employed in the large number of cases of vascular injuries occurring in the present war, with proportionally improved results; nevertheless, experience shows that suturing or anastomosis is applicable only in a comparatively small number of cases, and that ligation is still the most suitable operation for the majority, and will in every case effect a cure if the injury to the vessel be attacked directly by the intrasaccular route.

During the past nine months, excluding several cases of intracranial vascular injuries and some cases of ordinary secondary haemorrhage, I have operated on fourteen cases for lesions of the blood vessels. The views expressed in this paper are based upon the clinical observations and operative findings in these cases, of which the following is a summary:*

Aneurysms 10:—2 axillary, 1 brachial, 1 radial, 1 ulnar, 1 superficial femoral, 1 popliteal, 1 anterior tibial, 1 posterior tibial, 1 ascending pharyngeal; aneurysm and aneurysmal varix 1; varicose aneurysm 1; laceration of femoral vein 1; hour-glass constriction of axillary vein 1.

All cases of aneurysm and the case of varicose aneurysm were treated by intrasaccular operation. In one case (popliteal aneurysm) restorative endo-aneurysmorrhaphy was performed; in the others "trans-saccular ligation" was necessary, although in three of them suturing operations were at first attempted, and in one of these restorative endo-aneurysmorrhaphy was actually completed before it was recognized that the case was complicated by the addition of aneurysmal varix.

There was no mortality in the series, and in every case the vascular lesion was cured.

ETIOLOGY AND VARIETIES OF INJURIES.

Projectile injuries of the blood vessels may involve an artery, a vein, or both, and may be classified as: (1) those caused by high velocity bullets, and (2) those caused by shells, including in the latter shrapnel balls, fragments of shell casings, or bombs. While the distinction is not of great importance, and it is often impossible to determine from the appearance of the vascular lesion alone by which agency it has been produced, still, on the whole, each class presents certain characteristics which are analogous to those seen in wounds of the soft tissues in general.

Rifle bullet wounds are usually clean cut, with sharp smooth edges. Owing to the punctured character of the wound in the overlying tissues (if bone is not involved), *sealing off* is more liable to occur, usually with the formation of a haematoma or aneurysm. A considerable number of bullet wounds heal aseptically, so that operative interference is often indicated for the vascular sequelae rather than for haemorrhage or sepsis, and may be carried out at the surgeon's leisure.

Shell wounds are usually irregular, with lacerated margins. The wound in the overlying tissues frequently gapes, with loss of substance and irregular lacerated surfaces, so that sealing off is not common, and continued bleeding, requiring immediate or early operation, often occurs. The vast majority of shell wounds are infected and suppurate, so that even if operation has not been performed for primary haemorrhage it soon becomes necessary for sepsis in many cases.

As regards the type of wound inflicted on the vessel, several varieties may be distinguished:

1. Small circular, oval, or irregular wounds involving one side of the vessel.

2. Linear or slit-like openings running in the long axis of the vessel.

3. Large gaping wounds, involving half or more of the circumference, with their upper and lower margins widely retracted from one another, suggesting actual loss of substance.

4. Through-and-through wounds, where the missile has passed right through the lumen of the vessel, producing separate wounds of entrance and exit on opposite sides of it (two cases). This is a rare type, and is very unlikely to occur in shell wounds.

5. Complete division of the vessel, with or without loss of substance. In this type the ends retract, and may be at a considerable distance from one another. This retraction is an important factor in determining natural arrest of haemorrhage, and renders this type of injury less liable to be followed by aneurysm than any of the others.

Further reference to them need not be made here, save to point out that where conservative treatment is desirable type 1 lends itself to treatment by lateral ligation or suture, according as a vein or artery is involved; type 2 may be treated by suture; type 3 will require resection and end-to-end anastomosis; type 4 may be, perhaps, rarely treated by suture, but will more often require resection and anastomosis; type 5 will require resection of both ends and anastomosis.

Frequently, however, such conservative measures will not be practicable, particularly in the latter three groups, and ligation above and below will be necessary. Indeed, where smaller vessels, such as those of the forearm or leg, are involved, and where collateral circulation is good, ligation should be the operation of choice.

ANEURYSM.

Type and Mode of Development.

One of the most important and serious sequelae of injuries of arteries is the development of aneurysm. This is always of the *traumatic* or so-called *false* variety, in which the sac is formed by the surrounding tissues. Following the injury haemorrhage occurs through the opening in the vessel, displacing the soft parts, so that a definite cavity is formed containing the effused blood, which is prevented from escaping externally by the closing in or sealing off of the wound in the overlying tissues. The aneurysm is usually of the sacculated variety, but may be occasionally fusiform when it follows complete division of an artery (two cases). The escape of blood is limited either by the clotting, which arrests the haemorrhage, or when the intrasaccular pressure becomes equal to that in the artery. Almost invariably, however, the surrounding tissues slowly yield more and more, so that in the course of time the aneurysm increases in size. The sac is at first composed of only the surrounding tissues, but these gradually become condensed by pressure and thickened by fibrosis, while a deposit of fibrin takes place on the walls. The sac usually contains soft blood clot, often being filled completely by it except around the opening in the artery. A traumatic aneurysm may follow any of the five types of wounds which have been described, although it is frequently stated that it does not follow extensive wounds, more particularly cases of complete division. The present series of cases demonstrates the inaccuracy of this, but in the latter type of injury the free retraction of the ends of the vessel renders its development less frequent.

Size.

The size of the aneurysm is determined by several factors:

1. The anatomical relationships of the wound, particularly the arrangement of fascial planes, are probably the most important. Where the vessel is surrounded by loose areolar or cellular tissue and no limiting planes of fasciae exist, little resistance is offered to the haemorrhage, which may travel widely, producing a tumour of immense size—a condition sometimes termed diffuse aneurysmal haematoma—or it may even result in rapid and fatal internal haemorrhage.

2. The type of wound in the artery appears to have some influence on the size of the aneurysm. A study of these cases suggests that, other things being equal, an aneurysm resulting from types 1 or 5 will be smaller than

* Since commencing the paper for publication 5 additional cases of aneurysm have been successfully treated by "trans-saccular ligation": 2 popliteal, 1 femoral, 1 axillary (first stage), 2 posterior tibial. 1 femoral. Histological records of all cases have been kept, but for purposes of publication these have had to be omitted.

cases following types 2, 3, or 4. With either of the former haemorrhage is more gradual and a better chance of early clotting is afforded.

3. The time elapsed since injury. In all cases which were under observation for some weeks the aneurysm definitely increased in size. None showed any tendency to natural cure.

4. The size of the injured artery has very little influence; but, speaking generally, there is some proportion to be observed between the size of the aneurysm and the parent vessel, though there are many exceptions to this.

Occasionally an aneurysm shows considerable variations in size, even from day to day. It is difficult to explain this, except on the supposition that the opening in the artery, or its proximal side, becomes temporarily closed by blood clot, which after a time becomes detached and carried into the sac, thus creating an intermittent pumping action.

Time of Development.

The aneurysm usually forms soon after the wound is inflicted, haemorrhage starting immediately, so that the margins of the opening in the vessel are kept apart and healing prevented. Occasionally in cases of complete division, where the wound has closed immediately and thrombosis has presumably occurred, haemorrhage may be excited and an aneurysm formed at a later period as the result of movement or massage (one case of ulnar aneurysm). It is conceivable that this might also occur after slight partial division of a vessel, where the wound has been primarily filled with blood clot, or its margins sealed by fibrinous exudate. Consequently caution should be exercised in starting early massage or movements when the track of a missile suggests the possibility of arterial injury.

It is stated that rarely an aneurysm may form when a considerable period has elapsed by a gradual yielding and dilatation of the scar tissue which has closed the wound in the vessel.

Symptoms and Signs.

These may vary with the size and position of the aneurysm and with the contents of the sac. A general account of them may be found in any textbook of surgery, but I wish to emphasize some facts in connexion with them which are of importance in regard to diagnosis and treatment. It is convenient to divide them into (i) direct or local, and (ii) indirect or referred groups.

Direct.

(*a*) The tumour is firm and elastic, or even hard in consistence. This is due to the infiltration and organization which occur in the walls of the sac, and to the fact that the latter almost invariably contains blood clot. For this reason also it is not usually reducible, and attempts should never be made to test this owing to the possibility of displacing clot out of the sac and disseminating it into the parent artery or its branches. Tumour may be absent in small or deeply placed aneurysms.

(*b*) Pulsation is usually marked and definitely expansile, but it may be slight and of a transmitted character, or even completely absent when the sac is filled with clot. This does not mean that the aneurysm is about to undergo natural cure; pulsation will probably increase and the aneurysm increase in size while kept under observation. In some cases the pulsation may, like the size, vary much from time to time. The amount of pulsation is no indication of the type of wound in the artery.

(*c*) Thrill is by no means a constant sign. It occurred in only one of ten cases in the present series. When present it is systolic in time, fading away or being completely absent during diastole.

(*d*) The presence of a murmur is very constant. It was present in all cases in which it was investigated, and in two cases which were not diagnosed as aneurysm before operation no examination was made for it. It is definitely systolic and of a blowing character, in some cases soft, in others loud and harsh. Its intensity chiefly depends on the amount of interchange of blood that takes place between the artery and the sac; it is also somewhat dependent on the size of the vessel, and perhaps on the type of opening between the two.

Indirect.

These are due to pressure of the aneurysm on neighbouring structures or to interference with the circulation in the limb.

(*a*) The pulse in the distal part of the artery is diminished in volume; in some cases it is scarcely affected, while in others it is completely absent. Its condition is determined chiefly by the amount of blood which continues to flow through the artery past the aneurysm, and its absence does not indicate that collateral circulation is not well established or that gangrene is threatened.

(*b*) One of the most important and frequent pressure effects is involvement of nerves. With moderate pressure numbness, tingling, or neuralgic pains may be experienced in the area of sensory distribution, with paresis of the muscles supplied by the motor fibres. When pressure is severe there may be complete anaesthesia and paralysis. These pressure palsies are usually more serious than the aneurysm itself, in that they may persist long after the pressure is relieved and the aneurysm cured. The tendency to persist increases out of all proportion to the length of time the pressure has existed, and therefore constitutes an important indication for early operation. A case in which pressure has been severe and prolonged closely resembles one of complete division of a peripheral nerve, both in its clinical manifestations and its mode of recovery, and will require months of post-operative treatment.

(*c*) Contractures may occur in the muscles amongst which an aneurysm is situated. They are much more apt to occur in the flexor groups of muscles in the limbs, and resemble a "Volkmann's contracture" of the forearm. They are probably due to two factors: (i) An involuntary physiological contraction of the muscles in an attempt to relieve pressure and accommodate the tumour, as occurs, for example, in inflammatory torticollis; and (ii) a form of myositis induced by pressure ischaemia. The occurrence of the latter is suggested by the fact that recovery is much more gradual than in cases where simple fixation of the muscles in a shortened position has been maintained for a similar period. Their early post-operative treatment should never be neglected.

(*d*) Gangrene is by no means a common or likely occurrence. In none of my cases was it even threatened, either before or after operation; but it must be remembered that the patients are young men with healthy blood vessels, so that collateral circulation is readily established. The presence of infection will naturally increase the risk of gangrene.

(*e*) Deformity and loss of function may occur from pressure on neighbouring muscles or joints.

ARTERIO-VENOUS ANEURYSM.

Another important and not infrequent sequel of a projectile injury is arterio-venous aneurysm. It consists of an abnormal communication between an artery and a vein, as the result of a penetrating wound which involves both vessels. Two varieties are usually described: (i) Aneurysmal varix, in which the margins of the openings in the vessels are adherent to one another, so that the communication is direct. (ii) Varicose aneurysm, in which the openings in the vessels are connected through the medium of an aneurysmal sac. An unusual form of this which I have not seen described is that in which the sac almost or completely envelops both vessels, so that they lie intrasaccularly, though covered over by a similar fibrinous deposit to that found in the rest of the cavity. In the case referred to the bullet had produced "in and out" wounds of both artery and vein, so that four separate vascular openings existed inside the sac.

Signs and Symptoms.

These show a general resemblance to those exhibited by a simple aneurysm, but the following points will usually permit of a differential diagnosis: (i) An intense vibratory thrill, accentuated at systole, and conducted chiefly along the vein, can be felt on palpation. It is much more marked and continuous in character than that which may be felt over an aneurysm. (ii) A very loud murmur is heard on auscultation, also continuous and accentuated at systole. When analysed it appears to consist of two factors: a continuous venous hum, conducted chiefly in a proximal direction, and an arterial systolic murmur, conducted chiefly in a distal direction. (iii) The veins in the neighbourhood usually become distended and varicosed; but this is only a gradual development and will not be present in the earlier stages. It may also occur in cases

of simple aneurysm, and so cannot be relied on, *per se*, for a differential diagnosis. Varicose aneurysm usually may be distinguished from the other variety by the presence of a definite swelling or tumour, due to the sac, though the possibility of an independent aneurysm should be borne in mind.

Treatment of Aneurysm.

Natural cure is not to be expected in any case of traumatic aneurysm, but rather a progressive increase in size. Consequently every case should be submitted to operation unless very special contraindications exist.

The Intrasaccular Route.

The best type of operation to perform will depend upon several factors in the individual case; but in every case (excluding those demanding amputation) where the aneurysm is accessible and temporary haemostasis is possible, the intrasaccular route should be followed and the wound in the vessel dealt with directly. The aneurysm should, in fact, be regarded as a slowly progressing internal haemorrhage, and should be treated accordingly. The advantages of this are so numerous and striking that they deserve special emphasis:

1. It is easy. The aneurysm develops in the line of least resistance, usually towards the surface, following the natural planes of cleavage, so that it is generally more accessible than the vessel itself.

2. It is safe. The sac displaces vessels, nerves, and other important structures aside, so that intrasaccular manipulations avoid the risk of anatomical damage.

3. It affords room. When the sac is opened and emptied the advantages of a clear space are secured, comparable to those obtaining in intra-peritoneal operations.

4. A direct view of the wound in the artery is obtained, and the possibility of conservative treatment determined.

5. The cure of the aneurysm is rendered certain by dealing with the vessel directly at its injured part. Especially is this so where an important branch arises opposite the site of injury, as even extrasaccular ligation on both sides may fail to effect a cure in such a case.

6. It produces a minimum of obstruction in the circulation compatible with certainty of cure.

7. All the contents of the sac are removed. This allows the latter to collapse spontaneously or to be obliterated by suture, thus affording immediate relief of pressure on neighbouring structures; it diminishes the risk of subsequent infection, particularly if a projectile is present in the sac; it facilitates restoration of function in the neighbouring muscles and joints; it diminishes the resistance offered to the collateral circulation and to the venous return, thus minimizing the risk of gangrene; it enables displaced structures to resume their normal positions.

Method of Dealing with the Artery.

The ideal operation is conservative and aims at restoring the circulation through the injured vessel, but it is frequently unnecessary, difficult, or impossible to carry out. Where the opening is small and only involves one side of the artery, restorative endo-aneurysmorrhaphy, as advocated by Matas, should be performed. This is also suitable in cases where the wound is of the longitudinal slit-like variety, and occasionally in the in-and-out type. For large gaping wounds involving most of the circumference it is not practicable, and in these, as in cases of complete division, resection and end-to-end anastomosis are necessary if it be considered expedient to preserve the continuity of the artery.

The alternative to these conservative plastic operations is ligation of the vessel above and below the wound. It is a very simple procedure, and is easily accomplished. The margins of the opening are caught in two or three artery forceps, making slight traction on the artery, and its wall is defined and cleared through the fibrinous lining of the sac for a distance of one third of an inch on either side of the wound—a light touch of the knife, or even blunt dissection alone, suffices to find an easy plane of separation. The procedure may be correctly described as "trans-saccular ligation," as the parts ligated really lie outside and not inside the sac. If the artery is only incompletely divided, it is perhaps desirable, though not essential, to make the division complete between the ligatures, and any branch arising from this part of the vessel should also be secured. Where the division has been originally complete both ends must be sought for, usually at a considerable distance from one another or even at opposite poles of the sac, and each ligated in turn. Ligation is indicated in preference to plastic procedures under the following conditions: (1) If the artery is small, unimportant, or difficult of access; (2) if there is infection in the sac; (3) if the extent of the injury is such that suturing or end-to-end anastomosis is impracticable, or very difficult; (4) if the adjacent walls of the artery are injured or diseased, in which cases thrombosis or haemorrhage will probably follow an attempt at suturing; (5) if the patient's condition is such that any prolongation of operation or anaesthesia is undesirable.

Time for Operation.

In the majority of cases the best time to operate is as soon as convenient after the discovery of the aneurysm, provided the surface wounds are *soundly** healed (usually two to four weeks)—that is, as soon as it may be undertaken under ordinary aseptic conditions. By this time collateral circulation will have become established, and the patient will have recovered from initial shock, fatigue, or exhaustion. Earlier operation will be indicated in the presence of signs of infection in the sac, haemorrhage or threatened haemorrhage, rapid increase in the size of the aneurysm, severe persistent pain, and occasionally for increasing signs of pressure on neighbouring structures. The disadvantages of postponing operation to a later period are: Increase in size of the aneurysm; thickening of the sac; increase in amount and duration of pressure on neighbouring structures, particularly nerves; increased difficulty in effecting conservative measures such as end-to-end anastomosis.

Question of Haemostasis.

Haemorrhage from the aneurysm during operation may be controlled either by (1) elastic constriction, (2) the application of clamps to the vessel, or (3) by direct digital pressure applied to the wound in the artery from within the sac.

1. Elastic constriction is the most satisfactory method, but is inapplicable to cases where the aneurysm lies close to the junction of the limb with the body, and to aneurysms of the neck and trunk. I should like to emphasize the fact that constriction should be effected by means of an elastic bandage, and not with the more usual tubular type of rubber tourniquet; the latter produces too narrow and localized a zone of constriction and is much more liable to cause injurious pressure on the tissues. In applying the bandage, the following points should be observed: The limb should be elevated vertically—not bandaged from below upwards—for a short time to allow as much blood as possible to flow out of it; the bandage should be applied well above the aneurysm, so that it may be released by an assistant before the wound is closed without encroaching on the field of operation; endeavour should be made to get the first turn of the bandage just sufficiently tight to control the arterial flow, and subsequent turns should be of similar tension. To do this well some little skill is required on the part of an assistant, but it is really important; if the first few turns of the bandage are applied lightly, and the latter ones with gradually increasing tension, the limb will be in a condition of passive congestion by the time the application is complete.

The advantages of elastic constriction are that it ensures complete haemostasis, it saves time, and when properly applied it is less liable to injure the intima and cause thrombosis of the vessel than is the application of a clamp.

2. Light clamps of Crile's or other pattern may be applied to the artery before the sac is opened. If they are employed, it is desirable to isolate and secure the artery on both sides of the aneurysm, as haemorrhage through the collateral circulation may be quite profuse if only the proximal side is controlled; and even where both are secured bleeding may occur if a branch arises from the intermediate part. Clamps are applicable in many cases where constriction is not; they are readily released and replaced if necessary during the operation, and with a

* About a week should be allowed to elapse after epithelialization is complete before the wounds are considered as "soundly healed." Exfoliating shreds of epidermis should have disappeared, and the skin should be smooth and firm. This condition may be hastened by picric acid dressings.

little care their pressure may be graduated so as not to injure the intima; but time is occupied in exposing the vessel, and the clamps may be accidentally displaced by the operator during subsequent manipulations.

3. Where neither constriction nor clamps are applicable, haemorrhage can certainly be controlled when the aneurysm is opened by the introduction of the left index finger into the sac, and making direct pressure on the wound in the vessel, which can usually be felt distinctly. Even if the vessel has been completely divided and the ends lie some distance apart, they may both be controlled as a rule by introducing the index and middle fingers, and splaying them until each compresses one end. By dissection the vessel can then be exposed, isolated, and secured. It is probably better for the operator to control the bleeding himself than to entrust it to an assistant, even though he is handicapped in the subsequent dissection by having only one hand free.

Technique.

1. At the risk of uttering a surgical platitude it is necessary to emphasize the need for strict asepsis in operative procedures on aneurysms, particularly if conservative measures are to be adopted. If infection occurs where an artery has been sutured, it will almost certainly lead to disaster in the form of secondary haemorrhage, and in the presence of existing infection suturing should not be attempted. The same rule generally holds in dealing with venous injuries, though here it is not so binding; in one obviously septic case the femoral vein was sutured successfully.

Possibly we shall learn in time that greater liberties may be taken in vascular surgery, but at present one does not feel justified in advocating them.

2. As it is impossible to determine by clinical examination what type of wound is present in the artery, all preparations necessary for effecting a plastic procedure should be made before commencing an operation for aneurysm of any of the larger important vessels. The surgeon must be prepared to ligate or suture, according as the operative findings dictate.

3. When the sac has been evacuated, careful and thorough examination should be made to determine the exact nature and extent of the vascular injury. Incomplete recognition of the conditions present may lead the surgeon to waste time in carrying out measures which further investigation proves to be unsuitable.

4. In regard to suturing I have closely followed Carrel's technique, with the details of which most surgeons are familiar. The needles employed are small, round-bodied, either straight or curved, and of the finest pattern. The suture material is fine silk, No. 0 or No. 1, which is sterilized in liquid paraffin at a temperature of 105° C. Carrel advocates the use of vaseline, but I have found liquid paraffin renders the needles and sutures easier to handle, and the results appear to be as good. The sutures are threaded in the needles before sterilization, and all are prepared together. The consensus of opinion now favours silk in preference to catgut, but if vascular suture is attempted in the presence of infection catgut should be employed.

Before suturing, all blood and clot should be carefully washed off the vessel and its surroundings, the edges of the wound should be carefully trimmed with fine sharp scissors if necessary, and the parts should be lightly lubricated with sterile liquid paraffin. Extreme gentleness must be employed in manipulating the wound in the vessel, and the greatest care exercised to avoid injury to the intima, which will probably be followed by thrombosis. Forceps with serrated points must not be used; those with fine spherical ends, as suggested by (I think) Bernheim, are the best, but ordinary forceps may be adapted by stretching some fine rubber tissue over their points.

5. Tension may cause serious difficulty in attempting end-to-end anastomosis in those cases where a portion of the artery has been resected, or where complete division with retraction of the ends has occurred. The artery does not retain its normal extensibility, especially when the aneurysm is of large size and has tracked along the course of the vessel. This appears to be due to "fixation" of its walls by the fibrinous lining of the sac, and it may render anastomosis impracticable in an otherwise suitable case.

6. When restorative endo-aneurysmorrhaphy has been performed, the line of sutures may be strengthened by infolding the sac walls over it by a few stitches. After end-to-end anastomosis the junction may be wrapped snugly in a strip of deep fascia taken from the thigh or other convenient neighbourhood.

7. Removal of the sac is not necessary unless special indications exist. (It was performed in one case in my series where the nerves of the brachial plexus were incorporated in it.) In recent cases the walls readily fall together, even without suture, and attempts to dissect them out sacrifice many of the advantages of intrasaccular operation.

8. Drainage may be advantageously employed for twenty-four hours in the case of large aneurysms.

9. When the track of the missile suggests the possibility of direct injury to a nerve, and pressure palsy exists in a degree compatible with this, the nerve should be examined as soon as the aneurysm has been dealt with. If the nerve lies in close relationship to the aneurysm, it may easily be found by incising the sac wall over it from its interior aspect; when the nerve lies some distance away it should be sought for extrasaccularly, or even through an independent incision. The appropriate treatment of the nerve should then be effected.

Treatment of Arterio-venous Aneurysm.

Many cases of aneurysmal varix cause little or no inconvenience to the patient, and may not require operative treatment. On the other hand, varicose aneurysms present the same needs for treatment as do simple aneurysms.

Aneurysmal varix may be treated either by (1) dividing the connexion between the artery and vein and suturing the opening in each, having first applied constriction to the limb or secured both vessels above and below in clamps; or (2) by ligation of the artery above and below the anastomotic opening, and ligation of any intervening branch.

Varicose aneurysm should be dealt with, where possible, by the intrasaccular route. When the sac has been opened and cleared the wounds in the vessels should be carefully examined and dealt with on their merits. In the case of important vessels ligation of both artery and vein together should be avoided if possible; and when the continuity of one appears to depend on the sacrifice of the other the vein should be preserved rather than the artery, except in the case of the internal carotid and internal jugular vessels, where the former is the more important.

THE PHYSIOLOGICAL WORK OF IVAN PETROVICH PAVLOV.

Abstract of a Lecture given at University College, London.

By W. M. BAYLISS, F.R.S.,

Professor of General Physiology in the College.

About the beginning of the present year the physiological world received with the greatest regret a report of the death of Professor Pavlov of Petrograd. A few months later a corresponding degree of pleasure was experienced when it was found that Ivan Petrovich Pavlov was still alive and well, and that confusion had been made with a surgeon of the same name.

The frequent spelling of the name as Pawlow, while correct in German, is not so in English. It should be given up, and the spelling here used adopted, as it gives, as nearly as possible, the Russian pronunciation.

There are two large and important regions of physiological work which have been practically created by Pavlov. Although they may appear somewhat widely apart, it will be seen presently how the later work naturally arose from the earlier.

This earlier work was devoted to the function of the digestive glands and the way in which their activity is excited and co-ordinated. Especially it was shown how the process in one part prepares the next following part of the alimentary canal for due treatment of the food when it arrives. The way in which the various glands are set into action and the control of the passage of the food from one section to the next were thoroughly investigated.

One of the most important means used in these researches was the method of making fistulae in various situations. Although salivary and pancreatic fistulae had been made in the seventeenth century by Réné de Graaf, of Delft, the development given to the method by Pavlov made it, to all intents and purposes, a new one. This development was made possible by the introduction into the physiological laboratory of the methods of aseptic surgery. A complete series of sterilizing and operating rooms, together with a hospital for the animals recovering from operations, was established for the first time in connexion with experiments on animals. These arrangements were introduced into England in the new Physiological Institute of University College, London.

In the space here available to me it is impossible to refer to more than a small part of the results obtained. Commencing with the mouth and the secretion of saliva, the effect of the sight and smell of food and other substances in causing "psychical" secretion of saliva of an appropriate kind was investigated. Thus, meat caused the appearance of a small quantity of a viscid secretion, sand or sugar a copious watery secretion. At the same time, provided that the food was received with "appetite," there was a "psychical" secretion of gastric juice. Many experiments on the process of digestion in the stomach were rendered possible by the design of a new form of sample stomach distinct from the main one, so that no food passed into the cavity in which it was desired to observe the secretion. In this new operation, the nervous supply of the sample stomach was preserved intact, obviously a matter of great importance, but absent from the mode of operation used by Heidenhain. Amongst other facts brought out were the inefficacy of the mere mechanical contact of food, or any other substance, with the mucous membrane of the stomach. It was noticed, also, that secretion of gastric juice may be brought about by the action of some chemical substance present in the food or produced by digestion. Pavlov rejected the hypothesis of any direct chemical effect on the glands in favour of that of stimulation of special sensory nerves, on the ground that these substances had no effect when injected into the circulation. But the possibility had not occurred to him that some new chemical substance might be formed in the mucous membrane, carried in the blood current to the glands and set them into activity independently of nervous influence.

It will be obvious that the method of fistulae enabled many other questions to be answered, such as that of the nerves innervating the various glands and the composition of the products of digestion at the different levels of the alimentary canal.

Reference must next be made to the pancreatic secretion produced by the presence of acid in the duodenum. Thus the acid chyme from the stomach causes the inflow of pancreatic juice. The influence of the vagus nerve on the pancreatic secretory process was also made out. The succus entericus appears to be formed in response to the presence of pancreatic juice in a neighbouring section of the small intestine. The discovery of enterokinase, which activates the trypsinogen of the pancreatic juice, belongs also to this series of researches.

Passing to the second great new departure, we may note that as a method it had its origin in the psychical secretion of saliva. It is stated by Pavlov that he had been struck by the change of attitude assumed by the physiologist when he passes from the investigation of the lower nerve centres to that of the higher ones. He regards these latter from the point of view of the psychologist. Although the psychological mode of discussion is, of course, legitimate and valuable, it is clear that a physiological method would throw much light on these obscure processes. What is needed is some way in which we can trace the relation between external phenomena and the reactions of organisms to them, without introducing the complication of consciousness. This is afforded by Pavlov's method of "conditioned reflexes."

It is a matter of some difficulty to give an intelligible account of this method in a small space. A lecture was given by Pavlov himself at the International Congress of Physiologists at Groningen in 1913. A translation of this lecture by Dr. Lovatt Evans was published in this Journal on October 18th, 1913. The kind of phenomena to be considered may be illustrated by one of the simplest of the experiments. When food is presented to a dog with a salivary fistula, a reflex secretion is produced, as we have seen. If a certain bell is rung simultaneously with the presentation of food for a number of times, it is found that the sound of the bell alone is sufficient to excite the secretion, although originally it had no such effect. A new connexion with a system of neurones has been established. But this connexion is easily broken or its effect annulled by inhibition, contrary to the almost mechanical certainty of the lower reflex centres. One of the most characteristic marks of the processes in the highest centres is just this ascendancy of the inhibitory phenomena, and the investigation of the numerous ways in which it is manifested forms a large part of the work hitherto done.

In the initial formation of the conditioned reflex, the slightest extraneous interruption spoils the result for the time. It is further necessary to have a large number of accurate means of exciting the various sense organs. A special laboratory has been erected at Petrograd in order to ensure the adequate fulfilment of the conditions required. We may confidently expect a great number of valuable additions to our knowledge of the cerebral functions from this new laboratory.

The importance of the sense organs and their central connexions is obvious. Pavlov calls the complete mechanisms associated with sensation "analysers," and one of the branches of the research has been the determination of the power of discrimination of these organs in the dog. It is found to be of a very high order, especially in the sense of hearing.

A remarkable fact is that a painful stimulus, such as an electric shock, can be made into a sign for a conditioned reflex. When this takes place, the painful quality of the stimulus is in abeyance through inhibition. Moreover, an inhibitory stimulus can itself be made a sign for a conditioned reflex.

Especially interesting are the cases into which the time element enters. A flash of light, say, is followed regularly by presentation of food at an interval of ten seconds. Then, afterwards, the flash of light alone is succeeded by secretion of saliva, but not until ten seconds has passed from the time of the flash of light. The interval is filled up by an internal inhibition of the secretory centres. This is shown by the fact that an extraneous, indifferent stimulus, not associated with salivary secretion, arriving during this interval evokes an immediate secretion by inhibiting the inhibition already present.

Much of the work is somewhat inaccessible, being published in Russian; but it is to be hoped that before long an account of it in English may be published. Enough has been said in this article to indicate how much research of a fundamental nature has already been done and the wide field awaiting further investigation.

Certain early work of Pavlov's should not be omitted. The nervous supply of the heart was worked out in considerable detail, and the mechanism of the opening of the shell in bivalve molluscs was shown to be of much interest. In the latter, the first direct proof was given that inhibition of the tonic contraction of smooth muscle does not take place in nerve ganglia, but in the substance of the muscle itself.

The charm of Pavlov's character is apparent to all who have had the pleasure of meeting him. The devotion of his students to "Ivan Petrovich" is especially significant and delightful to witness. I would especially mention his generosity to the workers, students, or others who have joined in his researches. They will be the first to acknowledge how the initiation and success of a piece of work was due to his ideas. Yet it is striking to notice how rarely his name appears even as joint author of a paper.

THE forthcoming appearance of a new quarterly periodical, the *American Journal of Syphilis*, is announced. It will be devoted to the study of syphilis in all its phases. The publishers are the C. V. Mosby Company of St. Louis, and the first number will be issued on January 15th, 1917.

THE total number of cases treated in the Pasteur Institute of Tunis in 1915 was 443; from these must be deducted 23, in 15 of which the dog was proved not to be suffering from rabies, and 8 in which treatment was given up by the patient. Five deaths, attributed to severity of infection or late arrival at the institute, occurred under treatment. The total number of cases so far treated there is 5,711, with 18 deaths.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE IMPROVEMENT OF FLY-SPRAYING FLUIDS AND THE CONTROL OF EXPERIMENTAL TRIALS.

IN the course of a number of experimental trials of different fly-spraying fluids I found, as is, I believe, the general experience, that when these fluids are used in accordance with the directions they knock down or stupefy but do not kill all the flies; a varying percentage recover after an hour or two. This is especially noticeable when the temperature is at or above 72° F. In some cases, where the spray seemed fairly effective at room temperature (60–65°), it was only necessary to transfer the stupefied flies to a warm room (at 75° F.) when they at once began to recover and speedily regained their full activity. A number of parallel experiments proved that the use of an emulsion of kerosene oil and soft soap, diluted about 1 in 10, killed the flies within a period of twelve to eighteen hours, although it did not stupefy them speedily, as do most of the proprietary sprays. I therefore tried an admixture of the quick action sprays with the oil emulsion fluid, and found that the combination gave excellent results, quickly stupefying the flies on the one hand and preventing their recovery on the other. The oil emulsion used consisted of 3 parts of soft soap, completely melted by heat in 15 parts of water, a proportion up to 100 parts of kerosene or other light burning oil is then added very gradually with thorough agitation by stirring or shaking in a closed vessel between each addition. The resultant emulsion can be kept indefinitely, and may be diluted with water to any extent. For addition to the fly spray allowance must be made for the extent to which they are diluted for use—the quantity of oil emulsion required being 1 in 10 to the water content of the fluid.

The following experiments with a quick action spray with and without the oil emulsion will serve to illustrate the value of the addition.

Experiment 1.

Two wire traps containing large numbers of flies, caught within the previous two hours, were used.

Cage A.—The quick action fluid was diluted 1 in 30 (by the directions 1 in 40 should have been sufficient); this was used to spray the flies in cage A for two minutes.

Cage B.—To 20 c.cm. of this mixture 2 c.cm. of the oil emulsion was added, and the flies in cage B were sprayed with the mixture for two minutes.

The flies in both cages were all incapable of flight or active movement within fifteen minutes, the temperature being 65° F. Both cages were placed in a warm room at 75° F.

After three hours, at least half of the flies in cage A were actively flying or walking, while in cage B only five or six were active.

After seven hours: In cage A 32 were dead and 328 active (mortality, 9 per cent.). In cage B 290 were dead and 52 were active (mortality, 84 per cent.).

Experiment 2.

The flies were sprayed for two and a half minutes; almost all the flies in both cages were down within fifteen minutes. The cages were then put into a warm room at 75° F. After two hours a large number had recovered in the A cage, but only 5 in B. Both cages were left for the night in the warm room.

On the following day a count showed: Cage A, 196 dead, 193 living, mostly active (mortality, 50 per cent.). Cage B, 247 dead, 19 living, but only 5 active (mortality, 91 per cent.).

As an instance showing the susceptibility of flies to drought and the care necessary in the controlling of experimental trials the following may be quoted:

Experiment 3.

Flies (*Musca domestica*) were captured in two wire cages between 1 p.m. and 2.30 p.m. in the same room, the cages being placed about 12 in. apart. The flies in cage A were kept without food or water in a room temperature about 65° F. until 5 p.m. (two and a half hours). In cage B they were kept in the same room, but a plug of cotton-wool soaked in weak syrup was placed in the cage. At 5 p.m. this was removed, and both cages were placed in a warm room at 75° F. for seventeen hours.

In cage A 20 out of 63 were dead (mortality, 31 per cent.). In cage B 6 out of 81 were dead (mortality, 7 per cent.).

A. BACOT,
Medical Entomologist, Lister Institute.

A METHOD OF RENDERING CELLULOID PLASTIC.

HAVING been somewhat of a pioneer in introducing celluloid to the profession for various surgical purposes which I have indicated in papers, I would like to communicate a discovery I have made recently. One of the difficulties I was unable to solve was how to render celluloid so plastic that it could be moulded into any shape for application in the tissues in certain parts of the body for certain conditions. I made innumerable inquiries from chemists, journals, the Xylonite Company, doctors, etc., but all without avail. Recently, having another matter under consideration, and remembering that ether was used in the preparation of celluloid, it was necessary for me to ascertain whether celluloid would dissolve or soften in ether. This also led me to try chloroform and alcohol. The latter acted slightly, but ether to such a gratifying degree that any shape could be obtained with the greatest case. Previously I had to rely on boiling, but this was only partly satisfactory; but now, with ether, this difficulty has almost, if not entirely, been overcome. Place the celluloid in ether solution, in a few hours the celluloid will swell slightly and become soft as jelly. Take it out of the solution, mould, and let dry. The celluloid will resume its original thickness and appearance but retain its new shape. Ether also being one of the most powerful bactericides, will effectually sterilize the mould and make it ready for insertion.

Sydney, Australia. G. S. THOMPSON, F.R.C.S.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

ROYAL ALBERT EDWARD INFIRMARY, WIGAN.

RECURRENT INTUSSUSCEPTION: ROUND-CELLED SARCOMA OF THE ILEO-CAECAL VALVE: EXCISION: INTESTINAL ANASTOMOSIS: RECOVERY.

(By C. R. GRAHAM, Senior Honorary Surgeon to the Infirmary.)

A. A., aged 14, was admitted on May 30th, 1916. He had been feeling unwell for the past six weeks with sickness and griping pains in the abdomen. The sickness had only appeared the week before admission. The bowels had acted daily; there had been no diarrhoea nor blood in the stools. Four years ago he had suffered from typhoid fever.

Laparotomy was performed on admission by my colleague Mr. Buchanan, assistant honorary surgeon, and an intussusception involving the ileo-caecal region was reduced without any difficulty. The boy made an excellent recovery, and was discharged on June 19th.

On his arrival home he commenced to vomit, and had pain in the right iliac fossa. He was confined to bed, and as the sickness and pain continued he was readmitted to the infirmary on June 29th. Nothing abnormal could be felt in the abdomen, and as his symptoms gradually subsided he was discharged on July 3rd.

On July 11th, immediately after dinner, he felt sick and vomited. He complained of abdominal pain, which was referred to the left side of the umbilicus. The same evening, as he did not improve, he was again taken to the infirmary. Palpation did not reveal any tumour, and there was no distension of the abdomen, but there was intense pain referred to the umbilical region.

Laparotomy was again performed on July 14th, and an indurated mass the size of a pullet's egg was discovered deep down in the right iliac fossa. This proved to be a well-marked intussusception, with considerable thickening in the vicinity of the ileo-caecal valve and adjoining caecum. The intussusception could not be reduced. The lumen of the bowel was not greater than that of a crow's quill. The ileum, about 4 in. from the ileo-caecal valve, and the whole of the caecum were excised, anastomosis being effected by means of a Murphy's button.

The patient made an uninterrupted recovery, his condition at no time causing any anxiety. He was discharged quite well on August 6th. The button was recovered on the sixth day after operation.

Sections made from the indurated portion of bowel showed the structure of a small round-celled sarcoma.

Reports of Societies.

ACQUIRED SYPHILIS OF THE LUNGS.

At a meeting of the Section of Medicine of the Royal Society of Medicine on November 28th Dr. F. Parkes Weber read a paper on acquired syphilis of the lungs. After describing six cases of chronic non-tuberculous disease of the lung, three of which he regarded as syphilitic and three as probably of the same nature, Dr. Weber said that while he was physician to the Mount Vernon Hospital for Diseases of the Chest he practically never saw a case which he could regard as one of pulmonary syphilis, but recently had met with several in which he believed that that diagnosis could be made with more or less probability. Many writers on the subject had had the opportunity of making *post-mortem* examinations. The chief pathological features were: (1) Gummatous formation with a tendency to necrotic changes, and (2) more chronic and often widely-spread fibrotic changes tending to become associated with bronchiectatic dilatations. In the cases now described he thought that the changes were chiefly of the fibrotic order, though gummatous formation might also have occurred, especially in two of them. According to T. Tanaka, the histology of the pulmonary indurative changes of acquired syphilis was very similar to that of the so-called "white pneumonia" of congenital syphilis. The most characteristic features were much endarteritis obliterans, together with periarteritis and endophlebitis. Mesarteritis also occurred, and in three cases Tanaka found a noteworthy increase of the unstriped muscle tissue, which he regarded as derived from the walls of the small bronchi. In making a diagnosis the question of there being an aortic aneurysm or mediastinal new growth might arise, especially if the left recurrent laryngeal nerve were paralysed. But the distinction from tuberculosis was the chief difficulty, for in tertiary syphilitic diseases of the lungs there might be pyrexia—the so-called "tertiary syphilitic fever," such as not very rarely occurred in tertiary syphilitic disease of the liver, or a complicating fever due to associated bronchitic and bronchiectatic changes with purulent discharge. Moreover, there might be also (though less frequently and in less severe degree than in tuberculosis) night sweats, emaciation, haemoptysis, and copious nummular muco-purulent sputum. In pulmonary syphilis, however, the lower parts of the lung were generally chiefly involved, and the absence of tubercle bacilli in the sputum on frequently repeated examinations, together with a history of past syphilis, evidence of tertiary syphilitic lesions elsewhere, and a positive Wassermann reaction, ought to turn one's attention in that direction. This had been done in one of his cases, that of a man, by a patch of syphilitic leucodermia, a lesion very rare in men. The possibility of the coexistence of syphilitic ulcers or stenoses in the bronchial tubes, trachea, or larynx must be borne in mind. Stengel (1913) pointed out that one of the most suspicious symptoms was intense dyspnœa of more or less spasmodic type, with a tendency to stridor and cyanosis, all indicative of obstruction in the larger air passages. In some cases the respiratory symptoms were altogether much more severe than the ordinary physical signs in the lungs would lead the physician to expect. There might also be recurrent severe spasmodic attacks of coughing accompanied by more or less copious muco-purulent expectoration. In some cases pleurisy and pleuritic effusion might be associated with pulmonary (gummatous) syphilis, as they probably were in one of his cases. The therapeutic test was always of extreme importance, especially when the patient was found to derive obvious benefit from the use of potassium iodide, a drug which sometimes aggravated the symptoms in pulmonary tuberculosis. Old cicatricial stenoses of the respiratory passages could not, of course, be removed by antisyphilitic treatment. Pulmonary tuberculosis was not rare in syphilitic subjects, and vice versa, and tuberculous patients not very rarely acquired syphilis. He did not think that either of the two diseases had much effect, either good or bad, on the course of the other, unless one or both of them had been sufficiently severe to produce a condition of cachexia and to lower the resistance of the body towards the disease. Pulmonary tuberculosis, as far as he could judge, was uninfluenced by the presence of an old quiescent syphilitic taint. Though by some an antagonism between the two diseases had been supposed to exist, it was more probable that syphilis predisposed to tuberculosis in so far as it lowered the vitality of the organism; it was not unlikely that syphilitic tissues, as had been maintained, constituted a specially favourable soil for the growth and multiplication within the body of tubercle bacilli. When the tuberculosis was active and the syphilis quiescent or obsolete, the former dominated the whole clinical aspect and the prognosis, and the effect of energetic antisyphilitic treatment by mercury and potassium iodide was not likely to be bad. Though salvarsan and neo-salvarsan seemed to do no harm in ordinary cases of pulmonary tuberculosis, yet, as far as he knew, they did no good.

UTERUS REMOVED FOR OBSTETRICAL RUPTURE.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, when Dr. Gibbon Fitz-Gibbon was in the chair, the President of the Academy, Dr. Purefoy, showed the body of the uterus removed by abdominal hysterectomy from a parturient woman shortly after rupture had occurred. She was a young 3-para, having a history of difficulty in former labours owing to slight pelvic narrowing. Soon after admission a brow presentation was diagnosed. This was converted into a vertex, and the presenting part had nearly reached the outlet when signs and symptoms of ruptured uterus became manifest. On making abdominal section the fetal body and extremities came into view, having escaped through a large, irregular rent, involving the anterior vaginal fornix and lower uterine segment. In the presence of such conditions the immediate question to decide was, after a rapid extraction of the fetus, whether to repair or to remove the uterus. The former plan he regarded as a counsel of perfection, to be kept steadily in view, and to be carried out if the patient's condition warranted the attempt. In the present instance removal seemed the wiser course, and it was concluded with all possible speed. Convalescence had been slow, but seemed likely to be quite satisfactory.

Dr. Hastings Tweedy said that he had, through the kindness of Dr. Purefoy, an opportunity of seeing his patient and helping at the operation. Tears such as this one, he believed, were always due to some previous tearing of the cervix, and the commonest cause of such a tear was the application of forceps before the os was fully open. When once the cervix was torn it was an easy matter to have an extension of the rent, though an interval of years might elapse between the primary and secondary rupture. He believed that better results all round were obtained by means of a plug than through abdominal section. The plug had two objects: (1) To stop immediate bleeding, and (2) to counteract shock by preventing prolapse of the intestinal contents and the entrance of air or micro-organisms through the vagina. Very few people understood how to apply a plug. At one autopsy he had observed a ribbon of iodoform gauze pushed up to the surface of the liver. This did more harm than good. A large piece of gauze should be bunched in the hand, as a housemaid bunches a duster, and this large mass should be pushed into the rent, but not through it. In this way haemorrhage was controlled and the intestinal contents were prevented from prolapsing. It was a misnomer to talk about immediate abdominal section for rupture of the uterus. In the majority of instances it took over an hour from the time operation was decided upon to its actual accomplishment.

Sir William Smyly said that the cause of the rupture in this case was obscure. But in a large proportion of cases of malpresentation of the head it was held in its faulty attitude by the lower uterine segment, and for that reason attempts at rectification were necessarily attended with risk.

SCREENING AND RADIUM DOSAGE.

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on October 27th, when Mr. Taylor was in the chair, Captain Walter C. Stevenson read a paper on screening and radium dosage. He used the total amount of ionization effected on the

tissue by the radio-active agent as his basis of measurement. The total amount of ionization was obtained by multiplying the average amount of radium emanation used in a treatment by the time of employment in hours, and by the proportion of activity remaining after the rays traversed the screen, as shown by the electroscope. He cited his experience with a patient having an extensive port-wine mark where a similar extent of superficial reaction, as far as could be judged by the naked eye, resulted from radiation without a screen, and with various thicknesses of lead screens, provided the loss of activity of the emanation due to screening was compensated for by longer exposure, so that the total ionization was the same in each case. He pointed out the importance of the screening effect of the tissues on the uniformity of radiation, basing his contentions on electroscopic experiments with various thicknesses of beef, from 1 mm. to 30 cm. thickness. He found that lead had approximately ten times the screening power of animal tissues. As an illustration of an efficient dose, he alluded to a patient shown to the meeting who, to all appearances, was cured for over a year of a tumour of the palate, 2 cm. across, which was proved histologically to be a very malignant type of epithelioma. The patient was treated with six radium emanation needles for three hours, the dose being recorded as 23.3 (6) 3 = 70 millicurie hours. In the estimation of a dose, the cubic contents and shape of a tumour, the amount of screening and the number of foci of radiation used in a given area must *inter alia* be taken into consideration. When employing needles of a standard thickness of steel the amount of screening from them was constant, while the loss of activity due to the tissues—that is, the uniformity of radiation—depended on the distance of the needles from one another.

Reviews.

SOCIAL, HYGIENIC, AND MEDICAL ASPECTS OF OCCUPATIONS.

AN interesting treatise on *Occupations*,[1] by Sir THOMAS OLIVER, has most opportunely been issued in the Cambridge Public Health Series, and should be read by all those who in consequence of altered conditions of labour at the present time have to do with workers new to the various trades they have recently taken up.

The author points out that the fatigue experienced by the modern factory hand is not that which follows hard muscular labour in the open air; its cause is different; into it there enters greater mental strain, and the work is carried on in overheated, moist, and often imperfectly ventilated rooms. He reminds us that the intentions of those who passed the Elizabethan Poor Law of 1601 may have been good, since the law directed that destitute children and orphans should be apprenticed to some trade; but this permission was abused in the early years of last century, when it was seen that machinery could be so easily tended that a large amount of unskilled labour, including that of women and children, was drawn into the factory. Despite the sorry conditions caused among numerous children it was not till 1819 that an Act was passed which limited the age at which children should begin work in factories to nine years.

The age and working capacity of men and women from an insurance point of view is well dealt with, and there is a thoughtful chapter on strain and fatigue. We heartily concur in the opinion that between night and morning there is not always sufficient time for the fatigue products of the day's work to be got rid of, and that in this way a cumulative effect may be brought about. Work done by muscle already tired is more harmful than work attempted under normal conditions. A worker therefore who continues to work when he or she is fatigued not only does less effective work, but is doing himself or herself a physical injury. It is necessary that fatigue should be met by rest; it is here that the seventh day's rest comes in most helpfully, for recovery from over-fatigue may be a slow process. These views find much support in the facts and recommendations set out by the Health of Munition Workers Committee in its various memorandums which have been noted from time to time in our columns.

Very many trades are submitted to investigation in this treatise, and none appears to be free from some harmful conditions. From flower making and feather curling, through the various grades of manual work till we come to brick making, there are conditions which, in present circumstances of work, may injure the workers' health. In the moulding and stacking of bricks a woman will lift 28 tons, for which work she receives 2s. 8d., or a little more than 1d. a ton, a sum of money which scarcely provides for the bare necessaries of life, while in the brick fields the men work equally hard, so that by the time they reach the age of 40 they are old and crippled with rheumatism. The book lifts for a moment the veil which usually hides the conditions of workers in many trades.

[1] *Occupations from the Social, Hygienic and Medical Points of View.* By Sir T. Oliver, M.A., M.D., LL.D., D.Sc., F.R.C.P. Cambridge Public Health Series, under the editorship of G. S. Graham-Smith, M.D., and J. E. Purvis, M.A. Cambridge: The University Press. 1916. (Demy 8vo, pp. 120; 2 charts. 6s. net.)

OBSTETRICS.

PROFESSOR SHEARS'S *Obstetrics, Normal and Operative*,[2] is confessedly the outcome of his disapproval of all other extant textbooks. His main complaint with those is that they devote to the discussion of such "irrelevant matter" as the cause of menstruation, fetal monstrosities, and the history of the Chamberlen family, valuable space which might be used for a discussion of the causes of fetal mortality in labour and other such topics of direct practical importance. Certainly the author omits all the usual anatomical and physiological matter for so many years included in obstetrical textbooks, but as the student will not find these subjects discussed anywhere else in such detail or with such accuracy, he will, after reading Professor Shears's book, be compelled to go to one or other of the despised textbooks. Further, the author's contempt for fetal monstrosities is so supreme that he has illustrated the subject of anencephaly with a drawing that bears no resemblance to the condition as usually observed!

The reiterated and often carping criticisms of all other textbooks are not only blots upon the present work, but sharpen the reader's critical faculties. It is a pleasure, therefore, to be able to give unqualified praise to the photographs of the delivery of the head and placenta, and of several other important points in practice. These the author frankly claims as "unequalled," and we entirely agree with him. The other illustrations are for the most part good, many being borrowed from the well known and popular book by Professor Fabre of Lyon, to whom in several other respects the author's teaching appears to owe much.

The section on the management of labour is full and excellent. On the much debated point of the value of scopolamine-morphine narcosis the writer is not very helpful, as his practice is neither one thing nor the other—merely a modified analgesia, with no attempt at the production of amnesia. We would emphasize the author's statement that the exhibition of pituitary extract in the second stage of labour sometimes leads to exhaustion of the uterus in the third stage, with consequent haemorrhage. In regard to early rising after labour, a subject which has now very largely dropped into merited oblivion, Professor Shears says that "this proposal has been summarily and deservedly rejected by the common sense of the profession. It is based upon the idea that labour is a purely normal, physiological process," a proposition "theoretically rather than practically true."

Professor Shears believes that during pregnancy the blood of the mother is in a condition of suboxidation, and he regards this as an important factor in the toxaemias. His opinion that eclampsia is more common in the remote and sparsely populated regions than in cities and suburban localities is diametrically opposed to experience in this country. The suggestion merits further investigation. In regard to some points of treatment the author holds views which are unusual—as, for example, his advocacy of version in occipito-posterior positions seen early.

Professor Shears's book contains much that is interesting and good, and as the outcome of a mind untrammelled by authority or tradition it is a welcome stimulant. But frankly we doubt if his constant demonstrations of the motes in the eyes of other teachers will make his book popular outside his own school.

[2] *Obstetrics, Normal and Operative.* By G. P. Shears, B.S., M.D. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 765; 419 figures. 25s. net.)

GUNSHOT WOUNDS OF BONES AND JOINTS.

THE war has given rise to vast numbers of gunshot wounds involving the bones and joints, causing fracture, osteomyelitis, or arthritis, as the case may be. Dr. A. BROCA, professor of topographical anatomy in Paris, has written an excellent account of these osteo-articular sequelae of wounds for the French *Collection Horizon*,[3] that may be warmly recommended to the attention of surgeons.

As he says in his preface, it is to be feared that the dangers of excessive formation of callus, faulty reposition of fractured bones, the formation of sinuses and sequestrums by chronic osteomyelitis, and the late consequences of injuries of the joints, may all be underestimated by optimistic surgeons. These dangers are considered in the first four chapters of the book; the fifth chapter deals with the thorny problems confronting medical boards and others who have to deal with the future of soldiers who have been more or less crippled, with pensions and gratuities, and with men who have refused the treatments advised. The book is well written, and is illustrated with diagrams, which have the effect of stipple drawings. Professor Broca calls special attention to the method in his preface, and expresses the opinion, in which we are disposed to agree with him, that good drawings, made by competent hands, convey a more accurate and instructive impression of *x*-ray pictures than photographic reproductions from the original skiagrams.

Details of the treatment Professor Broca prefers in the various types of injury discussed are fully stated. The book is the work of a conservative surgeon of great experience, and will be found of the highest practical value by surgeons at the present day.

SCHOOL HYGIENE.

Two well-known handbooks on school hygiene reappear this year under the authorship of men other than those originally responsible for them. Newsholme's *School Hygiene*,[4] which originally appeared in 1887, has now reached the fourteenth edition, and this is a new book written by Dr. JAMES KERR, whose work for the Bradford and London School Boards, and later the London County Council, is so well known. Crowley's *Hygiene of School Life*[5] was issued first in 1909, and the new edition is written by Dr. C. W. HUTT, so that Bradford again has the honour of having as its school doctor an author of evident breadth of thought and progressive sympathies.

The two books, although professedly covering the same field of work, show a considerable difference in the manner in which they deal with that work. Dr. Kerr's is concerned very much the more with the child as the principal factor in the school. As one reads chapter after chapter—and it is an eminently readable book—the dominant impression is the child. All the rest—the teacher, the buildings and their appurtenances, and the whole scheme of education which centres round or radiates from the child—they are there in the periphery of the field of vision but not at the fovea. Dr. Hutt's book does not fail to realize that this is the chief focus of the school; but nevertheless the strongest impression left upon the mind is one of the greatness of the school and of the whole organization of which it is a part. It is as though we asked two friends their impressions of a lady, and the one described to us the beauty and grace of her person and the charm of her intellect, whereas the other expatiated upon the perfection of her toilet, the elegance of her garments, and the finished style of her deportment. We like these attributes, all of them, but in what proportions? If a school teacher asked us to recommend a book on school hygiene we should suggest Kerr's as the one to be studied; if a town councillor, new to his office and anxious to do his duty conscientiously, desired information on the work of the schools we should urge him to read Hutt's book. But if the inquirer were a doctor, possibly one engaging for the first time in some part of the work of the school medical service, we should urge him to read both and balance the impressions, for both are necessary to him.

Dr. Kerr's book is divided into two unequal sections—Part I, the greater, deals with the child. There is a chapter on physiology and psychology. Later chapters deal with special conditions and defects. The chapter on speech is admirable; there are few such brief and explicit summaries of this complex faculty and its disorders. In other chapters the effects of open-air life, excessive mental exercise and fatigue, the necessity for sleep and rest, are dealt with. In others special defects, such as those of the eyes, ear, local defects of the throat, and the graver problem of the abnormal children, receive consideration. Part II deals with the "Apparatus of a School," sites and buildings, ventilation, warming, lighting, furniture, and the like. In these subjects the author is much at home, and the pages are illuminated by references to research work, for the initiation or performance of which the author has been responsible; and from that work have come effects which have greatly helped to bring everyday practice up to the present high level of achievement.

Dr. Hutt's book commences with an excellent sketch of the origin and progress of school medical inspection both at home and abroad, with a summary of the several Acts of Parliament affecting school work in this country. Based on these are brief excursions into the object of medical inspections and the character and degree of these inspections, and of the school medical service. In this section the author considers the relation of the school service to the public health service. He concludes that

> the most satisfactory organization of the work of the school medical officer in relation to that of the medical officer of health has perhaps yet to be ascertained. While essentially a department of the public health which can allow itself in no way to be looked upon as a subsidiary department, it is, nevertheless, a department which can never know its own full development unless it recognizes itself as part of the whole public health service of the country and links itself up, and has an organic relation with, that service. To secure this unity in all matters relating to the public health it would seem that the formation of a Ministry of Public Health has become necessary, and, as a consequence, the organization of a public health medical service on the lines of the naval, military, and Indian medical services, due regard being paid to the principles of local government.

In considering the various types of child and the defects of children, Dr. Hutt is at pains to give references to quite recent work, and this is a feature of no inconsiderable value in the book. The chapter on school baths and bathing is admirable, and the reproductions of photographs of the baths provided for the children in the elementary schools at Bradford are such that we would desire the like to be in every school in the country. We entirely endorse the statement of the author:

> Any one acquainted with the condition of the children in a school situated in the poorer quarters of a city cannot but be impressed with the obvious fact that before any instruction of the children is attempted they need, so soon as they have been properly fed, to be thoroughly washed.

A little book entitled, *The Nation of the Future*,[6] issued by Dr. HADEN GUEST, is a collection of papers originally issued in various periodical publications. The book is for the most part a description of the more ordinary methods of physical examination of children in elementary schools, and there are several reproductions of photographs of the author making such examinations in London schools. Such photographs do not serve any very useful purpose, for who has not seen the examination of the chest of a child? There are excursions into general policy of national health and infant care. So far as any contribution to the problem of child health is suggested, it is to be found in the author's evident feeling that the separation of the school clinic from the larger field of the health of child and child-bearer, the infant and the mother, is an evil that must be adjusted. One solution of this problem would appear to have been found in the New York scheme. In Dr. Hutt's book there is a note on the constitution of the Division of Child Hygiene of the Department of Health for that city:

> The division deals with all children from birth to the legal working age; its work comprises:
> 1. The control and supervision of midwives.
> 2. The reduction of infant mortality.
> 3. The supervision of foundling babies boarded out in private homes.

[3] *Les Blessures des Articulations dans les Plaies de Guerre.* Par Prof. A. Broca. Collection Horizon. Paris: Société d'Éditions et de Librairies de Guerre. Petit Masson et Cie. 1916. (Cr. 8vo, pp. 178, 112 figures. 1 fr.)

[4] *Newsholme's School Hygiene: The Laws of Health in Relation to School Life.* Rewritten for all school workers by J. Kerr, M.A., M.D. Fourteenth edition. London: G. Allen and Unwin, Ltd. 1916. (Post 8vo, pp. 352; 49 figures. 4s. 6d. net.)

[5] *Crowley's Hygiene of School Life.* By C. W. Hutt, M.A., M.D. Cantab., D.P.H. Oxford. Second edition. London: Methuen and Co., Ltd. 1916. (Post 8vo, pp. 315, 20 illustrations. 3s. 6d. net.)

[6] *The Nation of the Future.* By L. Haden Guest, M.R.C.S.Eng., L.R.C.P.Lond., Temporary Captain, R.A.M.C. London: G. Bell and Sons. 1916. (Cr. 8vo, pp. 115; 8 Illustrations. 2s. net.)

4. The inspection and sanitary supervision of day nurseries.
5. The inspection of institutions harbouring dependent children.
6. The medical inspection and examination of school children.
7. The vaccination of school children.
8. The enforcement of that part of the Child Labour Law which relates to the issuing of employment certificates.

The association of these several services under one control has good features.

NOTES ON BOOKS.

THE third edition of Dr. E. ALBERT-WEIL'S manual of electrotherapy and electrodiagnosis[7] has been brought up to date carefully, and shortened by the omission of the parts in previous editions dealing with the x rays. It contains a new chapter on the electrocardiograph, and a particularly interesting account of the forms of electric apparatus of service in the localization of metallic foreign bodies lodged in the tissues. Dr. Albert-Weil sums up in favour of La Baume-Pluvinel's "audioscopic fingerstall" in this connexion. This apparatus is an adaptation of the old Hughes telephone and electric induction balance. The operator has a telephone attached to his head, and on the finger he is going to use for exploration he wears a sterilized fingerstall containing at its tip a small coil of fine wire connected to one arm of the electric balance. When this coil is brought near a metallic fragment the operator is made aware of the fact by the production of a sound in the telephone. It is said that a piece of steel weighing a gram can be detected at a distance of 15 mm. by the use of this apparatus. For the rest, Dr. Albert-Weil's book contains a full account of the apparatus and technique employed in various electrotherapeutic methods, and the results obtained therefrom in various maladies. The text is well written, and there are numerous good illustrations. The volume may be cordially recommended to the attention of medical electricians.

Sister MARTIN-NICHOLSON'S account of her *Experiences on Three Fronts*[8] gives vivid pictures of what she saw, and how she nursed typhoid and surgical cases in Belgium, in Russia, and in France during the earlier part of the war. It is clear that the writer has a seeing eye, quick to catch the essentials of the scenes she has viewed and the various stages she has moved upon. She has, too, a warm heart for her friends, and her book is enriched with many a sentimental passage and pages of highly strung emotions, such as most readers love to harrow them withal. Her characterizations of the national types among the patients she nursed—British, French, Belgian, Russian, Polish, Austrian, and German—are first rate. They combine brevity with justice, and show the skilled exercise of unusually acute powers of observation. The whole book is written in a highly-coloured and vigorous style; it may be cordially recommended to a wide circle of readers—all those who are interested in the war. *With the Russian Wounded*,[9] by TATIANA ALEXINSKY, wife, medical woman, and socialist, gives an account of what the authoress saw and jotted down in her diary during the first year of the war. The book has been prepared for publication by her husband. It forms a most interesting contrast to *My Experiences on Three Fronts*. Sister Martin-Nicholson is a writer who sees more than meets her eye, and interprets what she sees with sympathy. Mme. Alexinsky's diary records the commonplace, and leaves it undigested for the reader. Her interest appears to lie in her own sensations and emotions. Her pages illustrate the difficulties that lie in the path of a self-centred writer at variance with his—or her—surroundings.

The *Medical Directory*[10] for 1917, which has been published this week, does not differ in arrangement from previous recent issues. The total number of names contained in it is 42,879—an increase of 309 as compared with 1916, of 307 as compared with 1915, and of 907 as compared with 1914. The comparative figures for London, the provinces, Wales, Scotland, Ireland, and abroad are at present misleading, as they do not distinguish the large number of medical practitioners serving in the navy or army; in fact, the number shown in the section containing the lists of officers in the naval, military, and Indian Medical Services is rather lower than last year—3,203, as compared with 3,274 in 1916—and still lower than in 1915, when it was 3,366. The general excellence and accuracy of this annual is well known, and has been tested by time, for this is the seventy-third issue. In the very useful abstract of the principal laws affecting the medical profession there is a note on the regulations affecting medical officers in the Territorial Force, with a table of pay and allowances; but, with regard to allowances, it refers only to peace conditions, and we suggest that room should have been found somewhere in the Directory for a concise statement of the terms and conditions of service of temporary medical officers, whose number is now so large, and also of the rates of pensions to disabled officers and to widows and orphans. The volume contains the usual lists of consumption sanatoriums, convalescent institutions, hydropathic establishments, and private asylums, as well as of universities, medical schools and colleges, and hospitals.

[7] *Manuel d'électrothérapie et d'électrodiagnostic.* Par le Dr. E. Albert-Weil. Préface de M. le Prof. A. Gilbert. Troisième édition, entièrement revue et completés. Paris: F. Alcan. 1916. (Cr. 8vo, pp. 384; 108 figures. 4 fr.)

[8] *My Experiences on Three Fronts.* By Sister Martin-Nicholson. London: G. Allen and Unwin, Limited. 1916. (Cr. 8vo, pp. 283; 1 portrait. 4s. 6d. net.)

[9] *With the Russian Wounded.* By Tatiana Alexinsky. With an Introduction by G. Alexinsky. Translated by G. Cannan. London: T. Fisher Unwin, Limited. 1916. (Cr. 8vo, pp. 191. 2s. 6d. net.)

[10] The *Medical Directory*, 1917. Seventy-third annual issue. London: J. and A. Churchill. 1917. (Royal 8vo, pp. 1952. Price (United Kingdom), orders and payment received after September 30th, 1915, 16s. 6d.; abroad, 18s. 6d.)

THE MEDICAL RESEARCH COMMITTEE.

SECOND ANNUAL REPORT.

(Continued from p. 766.)

SIR CLIFFORD ALLBUTT, in the address published this week (p. 785), gives a stimulating account of the general purpose of the Medical Research Committee, and of the scope of the investigations carried out under its auspices. Last week (p. 765) some particulars were given of the work done in two of the departments organized by the Committee—the bacteriological and the statistical. We will here confine ourselves to brief indications of the nature of some of the other work done for the Committee.

DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY.

The director of this department, Dr. H. H. Dale, is responsible for one of the most practical results of the investigation of amoebic dysentery, which was an important part of the work of the department for the year. This was the establishment of the great clinical value of the double salt—emetine bismuthous iodide—in the treatment of chronic amoebic dysentery. Its efficacy was illustrated in the paper by Mr. Clifford Dobell published in this JOURNAL on November 4th, 1916.

Another outcome of the work of this department is contained in the reports of Colonel Leiper, R.A.M.C., who headed the bilharzia expedition to Egypt. The new knowledge gained of the stages in the life-history of this worm, parasitic in the blood of man, and its mode of transference in its alternate generation to the snail, and from the snail to man again, has allowed the necessary preventive measures to be taken for the protection of the troops stationed in Egypt, and given grounds for the hope that permanent control of the disease may finally be obtained, to the lasting benefit of the native population, of whom 80 to 90 per cent. in the Nile delta are known to be affected. One of the results of the continued work during the past year has been to implicate two additional species of snails in the spread of bilharziosis in Egypt. The evidence obtained in the previous year showing that man becomes infected by the passage of embryos through the skin during bathing or wading in infected water was based on experiments on mice, and experiments during the past year have been directed to the methods of rendering infected waters safe. Simple storage for forty-eight hours had been shown to be effective, but more rapid methods were worked out, and were put into routine use in all the camps and outposts in Egypt last spring. They consisted of the addition to water for drinking purposes of acid sodium sulphate, 1 in 1,000 parts, and to water for washing purposes of army cresol, 1 in 10,000 parts. It was found that the bilharzia forms escaped the Jewell system of water filtration, and could pass easily through the settling tanks and sand filtrations. This observation may be expected to lead to a fundamental revision of methods of water treatment in Egypt. Investigations made last winter reveal the fact that bilharziosis in Egypt includes two separate forms due to different species of bilharzia spread by different species of snails. Symptoms of haematuria are due to worms spread by three species

of the snail genus *Bulinus*. The symptoms of bilharzia dysentery, on the other hand, are due to worms conveyed through snails of the genus *Planorbis*.

The Department of Applied Physiology.

The work of this department, directed by Dr. Leonard Hill, assisted by Dr. B. Moore and Dr. Martin Flack, has been largely directed to safeguarding the health of munition workers, and their most important results have been recorded in our columns by the investigators or in our notices of the Memorandums issued by the Health of Munition Workers Committee at various dates within the last twelve months.

Cerebro-spinal Fever.

The work of the central cerebro-spinal fever laboratory is directed by Lieutenant-Colonel Mervyn Gordon, assisted by Major Hine, who both receive whole-time salaries from the Committee, and for the greater part of the year Dr. Flack was seconded with the rank of Captain R.A.M.C., for the study of cerebro-spinal fever in relation especially to the examination of cases of contact. Colonel Gordon directed measures for the control of the spring epidemic among the troops in the United Kingdom, and it proved less severe than in 1915. The laboratory has issued special culture media and standard diagnostic serum. In addition Colonel Gordon has done a good deal of research work. As has been already noted in papers by him in our columns, it is found that the meningococci in the cerebro-spinal fluid are not strictly uniform, and he has been able to describe four main types. Progress has also been made in the preventive treatment of carriers, and the latest step in it, published too late for notice in the report, was contained in Colonel Gordon's paper in the Journal of November 18th, in which he described and figured atomizers for charging the atmosphere of a room with a disinfectant.

Typhoid and Paratyphoid Infections.

The preparation and issue of standardized emulsions of killed typhoid and paratyphoid bacilli, and the corresponding standardized agglutinating serums, to naval and military hospitals has been continued in the Standards Laboratory of the Pathological Department of the University of Oxford. They are used for the recognition by the agglutination test of particular infections by the direct observation method without the use of a microscope. Precise quantitative results are obtained, and it has been shown that the diagnosis of these infections or their absence, in men recently or remotely inoculated with typhoid and paratyphoid A and B vaccines, as all soldiers now are, can be secured by quantitative tests of this kind repeated at intervals so that a characteristic curve of changing agglutinative values may be obtained in any laboratory. The work of standardization at Oxford is carried out by Dr. A. D. Gardner. In all, over 100,000 test portions of cultures have been sent out to over 250 different laboratories, and to about 270 individual bacteriologists. The actual expenses of material, packing, and postage have been borne by the War Office since July 1st, but the Committee continues to supply the cost of expert supervision and preparation.

Recently the Standards Laboratory has undertaken the preparation of standard cultures of bacilli of the chief dysentery infections—Shiga, Flexner, and Y, together with Gaertner. Professor Dreyer, who has general direction of the work, is serving with an honorary commission as Major, R.A.M.C., at Wimereux. Unfortunately a very large series of observations compiled by him were destroyed in a fire last January, but the observations have been so far as possible repeated.

Groups of observations made elsewhere by means of these cultures have been reported by Professor Glynn of Liverpool, Professor Walker Hall of Bristol, Dr. Donaldson of Reading, and Dr. O'Farrell of Dublin.

Disorders of the Soldier's Heart.

Dr. Thomas Lewis, who was appointed a member of the Committee's permanent scientific staff in February, 1916, has been working on the staff of the Hampstead Military Hospital, reserved by the War Office for the reception and treatment of military cases of heart disorder, with a number of other officers, some of them belonging to the Canadian Army Medical Corps. The general plan of investigation and treatment followed was explained by Dr. Lewis and some of his colleagues in the memorandum published in the Journal of September 23rd, 1916, and a special report on breathlessness in soldiers suffering from irritable heart was published in our columns on October 14th, 1916. Among subjects recently under investigation are the influence of tobacco on the circulation, and the relation of the thyroid gland to irritable heart. Notes of all cases admitted are compiled in very full detail, the after-history of patients leaving the hospital being followed up by correspondence as far as possible.

Neurological Inquiries.

An official conference of neurologists engaged in the French Army Medical Service, held in Paris in April last, was attended by Dr. Henry Head as the representative of the Medical Research Committee; he communicated to the conference the outlines of the scheme arranged by the Committee for the organized study of military neurological cases on the system described at p. 766 last week. The study and treatment of functional cases by Dr. Rivers and Major Rows at the Maghull Hospital, Liverpool, has been continued. The work of this hospital and the methods employed in it were described in a paper published in this Journal on March 25th, 1916, by Major Rows. In addition to organizing this work, the Committee has been able to assist neurological work in military hospitals in London, Edinburgh, and Manchester.

Biological Testing of Salvarsan.

The Committee has continued arrangements made at the outbreak of war for the physiological testing of the preparations of salvarsan and neo-salvarsan of French and British origin, placed on the market in this country. It recognizes that, for the ultimate test of the efficacy of the laboratory control, dependence must be placed on the reported results of the actual use of the preparations in practical therapeutics. Valuable detailed scientific records have been supplied by Surgeon-General Dudding, R.N., from Haslar Hospital, by Lieutenant-Colonel L. W. Harrison, D.S.O., from the Rochester Row Military Hospital, by Captain H. W. Lucey, R.A.M.C.(T.), from the Royal Herbert Hospital, Woolwich, and by Major Glen Liston, I.M.S., Director of the Bombay Bacteriological Laboratory. Unfortunately the appeal issued by the Committee to civil practitioners in June, 1915, and published in our columns at the time, has not produced a similar response. Nevertheless the reports received from the officers mentioned have led the Committee to conclude, with confidence, that after making all allowance for more scattered evidence of a partly adverse nature, the control carried out on its behalf has been serving its purpose in ensuring the supply to the medical profession, and to the Government departments concerned, of preparations of salvarsan little, if at all, inferior to those formerly obtained from Germany. The Committee has, by its advice to the manufacturers undertaking this work, endeavoured to render the supply of these products more stable and abundant, and to safeguard their freedom from undue toxicity. While the work might be reckoned outside the strict limits of medical research the Committee is satisfied that it has assisted not only in meeting an immediate national need, but also in founding an industry which will be of increasing importance to the practice of medicine. It hopes, also, that this undertaking, with several collateral inquiries, may greatly aid the future initiation of primary research work into the chemiotherapy of these and other diseases.

Constitution of the Committee.

Under the terms of the regulations three members of the Committee (Lord Moulton, Sir Clifford Allbutt, and Professor Matthew Hay) have retired. Their places have been taken by Viscount Goschen, Dr. George Murray of Manchester, and Dr. A. K. Chalmers of Glasgow. Major Waldorf Astor, M.P., has become chairman of the Committee, and Lord Goschen has accepted the office of treasurer. The report concludes by an expression of the Committee's indebtedness to the ability and power of initiative shown by its secretary, Dr. W. M. Fletcher, F.R.S. "His devotion of time and energy far beyond the normal demands of his secretarial work have alone made it possible for the Committee to deal with the emergencies which have constantly arisen, or to keep in touch with the growing and changing series of investigations which they have been called upon to supervise."

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COMPULSORY LATIN.

JUDGING from the discussion on two days last week, there can be little doubt that the General Medical Council will eventually agree to the omission of Latin as a compulsory subject from the preliminary examination in general knowledge for medical students; but meanwhile the matter is in suspense. The Education Committee advised a compromise, founded purely on expediency—namely, to drop Latin for the senior or higher grade student and to retain it for the junior. This, at first sight, may seem a most illogical recommendation, but when the matter is looked into it is seen that the Council has had its hand forced by the universities. For over fourteen years the University of London has not called for Latin as an essential element in its matriculation examination, and within the last two years this example has been followed by the Universities of Liverpool, Leeds, Sheffield, and Birmingham. The Council, however, has continued to require that medical candidates should produce a certificate of having passed a satisfactory examination in Latin. It was implied in the report of the Committee, and distinctly put forward during the course of the discussion, that in this matter the Council was under an obligation to be guided by the universities, which are, in fact, the bodies responsible for ensuring that the student shall have received during his school career a mental training sufficient to enable him to engage in medical study, and to continue the development of his mind during that process. The position is further affected by the movement now developing throughout England, under the influence of the universities and the Education Department, towards the establishment of a system of school-leaving certificates; these certificates are now generally accepted by the universities as the equivalent of the matriculation examinations for the faculties of arts and science. The regulation requiring Latin put the medical student in an exceptional position, and was open to the objection that it placed the Council in conflict with the deliberate opinion of the universities.

This argument appears to us to have great weight, and to receive comparatively little reinforcement from the coincident opinion of the Board of Education. We believe that the future of learning in this country, including in that the development of science, is bound up with the freedom of the universities, which should be loyally supported by all bodies having any control over education. The recommendation of the Education Committee was practically that all examinations accepted for matriculation in the faculties of arts and science in any university of the United Kingdom should be approved by the Council as qualifying the successful candidate for admission to the *Students' Register*. This carried with it the recognition of degrees in arts and science of any university of the United Kingdom or of the British Dominions. This recommendation was finally accepted by the Council by 21 votes to 12, but only after a debate in which several members expressed a different opinion. The arguments against the dropping of Latin were, on the whole, those with which we are familiar. The strongest point was that Latin was the key to certain other languages—French, Italian, Spanish, and Portuguese, the last two, of Western languages, those spoken by a larger number of persons than any other language save English. The particular argument was also used that the terminology of medicine, and especially of anatomy, is permeated by Latin words or roots.

The other recommendation of the Education Committee was not logically founded upon the first; it proposed that Latin should remain compulsory for the junior or lower grade of candidates, who did not, as a rule, produce as evidence of general knowledge certificates of examination by a university. The argument which seems to have had most weight with the Education Committee was that whereas candidates who entered through a university examination were generally aged from 17 to 18, the age of the average pupil at the other or junior examinations was from 15 to 16. The Committee recommended the retention of Latin as a compulsory part of these junior examinations on the ground that at present there were no possible substitutes for that language in the educational scheme, suitable to a youth of 15, which could be said to be entirely satisfactory. This recommendation was resisted by several members of the Council, who had supported the first, and eventually this part of its report was referred back to the Education Committee.

The action and the hesitation of the Council coincide—and it is no more than a coincidence, for the subject has been before the Council for several years—with the vehement discussion in the press of the place which science should have in education. So far the head masters have not been convinced, and Sir Clifford Allbutt, to whose illuminating contributions to the subject we have already referred, has published another article in which he pours scorn on their assurance that they are willing to accept, and have indeed accepted, science as a "complementary" subject. Sir Clifford Allbutt maintains that the cry of what is to be taught to boys is of less importance than the vision of how things are to be taught. Perhaps Mr. Cobden Sanderson, an ally in a very unexpected quarter, put the matter best when he said that "the object of science is not its application to industrial uses, but the knowledge and vision of the universe," and denounced the "mistaken or ignorant view of science which confuses the issues of modern life and makes it lose the great opportunity—the transformation of book and laboratory science into the vision of the vision which, though always actually around us, is yet so difficult to see—the vision of the universe, inclusive of man."

Returning to the concrete point, we may quote Sir Clifford Allbutt's conclusion that "with careful leaving certificates all compulsory subjects should be discarded by the universities"; if this be true then surely the General Medical Council has done rightly in accepting the decision of the universities, for as the representative of Oxford said during the discussion, "The universities are the bodies best able to express opinions on matters of general education, and the Council must bow to their decision as that of those best qualified to express an opinion and exercise control on that particular subject."

CARE OF THE EYESIGHT OF MUNITION WORKERS.

ONE of the subjects which is calling for the attention of the managers of munition works is the preservation of the eyesight of the workers, and the Health of Munition Workers Committee has issued a useful memorandum, entitled "Effect of

Industrial Conditions upon Eyesight."[1] The memorandum deals both with accidents and with eye-strain.

The Committee finds that, speaking generally, there has been a considerable increase at the hospitals in the number of eye cases among munition workers, partly due to the increase in the number of such workers, and partly to their inexperience of metal and engineering works. At the Birmingham Eye Hospital 15,000 eye injuries are seen annually. The majority are slight, but it is estimated that 500 to 700 days' work are lost annually from these trivial accidents. At the Moorfields Eye Hospital not less than twenty men attend daily from engineering shops to have small foreign objects, usually metal or emery, removed from the eye. A large proportion of the cases, in round numbers 100 a week, now come from munition and armament factories. There, and at the Royal Eye Hospital, Manchester, it is estimated that these accidents cause absence from work on an average for three days, so that taking the Moorfields figures alone there would be a loss of three hundred days' work, or, say, forty men idle a week, from preventable accidents. One of the honorary secretaries of the Wolverhampton Eye Infirmary states that the chief causes of eye injury in engineering and other munition areas are due to impacted and other perforating bodies, lathe work and grinding being the most prolific in producing them, and a trades union association suggests that the greater number of slight eye injuries observed occur because the major portion of munition work, so far as machinery is concerned, is lathe turning, the turnings breaking or flying off. In discussing the importance of never neglecting an eye injury, however trivial, a statement of an ophthalmic surgeon in Glasgow is quoted to the effect that in most instances the actual physical damage is slight and the worker is able, if the injury to the eye be promptly and skilfully treated, to resume his duties in a few hours, or at the utmost in a day or two. If it be neglected, or unskilfully or carelessly treated, sepsis almost certainly occurs transforming a very trivial injury to the cornea into suppurative keratitis, which may run a prolonged course, lead to more or less impairment of sight, or even destruction of the eye.

The memorandum contains suggestions both for the prevention of accidents and for their proper treatment. It appears that there is great prejudice among workers against the use of eye-guards and goggles. Nevertheless, the Committee points out that in certain kinds of work the eyes should always be guarded from flying particles of metal, and diagrams are given of two forms of goggles. One of them very much resembles a form of goggles once popular with motorists and is not unlike those used by airmen. Possibly these circumstances may in time diminish prejudice against their use. It is pointed out that an eye-guard should fulfil certain conditions: it should be strong and cheap, should not impede vision, should be light and comfortable and allow free play of air so that moisture does not condense on the transparent medium, and that it should prevent particles reaching the eyes from in front, from either side, or below. The fact that particles are little likely to enter from above is important, since it allows the upper part of the goggle to be left open for ventilation. Not much importance is attached to the objection that glass broken by flying particles may be driven into the eye and cause worse injury than if it were not present. This appears to be a very exceptional accident, and an American shop bulletin is quoted as stating that "in no instance was an eye even slightly injured by flying glass where the lens was broken by a flying chip." The main objection to glass and any other transparent medium is stated to be that after a time it becomes pitted and obscured; eye-guards should therefore be so made that the glass can be easily removed and replaced. With regard to the treatment of accidents the advantage of having ambulance stations or surgeries in factories is mentioned, because in such cases no treatment need be attempted in the workshop. Failing the doctor, the nurse should render first aid and subsequently refer the patient to his own doctor. If the man has to be attended by one of his fellow workmen first aid should be mainly directed to relieving pain, and should be limited either to the use of eye drops applied from a suitable bottle, or to a pad and bandage. The Factory Department of the Home Office has issued an excellent handbill[2] on the treatment of minor injuries, which should be in every workshop, large and small. With reference to eye injuries, it insists upon the importance of going to a doctor at once. It suggests that antiseptic anodyne eye drops may be used, and mentions cocaine 0.5 per cent. and mercury perchloride 1 in 3,000 in castor oil.

With regard to eye-strain, it may be remembered that a Home Office Committee on the lighting of factories, over which Dr. R. T. Glazebrook, Director of the National Physical Laboratory, presided, issued its first report about a year ago. It recognized that good illumination was necessary for the safety of workers, for the efficiency of their work, and for their general health. As to the last point, information is not precise and further study is necessary, but on the question of output and efficiency the Committee had abundant evidence that where the lighting conditions had been improved there had been a gain both in respect of the quantity and the quality of the work. The improvement of lighting conditions depends not merely upon brightness, but upon the distribution of light. In some factories great advantage has been obtained by improving the general lighting, and in this connexion the colouring of walls and floors is important, for reflected light is a valuable means of improving the general lighting and preventing shadows. The provision of good lighting of factories and workshops has a bearing on both parts of the Memorandum of the Health of Munition Workers Committee, but especially upon eye-strain, which, broadly speaking, is due either to defects of vision or to the nature and conditions of the work. It may, however, be one manifestation of general fatigue, and is thus likely to become more marked when long hours are worked, when night shifts are necessary, or when workers are undernourished, anaemic, or of poor general physique. The liability to it is accentuated by errors of refraction, including those due to increasing age, if not properly corrected. Instances have been noted of headaches and eye-strain resulting from inadequate light, both artificial and natural, from artificial lights adequate in amount but so placed as to throw a glare on the eyes of the workers, and by the employment of workers to carry out fine work without first testing their eyesight.

The Committee recommends that when operatives are being engaged for fine work which calls for close attention the eyesight of each should be tested by the medical officer. If he be not available, the nurse or welfare supervisor should apply simple tests to each eye separately, and should be instructed to send those

[1] Memorandum No. 15. (Cd. 8507.) Price 1d.

[2] Form 925. August, 1915. To be obtained through any bookseller or local subagent for the sale of factory forms. (Price 1d., by post 1½ d.)

who do not reach the standard laid down to the medical officer, or an ophthalmic surgeon, or eye hospital. The standard suggested as the minimum is $\frac{6}{9}$ in both eyes (Snellen's types), though $\frac{6}{12}$ in one of the eyes may be sufficient in some cases; and the ability to read standard type 0.45 at 1 ft. distance. It is also recommended that any worker who complains of frequent headache, pains in the eyes, or shows signs of conjunctivitis, should be tested. The frequency with which conditions calling for treatment may occur is shown by the experience of one factory, where 8 per cent. of the workers had been obliged to obtain glasses since starting work; 12 per cent. found sight difficult at night; 7 per cent. complained of eye-strain, and 2 per cent. of eye-strain increasing in severity. Besides these, 10 per cent. appeared to have latent eye-strain.

MOBILIZATION OF THE PROFESSION.

WE have received a number of representations—some of the most urgent from Scotland—on the need for more effective means of equalizing the burden which the war has placed upon the profession, and of providing more adequately for the needs of the civil population, as well as of the military medical services. The remarks made by the President of the General Medical Council, to which we drew attention last week, have tended to cause many to give serious consideration to the matter. It will be remembered that after stating that he had been officially informed that the War Office would at once gladly engage 400 more medical practitioners if they were forthcoming, he went on to speak of the excellent work done by the central and local medical war committees in England and Scotland in assisting the profession and the Government to secure a proper allocation of the available medical men, having regard to the respective requirements of the military and of the civilian population. In this part of the address he appeared to have in mind mainly the withdrawal of medical men from civil practice to serve in the navy or army; but he went on to raise the question of what should be done in respect of those members of the profession who had failed to give their co-operation to the movement represented by the central and local medical war committees, and said that if the voluntary effort of the profession should on this account fail to meet all the requirements of the medical services we might have to face legislative compulsion. The chief enemy nation has decided to mobilize the whole nation for war. In this country events are clearly marching in the same direction, and the question which is exercising the minds of many members of the medical profession is whether it would not be wise and politic for the profession itself to consider the possibility—or, as some would say, the probability—of the need for the mobilization of the whole profession. We admit that the word "mobilization" is greatly in need of definition; but we take it to mean in principle that every medical man and woman should formally undertake to place his or her services at the disposal of the governing authorities of the country, to give such service, whether military or civilian, as may be indicated, and, if civilian, to render the service in any place in Great Britain. The need for the application of this principle of general mobilization of the whole profession may be nearer than many of us have supposed; there are, indeed, many who believe that the time is already ripe for action.

VALONA: A SANITARY VICTORY.

VALONA is a seaport on the Adriatic. It lies on a low, damp site, closed in by lofty hills and adjoining a lagoon extending a mile and a half inland from the bay. The situation, chosen for strategical reasons, is very unhealthy. When it is remembered that Albania was the most neglected province of Turkey in Europe and Valona the most neglected town in it, the hygienic conditions may easily be imagined. In the *Annali di Medicina navale e coloniale* there is an account of the work of a sanitary mission of the Italian Navy sent there two years ago. When it landed on October 30th, 1914, it found that the wretched condition of the town was aggravated by the presence of 6,000 or 8,000 Epirote refugees. There was no provision of potable water, and owing to the lack of latrines the streets were in an indescribably filthy state. Malaria, tuberculosis, scrofula, and syphilis were rampant. Small-pox was widespread. Typhoid was rare among the inhabitants, but a few cases occurred among non-vaccinated soldiers. On the other hand, an indeterminate infection corresponding in character to an attenuated typhus was frequently met with. The first care of the mission was to organize a proper sanitary service with dispensaries, domiciliary visits, and distribution of medicines. General vaccination after a time freed the place from small-pox. Little could be done in Turkish surroundings to combat venereal diseases, but prostitution was to some extent regulated. Diphtheria was treated by the local doctors as a simple angina or scarlatina, and the serum issued to them was not used; the mission, however, convinced them of their error. With regard to malaria, the Musulmans had accepted it as a dispensation of fate. Petrolization, besides its cost, was out of the question owing to the great area of the marshes; but some effect was obtained by treatment of the waterways. Quinine was placed at the disposal of any one who asked for it, and in the summer and autumn more than 10,000 injections were made with satisfactory results. There was a notable diminution in the pernicious forms. Among these was a meningitic type that resembled cerebro-spinal meningitis, but examination of the cerebro-spinal fluid and the effect of treatment showed the true nature of the disease. Among the troops 40 per cent. were affected with malaria, notwithstanding the prophylactic measures taken, which, however, were perhaps not carried out with sufficient strictness. Supervision of food, slaughter-houses, drainage, prisons, the cemetery, and the lazaretto was established, and a pure water supply provided. The Italian mission may fairly be congratulated on having done much for the purification of Valona. Its success is all the more noteworthy considering the difficulty of sanitary reform in a population which looked upon washing as superfluous and scavenging as absurd.

MOLTEN METAL IN THE EARS.

FROM time to time, if we may believe what we read, kings, criminals, and the heroines of romance or history have all had occasion to pour melted metal into the ears of superfluous personages. Poulet, for example, records the case of a wife who endeavoured to rid herself of her husband by pouring melted lead into his right ear while he was asleep. The results were very serious, but not fatal. The mass of lead was extracted eight months later; permanent facial paralysis and loss of taste on the right side remained behind. St. Stephen, King of Hungary, married Gisela, daughter of Duke Henry II of Bavaria in the year 996. It is said that this lady got rid of one Vasul, a pretender to the throne, by having molten lead poured into his ears—an action that could not well be attributed to a saint, however credible it may now seem when related of a Bavarian. Marcus Crassus, the wealthy Roman general and triumvir, was defeated and taken prisoner at the battle of Carrhae in the year 53 B.C. He was put to death by his captor, the Parthian general Surenas, who had molten gold poured into his ears, or, according to another account, down his throat, and finally cut off his head and sent it to the Parthian king. Courts and criminology apart, however, analogous events sometimes happen by accident in the industrial world. In foundries and metal works it has

not infrequently occurred that gouts or splashes of molten metal have, by some accident, made their way into the foundrymen's ears, producing severe burns of the pinna or meatus, and other serious consequences. Dr. R. Hahn has recently described[1] the case of a founder, aged 19, who received a drop of melted cast iron in his right ear; the metal fell from a height of about a metre on to the cement floor of the foundry, some two metres away from the patient, who fainted and fell to the ground. He came to an hour later with atrocious pain and complete deafness in the right ear, dizziness, and tinnitus. Three hours afterwards a copious discharge of clear, watery fluid from the right ear took place; the pain went away in three days, but the other troubles persisted; and the mastoid region became swollen, painful, and tender for a few days. The man came to hospital thirteen days after the accident. The right pinna and the cartilaginous portion of the external auditory meatus were found to be normal; the osseous portion was very much narrowed by inflammatory swelling of its anterior and inferior walls, and was further obscured by a free secretion that was watery rather than purulent. No view of the tympanum could be obtained, no foreign body could be seen, and there was no evidence that the labyrinth was involved. The meatus was treated by syringing with alkaline lotion; the swelling lessened, and after a week small metallic scales could be seen in the infratympanic recess, while a few more were removed by syringing. The tympanum became visible nearly four weeks after the accident. It showed a large perforation in front of the manubrium of the malleus, and below it a black foreign body firmly wedged in and immovable. The syringing of the meatus was continued, and metallic particles continued to come away. A week later under cocaine-adrenalin anaesthesia the foreign body was extracted, and proved to be a pellet of cast iron the size of the head of a sulphur match. The suppuration of the middle ear ceased a few days later, but the large perforation of the drum remained open; the patient could hear the whispering voice half a metre away, and the functions of the vestibular nerve were found unimpaired. Dr. Hahn argues that the hot metallic fragment probably burnt a hole in the anterior part of the tympanic membrane in this case, and he discusses the indications for and against immediate operation for the removal of such foreign bodies otherwise than by way of the external auditory meatus.

DIARRHOEA IN LOCUSTS.

From the earliest times plagues of locusts have devoured the crops and the trees in nearly all the warm but dry parts of the world. They have always been most troublesome in steppe or semi-desert country—for example, Egypt, the Barbary coast, Persia, the Argentine, and Mexico. Much money and effort have been expended in attempting to destroy these hosts; they have been burnt in dry scrub, they have been buried in long trenches dug across their line of advance, and the egg masses have been dug up and destroyed; but no one of these measures is in itself sufficient, though occasionally, with infinite labour and the employment of many methods of destruction, the plague has been stayed. Dr. d'Herelle's discovery of the cocco-bacillus of a specific and highly fatal enteritis has put a new weapon into the hands of those who have to combat *Schistocerca peregrina* in Morocco and Algeria. Musso and also Velu and Bouin[2] describe the bands of small locusts which issue from the spots where the eggs were deposited; how each band preserves its identity and advances in a definite direction on a front which may be as much as 50 kilometres in width. After marching for nearly two months and devouring every green thing, the locusts complete their metamorphosis and become fully-winged adults. It is during the earlier part of their life that locusts are most susceptible to infection; perhaps because the virulence of the cocco-bacillus decreases towards the end of the epizootic. Direct infection can be produced by sprinkling the desert herbage with a broth culture, but this has been found to be impracticable owing to the large area to be treated. The method employed in Algeria and Morocco is to increase the virulence of the micro-organism by successive passages and then to sow broth cultures over a small enclosure containing about 10,000 locusts. These are then liberated at the head of the advancing columns; as these infected specimens are beginning to show signs of weakness they are speedily devoured by the rest, and in this manner a very fatal outbreak of diarrhoea is started. The healthy locusts, of whatever stage, will always indulge in this habit of "acridiophagy," and at the height of an epizootic they may die eight hours after infection; they will also lick up the fluid that dribbles from the mouth or anus of an infected individual. The symptoms of the disease are progressive weakness and diarrhoea; those attacked tend to drop behind the rest, which unfortunately renders it more likely that they will be eaten by birds, and so not infect the rest of the band. Methods of control such as this always demand an exceedingly minute knowledge of the bionomics of the pest, as well as a knowledge of its diseases. If only an infectious disease of the louse, or the house-fly, or the gipsy moth could be discovered, we might at once hope to apply our not inconsiderable knowledge of their habits. It would appear that a great field for bacteriological research here lies open.

[1] *Giorn. d. R. Accad. di Med. di Torino*. Turin, 1916, lxxix, 338.
[2] *Musso. Ann. Inst. Past.*, No. 7, Tome xxx, July, 1916. Velu and Bouin, ibid., No. 8, August.

BRITISH PRISONERS AT RUHLEBEN.

TILL lately the conditions of the internment camp at Ruhleben were a disgrace to the German Government. Of this there is the fullest proof in official reports by Dr. A. E. Taylor, of the American Embassy in Berlin, on the inadequacy of the food supply, and by the Ambassador himself, Mr. Gerard, on the scandalous deficiencies in the housing accommodation. These reports were published as White Papers, and their gist was given in the JOURNAL at the time. The testimony of returned prisoners was to the same effect. We need only quote that of Sir Timothy Eden, of Windlestone Hall, Ferryhill, Durham, who came home from Ruhleben in July. He described the conditions as "altogether most intolerable"; prisoners were herded together in ill-lighted barracks; they had to sleep on straw, and the food was insufficient in quantity and bad in quality. More recent evidence goes to show that the Germans are now treating the prisoners at Ruhleben with less cruelty; whether this is the result of a newborn sense of humanity or of shame or fear we will not take it upon ourselves to say, but the fact is satisfactory. The camp was visited quite lately by Dr. Herbert Bury, Anglican Bishop for North and Central Europe. With the consent of our own Government and the permission of the German authorities he spent a week at Ruhleben, living among the prisoners, having his meals with them in their lofts and horse-boxes, and having the freest intercourse with them without the presence of an interpreter or any German official. He says that although the men naturally suffered from the monotony of life within enclosures of barbed wire and the want of privacy, it is wonderful how they manage to keep up their spirits, and he felt very proud of them. The prisoners administer their own affairs, and they practically live on the parcels they receive regularly from home. Without them they would starve or freeze to death. They cannot eat the rations supplied by the Germans. They have started a chicken-run on the racecourse, so that many of them are able to supplement their food supply from time to time with eggs and poultry. Everything that goes to the life of the camp in the way of materials has been sent out from this country or provided by the British Government. The men beguile the time with

concerts and dramatic entertainments, for which they make all the preparations themselves. The bishop said that it brought tears to his eyes to listen to the recital of what they had gone through in the early months of their internment. Happily now, thanks to the stream of parcels coming from home, the never-failing sympathy of the British Government, and the non-interference of the German authorities, life at Ruhleben is not only tolerable but character building as an experience. The impression that remained with him was that the prisoners are a body of intellectual, well-set-up men, fairly representative of the best classes among us. As to the authorities, he was not only assured of their sympathy, but charged by them to do everything in his power to hearten the inmates of the camp. The "University of Ruhleben," as he called the improvised seat of learning there, reflects the greatest credit on their spirit and enterprise. Among the branches of knowledge studied are commerce, navigation, engineering, languages, and art. Bishop Bury's testimony is satisfactory as far as it goes. But we confess we should like some more definite information that the housing conditions which Mr. Gerard denounced so strongly in June have been fully remedied, and that men are no longer herded six together in a horse-box, and that provision is made for better lighting, the want of which threatened the eyesight of the prisoners and caused depression and mental trouble. Dr. Bury's assurance that all letters from the camp may be relied upon as accurate is not altogether in accordance with the statement made in the *Times* of July 8th, 1916, that prisoners returned about that time were very unwilling to discuss the situation at Ruhleben as they feared that anything published might do harm to those left behind. Without wishing to insinuate that the bishop may have been too ready to accept expressions of goodwill on the part of the authorities, and the statements of the men naturally wishing to stand well with their gaolers, we cannot help remembering that the German official is a past master in stage management and that he has succeeded in hoodwinking more than one distinguished visitor to his prison camps. There appears to be no doubt, however, that at some of the camps, and notably at Ruhleben, gentler methods and more kindly officials have made the lot of the prisoners less wretched than it was. For this we are in large measure indebted to the good offices of the American Embassy at Berlin.

EPSOM COLLEGE.

Epsom was a well-known spa in the seventeenth century, and to lovers of literature its name recalls sweet Dorothy Osborne, who became the wife of Swift's patron, Sir William Temple, and other persons of fashion who took the waters there. Its renown as a shrine of healing afterwards became overshadowed by its fame as a place where "Olympic dust" is raised by the swift feet of running horses, and to the general public of the present day it connotes those great racing festivals, the Derby and the Oaks. To the medical profession Epsom has different associations, almost sacred in character, as the home of a foundation created by its own efforts, which by the excellence of its work has won for itself a reputation of which we have every reason to be proud. Epsom as a medical institution fulfils a twofold function. It gives a solid groundwork of general knowledge to the sons of medical men. Although it is in the fullest sense a public school of the highest class, it is to a considerable extent a nursery for the medical profession. How well Epsom College discharges its educational function is proved by the distinctions gained by its pupils. That the school also fosters the spirit of patriotism in its boys is shown by the readiness with which they have come to the help of their country in her hour of trial. At the annual meeting of governors held on June 30th it was announced that 520 Old Epsomians were then serving, of whom 420 had joined since the beginning of the war. Since then the number has doubtless increased. It is safe to say that, in proportion to its numbers, Epsom is not behind any of our great schools in the generosity of its response to the call of King and country, and its lengthening roll of honour is a speaking testimony to the quality of the young men it has sent forth. It would be a public misfortune if a school which is doing such good work for the nation should have its teaching efficiency curtailed by any falling away in the subscriptions out of which its fifty foundation scholarships are provided. Besides training the young, Epsom ministers to the needs of the old by giving pensions to practitioners or their widows left stranded in their day of disablement on the desolate shore of poverty. For these purposes an annual sum of not less than £4,500 has to be raised, and the numberless demands on the purses of the charitable, together with the general shrinkage of resources and the increase in the cost of living caused by the war, make this a matter of great and ever-increasing difficulty. Probably at no time in the history of the Royal Medical Foundation of Epsom has the need of assistance been more urgent. The Council is confronted with a problem which is causing it the deepest anxiety. Its sources of revenue have been seriously diminished by the withdrawal of a very large number of subscriptions, and unless support from new quarters is forthcoming it will become necessary to make great reductions in the charitable work of the foundation. It would be most regrettable if the Council had to take a course which would cause suffering to many deserving and helpless persons at a time when there is so much misery and want among us, and we feel that the appeal from Sir Henry Morris, the treasurer, which is printed at p. 821, will not be made in vain. The profession has always shown itself generous in its support of the Epsom Foundation, and we are confident that if those who have the ear of wealthy friends and patients will use their influence to get subscriptions, all fear of the crippling of the work of a most deserving institution will be removed. The public owes a debt to those who do so much for its relief in times of suffering and danger far beyond the meagre emolument which the doctor can generally command. There is no way in which it can better repay that debt than by helping members of the profession or their widows in distress.

TRAVELLING DISPENSARIES IN INDIA.

In his powerful refutation of the insidious calumnies circulated by Germany regarding British rule and administration of India,[1] Sir Mancherjee M. Bhownaggree, K.C.I.E., makes prominent mention of the benefits conferred on Indian peoples by the extensive arrangements for medical relief and the prevention and mitigation of "plague, pestilence and famine" instituted by Indian governments. No better illustration could be furnished of the force and truth of this statement than the "Report on plague administration and the working of travelling dispensaries in the United Provinces for the year July 1st, 1915, to June 30th, 1916," drawn up by Colonel C. Mactaggart, M.A., M.B., C.I.E., I.M.S., Inspector-General of Civil Hospitals, United Provinces. Plague seems to have taken a permanent hold of these provinces. During thirteen years the total of deaths ranged from a minimum of 13,814 to a maximum of 354,285, the number for the year under report being 35,929. As usual, the prevalence of the disease was comparatively moderate from May to November, and severe from December to April, the month of July presenting a minimum of 25. The several districts of the province suffered unequally, only 9 out of 48 remaining free. To combat this serious visitation various measures were resorted to under the direction and control of Rai Bahadur Kanouji Lal, B.A., L.R.C.S., chief plague

[1] *The Verdict of India.* By Sir Mancherjee M. Bhownaggree, K.C.I.E. London: Hodder and Stoughton. (2d.)

officer. These consisted in the evacuation of infected premises, the systematic destruction of rats, preventive inoculations, the appointment of five special health officers during the plague season, and the organization of 40 provincial and 47 district travelling dispensaries working under assistant surgeons, supervised by the special staff. These travelling dispensaries, supported partly by provincial and partly by local funds, were dispatched to localities where disease was most prevalent. They were made available for the treatment not only of plague but of other infections and general diseases. The total number of patients treated amounted to 966,707, and 1,829 "major" operations were performed. "Pamphlets on plague, malaria, cholera, small-pox and tuberculosis were distributed"; 44,983 inoculations were performed, and it is stated that "this measure is reported from all districts to be popular among the people," especially on the appearance of plague in their villages. The treatment of plague by tincture of iodine is stated to have been practised with good results. Drop doses of the tincture are administered every second hour in half an ounce of chloroform water. Local applications of the tincture are also made to the bubos. S. Rama Iyer,[2] C.M.S., civil surgeon of Loi Mwa, Burma, has, following Connor, injected from 5 to 10 minims of the tincture intravenously once a day with good results.

SOBRIETY BY CARD.

A BRIEF description of the system of control of the liquor traffic elaborated by Dr. Bratt of Sweden and associated with his name was published in these columns a few years ago. The system had not stood the test of experience, and in Sweden doubts were freely expressed of its superiority over the Gothenburg and "Samlag" systems. In February, 1914, Bratt's system was introduced in Stockholm, and the results for 1914 and 1915 are now available for comparison with the preceding years. Briefly, under Bratt's system each person is allowed only a limited quantity of alcohol, which is checked off on his card. In 1913, under the "Samlag" system, the number of litres of alcoholic beverages sold per head was 15.96. In 1915 the amount was reduced to 8.86 litres. The fall in the sale of spirits was still greater, the figures for spirits (50 per cent.) for the three years 1913, 1914, 1915 being 12.04, 6.76, and 5.77 litres a head. The total sale of spirits in Stockholm, including the sale by restaurants and wine merchants, was reduced from 24.4 litres a head in 1913 to 17.8 in 1914 and to 16.3 in 1915. An appreciable reduction in the incidence of drunkenness has also been noted since 1913, when the cases of drunkenness in Stockholm numbered 17,696. The number fell to 11,878 in 1914 and to 11,323 in 1915—a reduction of 36 per cent. since 1913. In that part of Stockholm where most of the restaurants are situated the reduction was only 13 per cent., and as the card system does not apply to restaurants and cafés, but only to wine shops, the card system must be credited with the very great reduction of drunkenness in the other parts of the town. In one police district "police offences" were reduced by 54 per cent. between 1913 and 1915. The number of cases of delirium tremens known to the authorities fell from 623 in 1913 to 459 in 1914, and to 362 in 1915, a fall of 42 per cent. in two years. A report by the medical officers of health on the incidence of chronic alcoholism tells the same tale. In 1913 there were 492 cases, in 1914 318 cases, and in 1915 only 173 cases, although the total number of cases of illness notified had risen from 20,516 in 1913 to 22,269 in 1915. Little wonder, therefore, that Stockholm has decided to continue this system in spite of the violent attacks made on it from various quarters. Even the comic papers have taken a share, and *Strix* has regaled its readers with the tale of a wake at which the joyous cup was filled by drinks debited to the departed, whose card was filled for many months in advance.

[2] *Indian Medical Gazette*, October, 1916, p. 371.

AMENDED COCAINE REGULATIONS.

BY an amending Order dated December 5th some amendments have been made in the Defence of the Realm Regulation 40 B relating to cocaine and opium, of which the following are the most important: (1) Power is given to the Secretary of State to issue licences for the manufacture of cocaine in this country. Any person manufacturing or carrying on any process in the manufacture of cocaine without a licence or otherwise in accordance with the conditions of the licence will be liable to a penalty. (2) A medical practitioner who gives a prescription for the supply of cocaine otherwise than in accordance with the conditions laid down in the regulation is made liable to a penalty. (3) Every article containing cocaine must be marked with the amount and percentage of cocaine contained in it. (4) Power is given to the Secretary of State to direct that any person authorized under the regulation to purchase cocaine or opium who is convicted of an offence against the regulation or against the proclamations regulating the import or export of cocaine or opium shall cease to be an "authorized person." (5) The authorization in the case of registered chemists and druggists is limited to persons, firms, or bodies corporate who carry on the retail business of a chemist and druggist. Paragraph 1 (*b*) of the original regulations remains unaltered. It requires the prescription given by a medical practitioner to "specify the total amount of cocaine to be supplied on the prescription except that, where the medicine to be supplied on the prescription is a proprietary medicine, it shall be sufficient to state the amount of the medicine to be supplied."

Medical Notes in Parliament.

The Ministry of Pensions Bill.

THIS bill, originally introduced with the title "Board of Pensions Bill," was read a third time as amended in the House of Commons on December 4th. In a general reply on the discussion in Committee, Mr. Hayes Fisher, speaking with regard to the treatment of disabled soldiers, said that the Army Council had under its control nearly all the best doctors and best nurses, and generally the best means of treating the soldier. It was necessary, therefore, to look to the military hospitals for curing the disabled man before the Statutory Committee took him into its care and did something for him in the matter of training and employment. One of the first things for the Pensions Minister to do would be to see how far the Army Council should adopt the policy of keeping the soldier until he was reasonably cured and restored to a proper condition. It might be true, he admitted, that at the present time some disabled men were unwilling to be taught new trades because they could earn very good wages without undertaking any new training, but after the war there would be a glut of labour, and the untrained disabled soldier would be faced with difficulties. For this reason the Statutory Committee had made arrangements to give a substantial weekly allowance to any man who consented to undertake training. His family could be maintained during the time.

Material for the Manufacture of Intoxicating Liquor.

In a written reply to Mr. White, the Parliamentary Secretary to the Board of Trade has stated (November 29th) that the most recent particulars respecting the quantities of materials used in brewing and distilling related to the twelve months ending September 30th, 1916, in which year grain and sugar were used for the purposes to the following extent:

	Tons.
Barley	1,224,200
Other corn and grain	305,176
Rice, rice grits, flaked rice, maize grits, flaked maize, and other similar preparations ...	67,578
Sugar	119,999
Molasses	41,115
	1,758,068

A substantial proportion of the grain was home grown, but it could be argued that if it were not used for these purposes the necessity for importing grain for other purposes would *pro tanto* be reduced, so that the whole weight of grain and sugar used in brewing and distilling might be regarded as a drain on the tonnage space available for the importation of foodstuffs. Upon this assumption it might be estimated that this particular use of materials called, in the period stated, for the employment of tonnage sufficient to carry about 2,400,000 measurement tons of 40 cubic feet, or approximately 1,000,000 tons net register of shipping. The restrictions on brewing and distilling at present in operation were not, however, in force during the first part of the period to which the figures related, and it was estimated that the shipping required to carry the articles used in a year would, in consequence of the restrictions, be reduced to about 800,000 net register tons. In reply to Sir Robert Balfour, the Chancellor of the Exchequer has printed the following table of the quantities of materials used in the manufacture of beer and in distilleries in the United Kingdom in the years ending September 30th, 1913, 1914, 1915, and 1916:

Beer.

Year ended Sept. 30.	Malt.	Unmalted Corn.	Rice, Rice Grits, Flaked Rice, Maize Grits, Flaked Maize, and other similar preparations.	Sugar, including its equivalent of Syrups, Glucose, and Saccharum.
	Bushels.	Bushels.	Cwts.	Cwts.
1913 ...	52,287,637	91,068	1,611,357	3,279,814
1914 ...	52,525,634	92,385	1,566,506	3,279,710
1915 ...	44,354,066	80,242	1,276,406	2,678,522
1916 ...	41,605,365	77,776	1,343,930	2,399,936

Distilleries.

Year ended Sept. 30.	Malt.	Unmalted Grain.	Rice.	Sugar.	Molasses.
	Quarters.	Quarters.	Cwts.	Cwts.	Cwts.
1913 ...	1,053,608	1,198,730	3,780	—	1,204,223
1914 ...	1,116,003	1,213,342	36,660	—	1,315,070
1915 ...	958,480	1,212,130	13 261	1,300	975,360
1916 ...	1,103,958	1,414,435	7,640	34	822,301

Mr. McKenna said that no information was available as to the quantity of barley, except in the form of malt, used in the manufacture of beer and spirits; neither could the quantity of materials used in making potable spirits only be given. In written replies on November 30th the Parliamentary Secretary to the Board of Agriculture said that the production of wheat in the United Kingdom in 1914 and 1915 was 7,804,041 and 9,239,355 quarters. The figures for Scotland and Ireland in 1916 were not available, but for England and Wales the quantity was 6,942,559 quarters. For comparison he added the figures of wheat production in England and Wales in 1914 and 1915, which were 7,307,036 quarters and 8,464,741 quarters respectively. The total acreage under barley in Great Britain in 1916 was 1,502,026, and under hops 31,352. It was not possible to make even a rough estimate of the acreage of barley grown for malting because, although the total amount of barley thus used in a given year might be approximately stated, it was made up partly of imported grain, and the proportion of this used for brewing could not be stated.

War.

Medical Students.—Mr. S. Samuel drew attention by a question to the case of a patient at Dunfermline Hospital, who had died whilst under an anaesthetic administered by an under-nurse, owing to the scarcity of medical men, and asked whether, in view of this shortage, medical students would be placed in a certified occupation so long as they continued their studies, and what steps the Local Government Board was taking to protect the public health and to meet the deficiency of doctors in the next few years. Mr. Long said that the Local Government Board had been in frequent consultation with the naval and military authorities with a view to securing that the needs of the civil population should be met as far as practicable, having regard to the needs of the forces. The present arrangements made by the Army Council were as follows:

Fourth and fifth year students are not being called up for ordinary military service. First, second, and third year students are being called up if fit for general service. If not fit for general service, they are being allowed to continue their studies. All students allowed to continue their studies are, as a condition, required to join an Officers' Training Corps and attend a minimum number of parades. In practice, few first year students are called up, as they are mostly under 19, and come under a general rule postponing until that age the call of students, medical and other, belonging to an Officers' Training Corps. The men called up mostly obtain commissions. First, second, and third year men previously called but not fit for general service were, under an Army Council instruction issued in August, relegated to the Army Reserve to return to their studies subject to the condition above referred to.

Medical Examinations.—Mr. Forster informed Mr. Snowden that for a time certain persons, in the desire to avoid service, were going before several medical boards, sometimes after taking drugs. It therefore became the practice among military representatives to accept the opinion of the first medical board as most reliable. The practice of going before several medical boards had been stopped, and the question was not likely to arise in the future. In reply to Mr. MacCallum Scott, he stated that a man with rupture who was fitted with a truss might be passed for garrison duty abroad or at home.

Eyesight of Drivers.—In reply to a question in the House of Commons, on November 29th, Mr. Forster said that the statement which had been made, that in 1915, 867 people in London alone met their deaths as a direct result of the darkness of the streets, was shown to be very much exaggerated by the fact that the actual number of fatal accidents which occurred in 1915 during the dark hours was only 358. From this number should be deducted those which normally occurred during the dark hours in ordinary times, and a further deduction should be made on account of the employment of less skilled drivers in the place of those who have gone to the army. The Home Secretary stated on the following day that public carriage drivers in the metropolitan area were required before they were licensed to produce a medical certificate of fitness, in which eyesight was considered. After the age of 50 years a certificate of fitness was required either every five years or as often as the licensing authorities might deem necessary.

Dog Maintenance.—In reply to questions by Sir Philip Magnus and Mr. King for the maintenance of dogs other than those employed in rural districts, and the unhygienic condition of the pavements of the streets, the Parliamentary Secretary to the Board of Agriculture said that no official estimate had been made of the number of dogs in the country. It was certainly desirable to reduce their numbers in urban districts, where many of them served no useful purpose, and the question could be considered before the new licences were issued next January.

Allowances to Dependants.—In a written reply to Mr. Barnes, on November 30th, the Chancellor of the Exchequer said that with certain agreed modifications he had accepted the proposals of the Statutory Committee for dependants of apprentices or students who may have gone out to the war, for the payments to the families of disabled men in training for resumption of work, and for the increased provision of separation allowances in consequence of the increased cost of living.

DR. JACOB has analysed (*Muench. med. Woch.*, April 25th, 1916) two series of cases of typhoid fever among German soldiers in the first and second year of the war respectively. Of 100 cases under treatment from November, 1914, to the summer of 1915, the majority were severe or fairly severe; only about a quarter were relatively benign. Relapses occurred in 15 cases, and in almost a fifth of the total there were complications, many very severe. Most of these patients had either not been inoculated or inoculation had been performed during the incubation or after the onset of the disease. In the second series, from October 1st, 1915, to the beginning of February, 1916, there were 200 cases. In only about one-quarter of these was the course of the disease severe or fairly severe; the remainder were slight cases. The proportion of relapses in the second series was lower (6.5 per cent.). Taken as a whole, the clinical picture of the second series was quite different from that of the first series; the type was that of the so-called abortive typhoid fever. Dr. Jacob rejects the hypothesis that this improvement was due to a decline in the virulence of the infecting strains of typhoid bacilli, on the ground that while the severity of typhoid fever has gradually abated in the German army in the course of the war, a recent outbreak among uninoculated civilians was as malignant as the outbreaks among soldiers early in the war. In this outbreak among civilians there were over 1,000 cases, and the mortality was over 16 per cent. The conclusion is that prophylactic inoculation alone is responsible for the reduction of the severity, complications, and mortality of typhoid fever.

THE WAR.

PROBLEMS OF THE DISABLED SOLDIER AND SAILOR.

THE country desires that the man who has been discharged disabled in the war should be treated justly, and even generously. It is anxious that he should receive the pecuniary assistance he and his dependants need; that he should receive the best possible medical and surgical treatment; and that he should be helped to become a working member of the community, whether his work be manual, or of a clerical or intellectual kind.

Already we have two problems—the problem of the man still in the army, but so disabled that he will probably have to be discharged; and the problem of the man already discharged. Mr. Hayes Fisher stated, on November 21st, that there were now over 70,000 disabled men, and from the context it would appear that he was referring to the number of disabled men already discharged.

Arrangements for the future must provide for continuous treatment, so that when a man is discharged from the army it shall not be left wholly to his unaided judgement to decide whether he shall continue medical or surgical treatment and re-education for some occupation.

The two problems—the problem of the man still in the army, who is so disabled that he may have to be discharged, and the problem of the man already discharged—though interdependent, may be considered separately.

THE DISCHARGEABLE MAN.

The logical mode of approaching the question is no doubt first of all to consider the question of the dischargeable disabled, but not yet discharged, soldier and sailor. Upon this subject a joint committee of the Royal Colleges of Physicians of London and Surgeons of England has recently issued a memorandum drawn up at the end of October. It embodies principles which have frequently been stated in our columns, and are now generally accepted. They are set out in the report in the following terms:

1. That a considerable proportion of disabled soldiers require continued institutional treatment.

2. That an essential condition of success in any scheme for institutional treatment is that the patient be throughout under discipline; and that no form of discipline can adequately replace military discipline.

3. That consequently a disabled soldier should not be discharged from the army until a specially constituted board of medical experts have decided that no further institutional treatment will improve his condition, provided that such treatment do not extend beyond some general maximum limit of time to be determined by the military authorities.

The report proceeds to discuss the application of these principles, and arrives at the following conclusions under two general heads—first, the provision of institutional treatment for those men who can only be treated satisfactorily in this way; and secondly, the provision of temporary supervision for those who can be treated at their own homes.

1. That dischargeable disabled soldiers should be kept in the army until a board of medical experts determine that they have gained all the good that can be expected from institutional treatment, subject to a maximum period to be determined by the military authorities.

2. That they should be retained in military hospitals until they are fit to be discharged to convalescent camps or other suitable institutions, or to return to their own homes.

3. That on their discharge from military hospitals, such of them as are likely to benefit by institutional treatment should be transferred to annexes to the existing convalescent camps, or to such other camps as may be set up, officered by members of the R.A.M.C. to whom civilian help should be supplied.

4. That the duration of their stay in the various institutions should be governed by the opinion of boards of medical experts, subject to the maximum limit.

5. That in the camps the treatment should be, as far as possible, the same as that of soldiers who are expected to return to active duty, except that curative manual treatment, including technical and mechanical training, should, in many cases, take the place of military exercises.

6. That as their treatment will be nearly complete when they leave the camps and other institutions, it will be unnecessary to make one scheme for the whole country for their attendance when they return to their homes. Schemes for obtaining specialist advice for these patients and for those who have not received institutional treatment should be worked out by the local committees, in doing which the advice of local doctors should always be obtained.

7. Several kinds of special board will be necessary:

(i) For general cases: the board should consist of one physician, one surgeon, and a third officer.
(ii) For ophthalmic cases: one physician, one ophthalmic surgeon, and a third officer.
(iii) For neurasthenic cases and epileptic cases: one physician, one neurologist, and a third officer.
(iv) For mental cases: one physician, one alienist, and a third officer.

The Committee cannot contemplate that the military authorities will refuse to undertake the task of the continued treatment of the disabled soldier; but if they do, the Committee see no alternative except to set up a number of camps similar to military convalescent camps, and to add to them as occasion may require. But the objections to such a course are:

(*a*) The impossibility of obtaining efficient staffs of doctors and masseuses for a series of centres thus separately organized.
(*b*) The great probability of failure owing to the fact that the discharged soldier, being a voluntary patient, will not submit to such imperfect form of discipline as may be imposed, and will in most cases not stay long enough to secure the full benefit from the treatment.
(*c*) The great waste involved in setting up such separate establishments when, within a short time after the end of the war, there will be more than enough accommodation for the cases under consideration and an almost unlimited supply of skilled doctors and of masseuses to undertake their treatment.

THE DISCHARGED DISABLED MAN.

The problem of what should be done for the disabled soldier already discharged, or who may in future be discharged, before all has been done for him that surgical, medical, and manual curative treatment can do raises considerable administrative difficulties which are now being studied by the Central Medical War Committee, the joint committee of the two colleges, and several Government departments. It is probable that some scheme may be decided upon shortly. For the present it would be premature to publish any of those which have been drawn up.

SALONICA DISPATCH.

A SUPPLEMENT to the *London Gazette* issued on December 6th contained a dispatch from Lieutenant-General G. F. Milne, C.B., commanding British Salonica Army, on the operations since he assumed command on May 9th.

It deals with the period from May 9th, when General Milne assumed command, to October 8th. At the beginning of the period the greater part of the army was concentrated within the fortified lines of Salonica, but a mixed force, consisting of a mounted brigade and a division, had been pushed forward to the north of Kukush, about twenty-five miles north of Salonica. By arrangement with General Sarrail, the British forces during the following month took over that portion of the allied front which covered Salonica from the east and north-east, on the right bank of the river Struma and its tributary the Butkova, to the sea at Chai Aghizi. In the second half of July a further portion of the line to the west was taken over to a point south and west of Lake Doiran. The offensive began on August 10th, and the success achieved made it possible to shorten the allied line, and the British troops at the end of August had extended to the river Vardar. After the advance of the Bulgarians, which was unopposed by the Greeks, the task of maintaining the greater portion of the right and centre of the allied line was entrusted to the British army. On September 10th the Struma was crossed, and to assist the progress of our allies towards Monastir, the British army maintained a continuous offensive so as to ensure that no transference of Bulgarian troops from the Struma to the west took place. At the date of the dispatch the British line had been advanced to a depth of from four to ten miles east of the Struma.

The dispatch contained the following paragraphs relating to the medical services:

MEDICAL SERVICES AND MALARIA.

"I desire specially to acknowledge the excellent work rendered by Surgeon-General H. R. Whitehead, C.B., and all ranks of the medical services under his command during a period in which sickness was prevalent. All branches of the Royal Army Medical Corps and the Canadian Army Medical Corps deserve the greatest commendation and have fully maintained their high traditions of efficiency.

"The medical services have been called upon to face problems of great difficulty. It can be easily realized that in a climate varying from severe cold to intense damp heat, and in a mountainous country deficient in water, poorly supplied with roads, without local resources, and where dysentery and malaria are rife, the duties and responsibilities of these services must necessarily be heavy. Experiments as to the most efficacious types of mountain ambulance transport had been conducted in the winter and spring, and, as a result, travois, mule litters, and cacolets now form integral portions of each field ambulance.

"During the same period exhaustive measures were taken for an antimalarial campaign. Officers with special knowledge were appointed to supervise antimalarial work; swampy areas were drained, and the defensive lines then held carefully surveyed, with a view to only the most healthy portions being held. Although malaria has still been the prevailing disease, yet I feel certain that these careful precautionary measures have been greatly instrumental in lessening its intensity. The move to the valley of the Struma in June tested all the preparations made, and severely tried the medical resources. The area occupied was found to be highly malarious, the heat intense and damp, and the single road from the base long, hilly, and of uneven surface. The organization of this line of evacuation and the arrangement of halting places and refilling points was, however, successfully undertaken.

"The work performed by the motor ambulance convoys was invaluable. From the eastern extremity of the British line of defence evacuation by sea is the only feasible course. Three distinct systems are therefore in operation at one and the same time—by railway, by road, and by sea, all converging on one base.

"When active operations commenced, the *rôles* of the various forms of mountain ambulance transport organized for the field ambulances became apparent. On open hillsides, along the beds of ravines, over slopes covered with scrub, relay parties of stretcher-bearers, travois, litters, and cacolets, conveyed the wounded back to the dressing stations.

"The advice of the consultant physicians and surgeons, and of the medical experts who have visited this army, has considerably aided in the maintenance of a high standard of technical efficiency. I cannot conclude my remarks on the medical services without paying testimony to the devoted service rendered by the nursing sisters belonging to the various hospitals.

"I further wish to thank the British Red Cross Society and Order of St. John for its help and assistance. The Commissioner, Mr. H. L. Fitzpatrick, has been indefatigable in his endeavours for the welfare and comfort of the sick and wounded in both the base hospitals and field units."

Appended to the dispatch is a list of officers whose services are considered deserving of special mention. The following are the medical officers mentioned:

Staff.

Surgeon-General H. R. Whitehead, C.B., F.R.C.S.

A.M.S.

Colonels A. A. Sutton, D.S.O., M. P. C. Holt, C.B., D.S.O., G. T. Rawnsley, C.M.G.

Temporary Colonels J. Purves Stewart, C.B., T. Crisp English, M.B., F.R.C.S.

R.A.M.C.

Brevet Colonel (temporary Colonel) F. Smith, C.M.G., D.S.O.

Lieutenant-Colonels (temporary Colonels) P. MacKessack, W. H. S. Nickerson, V.C., C.M.G.

Lieutenant-Colonels A. R. Aldridge, C.S.I. (Reserve of Officers), J. C. Connor, S. H. Withers, L. F. Smith, E. T. F. Birrell, C.M.G., M. M. Lowsley, F. Ashe.

Majors (temporary Lieutenant-Colonels) S. L. Pallant, C. W. Holden.

Majors J. T. Johnson, G. Ormrod, E. L. Moss, M.C., W. J. Weston.

Captains (temporary Majors) P. S. Tomlinson, R. E. Kelly, F.R.C.S., R.A.M.C.(T.F.).

Captains T. Carnwath, W. R. Galwey, C. T. Edmunds, W. E. C. Lunn, O. R. McEwen, E. M. Middleton, N. V. Lothian, A. A. Atkinson (S.R.), F. Crosbie (S.R.).

Temporary Captains T. E. Parker, J. F. Bourke, D. Bell, K. G. Fraser, W. A. L. H. Henderson, H. P. Hamilton, G. B. Burwell, R. S. Dewar, R. A. Mansell,

Temporary Lieutenants J. V. Grant, C. S. Dodson, H. F. Brice-Smith.

Canadian A.M.C.

Colonel J. A. Roberts.

Lieutenant-Colonels W. B. Hendry, E. C. Hart.

Major C. H. Morris.

Captain W. A. Clarke.

New Zealand M.C.

Lieutenant-Colonel D. J. McGavin.

I.M.S.

Captain F. F. S. Smith, Assistant Surgeon H. A. H. de Silva.

Ghatur, No. 1267 1st Class Sub-Assistant Surgeon Mosamae Abdul; Shiek, No. 1420 2nd Class Sub-Assistant Surgeon Farid; Ganput, No. 6372 Naik A. B. C. Honaji.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUTENANT P. R. WARIYAR, I.M.S.

Lieutenant Pukhazi Raghava Wariyar, I.M.S., was reported, in the casualty list published on November 29th, as having died on service. He was one of a large batch of temporary officers appointed about three months ago.

Wounded.

Lieutenant-Colonel N. C. Rutherford, R.A.M.C.(T.F.)
Captain C. O. Donovan, R.A.M.C. (temporary).
Captain R. Farrant, R.A.M.C. (temporary).
Captain H. P. Harper, R.A.M.C. (temporary).
Captain A. C. Nilson, R.A.M.C.(T.F.).
Captain J. M. Young, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Baskett, Roger Mortimer, Second Lieutenant 16th Battalion Cheshire Regiment, son of Dr. B. G. M. Baskett, of Rayleigh, Essex, died of wounds on November 14th, aged 21. He was educated at St. Peter's School, York, and joined as a private in the Universities and Public Schools Corps in August, 1914. He served in France during the winter of 1915–16 and was gazetted second lieutenant in the summer of 1916.

Dwyer, Charles Henry, Captain Worcestershire Regiment, elder son of Dr. H. Dwyer, of Kingswood, Warwickshire, formerly of Hoylake, Cheshire, killed by a sniper while on reconnaissance duty on November 17th, aged 21. He was educated at the Lees, Hoylake, and at Shrewsbury, where he was captain of the gymnasium for two years, represented the school at Aldershot, and also got his colours for football. He got a commission on November 17th, 1914, went to the front in July, 1915, and had been mentioned in dispatches.

FitzMaurice, Lindsay, Lieutenant Prince Albert's Somerset Light Infantry, son of Dr. Richard FitzMaurice, of Littlehampton, late of Lindfield, Sussex, killed November 18th, aged 24.

Giusani, Lieutenant, son of Dr. Joseph Giusani, of Cork, killed recently.

Jones, Arthur Mervyn, Lieutenant Scots Guards, son of Dr. Alfred Orlando Jones, of London, died of wounds, aged 42. He was born in 1874, educated at Charterhouse and Oxford, entered the Scottish Horse in 1914, and became lieutenant in the Scots Guards on March 1st, 1915.

Sells, Archibald Jenner, Lieutenant Royal West Surrey Regiment, youngest surviving son of Dr. Charles J. Sells, of Guildford, killed recently, aged 34. He was educated at Abingdon School, and joined the Natal Mounted Police at the age of 18. He served in the South African war in 1900–02, and in the Zulu rising of 1906, gaining the Queen's medal with three clasps, and the King's medal. He subsequently left the police to take up sugar planting in Zululand, but when the war broke out came home to join the army. He went to the front in April, 1916, was wounded in July and invalided home, but returned in September.

Smith, Alexander Ayre, youngest son of Dr. Alexander Smith, J.P., of Camberwell, was killed on November 24th, aged 19. He was educated at Dulwich College Preparatory School and the Camberwell Grammar School, from which he entered the medical school of Charing Cross Hospital. When war broke out he had just completed his first year of medical study. He received his commission on May 21st, 1915, and was in the trenches from February to July last, when he was invalided home; he returned to the front on November 10th.

MEDICAL STUDENTS.

Brander, A. E., Second Lieutenant Argyll and Sutherland Highlanders, died on November 15th of wounds received on November 13th, aged 21. He was the son of Mr. George Brander, of Cupar, Procurator-Fiscal of Fife. He was educated at Glasgow Academy, and was a dental student until he got a commission in August, 1915. He went to the front last April.

Carson, Charles Graham, Captain Essex Regiment, M.C., younger son of Mr. William L. Carson, of Congleton, died of wounds on November 19th. He had completed his second year as

a medical student at Manchester University when war broke out, and immediately joined the Public Schools Company of the 5th North Staffordshire Regiment. He got his commission in the Essex Regiment in January, 1915, received his second star six months later, and was promoted to captain in February, 1916. He went to the front in November, 1915, was wounded in July last, but rejoined his battalion on September 30th. He was awarded the Military Cross on November 25th.

Dixon, Kenneth, Second Lieutenant Duke of Wellington's West Riding Regiment, died on November 25th of wounds received the same day. He was educated at Ripon Grammar School and Leeds Boys' Modern School, and before joining the army was a first year student of medicine at the university, where he was in the O.T.C.

McCusker, Patrick Joseph, Lieutenant Royal Dublin Fusiliers, reported wounded and missing, and subsequently killed November 13th–14th. He was the youngest son of Mr. James McCusker, of Glasgow, and of the Cottage, Neilston, and was educated at Stonyhurst College and at Glasgow University, where he was a medical student till he got his commission.

NOTES.

CANADIAN ARMY MEDICAL SERVICE.

IN some comments on the appointment by the High Commissioner of Canada of a Board of Inquiry into the administration of the Canadian Army Medical Corps in Europe, we expressed our belief that the tenor of its report would be such as to lead to the reinstatement of Surgeon-General Carleton Jones, and to justify Sir William Osler in withdrawing his resignation. As the terms in which this belief was expressed have, we are informed, led to some misconception, we hasten to say that the paragraph expressed our own hopes and anticipations, and was not intended in any way to imply any forecast of the decisions of the board, the sittings of which are not yet concluded.

EGYPT: MENTIONED IN DISPATCHES.

The *London Gazette* of December 1st contains a dispatch from General Sir Archibald Murray, Commander-in-Chief in Egypt, covering the operations of his force between June 1st and September 30th, 1916. The chief event of this period was the defeat of the Turks east of the Suez Canal, between August 3rd and 12th. Among the officers mentioned in this dispatch are the following medical officers:

Staff.—Surgeon-General J. Maher, C.B., A.M.S.; Lieutenant-Colonel (temporary Colonel) R. M. Downes, Australian A.M.C.; Lieutenant-Colonels P. S. Lelean, C.B., R.A.M.C., and C. J. Martin, Australian A.M.C.; and temporary Captain A. S. M. MacGregor, R.A.M.C.

A.M.S. and R.A.M.C.—Lieutenant-Colonels H. L. Eason, L. P. Phillips, T. W. Barrett, C.M.G., E. Macdonnell, W. Howorth, J. W. Mackenzie; Major A. H. Horsfall, D.S.O.; Captains R. B. Campion (S.R.), T. D. Kennedy (temporary), G. Wight (temporary), C. C. FitzGerald, M.C., A. H. Norris, N. H. H. Haskins, A. B. Sloan, R. S. Taylor, F. J. Green, J. H. Wood; Lieutenant M. Sommeville (temporary); Lieutenant and Quartermaster G. R. Laugher.

Australian A.M.C.—Lieutenant-Colonels G. P. Dixon, G. Croll; Majors W. Stansfield, E. P. White; Captains P. Dunningham, B. D. Gibson, D. D. Jamieson, G. H. Vernon.

New Zealand Medical Corps.—Captains G. H. Wood (killed), R. G. S. Orbell, M.C.

Indian Medical Service.—Colonel W. H. B. Robinson, C.B.; Major H. B. Drake.

ABSENCE OF SMALL-POX FROM FRANCE.

M. Deslandres recently presented to the Paris Municipal Council, of which he is a member, a report on the working of the vaccination service since the beginning of the war. In the period of twenty-eight months covered by the report only three cases of small-pox and three of varioloid were registered in Paris. There was one death. The last case was discovered on December 13th, 1915, and so far not a single case has been reported in 1916. Dr. Roux points out in a report to the Public Health Council that "this is the first time that a war waged in French territory has not been accompanied by an epidemic of small-pox."

The Mesopotamia Statutory Commission does not expect to be able to present an interim report before Christmas.

An Institute for bacteriology, chemistry, and the manufacture of vaccines was recently opened at Buenos Aires. Dr. Magnin, head of the chemical department, reported that researches had been begun which it was hoped would help to relieve the difficulty caused by the scarcity of imported drugs.

Messrs. LEBRETON AND DUBARD (Dijon) recommend a solution of hypochlorite of magnesia, with or without the addition of hypochlorite of lime, for the disinfection of the surgeon's hands. The hands are first washed with soap and water, and then soaked from four to six minutes in a solution of hypochlorite of 2.5 to 5 per cent. With a solution of 1.8 to 2 per cent. the hands must be immersed for eight minutes.

England and Wales.

THE CENTRAL MIDWIVES BOARD.

THE report presented to Parliament by the Central Midwives Board for the year ended March last states that the Midwives' Roll on that date contained the names of 40,513 women, of whom the trained midwives numbered 30,543, or 75.4 per cent., and the untrained 9,970, or 24.6 per cent.; it is pointed out, however, that a much larger proportion of the untrained actually practise than of the trained. The institutions in which midwives could be trained numbered 150, and 123 medical practitioners are recognized as teachers of midwifery for the purpose. The Privy Council had approved the suggestion of the Board that the period of training should be extended from three to six months and the new rule had come into operation on July 1st last. The Board refused to agree to a suggestion of a district nursing association that the cases of personal delivery required by candidates for examination should be reduced from twenty to fifteen for the period of the war. The revised rules of the Board will be in operation for five years from July, 1916.

The report stated that cases of "covering" by medical practitioners of uncertified women acting as midwives were by no means infrequent. The most open method was where the uncertified woman undertook the case and delivered the patient, and then sent for the doctor, who went perhaps once and signed the maternity benefit form, but did not examine or attend to the patient; for this the uncertified woman pays him a small fee. Another method was where the doctor booked the case as his, but arranged with the uncertified woman that she should deliver the patient and only send for him in case of complications. If not so sent for, he probably called once during the puerperium, and signed the maternity benefit form. If any question is raised it was claimed that he was unavoidably prevented from attending the delivery and the uncertified woman was acting as his nurse. Local supervising authorities made little or no effort to deal with these cases, and it had been left to the Board to take proceedings before the General Medical Council.

Difficulty still continued in most districts as to the payment of the fees of medical practitioners called to the assistance of midwives. The Board formerly suggested that boards of guardians should pay a fee on an agreed scale, but it is now suggested that a clause should be inserted in the English Act, similar to that in the Scottish Act, ordering the local supervising authority to pay a fee on a scale fixed by the Local Government Board, the local authority to have power to recover the sum from the patient if able to pay. This the Board considers would go far to meet one of the chief difficulties in carrying out the Midwives Act, and would greatly conduce to the welfare of the poorer mothers of the community.

LONDON WATER.

Dr. A. C. Houston, Director of Water Examination, Metropolitan Water Board, is in a scientific sense the tutelary deity of London's water supply, and for his success in safeguarding them Londoners owe him a deep debt of gratitude. They have also cause to be thankful to his staff to which, in his tenth annual report, he pays a graceful tribute.

The report describes the results of the chemical and bacteriological examination of the London waters for the twelve months ended March 31st, 1916. The general quality showed no deterioration during the year, although the extra pressure of work thrown upon the engineering department by the war was serious.

The most important points in Dr. Houston's Twelfth Report on Research Work, dated October, 1916, relate to "water microbes" giving the cholera red reaction, and to sterilization. The number of samples examined for the cholera vibrio was 2,488 (520 raw, 1,968 filtered). Of 6,050 colonies studied, 5,872 (97 per cent.) were excluded as not giving the cholera red reaction; 178 (about 3 per cent.) falling under 86 apparent groups were provisionally accepted, as they gave the twenty-four hours' cholera red reaction. Of these 178 microbes, 153 (86 per cent.) were excluded as gas producers, leaving 25 (14 per cent.) falling under 13 apparent groups, which were provisionally

accepted, but which eventually failed to conform to the true cholera standard as judged by the agglutination and other tests. "Having regard," says Dr. Houston, "to the number of samples of water examined and the number of bacteria studied, it might almost be said that there are no microbes in non-cholera infected water liable to be mistaken for the true cholera vibrio if suitable tests are applied." But he warns us that it is necessary to confine the conclusions to the particular waters investigated—namely, raw and filtered Thames, Lee, and New River. With other waters and under other conditions of experiment the results might be different.

Dealing with sterilization Dr. Houston briefly refers to experiments made as to the effect of light. Under the conditions of experiment there seemed to be no doubt that light favours sterilization, notwithstanding the fact that it was frequently noted that the blue reaction with potassium iodide and starch was less pronounced or disappeared altogether in the samples exposed to light in contrast to those kept in the dark. It is pointed out, however, that it does not follow that the same results would be obtained under practical outdoor conditions. The results as regards sterilization do not seem to have been due to the bactericidal effect of light, as the bottles containing the smaller doses of bleaching solution nearly always yielded positive results, and indeed served as control experiments. It is stated that Rideal advocates the use of hypochlorites for removing the taste from water infected with algae, and also as a substitute for copper sulphate to inhibit the growth of algae. Dr. Houston has found that with London water potassium permanganate in doses of 2.5 to 5 lb. per million gallons is much more effective in removing the taste; with hypochlorites, he says, there is considerable danger of merely substituting one taste for another, or even of introducing a superadded taste. Copper sulphate is a better algicidal than bactericidal agent, the converse being true of the hyperchlorites. These, however, even in doses which produce no taste, have a considerable inhibitory power over the growth of algae, although the good effects are usually only temporary. In permissible doses hypochlorites apparently inhibit rather than destroy. Copper sulphate has, in Dr. Houston's experience, exercised a more pronounced and more lasting effect than hypochlorites, the respective doses varying, but usually being about 0.5 part of copper sulphate and 0.5 part of available chlorine per million parts of water.

The war having caused an unprecedented rise in the price of coal it became imperative to reduce its consumption to the lowest practicable limit. In these circumstances chlorination experiments on Thames water were started on May 1st, 1916, and have been continued without intermission up to the date of the report (October, 1916). At first 70 to 80 million gallons of water were treated at Staines, but from June 16th onwards about 50 million gallons were treated there, and about 30 million gallons at Hampton. The treatment during May was largely experimental. The dose varied from 1 in 1 million to 1 in 3 millions in terms of available chlorine. The results varied, but the information obtained during the month was invaluable as a guide to the subsequent treatment. From June 1st onwards the dose was constant, and as nearly as possible 1 in 2 millions, or 0.5 in 1 million (= 15 lb. of chloride of lime per million gallons of water). The results show that the treatment was very successful bacteriologically, although the water was not always completely sterilized. The water had no taste, and not a single complaint was received from the consumers of the treated water, numbering over 2 million persons. On a conservative basis the saving in cost has exceeded £200 a week, or £3,400 for the period dealt with (June to September). Dr. Houston says it would not have been justifiable to have carried out the treatment in order to save money if it had involved the slightest risk of injury to the consumer. This, however, was far from being the case, the treated water being purer bacteriologically than the Staines stored water, and in all respects quite innocuous. In reply to a possible objection that the addition of chemicals to London water is a retrograde step, he says that under war conditions sentiment should give way to expediency. It must be remembered, he urges, that the gain has been double. A large sum of money has been saved without any detriment to health, and the national interests have been served by a large reduction in the amount of coal consumed.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

The statistical report on the ordinary expenditure of 109 London hospitals for the year 1915, which is the thirteenth annual statistical report prepared by Mr. Maynard for the Governors of King Edward's Fund, is smaller than its predecessors, several tabular comparisons which would have been misleading in war time having been omitted. The report, however, provides much interesting information. Confining our attention to the larger general hospitals with medical schools, we find that the number of naval and military in-patients treated "by understanding with the authorities" (and therefore a minimum figure) was 18,028. The figure for all the 109 hospitals was 28,645.

The total cost per occupied bed in the case of nine of the great hospitals (King's College Hospital and St. Thomas's are omitted, since the numbers of beds occupied by military patients were such as to convert them, statistically speaking, into military hospitals) was on the average £98 13s. 10d. The range of variation within the series is very great, being in one hospital as high as £110 16s. 7d., and in another as low as £68 15s. 6d. But the last figure is the only one below £90. The same remark applies to particular items of expenditure. Thus the cost of provisions averages out for the whole series at £33 7s. 5d., and is more than £30 in all but one, the hospital providing the lowest figure for total expenditure, where it was £24 5s. 5d.

It is pointed out that the cost of working at hospitals has been affected by the rise of prices, by the shortage of workers both skilled and unskilled, and by changes in the number of occupied beds due to the provision of beds for wounded soldiers. Further, before drawing conclusions from the figures, "it must be understood that they profess to give only the material for a comparison of outlay, and the question in each case remains how far a given cost above the average is justifiable, or whether a given cost below the average is attained at a sacrifice of some element of full efficiency." These warnings preclude us from critical comparison, but the following facts are of interest: In the case of the nine great hospitals with medical schools the average number of occupied beds per hospital was 351, and the average cost per bed of provisions £33 7s. 5d. For seven large general hospitals without medical schools the average number of beds occupied per hospital was 157, and the cost of provisions per bed £29 16s. 6d. In the case of fourteen smaller general hospitals with an average number of occupied beds per hospital of 53 the cost was £30 2s. 8d. These averages do not conform to the rule that the average capitation cost of catering diminishes as the number to be fed increases, but they are to be studied in the light of the following remarks:

> The expenditure on provisions and on the other accounts which relate to the purchase of goods is given without reference to stocks in hand, but taking one hospital with another it is probable that the stocks do not vary very much from year to year. Were it otherwise, however, a considerable difference in the expenditure of different years might be expected.
>
> Variations in the cost of provisions may, in some cases, be partly accounted for by the arrangements made with officials who do not sleep on the premises or who provide their own board. Where similar officials take meals in the hospital the cost of provisions would be increased and salaries and wages presumably diminished.
>
> The cost of provisions may also be affected by the maintenance of private nursing establishments. At some hospitals, however, the nurses return to the wards after taking private cases; during their attendance on such cases they, of course, do not board in the hospital.

These comments illustrate the difficulty of interpreting averages. Another factor may be that voluntary contributions in kind are relatively more numerous in the smaller institutions. This perhaps explains the very low cost per bed of provisions in cottage hospitals (£23 12s. 3d.).

RADIUM IN CANCER.

At the annual meeting of the Christie Hospital (Cancer Pavilion), Manchester, held on November 24th, it was reported that twenty-seven patients suffering from cancer had been admitted for treatment by radium, and Sir H. Miers, who presided, said that the progress made in recent years in the alleviation of the scourge of cancer lent some ground to the hope that we were standing on the brink of discoveries which would lead to cure, and the step from cure to prevention might be only a short one.

Professor Wild, in replying to a vote of thanks to the honorary staff, said that it was as yet too soon to draw any dogmatic conclusions from the cases which had been treated with radium; it would be necessary to wait for years to see whether the results obtained were permanent or not. No experimental work was carried on at the Cancer Hospital; all the work was done at the university laboratories, and such work would ultimately prove of the utmost value. Dr. Burrows said that the great difficulty in dealing with cancer was ignorance of its cause. He had had two inoperable cases under the radium treatment, and the patients were now apparently quite well. Two cases were only few, representing about 8 per cent. of last year's cases, but it must be remembered that they were cases which formerly would have been left to die.

Manchester Consumption Hospital.

At the annual meeting of the Manchester Hospital for Consumption and Diseases of the Throat and Chest, held on November 20th under the chairmanship of Sir Kenneth Crossley, it was announced that the Crewdson extension at the Crossley Sanatorium had now been turned into an extra ward instead of being a mere recreation room, and in this way six more beds were provided. Owing to the war, the scheme of the Manchester Corporation for providing beds for 400 children at the Abergele Sanatorium had been postponed. The plans were ready, but no progress could be made; the scheme would cost far more than its promoters anticipated; the city architect had said the cost would not be much less than £100,000. Mr. W. Davies, who is chairman of the Manchester Insurance Committee, said that that committee had a feeling of disappointment with the results of sanatorium benefit, believing that a large amount of the money spent on sanatorium treatment was being wasted owing to the fact that patients on leaving a sanatorium and returning to their old conditions often soon broke down again. If the children could be properly dealt with the disease would go out in time. The report showed that 297 patients had received treatment at the Crossley Sanatorium in the course of the year, and 246 at the Bowden Institute. At the out-patient department at Manchester 6,371 new patients were examined and received treatment, and the total attendances during the year numbered 26,513. The income from all sources for 1915 was £18,750, and the expenditure £18,686.

The David Lewis Epileptic Colony.

The report presented to the annual meeting of the subscribers and governors of the David Lewis Epileptic Colony at Warford, Cheshire, over which Lord Sheffield presided, showed that the daily average number of colonists for the year was 318. The medical report of Dr. A. McDougall stated that seven deaths from epilepsy had occurred, but otherwise the general health of the colony had been good. A few former patients, in whom the disease had been arrested, had joined the army, and had borne the strain well. Many others had desired to enlist, but few of the patients at the colony were suitable. Farming operations had resulted in a profit of £420, the poultry farm alone bringing in £60. Great interest had been taken in the making of garments for wounded soldiers, and up to the end of August 100 suits of pyjamas had been made and distributed among the military hospitals of the district. The Manchester Corporation had during the year removed about twenty cases from the colony, having made its own arrangements for looking after them. The treasurer's report showed that there was in hand about £2,000 on the income and expenditure fund for the year, compared with £1,100 last year. The honorary officers and the committee were thanked for their services, and re-elected for the coming year.

Treatment of Venereal Diseases.

The Corporation of the City of London has adopted the recommendations of its Sanitary Committee, founded on a report by the Medical Officer of Health containing a scheme for the prevention and treatment of venereal diseases. A centre is to be established in Golden Lane, and arrangements entered into with St. Bartholomew's Hospital for the provision of the necessary medical and surgical staff, and for drugs, exclusive of salvarsan and its congeners, at an estimated gross cost of £1,800 for the first year. These special arsenical drugs are to be purchased as required at an estimated cost of £400 for the twelve months. The approval of the Local Government Board is to be sought, and, subject to it being obtained, the net charges on the Corporation are estimated at £250 capital and £550 maintenance.

The Corporation also adopted the following resolutions with reference to treatment by unqualified persons and secret preparations:

> That in the opinion of this court administrative measures for the diagnosis and treatment of venereal diseases will only attain their maximum effectiveness in protecting the public health when the treatment of such diseases by unqualified persons is prevented by law.
>
> That in the opinion of this court it is desirable that the recommendation 58 (3) of the Patent Medicines Committee of the House of Commons endorsed by the Royal Commission on Venereal Diseases, "That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited," should at once be carried into effect.

Scotland.

Professor Arthur Robinson has been elected president of the Royal Physical Society of Edinburgh. At a meeting over which he presided on November 27th it was announced that a portrait of the late Sir William Turner, after a painting by Sir James Guthrie, had been presented by Dr. Logan Turner.

Glasgow Medical Charities.

Under the will of Mrs. H. S. Morrison half the income of the residue of her estate of £60,000 is to be devoted to giving relief by grants to non-commissioned officers, or men, of the navy or army, whether of the regular or auxiliary forces, resident in Glasgow, who have been permanently disabled or incapacitated in the war. From the remainder of her estate the testatrix left bequests to the following Glasgow institutions: The Royal, Western, and Victoria Infirmaries, the Cancer Hospital, the Hospital for Sick Children, and the Home for Infirm Children, the Association for the Relief of Incurables in Glasgow, and the Higginbotham Sick Poor Nursing Association.

At the annual meeting of the last-named association on November 29th the Lord Provost recalled the enthusiasm with which the foundation of the association by Mrs. Higginbotham in 1875 was received. It had since done magnificent work, and had been able to continue it during the past year. The report stated that the number of cases attended during the year had been 2,783, but that there was a deficit. Mr. A. E. Maylard said that the district nurses, by seeing that the instructions of the physicians and surgeons were carried out after the patients left the infirmaries were of the greatest help, and if the public realized what good work they were doing there would never be a deficit.

Disabled Soldiers.

The Public Health Committee of Edinburgh Town Council recently received a deputation from the Disablement Committee of the Local Pensions Committee, with reference to the treatment of discharged disabled men suffering from tuberculosis. The chairman of the Disablement Committee stated that its aim was to ensure the treatment of soldiers and sailors discharged on account of tuberculosis, and that this should be given as far as possible in the vicinity of their homes. Insured men would have the benefit of Insurance Act allowances, but provision was also being made by the Statutory Committee whereby treatment would be extended to uninsured men. With regard to epilepsy it was suggested that open-air work in the vicinity of public institutions was needed. The Public Health Committee instructed a subcommittee to prepare a report of the accommodation which could be provided for the treatment of the tuberculous and epileptic cases.

Arrangements are being made by the directors of the Edinburgh Blind Asylum whereby blinded Scottish soldiers may begin their initial training in Edinburgh. The course recommended by the committee should be regarded as a curriculum in three stages: First, reception and preliminary training; secondly, systematic work to enable them to earn a living in whole or in part; thirdly, after-care. The training should not be hastened. Deputations consisting of the convener and Dr. Burns had

visited London, where they encountered a mistaken idea of the benefits which would arise from centralizing all efforts in London. The number of blinded soldiers returning to London was considerable. In one week upwards of thirty blinded men had been received at one hospital in London, and some of them belonged to Scottish regiments. It is believed that a great saving of money could be effected were all Scottish blinded soldiers and sailors sent direct to Craigleith Hospital, where they would be able to have the advantage of the provision made at Newington House, which is managed by the Edinburgh Blind Asylum.

Red Cross Work in North-East Scotland.

A statement concerning Red Cross work in the North-Eastern District of Scotland shows that the number of beds available in auxiliary hospitals on November 25th was 875. Of these 634 were occupied. On November 27th the number was 651. The transport work in connexion with the 1st Scottish General Hospital (Aberdeen) was taken over by the Scottish Branch on August 25th, 1915. The main hospital is at Oldmill, three and a half miles from the railway station; the other centres are at the High School in Albyn Place and the Central School in Schoolhill. Patients are also sent to the Royal Infirmary and Morningfield Hospital. Between August 25th, 1915, and November 20th, 1916, 66 ambulance trains arrived in Aberdeen, carrying 3,686 sitting and 3,793 cot cases—a total of 7,479. The patients were distributed to the various hospitals by the Scottish Branch. A meeting of the Executive Committee of the County of Aberdeen Branch of the Red Cross Society was held on November 24th, to consider the raising of funds for the equipment of an orthopaedic department in Oldmill Hospital, as had been suggested by King Manoel as representative of the British Red Cross, and Colonel Robert Jones of Liverpool, Inspector of Military Orthopaedics, on their recent visit. Subscriptions will be invited from at least the North-Eastern District of Scotland, including the whole district which the orthopaedic centre at Oldmill would serve—namely, the Highland divisional area. It was pointed out that the department would be needed in connexion with casualties long after the end of the war, and would also be very useful to the civil population in time of peace.

Ireland.

Local Government Board and Doctors of Military Age.

Sir Acheson MacCullagh, M.D., Medical Inspector, Local Government Board, attended a meeting of the Ballinrobe Board of Guardians and explained the reasons of the Local Government Board for refusing to sanction the appointment of Dr. Coghlan, who is of military age, to the Cappaduff dispensary district. Desirable as it was to see a doctor in every district, yet it must, he said, be remembered that the war had to be carried on, and that all were bound to pay attention to the necessities of those who were fighting for them. That was the policy of the Local Government Board and of all the Local Government Boards; they would not sanction the appointment of any person of military age, and did not see why boards of guardians should make such appointments. If a doctor was unfit for military service his appointment would be sanctioned for the period of the war on the production of a certificate to that effect, but while he was fit to serve his appointment would not be sanctioned, as it was his duty to join the army; looking at the question dispassionately, it was a disgrace for any person who was able and fit to serve not to do so, as the needs for medical attention to their bleeding countrymen were becoming more urgent. Dr. Coghlan maintained that he was unfit for military service, and, on the suggestion of Sir Acheson MacCullagh, the guardians agreed to appoint him temporarily on his furnishing a certificate from the military authorities of his unfitness for military service.

Maternity Centres.

At the annual meeting of the Bangor (co. Down) District Nursing Society Sir John Byers delivered an address in which he said that the war had brought prominently before them the care of the child, a matter of the greatest importance, because, owing to the fall in the birth-rate, the terrible wastage of infant lives, and the deaths of so many potential fathers, special care was necessary to reduce the loss of infant life that took place before and after birth and to maintain and improve the standard of health of mothers and offspring. When people discussed what should be done after the war they should first consider whether there would be a sufficiency of a vigorous British race to carry on the various enterprises, industrial, commercial, and so forth, that would then be urgently needed. The solution of this, the most pressing home problem of the present moment, depended on how far skilled assistance and advice could be brought to bear on the expectant mother. In large cities maternity centres for the education of midwives and medical students, which ought to be in direct touch with pathological laboratories, should be created and subsidized. Expectant mothers might be divided into two groups—those in apparently good health when first seen, and who only needed regular visitation, supervision, and advice; and those who required special attention in order that they and their children might be saved. Without a few beds which a maternity or cottage hospital, county or union infirmary could provide, any scheme, however well planned otherwise, would be found wanting. To discover the causes of prenatal death clinical observation and research, as well as a study of the mother's environment were necessary. In the case of every woman approaching her first confinement it should be ascertained whether there was any condition that might prevent a natural birth, so that preparatory arrangements might be made for her to have the advantage of the best and most modern obstetric methods. This work of the maternity centre must be supplemented by home visits by the nurses of the centre or of other philanthropic agencies; by the female sanitary inspectors of the health authorities, or by dispensary midwives. The schools for mothers could help by inducing prospective mothers to report themselves at the maternity centre. The notification of pregnancy was at present Utopian, and unfortunately the maternity benefit of the Insurance Act had done absolutely nothing for maternal and child welfare, as it was given simply on a certificate from a midwife or a doctor after the birth of the child. If in order to obtain this benefit it had been made obligatory that the expectant mother should report herself at fixed times to a doctor before her child was born, many lives, both of mothers and children, could have been saved. In the smaller towns and in country districts a combined maternity centre and babies' club could easily be established in connexion with an existing nursing association, the local doctors being requested to help in turn. A few beds could be retained in the cottage hospitals or county or union infirmaries for cases needing such rest and care.

Canada.

Poliomyelitis in Canada.

The recent epidemic of infantile paralysis in New York has naturally caused a good deal of anxiety in Canada, where sporadic cases have been reported from all parts of the country, and a number of deaths have occurred. An outbreak recently in Montreal made it necessary to close some of the schools. In the Province of Ontario, during the month of September, seventy-six cases and seven deaths were reported, and nineteen cases during the first nineteen days of October.

Tuberculosis.

The fifteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis took place at Quebec on September 12th and 13th, under the presidency of Senator J. W. Daniel, M.D., of St. John, New Brunswick. The members were welcomed by the Lieutenant-Governor of the Province of Quebec, and Dr. Daniel in his address said that measures for the prevention of disease should be undertaken by the community as a whole, upon whom the cost should fall, and not be left to a few. Authorities all over Canada were beginning more and more to appreciate the fact. Until the poor as well as the rich were able to

live in houses provided with adequate and proper sanitary appliances, where they would have room to breathe and lots of fresh air and sunlight, it would be impossible to get rid of tuberculosis. The people must be educated in elementary sanitary knowledge and the housing problem must be solved. Much had already been accomplished, and in St. John, New Brunswick, the percentage of deaths from tuberculosis had fallen from 11.8 in 1900 to 6.7 in 1915. It was reported to the meeting that during the past year the municipal hospitals for the care of advanced cases of tuberculosis had been opened at Quebec and at St. John. The latter, with fifty-seven beds, were very soon filled. Sanatoriums in Prince Edward Island and in the county of Waterloo, Ontario, had been completed, and at Gravenhurst, Ontario, the Minnewaska Sanatorium had been enlarged to double its former capacity, and the Calydor Sanatorium, a private institution, under the direction of Dr. Parfitt, had been opened. In British Columbia a private sanatorium has been opened at Kamloops, and a pavilion has been added to the King Edward Sanatorium at Tranquille. Pavilions have also been added to the Muskoka Free Hospital and the Brantford Sanatorium, in the province of Ontario, and hospital tuberculosis clinics have been organized in Toronto. In 1908 there were only 250 beds reserved for patients suffering from tuberculosis in the whole of Canada; now there are 2,000.

The difficulty of Canada's problem of caring for the tuberculous is now increased by the addition of a considerable number of soldiers suffering from the disease. A few weeks ago it was reported that there were 397 military patients under treatment in the various sanatoriums in the Dominion, of whom nearly 60 per cent. had never been overseas. There are also a number of Canadian soldiers now undergoing treatment in England who will return to Canada as soon as proper hospital accommodation is provided for them. The matter has been under the careful consideration of the Military Hospitals Commission, and on September 15th a meeting of experts was called at Montreal. The chair was taken by Dr. F. J. Shepherd of Montreal, and among those present were Lieutenant-Colonel A. Thompson, medical superintendent of the hospitals under the Commission, Dr. Baldwin of Saranac Lake, Drs. Parfitt and Elliot of Muskoka, and Dr. Byers of Ste. Agathe. It was advised that temporary arrangements should be made immediately with existing sanatoriums for the treatment of tuberculous soldiers during the coming winter, and that property sites should be bought in suitable localities and permanent buildings of the most modern type built thereon. The sanatorium at Frank, Alberta, which has accommodation for 120 patients, has been taken over by the Commission, and this with the sanatoriums at Kamloops, British Columbia, Ninette, Manitoba, and Calgary, will provide enough accommodation for the present in the West. In Ontario the Hospital for the Insane at Whitby has been converted into a sanatorium. In Quebec, the Lake Edward Sanatorium and that at Ste. Agathe will be utilized by the Commission, and in the Maritime Provinces the sanatoriums at St. John, New Brunswick, Kentville, Nova Scotia, and Charlottetown, Prince Edward Island. It has been found that the soldier frequently becomes restive and nervous under treatment; he finds the rest and regulation under medical routine unnecessary and irksome, and becomes despondent and sometimes even insubordinate. Medical officers in charge of such patients therefore are in favour of giving suitable occupation, graded according to the man's condition, and have requested the Military Hospitals Commission to provide workshops and instructors. In addition to manual work and academic training, telegraphy, stenography and typewriting, mechanical and industrial drawing, and automobile driving might be taught, and the moving picture machines installed, which might be used both for instruction and recreation.

Alberta Medical Society.

The eleventh annual meeting of the Alberta Medical Society took place at the University of Alberta, Edmonton south, on September 21st and 22nd, and in spite of the fact that a large number of the members are on overseas service, proved one of the most successful meetings ever held by it. Dr. T. H. Whitelaw, medical officer of health of Edmonton, stated that, to take a low estimate, one-third of the medical men of the province of Alberta had already given up civil practice and had joined the military forces. Out of 118 medical practitioners in Edmonton, 42 were serving, and 45 out of 100 practitioners in Calgary. One of the brightest and most brilliant practitioners in the province, Captain Monkman of Vegreville, had made the supreme sacrifice. Dr. Whitelaw dwelt on the importance of providing for the care and treatment during illness or accident of residents of outlying districts remote from hospital centres. It was the duty of the medical men of the province to assist by their counsel and advice the movement for providing hospital facilities within a reasonable distance of every settler in the province. A Free Public Hospitals League had recently been started in Calgary and was actively engaged in a campaign with this object in view. Another matter of supreme importance to the future welfare of the province was the establishment of a provincial sanatorium for the treatment of tuberculosis. In concluding his address, Dr. Whitelaw spoke of the excellent beginning made by the Faculty of Medicine recently established at the University of Alberta. The enrolment of students had been much curtailed by the fact that almost 50 per cent. of the first, second, and third-year students had gone to the front with ambulance corps. An arrangement had been made with the Universities of McGill and Toronto whereby medical students of the University of Alberta could take the fourth and fifth years of their course at either of them. The question of Imperial reciprocity, which had been touched on by the president, was brought up by Dr. John Park of Edmonton, who was greatly in favour of the establishment of reciprocal relations between the province of Alberta and Great Britain. It was resolved that the provincial parliament be requested to take the necessary steps to bring about such reciprocity.

Approval was expressed of the efforts to extend the hospital facilities in the country districts, and it was recommended that cottage hospitals should be established under the direction of local committees, and made as self supporting as possible. A special committee was appointed to investigate the physical and mental condition of the child and the causes of the present unfavourable conditions. It was decided that pamphlets containing information and statistics should be prepared for general distribution as a means of educating the people of the province in matters relating to public health, and that the Provincial Medical Council should be requested to make a grant to assist in the publication of literature and the work of the committee.

A Physician's Fee.

A case recently came before the Superior Court of the Province of Quebec, in which a physician claimed the sum of $2,495 for professional services rendered, stating that at the request of the defendant he had devoted practically all his professional time to him during his illness. The defendant expressed his willingness to pay $750, but considered the amount claimed to be exorbitant. The defendant was ordered to pay the sum of $975, with interest and costs. In summing up the case, his lordship said that when no express contract had been entered into between the physician and patient (and in the present case no such contract had been made), the amount which might be considered reasonable compensation for the services given was to be determined by the learning, skill, and professional standing of the physician and by the difficulty of the case.

Sydney.

Subsidized Hospitals and Government Employees.

A meeting of the members of the honorary medical staffs of hospitals receiving subsidies from the New South Wales Government was held at the British Medical Association building, Sydney, on August 10th, 1916. The chair was taken by Dr. Sinclair Gillies, the President of the New South Wales Branch of the British Medical Association, who said that the meeting had been called to consider the effect upon the medical profession of a circular issued on July 1st, 1916, from the office of the Director-General of Public Health to the secretaries of the committees of

hospitals in receipt of subsidy from the Government. The circular was as follows:

Treatment and Maintenance in Subsidized Hospitals of Government Employees Injured in the Execution of their Duty.

I am instructed to inform you that it has been brought under notice of the Director-General of Public Health that on several recent occasions members of the police force injured in the execution of their duty, and admitted to subsidized hospitals for treatment, have been charged sums of money in varying amount for what has been termed "maintenance whilst in hospital."

The Director-General has drawn the attention of the Minister to the subject, and approval has been given to the issue of notice to all hospitals subsidized from public funds that the following shall be regarded as one of the conditions under which subsidy is granted, in addition to those already in force and enumerated in circular instruction from the Chief Secretary's Office, dated December, 1913:

"10. That any employee of the Government of New South Wales who may be injured in the execution of his duty shall, on application, be received and treated, and, if necessary, admitted for further treatment free of all charges for such treatment and maintenance, in any hospital in the State receiving subsidy from the Government."

Your Committee is requested to note that strict observance of this condition will be insisted upon in future.

This circular had been considered by the committee of certain hospitals, and the matter had been referred to the members of the honorary medical staff, and the meeting had been called in order that uniformity of action might be obtained.

Dr. F. Antill Pockley moved:

1. That, while always ready to treat gratuitously all persons whose means are inadequate to pay for such attendance, we reaffirm the principle of refusing, except in cases of urgency, to be exploited by persons who are in a position to pay for our services, and we cannot differentiate between employees of the Government and others.
2. That the secretaries of the medical boards of the hospitals concerned be instructed to convey the above resolution to the managing boards.

Sir Herbert Maitland seconded the motion, and after full discussion it was carried unanimously.

VITAL STATISTICS.

According to the Government statistician's report on the vital statistics for the year 1915 the marriage-rate was 9.70 per 1,000 of population. This is the highest since the year 1857. The number of infants born during the year was 52,885, of whom 27,105 were males and 25,780 were females. The birth-rate was 28.31 per 1,000 of population. During the period 1906 to 1909 the rate was below 28; it exceeded 28 in the two following years and reached a maximum of 29.9 in 1912. In 1913 it was 28.81, and in 1914 it was 28.93. The illegitimate birth-rate was 1.44 per 1,000 of population, equivalent to 5.07 of the total births. The illegitimate birth-rate has tended to decrease during the past ten years. The death-rate was 10.50 per 1,000, which is slightly higher than the average for the previous period. The infantile death-rate was 68.1 per 1,000 births. There were 2,854 deaths from cardio-vascular diseases, 1,297 from tuberculosis, and 1,385 from cancer.

Correspondence.

EPSOM COLLEGE.

SIR,—In consequence of the loss of many annual subscriptions as a result of the war, and in part due to the fact that so many medical men are engaged away from their homes on military duties, it becomes necessary to obtain fresh annual subscribers if the good work of the Royal Medical Foundation attached to Epsom College is to be maintained.

Your readers will see from the advertisement which appears on page 67 that a sum of £4,500 has to be collected each year in order to provide the same number of Pensions and Foundation Scholarships which hitherto have been given annually out of the Foundation Fund of the College.

To reduce the number of beneficiaries would be deplorable from every point of view, more especially as the present excessively high war prices are greatly increasing the hardships endured by the very indigent persons who are candidates for the benefactions given by the College.

Much help might be rendered if those interested in the welfare of the College would urge their friends to become subscribers or donors, to whom in return certain voting privileges are afforded. Donors of ten guineas and collectors of twenty guineas are life governors, and subscribers of one guinea annually are governors during the continuance of their subscriptions. Such life governors and governors have ten votes each, which may be given for Foundation Scholars alone, or for Pensioners alone, or be divided between the two classes. Smaller contributions are gladly received.

In conclusion, I desire to make a very earnest, urgent appeal to the profession not to allow other new professional philanthropic movements, however excellent in themselves, to prejudice the claims and diminish the possibilities for doing good of Epsom College Foundation Fund.—I am, etc.,

HENRY MORRIS,
Honorary Treasurer.

37, Soho Square, W., Dec. 1st.

MEDICAL CERTIFICATES FOR RECRUITS AND WAR WORKERS.

Suggested Printed Forms.

SIR,—With reference to Sir Donald MacAlister's grave warning in regard to the issue by practitioners of medical certificates for recruits and war workers, and the remarks thereon contained in the leading article in the issue of December 2nd, may I suggest that this question could be both readily and satisfactorily solved by the provision of printed certificate forms drawn up on somewhat similar lines to that of a medical examiner's report to an insurance company? Among the advantages of such forms may be mentioned the following:

(*a*) The certificate itself would be more complete and comprehensive.

(*b*) There would be one uniform standard of information for the use of tribunal examiners and officers, and managers of war departments.

(*c*) Greater care would be exercised in filling up a formal certificate.

(*d*) The necessity of filling up a printed form would make the doctor more independent and less likely to be influenced by any special consideration for his patient.

(*e*) It would obviate any necessity of referring to the question of fitness or unfitness for any form of military service, which is a matter solely for adjudication by the medical boards and the tribunal medical officers. Reference would only be made to medical facts.

The certificate forms, in addition to the usual spaces for name, age, etc., should contain spaces for the following headings:

(*a*) Are you the examinee's ordinary medical adviser?
(*b*) What abnormal symptoms, if any, are present?
(*c*) What opportunities have you had of verifying these symptoms?
(*d*) Is the examinee suffering from any illness, disorder, or disease?
State the medical evidence.
(*e*) Is it necessary or advisable to obtain the opinion of a consultant or expert?
(*f*) Special remarks.

The certificate should terminate with such words as:

I declare to the best of my knowledge and belief that the statements contained in this certificate are correct.

The certificate should commence with the statement:

No opinion is to be expressed as to the man's fitness or unfitness for any form of military service.

I would suggest that the certificate forms might be drawn up by the Central Medical War Committee and issued either free or at cost price to medical practitioners on application to the offices of the Committee at 429, Strand, W.C. The War Office might undertake the cost and issue of the forms.—I am, etc.,

R. MURRAY LESLIE, M.D.

London, W., Dec. 4th.

SIR,—I would like to point out that the difficulty of many practitioners in the matter of certificates causes more worry and anxiety than any other part of their work nowadays.

Before long people will not be allowed to perform their

simplest daily habits without possessing medical certificates for each.

Men who are "called up," in the majority of cases, go to their doctor for at least a statement of the illnesses they have gone through in previous years, and, in cases where they employ a solicitor, this course is very frequently suggested to them, however trivial the nature of the ailment, in the hope that it will influence the lay tribunal; and if they have had no illness themselves, they want a note to say that their wife is not strong enough to carry on their work, if left. Of course the conscientious doctor refuses this if it is not his opinion, but it leads to much unpleasantness.

Munition workers, and all people on work of importance, now require a certificate if they are off work a single day, and this causes an infinite amount of responsibility, and in many cases worry, as the vast majority of their complaints are of a subjective nature, and the certificate if given, amounts to an endorsement of the patient's statement merely. Moreover, munition girls have the idea that they can have compensation for all manner of trivial complaints, and they go to the doctor with all manner of tales to this end.

For all illnesses, however trivial, soldiers' relations expect to be able to have a certificate to get their soldier home, and the frequent refusals which this leads to add to the misery of these horrible days. Soldiers on leave "expect" to have certificates to extend their period of leave for "subjective" complaints. The requests for "stimulants" orders which one has to refuse are innumerable. The certificates with reference to the state of health of deceased soldiers' mothers (who have a husband working) and the extent of disablement, if any, are no slight task.

The life of the practitioner who keeps rigidly to the rules for certification under the Insurance Act is one series of troubles and arguments and explanations.

Hardly ever can a day go by without a practitioner who is conscientious refusing certificates of one sort or another, and the refusal leads in every case to much unpleasantness, and this does not allow ease of mind for the doctor, in spite of the fact that he knows that he is taking the honourable course.

Every day brings its new worry in some form or another.—I am, etc.,

December 5th. ANXIOUS.

PRACTICES OF MEN ON ACTIVE SERVICE.

SIR,—May I be allowed to give an example of how a doctor on service may obtain a share of the private fees paid by his patients to another doctor during his absence?

A friend of mine became aware that one of his patients had been so attended. He immediately claimed a "statement of account" and half fees, basing his claim upon two essential points: (1) That if he had been at home he would have been called upon to attend; and (2) that the claim was sustained by the existing "custom" of the profession.

After some correspondence with the solicitors for the doctor in question, an "account" was given, and half of the fees paid.

May I suggest that this is a practical method whereby every private practitioner now on service may safeguard himself, to some extent at least. Let the practitioner ascertain, by the best means available, those of his private patients who have been medically attended during his absence, and claim as indicated.

Failure to recognize claims of this nature may provide means of testing the effective value of the action foreshadowed by the General Medical Council in regard to practitioners "scooping" the fees of absentee doctors, but, apart from this, I feel sure that these claims can be enforced at law.—I am, etc.,

December 4th. MEMBER OF COUNCIL.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—Sir Ronald Ross has opened up a perennial sore in his long discussion on the fees of physicians and surgeons. There is no part of the human economy so sensitive as the pocket; however, I hope the sore can be treated without leaving any irritation in the minds of those afflicted. The question raised by the Science Guild is not one of raising physicians' fees, but of lowering those charged by surgeons so as to bring the cost of any operation within the reasonable limit of an army officer's income.

Shortly before the war an insurance scheme—not by any means on the principle of the National Insurance Act—for the benefit of officers' families was proposed, but there was a fear in the minds of many that the surgeons' fees would wreck any scheme.

Lady Mackinnon, like Lady Henry and Sir Lauder Brunton, took a great interest in this proposal, and she invited me to attend a meeting of the officers and their wives in this district.

I offered to join her advisory committee on the understanding that any work which I did would be purely honorary. I was strongly against fixing any scale of fees for particular operations, as such a scheme could only tend to establish a panel of cheap consultants and operators which was certainly not desirable.

I assured her that there was no danger to the scheme in this district, as the surgeons of Liverpool are not vampires, who would suck the last drop of an officer's blood, and I felt confident that any operation could be done for a very reasonable fee, or even for nothing in a meritorious case. I highly approved of surgeons charging as large fees as they could get from those able to pay, but surgeons do a large amount of work for nothing, and are just as sympathetic as any other class of the community with officers' families. Owing to the war the scheme never matured, and it is rather premature to say what will happen after the war. Perhaps then a niggardly State will give officers a living wage.

The discussion has taken a side turn away from the original text, and I now wish to make a few observations on the humorous aspect presented. We have an animated discussion on the relative merits or demerits of physicians and surgeons and the planes which they should occupy. It seems to have escaped the attention of the disputants that the public nowadays do not consult physicians and surgeons, but specialists and surgical specialists, and we are all specialists of one kind or another, general or otherwise. It is only the man who handles the knife who can put the fear of God or of the devil into the minds of patients and their friends, and thus be able to extract a good fee for his services. The surgeons wisely do not charge by results, and thus they back a dead certainty. On the other hand, the physician specialists have much keen competition, as at 40 every man is supposed to be a fool or a physician—every medical man claims to be a physician; even the surgeons, with few exceptions, practise medicine between their operations, and I suppose the patients are the fools. We know the old proverb that fools and their money are easily parted. The public often look upon the physician as the last chance to save them from the knife.

On the other hand, the general practitioner, often impressed with the glamour of a successful operation, rushes the patient off to the surgeon without running the risk of an intermediary, who might possibly differ from his opinion. We very seldom hear of a surgeon calling in a physician, but he does very often make use of the radiologist, and occasionally of the bacteriologist, to assist in his diagnostic capacity. Dr. Thurstan Holland has given the surgeon a good lift up, but the surgeon who attempted to remove a calculus from the pelvis of the kidney before the radiologist said that such was present would fall very low in his estimation. Dr. Holland has a very high opinion of his art, and deservedly so; but, in order to maintain his art on a very high plane, he insists that no man can interpret a radiogram of any part of the body except a medical radiologist. Why? All medical radiologists are not scientists, and have often a very poor knowledge of physics, whereas a physicist could easily obtain a knowledge of all that is required of human anatomy or even pathology. It was formerly held that physiology, which in my opinion stands on a higher plane than either medicine or surgery, must be taught by a medical man; these days have changed. The radiologist and the surgeon may occasionally prowl about in the dark. Dr. Holland has recently told of a huge gash over the heart of a patient, on his way back from the front, made in search of a bullet displayed in a radiogram, which bullet was afterwards found deeply imbedded in the muscles of the back. This considerably exceeded Dr. Mercier's one-sixteenth of an inch. An ophthalmic surgeon who may have a very poor knowledge

of the science of optics is very apt to jump on the mere optician. Some of these gentlemen will give you a learned disquisition on acquired myopia, oblivious of the hereditary nature of this affection. Physicians, surgeons, general practitioners, and all kinds of specialists may occupy the same or different planes, but there is a higher plane to which, as Emerson said, we are all invited to ascend. There are many specialities not overpaid, and some well paid, and as a rule the least scientific are financially the strongest. The *intellectuels* should occupy the highest plane, if not in this world, then perhaps in the next.

You cannot raise physicians' fees by lowering those of the surgeons. There is no law in this country, except the inexorable law of supply and demand, to prevent any physician, if he so desire, from fixing his fee for his advice in his own consulting room at one hundred guineas, always provided that he is not on the panel, but I am afraid that his sanity might be called in question, and he might be relegated to the care of Dr. Mercier.

I am convinced that many physicians, without making themselves ridiculous, could easily double their fees, especially those who are physicians to the King or even to dukes and other notabilities. They could treat the notabilities for the advertisement. A man like Dr. Mercier who holds a pre-eminent position in the mental world—I shall not say a world of lunacy for fear of being misunderstood—has no justification for charging a miserable fee. He should demand such a fee as would *mark* the value of his advice.

Why should physicians trouble about their fees? According to the Royal College of Physicians, a fee is a mere honorarium, and no recompense for the superlative value of the advice tendered but not always swallowed. Why should this mere honorarium be fixed at one to three guineas for a consultation in the physician's house, with an addition of 14s. a mile for distance? Distance lends enchantment to the view, and enormously enhances the value of the consultation—to the physician. I suppose if a patient offered an honorarium, consisting of a few of the smallest coins of the realm neatly folded up and enclosed in an envelope, to the President or Censors of the College, it would be considered beneath their dignity to examine the contents of the envelope, at least not till the patient had departed—not from this life, but from the physician's consulting room.

It is about time that physicians stopped this absurd twaddle about honorariums, and, like the surgeons and some specialists, put their fees on a somewhat more sensible footing. The cynic might say, if the advice of both physicians and surgeons were always paid for on its intrinsic merits, it might be often recompensed by a very small coin. It is up to physicians and surgeons to put a market value on their work, and the public can take it or leave it as they think fit.

If the physicians' fees are too low, what about the unfortunate panel practitioner, who contracts to attend insured persons by the thousand for 365 days at a rate per head ranging from 5s. 8½d. to 7s., without the accrued interest for the sums remaining unpaid for a year or two? Of course he has a chance of a "floating sixpence," but that has usually sunk to the bottom of the stock mixture before he can lay hold of it. He certainly only gets an honorarium, and, if he do honest work, he earns his bread by the sweat of his brow. He used to get a guinea when he met a consultant, but now the consultation and also a report on the patient are going to be included in the 7s., according to an agreement arranged between the Insurance Commissioners and the Insurance Acts Committee of the British Medical Association. The unfortunate dupe is told by the latter body to keep his mouth shut for fear his honorarium be reduced. A chiropodist would not contract to cut your toe-nails for less than two guineas a year, and if you happened to die at the end of the first month, he would want his two guineas, and not 31/365ths of his capitation fee.

If it be seriously intended to lessen the surgeon's income, the best way to do it is not to employ him, but the surgeon well knows that competition is not over-keen, and in the present state of medical knowledge his handicraft is not in danger. A celebrated surgeon once said to me, "There is always room at the top." The surgeon flourishes on the failures of general practitioners, and to a less extent on those of physicians. The following diseases, out of which the surgeons reap a rich harvest, are to a large extent preventable: Post-nasal adenoids, gastric and duodenal ulcers, appendicitis, colitis, intestinal stasis, to a considerable extent malignant disease of the various flexures of the colon due, as Metchnikoff pointed out, to stagnation; biliary and renal calculi, mastitis and enlarged prostate. These diseases are medical in their initial stages, and I could give an equally long list of preventable diseases which remain medical to the finish. Although the general practitioners and physicians are ignominiously paid, they should not grudge the surgeon a liberal honorarium for wiping out or burying their mistakes. The late King Edward said: "If preventable, why not prevented?" Ah! there is the rub, and a hard nut for the *Health* Insurance Commissioners to crack. The only funny thing about the National Health Insurance Act is its name, as it is more closely related to a London fog than to any question of health; the only redeeming feature in the whole Act is the research work, and there is only spent on this the miserable sum of some £50,000 out of 25 to 30 millions sterling.

The preservation of health does not seem to be a paying game. My friend Ronald Ross has done more than any other man for the health of the tropics, and I would candidly ask him, Has he found it pay? Would he not have been financially better off trifling with the health of the nation as a National Health Insurance Commissioner? He has, however, something better than money—the high moral satifaction of work well done; and he may be, like Butler, "When turned to dust, presented with a monumental bust." When will the Legislature rise to a sense of its duty, scrap all this cheap physic, and devote some attention to questions of health?—I am, etc.,

Liverpool, Nov. 30th. JAMES BARR.

SIR,—If any practical issue is to result from the interesting discussion raised by the late Sir Lauder Brunton's letter, published by Sir Ronald Ross, we must, I think, try and get a little more down to root principles. Should we not first define the services for which physicians and surgeons receive remuneration, before we endeavour to decide whether the remuneration is adequate or properly proportioned?

The services rendered by a surgeon which are comparable with those rendered by a physician are the investigation of the patient's condition, and the giving of advice as to the treatment to be adopted. There is no service rendered by a physician which is at all comparable with the performance of a surgical operation.

This being so, it seems to me that the question which really wants consideration is whether the remuneration which the medical profession receives for its advisory services and for its operative services respectively is properly distributed. Just as in general practice medical men have allowed the public to regard their chief service as the giving of medicine or the writing of a prescription, so have surgeons allowed the performance of their operations altogether to overshadow their equally responsible service of accurate diagnosis and sound advice as to the course that should be adopted. When one contrasts the size of a first-class surgeon's fees for the preliminary consultation and for the subsequent laparotomy one is almost reminded of the notices one sees put up by advertising dentists, "Advice gratis." A properly remunerative fee for the surgeon's examination and advice, even when such advice consists in recommending the patient to seek the help of a physician, would undoubtedly increase public confidence in its value. Such a fee should tend to remove the view apparently held by some of your medical correspondents that the surgeon is the servant of the physician. It would inevitably lead to a corresponding increase in the fee of the physician for his examination and advice. It might, advantageously I think, lead to a reduction in the fees charged for some surgical operations.

But if an attempt is to be made by concerted action to provide proper remuneration for both surgeons and physicians for their services in investigating difficult cases and advising thereon, some steps must also be taken to standardize the work for which these larger fees are to be charged. A fee which is a reasonable reward for the serious responsibility involved in the thorough examination of a difficult case and in the giving of a reasoned judgement thereon, can hardly be regarded as otherwise than

excessive for the investigation of any trivial ailment that an anxious or wealthy patient may be disposed to submit to a consultant. The securing of proper remuneration of physicians or surgeons for their advice in complicated cases seems almost necessarily to entail their refusal to allow the public unrestricted access to their consulting rooms. It will be necessary for us to take a leaf out of the book of the lawyers' professional regulations, and require the public to approach specialists and consultants only through the general practitioner, just as they approach barristers through solicitors. With this restriction it should be quite possible to arrange that fees should not only be sufficient to reward adequately physicians and surgeons for their advice, but also on the advice of the general practitioner to increase the fee above the average when the complexity of the case or the special reputation of the consultant made such increase reasonable. It would enable us to meet the difficulties which are daily growing in consequence of the multitude of specialisms in the profession, which are inevitable with the increase of knowledge. A step in professional organization of this character would be an appropriate plank in the programme of our after-war reconstruction of medicine.—I am, etc.,

London, N.W., Nov. 28th. LAURISTON E. SHAW.

SIR,—The question of physicians' and surgeons' fees is part of the larger one of remuneration in general. It is difficult to dogmatize on what constitutes legitimate pecuniary reward for service. Theoretically it ought, I suppose, to be proportionate to the labour and skill involved in the service; and such is to a large extent the case—the skilled artisan earns more than the unskilled labourer, the lawyer than the skilled artisan, the brilliant barrister than the dull one, etc. Nevertheless, the money given for service by no means always represents its real as distinguished from its market value. It is estimated that Shakespeare received at the most £12 for writing a play. To-day the value of the mere paper on which one of them, say *Hamlet*, was written would be priceless, and its discovery would send a thrill throughout the civilized world. Rembrandt died in poverty, his very existence having been forgotten by his compatriots, and we are told by one of his relatives that a generation after his death a portrait by him could have been purchased for sixpence! Herbert Spencer earned so little by his writings that, but for an admirer on the other side of the Atlantic, he could not have continued his work. Darwin, fortunately, had independent means, or he could not have carried on his great work unhampered, so small was its market value. Had he fallen into poverty, Government would, perhaps, have granted him a small annuity. A Ronald Ross makes a great discovery, the real value of which simply cannot be estimated in terms of money, and has to be content with the consciousness of the fact.

It is clear, therefore, that there is often a wide disparity between the real and the market value of service. Instances of this disparity abound. Some callings are more lucrative than others involving at least an equal degree of skill and labour. The butcher earns more than the greengrocer, the hosier than the hairdresser, the stockbroker than the soldier, and (coming to our own profession) the surgeon more than the physician.

If we probe the matter further we meet with yet stranger disparities. Thus, while Charlie Chaplin is said to be earning upwards of £100,000 a year, a Smith's prizeman of my acquaintance is barely able to secure a thousandth part of this sum. It takes several years to learn to be a carpenter, and his normal wage is at the rate of about one shilling an hour, while a young woman, after a three months' course of massage, can command her five to ten shillings an hour. A peasant, working from sunrise to sunset in producing the one form of wealth we cannot do without, gets three shillings a day (if as much), while a man who is "something in the city" will make his hundreds over a single deal.

I leave others to explain these incongruities. The practical fact to be borne in mind is that every one secures—and rightly so—as much as he can for his work, and the surgeon is no exception to the rule. He is able to command higher fees than the physician. Nor has the latter any serious ground for complaint. When the medical student decides to become a physician rather than a surgeon he does so with the full knowledge that it is a less lucrative branch of the profession.—I am, etc.,

London, W., Dec. 3rd. HARRY CAMPBELL.

SIR,—The discussion on the relative fees paid to specialists is interesting, but there must be many general practitioners like myself—physicians, surgeons, accoucheurs, and anaesthetists complete—who are wondering where they come in. I syringe out ears and do radical mastoids; I remove nasal polypi, adenoids, and tonsils; I do refractions; I remove teeth, giving my own gas or ether; I attend all infectious diseases, and do tracheotomy when necessary—the last one with the mother the sole assistant holding the solitary and shaking candle. I am a public vaccinator and the parish doctor. Paracentesis thoracis and abdominis are amongst my accomplishments. I operate on perforated gastric ulcers, appendices, and all abdominal emergencies. "A strangulated hernia; please bring everything," takes me ten miles out in the middle of the night to operate on the case in a feather bed with a lamp and two candles as illumination. A pancreatic cyst, a uterus full of fibroids wedged in the pelvis, twisted ovarians, and prostatectomy are among my successes. Every conceivable obstetric emergency comes our way; we give our own chloroform and perform Caesarean section when occasion requires it. And in my spare time I delve into the mysteries of incurable diseases.

Last, but not least, I have 1,500 insured persons under my care, with the unnecessary waste of time their coughs and colds and certificates take from more serious work.

Only recently I spotted two cases of typhoid, in one of which I took the Widal reaction in my surgery, and thus, I suppose, performed some considerable public service, as no more cases have developed; one was a panel patient who, by the way, had not had her medical card signed, the other a parish patient; thus, for this public service, for the taking of two Widals and for the two notifications, I receive 2s., less 4d. for stamps.

I agree I am an adjective fool to do it, and I will take good care my sons do not; but there are dozens like me.

But, to return to the 100-guinea argument, what fees would the specialists ask for doing my job for a year?

I enclose my card, but as the almighty Ego is somewhat pronounced throughout the letter, let me sign myself, yours, etc.,

December 4th. A PANEL DOCTOR.

FROG-SKIN GRAFTING.

SIR,—With reference to Captain Kendall's article on frog-skin grafting, in your issue of November 11th, may I be allowed to mention that this procedure was, I believe, initiated by myself when serving in India in the year 1884? On the principle "fiat experimentum," my first patient was my own *corpus vile*. I had for a long time suffered from an intractable ulceration (tropical ulcer) of the dorsum of the foot which had resisted all forms of treatment, including change to England, and I was beginning to despair of ever obtaining a cure. One day the Ressaldar Major of my regiment (5th Bengal Cavalry) suggested quite solemnly that I should try cutting a frog in half and applying it to the ulcerated surface, as he had known marvellous cures of ulcer effected by that means. I decided to accept his suggestion in so far as it commended itself to my judgement, and procured a frog, or rather several frogs, which I kept for a week in a *ghurra* of boric lotion, and then used as sources of the grafts for my foot. The surface of the ulcer was in a sufficiently healthy state for grafting, and, to make a long story short, it was only about four or five weeks, so far as my memory serves, before the whole surface was covered with sound and supple skin. To-day, thirty-two years later, it is impossible, save by the closest scrutiny, to discover the new skin. There is not the faintest trace of pigmentation, no contraction of the cicatrix; the skin is practically indistinguishable from the original skin, and has stood the stress of thirty-two years' active wear and tear.

So far as I can recollect, a full description of the skin grafting technique followed by me was published in the *Indian Medical Gazette* of the year 1885 or 1886, when I had used it in a very large number of cases without, so

far as I can remember, a single failure. The procedure was also circulated by the then Surgeon-General for the information and guidance of all medical officers.

I must, however, state that when I first came home from India in 1905 frog-skin grafting by my method (which is that now described by Captain Kendall) was given a trial at the Radcliffe Infirmary in Oxford by one of the surgeons, Lieutenant-Colonel Dodds-Parker, now senior surgeon of the 3rd Southern General Hospital, which I have the honour to command. It proved a complete failure. In my opinion this failure resulted from the epidermal cells of the British frog failing to accommodate themselves to the normal body temperature of the human being. In this view the late Professor Jenkinson of this university concurred, and he made experiments to endeavour to acclimatize tadpoles to the abnormally high temperature, but without success.

It is encouraging to learn that Captain Kendall has met with success in his frog skin in France, in view of the failure with English frogs above mentioned.—I am, etc.,

GEORGE RANKING,
Lieut.-Col. I.M.S.(Ret.), R.A.M.C.(T.F.),
Adm. 3rd S. G. Hospital.

Oxford, Nov. 11th.

THE USE OF TURPENTINE IN SURGERY.

SIR,—There is no doubt as to the great value of turpentine in both medicine and surgery, notably in the control of bleeding from various parts of the body, and I am not surprised to find that Captain Moore, R.A.M.C. (November 25th, p. 744), has found it useful in secondary haemorrhage.

I wish to suggest a mixture which, while being probably quite as effective for the purpose named, will cause less suffering—namely, equal parts of acid. carbolic. liquefact., liq. ferri perchloridi, and oleum terebinthinae.—I am, etc.,

Middlesbrough, Nov. 28th. J. WATKIN EDWARDS.

THE DIAGNOSIS OF PHTHISIS.

SIR,—There has been no more popular pastime during the last year than the discrediting of the panel practitioner. Especially has he been pointed at as the cause of the high mortality in phthisis pulmonalis. It has been suggested that he should be deprived of his tuberculosis sixpence. I am speaking about the industrial areas of Lancashire. The tuberculosis officers are beginning to realize that they cannot cure phthisis under present conditions. I have yet to meet the medical man who can honestly say that he has seen an undoubted case of pulmonary phthisis cured. Temporary improvement seems to be the limit at present.

The cry was, Give us early cases and we can cure them in the sanatoriums. What is an early case? It is now beginning to be suggested that a case is beyond cure if tubercle bacilli are found in the sputum. It looks as if the cases would have to be so early that there would be considerable doubt about the diagnosis. If the cases are obtained sufficiently early, the statistics from sanatoriums will undoubtedly improve. At the present time these must be somewhat unreliable, and likely to mislead the public as to the value of sanatorium treatment. The undoubted cases always relapse and die, under present conditions. The last letter I received from my tuberculosis expert reads:

"This is an interesting case of phthisis and perhaps you will kindly notify it. She has steadily lost weight since I first saw her." (About four weeks.) "Although she appears to have no evening rise of temperature and her sputum is negative, I find signs of catarrh in the upper part of the right lower lobe, below the scapula." (These are expiratory râles, which earlier on were general all over the chest.) "I am assisting her to apply for sanatorium benefit."

What are the earliest indubitable signs of pulmonary phthisis which would entitle the panel practitioner to notify a case as tuberculosis, and so subject the patient to all the consequent disabilities?

The more experience I have of the war against tuberculosis the more confirmed I am that the greatest benefit will accrue to the community (1) from the segregation in country colonies of tuberculous persons with tubercle bacilli in their sputa; (2) from, suitably situated, sanatoriums for suspected cases; (3) from reform of our homes and workshops.—I am, etc.,

Wigan, Dec. 3rd. FERDINAND REES.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SIR,—The Council of the Royal College of Surgeons consists of a few Fellows (engaged in consulting practice) elected solely by other Fellows. The Council, therefore, does not represent the surgical profession. The Members, who represent over 70 per cent. of the members, and who provide over 70 per cent of the payments to the College, are wholly unrepresented.

The Council has spent public funds entrusted to it in publishing an *ex parte* statement by the President, supported by an anonymous letter, explaining its indefensible position, but refuses to publish the full facts of the case.

The Council of the College is now called to deal with grave public problems including venereal diseases, maternity mortality, war certificates, broken soldiers. With such subjects the present Council of academic surgeons is unfitted to deal.

It is urgently necessary that representatives of the Members of the College engaged in human practice should be elected on to the Council, and infuse new blood into an inert and anaemic body.

We must win our war by organizing the surgical profession as well as every other branch of human energy.—I am, etc.,

JOSIAH OLDFIELD,
London, E.C., Dec. 4th. Lieutenant-Colonel.

*** We have also received a letter from Dr. J. Brindley James, President of the Society of Members, protesting against what he describes as the arbitrary action of the President, who, because there were only three persons short of a quorum, declared that the meeting could not be held, although while he was speaking enough persons entered to make more than the number said to be required.

Obituary.

RICHARD NORRIS, M.D., F.R.S.EDIN., ETC.,

FORMERLY PROFESSOR OF PHYSIOLOGY, QUEEN'S COLLEGE, BIRMINGHAM.

BY the death of Dr. Norris at his residence, "The Laboratory," Yardley, in the 86th year of his age, Birmingham has lost one of the most eminent of the older generation of its practitioners. Apparently in his usual good health a few hours previously, he collapsed from heart failure in the early hours of November 15th.

During the Fifties of the past century and while a medical student of Queen's College, Birmingham, he made his first important discovery—the photographic dry plate. The invention, which was an immediate success, is one of the foundations of the art of to-day and a main cause of its popularity among amateurs and its application to the moving picture.

He took the diploma of M.R.C.S.Eng. in 1860 and, two years later, made his first contribution to the Royal Society of London: "Phenomena of attraction and adhesion in solid bodies, films, vesicles, liquids, globules and blood corpuscles"; this paper was published in the *Proceedings*. In the same year he graduated M.D. St. Andrews, and shortly afterwards was appointed professor of physiology in his old medical school, a position he continued to hold until the absorption of Queen's College by the Mason College, now the Medical Faculty of the University of Birmingham. As a teacher he commanded admiration, for he possessed great personal charm, spoke with authority, and was a brilliant demonstrator. During the next few years he contributed several papers which were published in the *Proceedings* of the Royal Society, chiefly on physiological subjects, with, however, one on "Certain molecular changes in iron and steel during separate acts of heating and cooling," which dealt with some details he was the first to point out.

At the meeting of the British Association in 1865 he read a paper demonstrating that the opinion then held that muscular contraction caused rigor mortis was fallacious, and he received a grant from that association which allowed him to submit the result of further researches to the next meeting.

But what, up to the day of his death, he regarded as his chief work was the discovery in 1877 of large numbers

of "invisible corpuscles" in the blood. His first communication on this subject was made to the Birmingham Philosophical Society, and for some years his statements attracted the attention of the profession in this country and on the Continent. In 1882 Professor Bizzozero of Turin claimed to have seen similar corpuscles, but Dr. Norris easily established priority. He maintained that these corpuscles were invisible in that they possessed the same refractive index as the liquor sanguinis, that they cnuorized into red corpuscles, and that when blood coagulated they broke down into fibrin. He dealt with the matter exhaustively in the special volume he published, and illustrated his claims by a series of about 200 of very fine microphotographs. Later his contentions were challenged, but he maintained his own views.

During the last sixteen years he lived in retirement, up to the last, however, interesting himself in the work he loved so well. He leaves a family of two sons (both practitioners) and three daughters.

DR. GEORGE THOMAS WOODS, L.R.C.P., L.R.C.S.Edin., L.F.P.S.Glasg., died at his residence in Killinghall, Ripley, Yorkshire, on November 5th, of acute pneumonia, to the deep regret of his numerous friends in Ripley, Harrogate, Bilton, and Killinghall, the more so as it was known that at the same time his wife was prostrated by a very severe illness. The son of Mr. George Woods of Harrogate, Dr. G. T. Woods was educated at Wesley College, Sheffield, and studied medicine at Leeds and the University of Edinburgh. All his diplomas were awarded to him in 1885. He was a member of the British Medical Association, and long practised in Harrogate and the district. He was medical officer to the Harrogate and Knaresborough Joint Isolation Hospital and Ripley district, and medical officer for the Knaresborough Union. He officiated for twenty years as honorary organist at St. Thomas's Church, Killinghall, where he was interred on November 12th, the funeral being largely attended.

M. ALFRED NAQUET, who died recently at the age of 82, was long a conspicuous figure in the French political world. He took the degree of Doctor of Medicine at the Paris Faculty in 1859 and became *agrégé* in 1863. In the same year he accepted an invitation to the chair of chemistry in the Technical Institute of Palermo, which he held for two years. He was an ardent republican, and in 1867 was prosecuted for alleged membership of a secret society and sentenced to fifteen months' imprisonment and forfeiture of civil rights for five years. This involved the loss of his appointment as *agrégé*. Condemned again in 1869 for a book entitled *Religion, propriété, famille*, he took refuge in Spain, where he took part in an insurrection in Andalusia. He returned to France in 1870, and in the following year was elected to the Chamber of Deputies as representative of Vaucluse and took his seat on the extreme left. It was mainly owing to the persevering efforts of M. Naquet that in 1882 divorce was legalized in France. In 1883 he was elected to the Senate. He was one of the leaders of the Boulanger movement. After its failure he retired from active political life. M. Naquet was a distinguished chemist. Besides theses on the application of chemical analysis to toxicology and on allotropism and isomerism, he was the author of a book on the principles of chemistry, which went through several editions. He was also one of the most brilliant journalists in the French Parliament.

THE death is announced of Mr. WILLIAM BOYD MOSS, F.R.C.S., in his 88th year. He took the diplomas of M.R.C.S. and L.S.A. in 1853, so that he had been a member of the profession for sixty-three years, and he was the senior Fellow of the College (F.R.C.S., 1856) excepting Mr. Barwell (F.R.C.S., 1852). He had spent nearly thirty years in retirement, and died in Chiswick on November 17th. His remains were cremated at Woking on November 21st.

DR. H. W. G. LANDER of Hathersage, Derbyshire, was the youngest son of the Rev. John Lander, for forty-five years Rector of Donnington, Herefordshire, and was born on March 9th, 1868, and his career has been brought to a close at the early age of 48 years by an accident which rapidly proved fatal. He graduated M.B., C.M. in the University of Edinburgh in 1894; he was greatly liked by his fellow students owing to his genial, frank, straightforward manner. He was a keen sportsman, and as a "sprinter" used to excel in the quarter-mile and 100 yards race. In spite of his many duties he always found time to take an interest in local sports, and would even give a helping hand in time of need. About nineteen years ago Dr. Lander took over the practice at Hathersage from Dr. Taylor. It was a very extensive one, embracing Grindleford, Hathersage, Eyam, Bamford, and surrounding districts. Over and above his medical work he found time to interest himself in public matters, being a member of the parish council and acting as president of many local committees—in short, he had at heart the welfare of those among whom he lived. The war brought further work upon him, for he became medical officer of the local Red Cross Hospital. It was while on his way to lecture to the ladies' ambulance class (after being at the sick bed of a little child) that the sad accident occurred. His loss is keenly felt, and his popularity in the district was shown by the crowd which attended his funeral.

DR. NORMAN GUNN, who died at Dufftown, Banffshire, on November 19th, at the age of 43, was the only son of the late Rev. Angus Gunn, D.D., of Dollar. He studied at the University of Edinburgh, where he graduated M.B., C.M. in 1896. Nearly twenty years ago he settled in Dufftown, where he carried on a large and scattered practice, gaining the confidence of the people among whom he worked by his sympathy and devotion to duty. Some ten years ago he was attacked by paralysis, but in spite of increasing physical infirmity he continued for five years longer to do his work as the only doctor in a district where the conditions entailed much exposure in the winter months. For the past year he had been practically confined to his bed, but his intellect remained unimpaired till within a few hours of his death. He is survived by a widow and a young family of two sons and one daughter.

LIEUTENANT-COLONEL EDGAR A. MEARNS, of the Medical Service of the United States Army, who died on November 3rd, aged 59, graduated at the New York College of Physicians and Surgeons in 1881. He served in the army from 1883 till 1909, when he retired on account of physical disability. He was the author of more than one hundred and twenty reports and memoirs on subjects connected with natural history. He made two journeys to South Africa, one in 1909–10 as the representative of the Smithsonian Institution on the Roosevelt expedition; the second a year later with the Childs-Frick expedition. One-tenth of the collection of birds in the Smithsonian Institution was the fruit of his efforts.

COLONEL ERNEST HAROLD FENN, C.I.E., A.M.S. (retired), died at Hagley, Worcestershire, on November 24th, aged 66. He was born on February 16th, 1850, the son of Mr. T. H. Fenn of Nayland, Colchester, was educated at Sherborne and at Middlesex Hospital, and took the diploma of M.R.C.S. in 1872 and that of L.R.C.P.Edin. in 1873. He entered the army as surgeon on September 30th, 1875, and shortly afterwards served in the Afghan war of 1878–80, when he took part in Roberts's march from Kabul to Kandahar and the battle of Kandahar, was mentioned in dispatches, and received the medal with a clasp and the Kabul-Kandahar bronze star. In 1881 he joined the Grenadier Guards, and served with them in the Sudan in 1885, at Suakin, and in the action of Hashin, receiving the medal with clasp and the Khedive's bronze star. From 1888 to 1894 he served on the staff of Lord Lansdowne, then Governor-General of India, and accompanied Sir Mortimer Durand on his mission to Kabul in 1893, for which he received the thanks of the Government of India and the C.I.E. From 1898 to 1903 he served on the staff of Lord Curzon, Viceroy of India, when he was present at the Delhi Durbar of 1902, and received the Durbar medal. On August 16th, 1903, he was promoted to full colonel, and on February 16th, 1907, he retired.

ROYAL MEDICAL BENEVOLENT FUND.

The following is a continuation of the summary of cases relieved by the Committee at its meeting on November 14th:

Widow, aged 78, of M.R.C.S.Eng. who practised at Holderness and died in 1896. Left with a large family and only £30 per annum. With the exception of two daughters, who help at home, the other children are married and unable to help. Tries to supplement income by taking in lodgers. Relieved six times, £72. Voted £12 in twelve instalments.

Daughter, aged 64, of M.D.Lond. who practised in London and died in 1887. Applicant is blind and her only income is a pension from a society for the blind. Relieved four times, £42. Voted £12 in twelve instalments.

Daughter, aged 65, of F.R.C.S.Eng. who practised at Chester and died in 1884. Applicant left without means, and has endeavoured to earn a living as housekeeper, but, owing to age, cannot obtain a post. Relieved five times, £32. Voted £10 in two instalments.

Widow, aged 46, of L.R.C.P.Edin. who practised in Fifeshire and died in 1913. Applicant was left without means with six children, two of whom are still at school, and the only one able to help earns £70 per year, which is the only source of income. Applicant has recently been very ill, and with the increased cost of living has got into difficulties. Relieved once, three years ago, £10. Voted £20.

Daughters, ages 64 and 56, of M.R.C.S.Eng. who practised in Cornwall and died in 1873. Only property left them the house in which they live, and they try to make a living by receiving paying guests, but recently not successfully. Relieved seven times, £118. Voted £18 in twelve instalments.

Widow, aged 53, of M.D.Edin. who practised at Newcastle and died in 1896. Applicant was left entirely without means with one young daughter. Up to about two years ago, when she fractured her leg, managed to make a living as nurse companion, but cannot undertake any work now, and is dependent on her daughter, now married and only able to help a little. Relieved twice, £24. Voted £12 in twelve instalments.

Daughter, aged 57, of M.D.Lond. who practised at St. Pancras and died in 1868. Applicant and her mother were left entirely unprovided for, and since her mother's death earned her own living as nurse companion, but, owing to ill health and age, unable to obtain suitable work. Voted £6 in six instalments.

Widow, aged 66, of L.R.C.P.Irel. who practised in Essex and died in 1896. Since the death of her husband has earned a living by acting as cook. Recently had a serious operation which prevents her from working. Only income a small pension from another society. Relieved five times, £42. Voted £12 in twelve instalments.

Daughter, aged 48, of M.R.C.S.Eng. who practised in Bombay and died in 1873. Applicant endeavours to earn a living by nursing but finds it impossible to make sufficient to keep herself. Relieved five times, £64. Voted £12 in twelve instalments.

It was reported that four annuitants had died since the previous meeting, one of whom had received £500, another £480. The vacancies were filled up.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

The following committees of the Senate have elected their respective chairmen as follows:—Brown Animal Sanatory Institution Committee: Sir Rickman J. Godlee, K.C.V.O.; Honorary (War) Degrees Board: The Vice-Chancellor, Sir Alfred Pearce Gould, K.C.V.O.; Committee of Members of the Senate: Dr. Frederick Taylor; Physiological Laboratory Committee: Sir David Ferrier, F.R.S.

The Rogers Prize of £100 for 1916 has been awarded to Dr. J. L. Jona, D.Sc.Adel., M.D., B.S.Melb., for an essay on the nature of pyrexia and its relation to micro-organisms.

SOCIETY OF APOTHECARIES OF LONDON.

The diploma of the society has been granted to Messrs. E. Baumgarten and P. C. C. Fenwick.

The Services.

EXCHANGES.

Captain R.A.M.C.(T.), recruiting medical board, near London, desires exchange with T.F. officer doing sanitary work or with B.E. unit. Eastern command preferred. Address No. 4800, British Medical Journal Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Yeomanry Regiment, stationed easy distance from London, seeks transfer with M.O. in base hospital, casualty clearing station, or ambulance train.—Address No. 4798, British Medical Journal Office, 429, Strand, W.C.

M.O. (Captain), regiment East Coast, wishes to exchange with any Territorial M.O., abroad.—Address No. 4799, British Medical Journal Office, 429, Strand, W.C.

Medical News.

We are informed that Sir James Mackenzie withdrew from the Final Medical Appeal Board a month ago.

At the meeting of the Medical Society of London on Monday next at 8.30 p.m. demonstrations illustrating the principles of the re-education of the wounded will be given by Mr. Arnold Lawson (the blind), Mr. Derwent Wood (facial restoration), Dr. J. B. Mennell (walking), and Mr. McMahon, instructor of speech defects at St. Bartholomew's Hospital (shell-shock, stammering and other affections of the voice and speech).

Christmas lectures to juvenile audiences at the Royal Institution of Great Britain were instituted by Michael Faraday in 1826. The ninety-first course will be given by Professor Arthur Keith, F.R.S., on December 28th, 30th, January 2nd, 4th, 6th, and 9th, at 3 o'clock on each day. His subject is "The human machine which all must work." At a later date Professor C. S. Sherrington, F.R.S., will give six lectures on the old brain and the new brain and their meaning, and on pain and its nervous basis. The first Friday evening discourse will be given on January 19th, when Professor Sir James Dewar will lecture on soap bubbles of long duration.

A course of lectures and demonstrations in hospital administration for the D.P.H. will be given by Dr. E. W. Goodall at the North-Western Hospital, Hampstead, on Tuesdays and Fridays, beginning January 2nd, 1917. The fee for the course is £3 3s., which should be paid to the Metropolitan Asylums Board, Embankment, E.C., from whom further information can be obtained.

Sir Richard Temple, Chairman of the Edith Cavell Homes of Rest for Nurses (25, Victoria Street, Westminster), informs us that a number of contributions have been received from officers and men in both services, who, in sending them, have expressed their cordial sympathy with the scheme. Its object is the establishment, in memory of Nurse Edith Cavell, of a home or homes of temporary rest for practising trained women nurses and probationers who are or have been employed in civil or military hospitals, or in connexion with war, or in any other capacity, and have become temporarily in need of mental or physical rest. The appeal is signed by, among others, Lady Haig, Lady Jellicoe, Viscount French, Lord Beresford, and Sir William Robertson, all of whom are serving on the council.

Abdulla and Co., cigarette makers, have issued again this year a tablet wall almanac (for 1917) with illustrations. Among the artists whose drawings are reproduced in colours are representatives of Italy, Japan, Portugal, and Russia, as well as of this country and of Australia. Twenty thousand copies have been prepared for sale at the price of 1s. 4d. each, out of which 1s. will be paid to the funds of the British Red Cross Society.

A recent report of the United States Public Health Service states that there are two establishments for lepers in Venezuela. The larger, which is on the Isla de Providencia, just outside the harbour of Maracaibo, has accommodation for 700 patients. It is in charge of a staff of doctors and nurses and is provided with apparatus for the disinfection of clothes and bedding by steam. Lepers are segregated in the several states of Venezuela as they are found and removed later to the Isla de Providencia. The number of lepers interned there at the beginning of 1914 was 400 and 233 were received during the year. During the same period 10 patients were discharged apparently cured. The other establishment at Cape Blanco, about four miles from La Guaira and Maiquetia, which formerly accommodated 400 patients was closed, but is now used for the temporary reception of local lepers till they can be transferred to the Isla de Providencia.

ANNA J. JEANES of Philadelphia, a member of the Society of Friends, well known as a philanthropist, died in 1908 leaving estate which now amounts to more than £600,000 to be applied to the treatment of cancerous, nervous, and disabling ailments. Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, Baltimore, who was asked by the trustees of the fund to investigate the work of the Philadelphia hospitals with a view to the most useful employment of the money, has recommended that it be given to the University of Pennsylvania Hospital.

To all lovers of old medical literature a catalogue of "early works on the sciences of medicine and chirurgery" issued by Messrs. Charles J. Sawyer will make a strong appeal. It includes a number of rare and curious old books printed before 1800. Among them we note an English translation of Paul Barbette's *Thesaurus Chirurgiae* with *Medicina Militaris*, "a Body of Military Medicines experimented" by Raymundus Mindererus, and *Cista Militaris* or "a Military Chest furnished for sea and land" by G. F. Hildanus, printed at Amsterdam in 1676; Herman Busschof's treatise on Gout "Englished out of the Dutch by a careful hand" (1676) (it contains an advertisement of moxa, the secret remedy of the "Chineses and Japaneses" described by Sir William Temple in his essay "upon the cure of gout"); the *Mellificium Chirurgiae* of James Cooke of Warwick (1685); Richard Wiseman's *Chirurgical Treatises*, including those on gun-shot wounds (third edition, 1697); Cl. Quilletus's *Callipaedia, seu de pulchrae prolis habendae ratione* (1708); Nathaniel Hodges's *Loimologia*, "an historical account of the plague in London in 1665" (third edition, 1771); and John Huxham's *Essay on Fevers* (1750). There are two volumes of manuscript medical and household recipes (seventeenth and eighteenth centuries). Among the pictures is an interesting caricature which may perhaps find a modern application; it is a folio coloured etching published in 1810, and described as "the winding up of the medical report of the Walcheren expedition." There is also a selection of engraved portraits of medical celebrities. It may be added that the Medical Iconographical Society announces the publication, beginning from January, 1917, of a new series of medical portraits from the time of Linacre down to the present century. Particulars may be obtained from Messrs. Charles J. Sawyer, Ltd., publishers to the Society, 23, New Oxford Street, W.C.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2631, Gerrard. The address of the Irish Office of the British Medical Association is 15, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

G. S. wishes to consult literature regarding the annual expected progress in height and weight among boys in an industrial home, and the relation of nutrient milk thereto.

INCOME TAX.

G. W. inquires whether army pay received as recruiting medical officer is assessable.

*** The pay in question appears to be received for services rendered in connexion with an employment of profit under the Crown, and as such is assessable under Sec. E. The fact that it may be terminated without notice does not affect the existence of liability. We gather that the local surveyor of taxes is dealing with the matter, and if that means that the pay has been assessed locally, the "final appeal" would lie to the Income Tax Commissioners on a question of fact, and to the High Court on a point of law. We advise our correspondent to satisfy himself that no tax is being or will be deducted by the pay agents or paymaster.

ACID DYSPEPSIA.

A MEDICAL MAN, who for the past year has suffered from dyspepsia, heart weakness not due to valvular disease, blueness of hands, and some slight swelling of the fingers in frosty weather, and who finds relief from alkalis, etc., would be glad to know of the best spa to go to be treated, as he is of opinion that the condition is due to acid dyspepsia.

*** The typical simple alkaline spas are Vichy and Vals, but, apart from the difficulties created by the war, the season at both places is from May to September. Any suggestions will be forwarded to the inquirer.

EXTINCT BRITISH SURGICAL INSTRUMENT FIRMS.

SCALPEL wishes to know where he could find information about the dates of the founding and dissolution of instrument-making firms. The curators of several college and medical school museums are interested in this subject. "Savigny" is well known; the firm published a fine illustrated catalogue in 1798, and the excellence of its steel is known even to surgeons now living. "Laundy" was flourishing in 1820. "Stodart" is marked on instruments used by John Hunter, "Robinson, Oxford," on Blizard's lithotomy knives, and "Pepys" and "Evans" on instruments used by Long, Master of the College of Surgeons in 1800. "Boog" seems to have flourished at the beginning of the nineteenth century, and "Botschan" made a large number of David Davis's obstetrical instruments, of which samples are to be seen in several museums; they were made about 1820.

ANSWERS.

POSITION OF FETAL HEAD.

SCOTTISH PRACTITIONER.—The accoucheur's hand is the best instrument we have for assisting the flexion or altering the position of the fetal head. A recent article by Plass (*Johns Hopkins Hosp. Bull.*, xxvii, 164–177, 1916) gives reasons for not interfering with the head in occipito-posterior positions, and pleads for conservative measures.

AUTO-WHEELS.

AUTO writes: In reply to "W." (November 25th, p. 748), I have an auto wheel in use for over twelve months, and find it satisfactory. It does all that is expected of it.

DR. T. REUELL ATKINSON (Chadwell Heath) writes in reply to "W.": I bought an auto-wheel in March, 1914, and had it fitted by a good mechanic to my B.S.A. bicycle. It has done me good service, and I can speak well of it. My speedometer now registers 8,937 miles, and quite half of that mileage has been done since fitting on the auto-wheel. I have worn out two or three tyres, and have required two or more new sparking-plugs. Besides that, there has been very little extra expense—very occasionally I send it to be cleaned. I get about eighty miles to the gallon out of it. It doesn't climb hills well, but is all right on the level. On a hill I assist it by foot-pedalling. Only on two or three occasions have I been held up. I find it quite as reliable as my car, much cheaper to run, and it gives one a little gentle exercise now and then. I found it a good plan when I wanted a new back tyre to my bicycle to have a tandem tyre fitted. I should say it would be very wise for any purchaser to see that the machine only got into the hands of a capable mechanic who knew what he was about. I have heard of auto-wheels being ruined by careless repairs and cheap tinkering.

LETTERS, NOTES, ETC.

A WARNING.

N. B. writes: There are blackmailers, etc., about trying to get misleading medical certificates for rejection purposes. Medical men are advised to be careful in stating how long they have known their clients, etc.

INDIAN AND EGYPTIAN RESIDENTS IN ENGLISH HOSPITALS.

DR. K. S. BHAT (London) writes: Will you kindly grant me a few lines in your valuable columns to thank the authorities of Paddington Green Children's Hospital for their very candid advertisement in the BRITISH MEDICAL JOURNAL for November 25th, 1916, for applications for the posts of house-physician and house-surgeon there? They say there: "As this hospital is a children's hospital, applications from Indian and Egyptian students will not be entertained." It is certainly gratifying to find some one at least who will say such things out. I am an Indian myself, and happen to be the resident medical officer at the East London Hospital for Children; and the house-physician here is an Indian too. It is beside the point to enter into any comparison between the two hospitals.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429 Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

VII.—THE MECHANICAL TREATMENT OF FRACTURES UNDER WAR CONDITIONS.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M., F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THE methods employed must be both efficient and simple; they must allow easy and painless access to the wound, and ensure immobilization of the limb during transport. The following notes are a contribution towards the attainment of these needs, but it must be understood that modifications of them may be rendered necessary by the severity of the wounds, or by the necessity of providing for the transport of the patient, should early evacuation be necessary.

Plaster-of-Paris, so often used in the treatment of simple fractures, becomes a filthy method where suppuration has occurred. Despite every precaution for the exposure of the wound the plaster mops up discharges, and becomes horribly offensive,

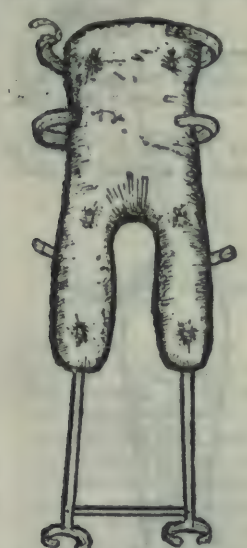


FIG. 1.—Thomas's double frame.

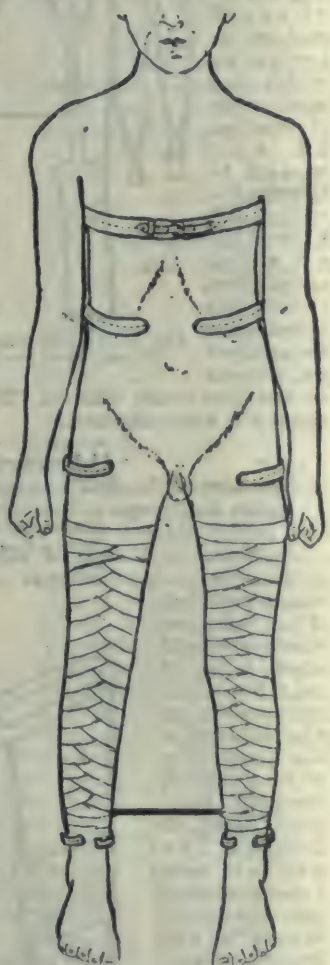


FIG. 2.—Thomas's double frame applied.

adding to the infection of the wound. I would urge my young colleagues at the front to discard it altogether.

FRACTURES THROUGH THE LOWER SPINE AND PELVIS.

Fractures through the lower spine and pelvis are, in my opinion, best treated on the double Thomas frame. (Figs. 1, 2, 3.) All that is needed is to place the patient on the frame, bandage the limbs, and press the body and leg wings into position to prevent side movement. If there is any wound on the posterior surface that requires dressing the pad can be shaped accordingly to allow of access.

Thomas's Double Frame.

Measurements Required: Nipple to external malleolus.
Splint Measurement: 4 in. less than above measurement.

Application.—Place the patient on the splint with the buttocks on either side of the horseshoe-shaped gap in the back pad, which has been left for nursing purposes. The wings of the splint should then be moulded round the patient's chest and ribs, care being taken to turn them up acutely enough from the back pad to prevent side movements of the body. A 5 in. thick pad is placed under each knee to prevent genu recurvatum, and the ankle grips, which reach just above the malleoli, must be well padded. The knees are now bandaged firmly to the splint, and

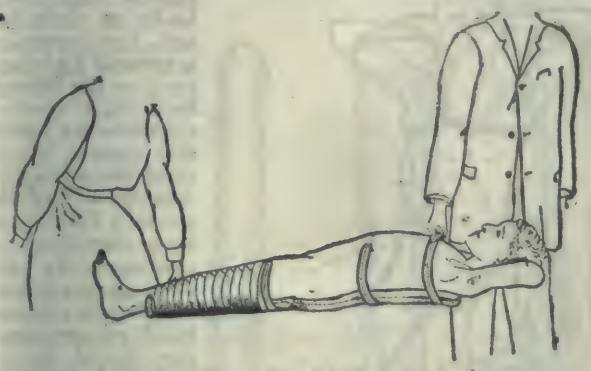


FIG. 3.—Method of lifting patient on Thomas's double frame.

constant pressure of bedclothes on the feet avoided during treatment.

Double Frame too Short.—Place the patient as high up on the splint as the lesion will allow. Posterior knee splints firmly bandaged to the knees will be found to supply the deficiency at the foot of the splint quite well.

Double Frame too Long.—Place the patient on the splint with chest band at the nipple line as usual. Readjust the back pad sufficiently high up the splint to allow for nursing purposes. The pads under the knees will require to be larger, and the heels must be protected with rectangular foot splints or plaster-of-Paris, as they will be lying on the leg bars of the splint—otherwise, proceed as usual.

Hints for Nursing a Patient on Double Frame.

The patient should never be turned for nursing purposes, or the spine and limbs will sag laterally. Place a block underneath the bar between the ankles to avoid pressure on the heels, increasing the height of the block when necessary to insert a flat bed-pan beneath the splint. In this raised position all necessary washing of the buttocks can be done. The patient is never taken from the splint, nor are the bandages removed for any purpose, but only the exposed skin washed.

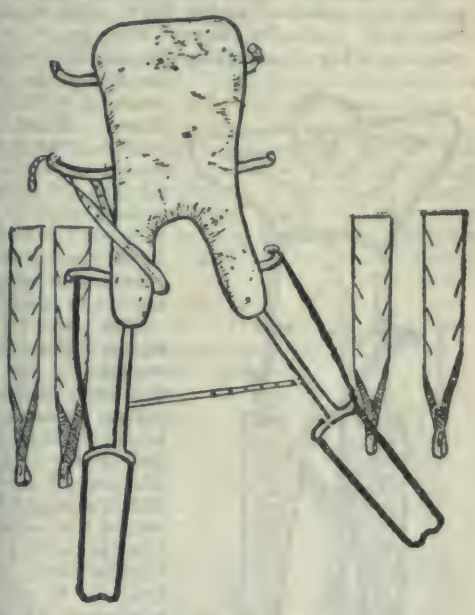


FIG. 4.—Left abduction frame.

The feet should be supported at right angles, and protected from the weight of the bedclothes.

FRACTURES OF THE LOWER LIMB.

HIP AND UPPER THIGH.

Fractures through the hip joint and those just below the trochanter are best treated by a modification of the Thomas splint, which I have described as an "abduction frame" (Fig. 4). It is a splint upon which the patient lies and can be carried (Figs. 5 and 3), extension is easily applied, maintained, and need not be relaxed for any purpose. The patient is placed upon this splint, and any

displacement should be overcome by immediate extension in the abducted plane. The limb should be rotated inwards slightly until the foot is at right angles to the table and be fixed in this position on the frame. It will be seen by the illustration that both limbs are controlled and that extension is secured by strapping on the injured limb with counter extension by means of a smooth leather groin strap on the opposite side of the pelvis. This groin strap should not be slackened by the nurse under any pretext, but in order to avoid pressure sores she should be instructed to alter the area of skin subjected to it over the adductor muscles by moving it to and fro. This method of "fixed extension" in abduction secures the lower limb in relation to the pelvis in a manner which can never be satisfactorily achieved by weight and pulley, where reliance is placed on the weight of the body for counter extension. It is by reflex nervous impulses, induced by changes of tension in the muscle, that muscular spasm is produced. A patient lying in bed with a fractured femur—high up or lower in the shaft—cannot avoid constantly changing the state of tension of the muscles of his thigh if a weight and pulley are attached to his limb. The counterpoise is the weight of his body. Every time he tries to shift the position of his shoulders by digging his elbows into the bed he alters the tension of his muscles, calling forth a reflex spasm. When he falls asleep and his muscles relax; when he moves in his sleep; when he is lifted upon a bedpan or moved slightly by the nurses to have his bed put straight, there is apt to recur this reflex contraction due to sudden change in tension.

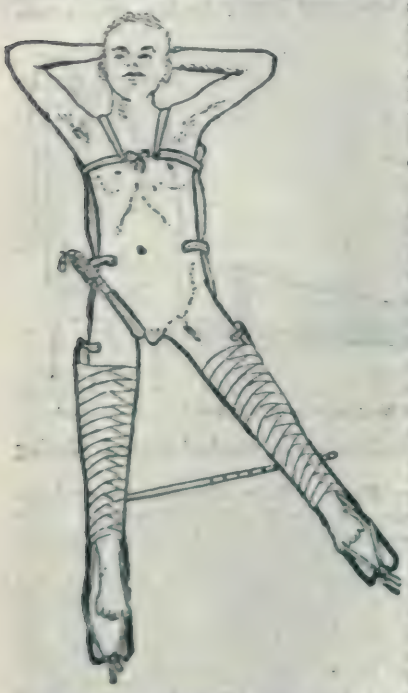


FIG. 5.—Left abduction frame applied.



FIG. 6.—Left abduction frame. Limbs parallel for transport.

The long Liston splint, which is much in use, is quite unsuitable for fractures of the upper thigh. It does not permit abduction, but maintains the limb in line with the trunk—a position which must result in angular union, and in a sagging which proves one of the very common and troublesome deformities. Furthermore, as the splint extends to the axilla, any movement of the trunk involves movement of the limb, and attention to the secretion disturbs the fracture. Both the Liston and the ordinary weight and pulley are ill suited for any form of fracture with suppuration, where good alignment, comfort and ease of transport are desired. One of the objections to the old abduction frame was the difficulty of transport. The abducted limb proved difficult both on the boat and in the train. To obviate this, the splint is now made so that the patient may be put up for transport with both limbs parallel. As soon as the patient arrives at hospital the limb is abducted without disturbing him in any other way (Fig. 6).

The patient who lies on an "abduction frame" can be lifted and moved without pain, without disturbing the fracture or relaxing the extension, and the dressing can be changed without interfering with the mechanism of fixation. If the wound is through the buttock and the discharge takes place there, the splint can be modified as shown in the illustration (Fig. 7). The abduction frame can be applied in a few minutes.

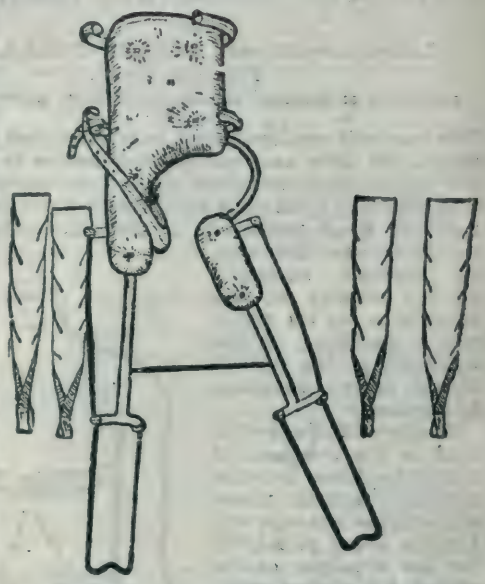


FIG. 7.—Modified abduction frame for pelvic wound; only to be used while wound discharges.

Abduction Frame.

Measurements Required: Nipple to external malleolus.

Splint Measurement: From chest band to ankle grip, 4 in. short of above measurement.

Application.—A strip of adhesive plaster, to which a strong loop has been sewn at one end, is applied to each side of each leg. The adhesive plasters should reach from as near the lesion as possible to the malleoli—the loops lying at each side of the heel. Bandage these on firmly. The patient now lies on the splint (see "Double frame"), but before bandaging down the knees lay the body of the groin strap along the gluteal fold of the sound limb, securing it by means of its perforated ends to the pegs on the splint wing. Next apply the traction required to the injured limb, maintaining it by tying the external loops to the end of the splint by means of bandage which has previously been passed through the loops. The groin strap remains stationary. Further traction of the limb is obtained by means of



FIG. 8.—Strapping extensions applied to leg. Suspension slings to splint to support limb.

this extension. The sound limb should have very slight traction applied to avoid pelvic tilting.

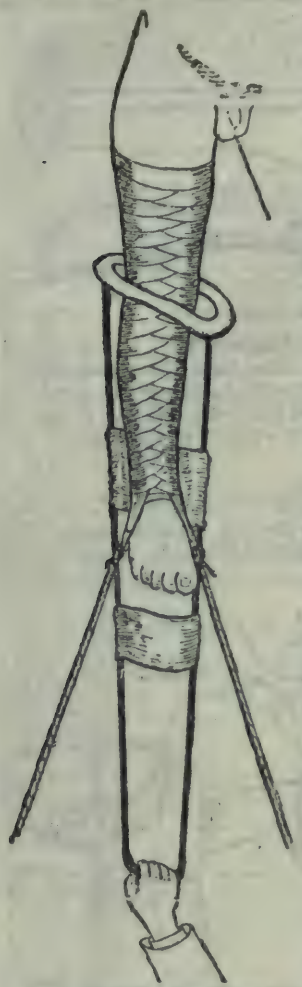


FIG. 9.—Introducing limb through ring of Thomas's knee splint.

If Abduction Frame too Short.—Place patient on abduction frame allowing only about 6 in. of space between the heels and the extension loops of the splint. Move the back pad higher up the splint fitting the gap between the patient's buttocks for nursing purposes. Having fitted the groin strap to the patient's gluteal fold, tie the perforated ends over the chest band of the splint at the axilla and proceed as usual.

If Abduction Frame too Long.—Place patient on abduction frame, fixing the groin strap in the usual manner. If the chest band will not mould down sufficiently to lie comfortably in each axilla, it may be turned back flat with the bed and ignored. Heels that do not reach beyond the leg piece of the splint must be protected from pressure with a rectangular foot splint or plaster-of-Paris, and proportionately thicker pads placed under the knees (see "Double frames").

Nursing Hints for Patient on Abduction Frame.

The patient should never be turned for nursing purposes, or the spine and limbs will sag laterally. Place a block underneath the bar between the ankles to avoid pressure to heels, increasing height of block when necessary to insert a flat bedpan beneath the splint. Also in this raised position all necessary washing of the buttocks can be done. The patient is never taken from the splint nor are the bandages removed for this purpose, but only the exposed skin washed. The feet should be supported at right angles, and protected from the weight of the bedclothes. Remove the groin strap for five minutes four-hourly during the first twenty-four hours; twice daily is usually sufficient afterwards. Rub area with spirit and powder during these intervals, replacing strap in same hole as before, but as much as possible over a different adductor skin surface.

UPPER MIDDLE AND LOWER THIGH.

For all other fractures of the thigh the Thomas knee splint is incomparably the simplest and best (Fig. 8). I have often fixed a fractured thigh in this splint and sent the patient home in a cab. By reason of its construction, it automatically secures a correct alignment, as any surgeon with a mechanical mind can see if he examines the illustration. I am in the habit of using this splint for the treatment of all fractures of the middle and lower third of the thigh, fractures through the knee-joint, and fractures through the upper and upper middle portion of the leg.



FIG. 10.—Knee splint in position, traction applied.

The application of the Thomas bed splint is quite easy. Strapping of adhesive plaster is applied in the usual way to the sides of the limb. At the lower end of the extension strapping there is a loop of webbing to which is attached a length of strong bandage (Fig. 8). The ring of the splint is passed over the foot (Fig. 9) and up to the groin till it is firmly against the tuber ischii. The extensions are then pulled tight, the ends turned round each side bar (Fig. 10) and tied together over the bottom end of the splint, which should project 6 or 8 in. beyond the foot. Care must be taken to avoid internal or external rotation of the limb, the foot being kept at right angles. Local splints can then be employed, and are made of block tin or sheet iron. They can be moulded by the hand to fit the limb, and yet, being gutter-shaped, they are rigid longitudinally (Fig. 11). They can be disinfected by fire or water. A couple of transverse bandage slings suspend the limb from the side bars of the knee splint. A straight splint is placed behind the suspensory bandages of the thigh and knee. On the front of the thigh another sheet iron splint is applied, and the femur is thus kept rigid. The alignment from the hip-joint to the ankle is perfect, being dependent on a straight pull (Fig. 12).

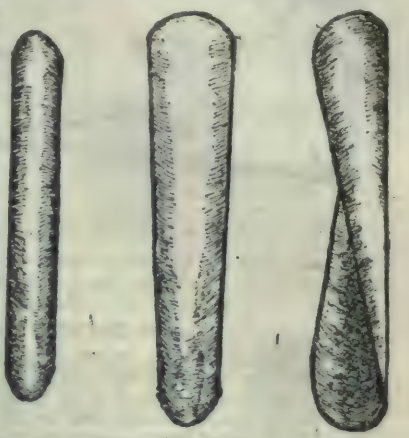


FIG. 11.—Sheet iron splints moulded by hand for various uses.

One may prefer to use a screw extension instead of bandage in some cases, when there is difficulty in maintaining the full length of the limb (Fig. 13). This splint allows the patient to raise his shoulders, or even sit in bed. His other leg can be moved freely without altering the tension on his thigh muscles, and there is no reflex spasm. Even if the muscles try to contract they cannot, for the ring of the splint is firm against the tuber ischii. The muscles therefore do not remain on the alert but become quiescent, and starting pains do not occur. Such is the difference between "fixed" and "intermittent" extension.



FIG. 12.—Thomas's bed knee splint with local splints applied.

In using this splint a little attention is necessary to prevent soreness of the perineum. The ring of the splint, being covered with smooth basil leather, can easily be kept clean, so can the skin. The dressings can be applied without in any way interfering with the action of the splint. When the fracture has occurred through the knee or upper tibia the splint is applied in the same way.

It has often been a matter of astonishment to



FIG. 13.—Screw extension which may be used with Thomas's knee splints or abduction frames.

me that so simple and effective a splint has not been universally employed. It can be applied in a few minutes, usually without an anaesthetic, and one is always sure of good length and good alignment. The fractured limb can be moved in any direction without giving pain, so that transport is easy and safe. I have never yet had to plate or wire a femur in a recent case, and this I ascribe to using the Thomas splint.



Fig. 14.—Skeleton splint for injuries near the ankle-joint.

Thomas Bed Knee Splint.

Measurements Required: Horizontal circumference of thigh at groin, length of leg from fork to base of heel.

Splint Measurement: Add 1½ in. to circumference measurement to allow for obliquity of ring. Add 6 in. to 8 in. to length of leg measurement to allow for extension pull.

Application.—Apply a strip of adhesive plaster, to which a loop has been sewn at one end, to each side of the leg with the loop lying at the heel. These should be firmly bandaged on and reach from the heel to as near the lesion as possible. Slide the ring of the splint over the foot and up the leg, pushing the ring well into the groin and applying the necessary counter-extension on the limb. This counter-extension is maintained by tying the extension loops to the end of the splint by means of bandage which has been previously passed through the loops.



Fig. 16.—Splint to keep the arm abducted slightly forward, and slightly rotated inwards.

A posterior knee splint, short enough to just avoid the gluteal fold at the upper end and the heel at the lower end, is then slung between the side bars of the bed splint to support the limb. Local splints can be applied if required, and the whole bandaged compactly together. Sling or support the foot of the splint to prevent pressure of the heel on the bed.

If the Splint is too Large in the Ring.—Fix a sufficiently large soft pad in the ring at its junction with the outer bar to prevent the inner portion of the ring slipping from the groin across the perineum.



Fig. 18.—Splint immobilizing the elbow-joint but allowing access to it.

If the Splint is too Small in the Ring.—Saw through the ring just in front of its junction with the outer bar; open as necessary.

Nursing Hints for Patient with Thomas Bed Knee Splint.

This is usually applied when extension of the limb is required; therefore pressure over the ischium may be great, but this can be relieved by raising, lowering, or abducting the limb from time to time. The skin surface lying under the ring should frequently be changed and kept dry and well powdered. The foot end of the splint must be either slung or supported to prevent pressure under the heel, and if the foot has been left free it should be supported at right angles by a pillow or otherwise.



Fig. 15.—Skeleton splint applied.

Leg.

Fractures of the lower portion of the tibia or fibula, and fractures through the ankle-joint, I treat in a skeleton splint, such as I have illustrated (Fig. 14). It allows of easy access to the wound, and can without difficulty be modified to suit a special case. Fortunately, in gunshot wounds, the spiral fracture is rare, and, generally speaking, one bone remains unbroken. The treatment, therefore, of fractures of the leg does not present so much difficulty as that of the thigh. For transport, however, and for general comfort, the splint should immobilize the knee (Fig. 15).

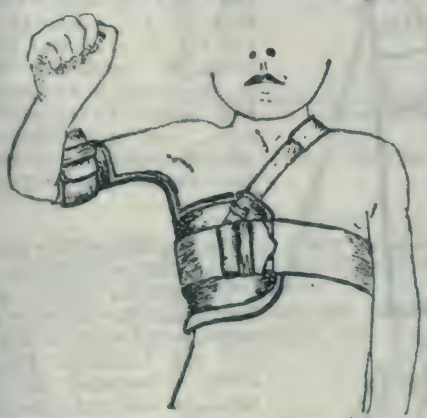


Fig. 17.—Splint applied to keep the arm abducted slightly forward, and slightly rotated inwards.

A Skeleton or a Rectangular Foot Splint.

Measurements Required for Skeleton Splint: Tread of great toe to heel.

Measurements Required for Rectangular Foot Splint: Tip of great toe to heel.

Splint Measurements: The same, but any adult size is easily adapted.



Fig. 19.—Elbow splint applied.

These splints are usually applied to feet which are, or are required to be, held at right angles. When this is not the case, it is advisable to alter the splint's angle, or a pressure sore may result to the heel which is not lying in its appointed place.

Rectangular Foot Splint too Large.—Of no consequence unless marked, when a pad will be required above insertion of the tendo Achillis to prevent pressure on the heel; and a *skeleton splint*

will require a local splint or its substitute to the sole of the foot.

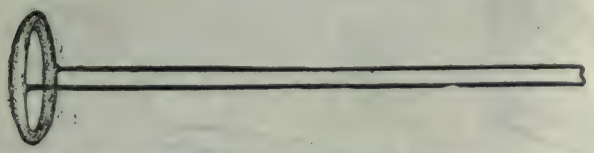


FIG. 20.—Thomas's knee splint, modified, used to maintain extension of the humerus in the abducted position.

Skeleton Splint too Short.—The foot-piece of the splint can be lengthened by a local flat splint or its substitute.

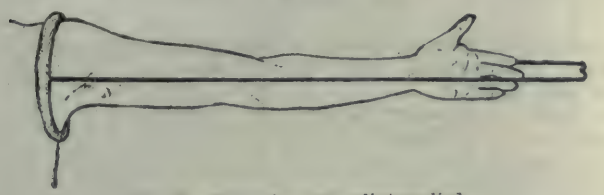


FIG. 21.—Extension arm splint applied.

Nursing Hints for Patient with Skeleton Foot Splint.

This splint should be supported on a graduated pillow which is thicker under the knee.

FRACTURES OF THE UPPER LIMB.

ARM.

Fractures through the shoulder-joint and through the surgical neck of the humerus require no splints. The elbow should be slung at right angles, and fixed by a broad bandage to the side. The dressings would probably replace the usual pad in the axilla, which should never be bulky. Shoulder shields are unnecessary and cumbrous. The patient, where practicable, should be treated in the upright position, and should have his head and shoulders well propped at night.



FIG. 22.—Modified Thomas's humerus extension splint.



FIG. 23.—Modified Thomas's humerus extension splint applied.

Where ankylosis is to be expected after a bad smash and suppuration of the shoulder, and opportunity is afforded for continuous treatment, the arm should be kept abducted slightly forward, and slightly rotated inwards (Figs. 16 and 17). This assures a much extended range of movement at a more useful radius, such range of movement being brought about by the action of the scapula. This position need not be adopted if the patient has to be transported, as it can be established after the arrival home. Fractures through the elbow or immediately above the condyles are best treated without splints. If possible, the arm should be kept flexed well above a right angle. Suppurating cases in the adult will not admit of the very acute flexion which we insist upon in the case of children. If, for a rare reason, a splint has to be applied, the internal wooden angular splint must be avoided, because it is always clumsy and often causes deformity, and a splint as illustrated used (Figs. 18 and 19).

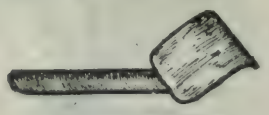


FIG. 24.—Hyperextension hand splint.

Fractures of the middle and lower middle portions of the shaft of the humerus, where dressings have to be frequently changed, require very gentle handling, and I illustrate two splints which may be found very useful. One is a modified Thomas knee splint used to maintain extension in the abducted position, the patient being recumbent (Figs. 20 and 21). The other is a modified Thomas humerus extension splint (Figs. 22 and 23), to be used when the patient can walk about or sit up in bed. Either splint permits of easy dressing, and maintains adequate fixation. As so much destruction of bone may be produced by modern shrapnel, and even by rifle bullet, great care must be taken to prevent over-extension, otherwise non-union will ensue.



FIG. 25.—Hyperextension hand splint applied.

FOREARM.

The chief disability to be feared in fractures of the shafts of the bones of the forearm is inability to supinate the forearm completely. The trouble usually arises where both bones are broken, but it may occur where the radius alone is involved. We must remember that the whole length of the posterior border of the ulna is subcutaneous and is practically straight. On this straight ulna the curved radius rotates like the handle of a bucket. We must therefore attend to two points. First, we must keep the ulna straight; second, we must not interfere with the natural curve of the radius. That is to say, there must be no lateral pressure of bandage or splint on the middle of the shaft of the radius. In dealing, therefore, with these fractures, whether one or both bones be broken, the position of supination should invariably be maintained. This is even more important in septic compound fractures than where no complication exists. Neglect of this important point will often result in a locking of the bones in pronation. We must remember that in nearly all neglected fractures of the forearm, supination and not pronation is defective, the arm being usually fixed in the pronated position.



FIG. 26.—Skeleton hyperextension hand splint.



FIG. 27.—Skeleton hyperextension hand splint applied.

WRIST AND HAND.

Gunshot wounds through the wrist are very common, and far too many have been treated with the hand in line with the forearm—that is, midway between palmar and dorsiflexion. This is fatal to good function. All injuries of the wrist-joint should be treated in the dorsiflexed position, as shown in the illustration,



FIG. 28.—Skeleton hyperextension hand splint applied.



Fig. 29.—Long hand splint.



Fig. 30.—Long hand splint, with thumb-piece.



Fig. 31.—Long hand splint applied.

in order that the fingers may maintain their grasping power (Figs. 24, 25, 26, 27, and 28). Fractures of the hand may be immobilized as shown (Figs. 29, 30, and 31).

Care must be taken to fit the wrist flexion accurately to the splint flexion, thus avoiding any possible strain of the carpal joints.

Retention of Loose Pieces of Bone.

I do not intend to deal with the surgical considerations involved in the treatment of the suppurating wound. Many distinguished surgeons are devoting themselves to this problem. It may be well, however, to offer a word of warning against the destruction of loose pieces of bone removed from the wound. If quite loose they can be taken out, cleaned, and replaced. Suppurative compound fractures unite well if time be given them; a common source of failure is due to the removal of bone.

THE USE OF CRUTCHES TO PREVENT PRIMARY CONTRACTION.

By Dr. HAGENTORN,
PETROGRAD.

Crutches are commonly used by patients after the loss of one of the lower limbs or after injury before complete recovery. The latter, using them in the same way as the former, lift the injured limb when walking; we frequently see them walking with the knee lifted and bent, or the thigh hanging straight with a bent knee, according to the position of the wound, as in cases of wounds of the soft parts of the thigh, etc.

This method of holding the leg in walking, if it is continued over ten to twelve days, makes a bent knee and extended ankle-joint immobile. The contraction thus caused by injuries of the lower limb is merely reflex; this reflex primary contraction is easily cured; the secondary cicatricial contraction may get worse with time—for instance, after loss of muscular substance. To prevent pain from the injury of the muscle, the ends of it are approximated and fixed by the other flexors. The patients acquire this crooked position of the limb before they begin to use crutches, from the first day after the injury. A fortnight later the knee can scarcely be extended without force.

If the surgeon waits for the healing of the wound, and does not take precautions to prevent the contraction by splinting, and lets the patient walk with crutches with a lifted leg, shortening of the ligaments of the joints follows the muscular contraction; extension apparatus is required, and time is lost before the harm can be undone.

This can be prevented if crutches be used as follows: It is not enough to give crutches to a patient; the surgeon must teach him how to use them. The presence of the surgeon is necessary to give the patient assurance that he is going the right way without the least danger to his injured limb. His presence is desirable at the first trial to watch the patient. After lying in bed for several days the patient may feel giddy in the upright position, and may fall. Not many patients can walk at once with crutches as if they had never walked without them. Many require teaching.

Give the patient his crutches in the way in which they have to be used. Put the ends of them at a near and equal distance in front and aside of him, and let him take two steps, putting the wounded leg with the sole, as far as he can, flat on the floor, like the healthy one; then put both crutches at a rather greater distance in front of him, and so on. Care should be taken to let the patient put his feet symmetrically, not putting the bad one in abduction as he is inclined to do, nor the toes of the bad one pointing inward. In the absence of the surgeon the nurse must see that the patient learns his lesson thoroughly.

A light lateral splint, applied during the first days, can be removed, and the patient will not feel inclined to bend the knee, nor to keep the ankle-joint in an equinus position.

There is no need to wait for the use of crutches till the wound has entirely healed or the suppuration has ceased. There is no danger whatever in using the lower limb for walking as soon as the wound is granulating. The crutches must not be merely a support of the weight of the body, as in cases of amputation; they ought also to be a means of helping the physiological graduated use of muscles and bones.

To decide the time for using both crutches, or only one, or a stick, there is a simple method. Reach both hands to the patient instead of crutches, and let him take a few steps. If the pressure on both your hands is rather heavy, he must continue to walk with both crutches; if your hand feels the pressure of the hand on the bad side, he can walk with one crutch; if the pressure be slight on both your hands, he can walk with a stick.

Another important point for the same purpose is the length of time that the patient takes over touching the floor in making a step with the injured limb. If the time be very short he must use crutches. The more the difference of time between the steps of the two lower limbs diminishes the sooner he will be able to use a stick.

The length of crutches must exceed by 1½ to 2 inches the vertical line from the armpit to the ground.

Patients brought into hospital ten or more days after injury are many of them unable to straighten the leg at the knee-joint. Judicious forcible straightening, with fixation by means of a plaster-of-Paris bandage, with graduated movements and use of crutches, will remove the deformity. I have never had, either in civil or in war practice, to resort to physio-therapeutic measures to restore a recent contraction, if taken in time.

These remarks chiefly refer to cases of wounds of the soft parts of the leg; but the crutch *clientèle* is much wider than that. I will give the approximate times at which to begin the use of crutches in different cases of injuries of the lower limb. Allowance must be made for individuality.

1. Small wounds of the soft parts of the leg, scarcely discharging; light splint: Crutches on fifth to seventh day after injury.

2. Larger and more actively discharging wounds, with splint: Crutches on tenth to fourteenth day from commencement of granulating.

3. Wounds of the knee or ankle joint, penetrating the joint; splinted with a suitable plaster-of-Paris bandage; opening into joint closed: Crutches two to three weeks after the injury. If the joint has not been opened and the cartilages are uninjured, crutches on the fifth to seventh day after injury.

4. Special care must be taken over the use of crutches in cases of suspected or existing lesions of blood vessels.

5. Compound fractures of tibia or fibula or both: at the

time of diminished discharge, before consolidation of fracture. Crutches on the fifth to fifteenth day, with suitable plaster-of-Paris bandage.

6. Compound fractures of the thigh: According to the degree of bone-splitting and of suppuration, crutches on the third to seventh week, with plaster-of-Paris.

7. Wounds of the foot, even of the sole, do not contraindicate the use of crutches during the period of granulation.

The early use of the physiological functions of muscles and bones after injuries and gunshot wounds reduces to a considerable extent the number of patients requiring physio-therapeutic after-treatment.

PSEUDOTUBERCULOMA SILICOTICUM.

BY

C. R. NITCH, F.R.C.S.,

ASSISTANT SURGEON, ST. THOMAS'S HOSPITAL.

THE following case is an example of a rare lesion resulting from the traumatic insertion of silica into the lip:

A man, aged 39, seen by me on May 18th, 1916, gave the following history:

In 1905 he fell off his bicycle when riding along a dusty country road, cutting his nose and the mucous membrane on the buccal aspect of his lower lip. He thought that in all probability some road grit was ground into the wound, for he distinctly remembers spitting out blood and sand after he picked himself up. He used a mouth wash, and healing took place in about fourteen days. The resulting scar was somewhat thickened, but underwent no further change until five months ago, when a swelling began to form in its centre. Four months later the submental glands became enlarged and tender. The glandular enlargement, combined with the deformity of the lip produced by the increasing size of the tumour, led the patient to consult his doctor, who brought him to see me.

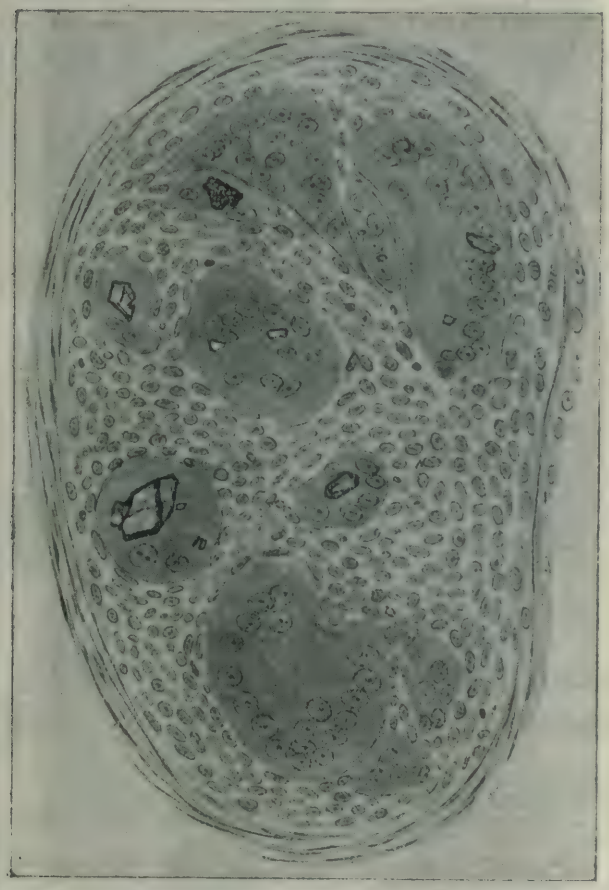


FIG. 1.—A group of multinucleated giant cells distributed in a circumscribed aggregate of proliferated connective tissue cells, the whole being surrounded with a narrow zone of fibrous tissue, as in a miliary tubercle. The whole of the new formation was constructed after a similar manner. Many of the giant cells enclose particles of silica. 2/3 in. objective.

He was a tall, well-built man, with a somewhat prominent lower lip. He stated that he had always been perfectly healthy and that there was no history of phthisis or specific disease. Von Pirquet's cutaneous reaction was negative. On the inner side of the lower lip, slightly to the left of the mid line and just above the frenum, there was a hard rounded tumour, a little larger than a shilling (about 2.3 cm.) in circumference and about 1 cm. in thickness. The mucous membrane was firmly adherent to the whole of its buccal surface, and it appeared to be invading the muscles of the lip. The skin was freely movable over the tumour. The submental glands were slightly enlarged and tender, but freely movable. The scar in the nose was small, soft, and hardly visible. Palpation of the tumour through the skin conveyed an impression similar to that given by a preputial chancre. A provisional diagnosis of an endothelioma or of a fibroma surrounding a foreign body was made.

On May 20th the tumour, together with the mucous membrane covering it and a quarter of an inch of the surrounding tissues, was excised from the buccal aspect of the lip, and the submental glands were removed. Healing was uneventful, and up to the present date there has been no sign of recurrence.

Pathological Report.

The tumour was tough and somewhat granular on section. It was sent to Professor S. G. Shattock for examination, and I have to thank him for the diagnosis of a very unusual condition, the nature of which is indicated by the name which he has given it.

Microscopic examination showed that the lesion consisted of a congeries or a mosaic of giant-celled systems and huge giant cells, hardly to be distinguished from those of tuberculosis, although no caseation was present. No tubercle bacilli or other bacteria were discoverable in the lesion in microscopic sections.



FIG. 2.—Giant cells with an included particle of silica. 1/6 in. objective.

In practically all the giant cells, however, and elsewhere, there were particles of silica, which stood brilliantly out when the sections were polarized. That the material consisted chemically of silica was proved by its insolubility in boiling nitric acid. The figures appended will, perhaps, convey at a glance the details of the structure of this singular formation.

WHEN the *Letimbro* was torpedoed Major Giulio Fantoli, of the Medical Service of the Italian army, who was on board, got away in one of the boats. For a long time nothing was heard of him. Recently General Ameglio, commander-in-chief of the Tripolitan army, discovered that the boat had fallen into the hands of Arab pirates and been taken to Misorata where Dr. Fantoli is still a prisoner. The adventure recalls the old days of the Algerian raiders of the sea whose most famous victim was Cervantes.

SECOND PRIMARY GROWTHS IN THE REMAINING BREAST AFTER AMPUTATION OF THE OTHER FOR CARCINOMA.

BY

DOUGLAS DREW, B.S., F.R.C.S.,

SURGEON TO THE HOSPITAL FOR WOMEN, SOHO.

Cancer of both breasts is not infrequently met with either where the original growth has not been removed and dissemination of the disease has taken place, or where the original trouble has been removed, but in spite of treatment recurrence takes place. In both conditions the growth in the second breast is part of the process of general dissemination, and is usually associated with other local and internal deposits.

In my experience it is extremely rare to find a second solitary growth developing in the remaining breast after the lapse of two or three years, the patient being in good health and careful examination failing to reveal any evidence of secondary deposits in any other region. I have two such cases under my observation at the present time.

Case I.

M., aged 53. First operation May, 1912; left breast. Remained well till August, 1915 (thirty-nine months), when the right breast was removed for a small growth in the breast tissue which had been present only a few weeks. The growth was a spheroidal cell carcinoma.

On examination of the patient, November, 1916 (fifteen months after the second operation), no evidence of any recurrence could be found either locally or internally.

Case II.

A doctor's wife. First operation October, 1912; right breast. Remained free from trouble till about May, 1914, when a nodule was noticed in the left breast. The patient was very adverse from a second operation, so a tube of radium was inserted into the growth through an incision. No benefit resulted, so the patient was persuaded to have the breast removed; this was done in July, 1914 (twenty-one months after the first operation), and the patient is in active health at the present time (October, 1916), twenty-eight months after the second operation. Both tumours were spheroidal cell carcinoma.

These two cases are not brought forward as "cures," as only fifteen and twenty-eight months have elapsed since the second operation.

The question is, whether one is justified in regarding them as examples of a second outbreak of cancer, or, as I have described them, as a second primary growth.

Inasmuch as the interval between the first and second operation was only thirty-nine months in the one case and twenty-one months in the other, so that in neither case would it be correct to speak of a "cure," exception may be taken to the title that the growths in the second breast in the two cases were really of the nature of fresh outbreaks of the disease, but that they should be regarded as solitary secondary nodules.

Were this the correct explanation we should have expected to find other secondary growths in distant organs, the infection being carried by the lymph stream; if, on the other hand, the growth in the second breast was due to "permeation," it is almost certain that there would have been other local manifestations, so that I think the conclusion is justified that in each case it was a fresh outbreak of cancer.

It is interesting to note that in spite of the removal of so much of the skin of the thorax, together with both pectoral muscles on each side, the movements of the arms in each patient are practically unimpaired.

NOTE ON AN ORGANISM PRESENT IN THE BLOOD OF PATIENTS SUFFERING FROM "TRENCH NEPHRITIS."

BY

ROBERT L. THORNLEY, M.D.Lond., D.P.H.,

Temporary Lieutenant R.A.M.C.

Recently the blood of all cases diagnosed as "trench nephritis" admitted to No. — Casualty Clearing Station has been examined from the cultural point of view. The results have proved somewhat striking in that, with one single exception, every one of twenty-seven cases examined has shown the presence of an identical coccus.

About 10 c.cm. of blood are drawn direct from a vein into 10 c.cm. of a liquid medium, whose composition and method of making, as given to me by Sergeant H. A. H. Howard, B.Sc.Lond., R.A.M.C., is as follows:

To every 750 grams of minced heart muscle, from which all fat and large vessels have been removed, add 1 litre of water. Heat to 75° C. to destroy antitryptic ferments. Cool to 37° C., make alkaline to litmus, and add 1 per cent. liquor trypsin co. (Allen and Hanburys). Incubate for four hours at 37° C., acidify with acetic acid, bring to the boil, filter, make reaction + 15, and sterilize in the steamer for ten minutes on each of six successive days. To this add 5 per cent. "saline pea extract" and 3 per cent. sodium citrate.

The resulting medium is tubed and sterilized at 100° C. for fifteen minutes on three successive days. On no account must the autoclave be used.

To make the saline pea extract, mix 50 grams peaflour and 100 grams sodium chloride with 1,000 c.cm. water, steam for half an hour, and filter. The filtrate is sterilized at 100° C. for ten minutes.

The blood tubes are put into the hot incubator and examined about the fifth day. Strong haemolysis is a marked feature of growth.

Slides stained with carbol-fuchsin for ten minutes will be seen to contain minute cocci.

Subcultivations can be made on to ordinary agar or pea extract trypsin agar.

Microscopical and Cultural Characters.

Examined under the highest powers, the organism is seen to be an extremely minute diplococcus, with adjacent surfaces flattened against each other. It is usually seen singly or in groups, seldom in chains. They are non-motile, have no capsules, and do not stain.

It grows readily, as stated, on ordinary agar as a fine growth not unlike *Micrococcus melitensis*. It does not liquefy gelatine, on which it grows readily. It ferments glucose, lactose, mannite, sorbite, and saccharose within forty-eight hours, but not dulcite. There is no formation of gas in any of the sugars.

Agglutination tests performed against it with meningococcic and *M. melitensis* antiserums were negative in a dilution of 1 in 10.

A rat and a guinea-pig were each inoculated intraperitoneally with 1 c.cm. of a strong emulsion of the organism, which had been cultivated from a severe case. The rat was "sick" for twenty-four hours, and then appeared to recover. It was chloroformed on the third day. *Post-mortem* examination showed considerable enlargement of spleen, from which and from the heart's blood this coccus was recovered in pure culture. The kidneys were apparently normal. The guinea-pig appeared to be immune.

I hope to report further data shortly.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RHEUMATOID ARTHRITIS APPARENTLY CURED BY "AUTO" COUNTER IRRITATION.

The treatment of chronic rheumatoid arthritis by counter irritation and keeping down the ulcerated surfaces has, I consider, received substantial support from the following case.

L. H., aged 45, had suffered from rheumatoid arthritis in very bad form for nine years; nearly every joint was affected; he was only able to get about on crutches, and there was considerable emaciation. He came under my care two years ago. He improved considerably from the administration of arsenic, iron, strychnine, and iodides internally, good stimulating diet, fresh air, residence in a high altitude, and avoidance of all thermal water treatment.

Six months ago he developed glandular swellings in the neck, one on each side, about two and a half inches above each clavicle; they rapidly suppurated, and assumed the dimensions of large walnuts. He refused to have them opened, and I then explained to him that as it was his wish to allow them to break, it would be an opportunity for treating the arthritis by counter irritation in keeping the ulcerated surfaces open. The patient was much interested in the proposition, and gladly accepted the suggested treatment. The abscesses, after discharging,

broke down at their edges, until an area of about two square inches on each side remained for granulating. From the first, no irritating measures seemed called for to keep the surfaces open, so that I advised him to keep them antiseptic with alternate applications of boracic ointment and weak carbolic oil. They have not yet healed, but are doing so slowly, and, in a letter received from him on November 3rd, he wrote: "The abscesses are gradually going, the discharge is much less, and I have hope now that they are nearing the end of their journey. One marvellous thing is, of arthritis I have none."

Although the above counter irritation (if such it was) was not carried out on the recommended surfaces contiguous to the spinal column, I think that the remarkable disappearance of the arthritis suggests at least the effect of a cause, the cause being obviously here (in view of the fact that all other treatment for arthritis was suspended) the ulcerated surfaces caused by the abscesses.

London, W. C. T. GRIFFITHS.

THE ETIOLOGY OF LEPROSY.

IN each of twelve definite instances of leprosy, both nodular and anaesthetic varieties, I was well acquainted with in my practice there was absolute evidence to prove that the malady was not infectious. These lepers were not kept isolated, and the co-members of the family were quite healthy, and never showed any tendency to be infected during a little over two decades over which I have had them under my observation.

Two of the recent cases are of some interest to me. One is a girl, aged about 16 years, infected with nodular leprosy. She is now in the leprotic asylum near Panggon, Lower Perak, F.M.S., and her mother and other near relatives with whom this girl lived for years in India are out here as labourers, and are in good health. The nodules were faintly visible in the chin and lobules of the ears in this girl, and the disease was not quite apparent until the leprotic bacilli were detected in the nasal secretion.

The other case was in a young adult suffering from the worst type of the nodular variety; and as his appearance was so frightful and hideous no stranger dared to approach him. But his own mother, brothers, and their wives and children were all living in the same house in Madras, and every one of them was free from the disease. The mother, who was so much attached to this leper, he being her eldest son, was in constant attendance on him in the way of bathing him, washing his clothes, and attending to his other personal comforts. She was perfectly healthy, and I was an eye-witness to this for a pretty long time.

Isolation of the lepers in India was not compulsory some years ago, and consequently lepers were found scattered everywhere, and it will be a pity if the same state prevails even now. There has been ample evidence to show that a leprotic father can transmit the disease to the offspring without infecting the mother; and in some instances the other children, presumably through the same father, have been known to be quite free from the disease, and in these the fidelity of the mother was quite unimpeachable. How leprosy actually spreads needs therefore further investigation and scientific research by competent people who can spare themselves to such undertakings.

T. A. R. AIYAR,
L.R.C.P. and S.Edin., L.F.P. and S.Glasg.
Sitiawan, Lower Perak, F.M.S.

CONCURRENT MEASLES AND CHICKEN-POX.

I WAS greatly interested in the cases described under this heading in the JOURNAL of November 25th, p. 722, and I can give the following case in corroboration:

A few days after her return from school my daughter Phyllis, aged 12, developed chicken-pox April 14th, 1915, and measles April 17th. My daughter, Frieda, aged 9, developed chicken-pox April 27th, but had no attack of measles.

P. LAMBERT BENSON, M.D., D.P.H.Camb.
Steeple Claydon.

IT is proposed to establish a psychopathic institution in San Francisco for the treatment of the victims of the drug habit, defectives, temporarily insane persons, and alcoholics. The estimated cost is £100,000.

D

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

PROGNOSIS AND TREATMENT OF SYPHILIS.

AT a meeting of the Southern Branch of the British Medical Association at Portsea, on November 23rd, Mr. G. COOPER FRANKLIN, ex-President of the Association, opened a discussion on syphilis. He began by referring to the causes of phagedaenic ulceration, and quoted Cooper's opinion, expressed in Miller's *Surgery*, that in prostitutes it was due to deficient food, uncleanliness, and alcoholic and sexual excitement. In the case of men, Mr. Franklin, speaking from experience at the Dreadnought Hospital, attributed it to the men contracting the disease before a long voyage, during which they had no suitable treatment. Mr. Franklin then cited ten cases of syphilis, all in men, which had been under his observation throughout their entire course in the years 1875–1900. He illustrated the effects of the disease on the patient himself; on his wife, if he married; and on his children, if he had any.

Case 1 contracted the disease at the age of 20, whilst a student in hospital. He was well treated, and married ten years later, having had no symptoms for five years except throat trouble in early winter months. He had no family, became alcoholic and died, aged 45, of liver and kidney disease. His wife is still alive and in good health.

Case 2 contracted a sore at the age of 20; he was well treated, married at the age of 30, had two children, both living; the elder was delicate for four or five years, but is now fairly healthy; the younger is well developed, but was subject to skin affection for the first two years of life. The wife has had good health throughout. The man had a sore on his leg two or three years after infection, which still gives him trouble, but he is still, after thirty years, in fairly good health.

Case 3, infected when aged 25, married four years later, when apparently in good health. Five years afterwards he developed general paralysis of the insane, and died in two years. His wife is healthy, but had no children.

Case 4, always a delicate man, contracted the disease at the age of 25. He was thoroughly mercurialized. He suffered much from his throat and from neuralgia of head and neck; a typically syphilitic ulcer discovered behind uvula. Twenty years after infection he had severe pains in the head, became melancholic, and died by his own act. He did not marry.

Cases 5 and 6 both contracted the disease under the age of 30. Neither married. No. 5 had liver disease and dropsy, and died aged 45. He was in good health until the last two years of his life. No. 6 was never strong. He died of pneumonia at the age of 48. He had suffered from a sore on the leg which rarely healed, and also from alopecia.

Case 7 was twice married. He contracted syphilis during his early married life. His first wife died young of some uterine disease (metrorrhagia), having had two children. Of the children by his second wife, one died, aged 2 years, covered with skin eruption. The next (twins) both died within six months also covered with eruption. One boy lived to the age of 10 or 11. He was blind from optic neuritis for one and a half years before he died from meningitis. The last baby, which only lived a few months, had a skin disease like the earlier ones. During early months of her last pregnancy the mother developed an abdominal tumour which grew to the size of a fetal head, believed to be renal or splenic. She took large doses of potassium iodide and had a normal delivery. The father became alcoholic, attempted suicide, and is now demented. One of the children underwent tracheotomy done for laryngitis.

Case 8, who contracted syphilis at the age of 23, was well treated, and married four years later. Shortly after marriage he had jaundice for two or three weeks. He has had two children, aged respectively 10 and 8, both markedly syphilitic. Two years after marriage his wife had psoriasis of both hands. The man developed diabetes, which, however, is very tractable to codeina and potassium iodide.

Case 9 contracted the disease at the age of 25. He was well mercurialized, and married about two years after the appearance of the secondary rash. He had no children. His wife had a mysterious illness. The patient became alcoholic, and is now mentally afflicted.

Case 10, a married man, aged 38 to 40, with two children, contracted syphilis four years ago, and infected his wife. He had psoriasis and sore throat; his wife sore throat only. No child has been born since the infection.

Of these cases seven married, one twice, infecting both wives. Three had no children; of the four who had children three had only two, the other seven or eight, of whom only four or five are living. Of the seven wives four were distinctly infected, as evidenced by skin disease and sterility. They are all alive. Of the seven syphilitic husbands two are dead, two alive but insane, one living but

diabetic, and two are "cured." Of the three unmarried men all died under 50, one suicidally and two from acute visceral disease. Of the ten cases five died, all under 50; five are alive, all under 50 except one whose age is doubtful); only two are in good health and able to enjoy life. Mr. Franklin quoted Sir Jonathan Hutchinson's view, attributing the lessened influence of syphilis on women to pregnancies tending to eliminate the poison.

Dr. SHEAHAN inquired if in the local scheme any arrangement had been made for the consultation or co-option of local medical practitioners. He protested, on general principles, against the tendency of modern legislation for the State to take over all responsibility for the health of the individual from his to its own shoulders. He asked if the army and navy exercised their disciplinary powers over soldiers and sailors in respect of venereal diseases by refusing furlough to men suffering from the diseases in an infectious state. He believed that much could be done if wives known to be syphilitic could be induced to begin treatment directly after conception occurred.

Surgeon-General EAMES, R.N., replying as to the custom of the Services, said that in the navy a medical examination of the ship's company was made after a voyage, two or three days before arrival at the home port, and men found suffering from venereal and other diseases were discharged to hospital for treatment.

Dr. MEARNS FRASER (M.O.H.), in outlining the scheme of the Portsmouth Corporation, said that it was acting on the assumption that the surest method of securing the control of venereal disease was to provide the best possible treatment and to make this available for all comers, irrespective of means or place of residence. Provided patients realized they were being cured, there would be no difficulty in getting them to attend the treatment centre, and this was the first step towards the control of the disease. Treatment would, by arrangement with the hospital authorities, be provided at the Royal Portsmouth Hospital, and at the same time a thoroughly equipped pathological laboratory would be established under the control of a competent pathologist. Outfits for obtaining material from venereal patients would be supplied free to medical men, and no charge would be made for pathological reports supplied in regard to private patients. He felt that the appointment of a competent pathologist who would reside in the borough would be greatly appreciated by the local members of the profession. The corporation felt that the scheme could only succeed if it had the co-operation of members of the medical profession. It was realized that the provision of free treatment might adversely affect the pecuniary interests of medical men, but there was reason to believe that in this case the profession would be prepared to sacrifice its private interest to the public good; the corporation, therefore, had decided to appoint a special committee and to ask the local medical association to assist it by appointing to this committee several representatives, so that the views and advice of local medical men might be available in regard to the adoption of measures in this borough for the control of the disease. In conclusion, Dr. Fraser spoke against the compulsory notification of venereal disease, and urged the necessity for legislation to render illegal the treatment of venereal patients by quacks and other unqualified persons.

Dr. ISMAY said the prevalence of syphilis in Portsmouth seemed to be so great that many years of observation of the out-patients at the local eye hospital had left the impression that the out-patient department could be turned down without serious loss to the community if the disease could be abolished. Refraction cases in great part, and various forms of disease, such as, for instance, conjunctivitis and iritis due to septic absorption, would have to be excluded from this sweeping statement. Syphilis affecting the eye was not common in the early stages of the disease. There was a certain amount of iritis in the secondary stage, but, generally speaking, the inflammations and degenerations, due certainly or probably to syphilis, occurred either in the tertiary stage or in the inherited form. Interstitial keratitis was common and was under treatment for a long period. It left opacities of the cornea, degeneration of the iris, lens, vitreous, choroid, and retina, optic atrophy, squint, myopia, glaucoma, and amblyopia in its wake, and these, in turn, required treatment long after the original inflammation had disappeared. At the school clinic syphilitic disease was seen in the fundus oculi when no history of definite eye affection could be obtained from the parents. Yet a recital of feeble health and non-thriving in most of the family followed, with a complaint that poverty and misery were the lot of the parents, notwithstanding care, thrift, and forethought. Two, three, and four children in one family had been known to suffer from interstitial keratitis or other syphilitic inflammation, even in cases where marriage had not taken place for ten years after infection and regular medical treatment had been carried out, though often for a period of only three or four months. Ocular paralyses, pupillary changes, degeneration of retinal vessels, vitreous opacities, detached retina, diseases of the central nervous system with eye symptoms, diabetic changes in the retina, weakening of the sclerotic, exophthalmic goitre, lacrymal obstruction, often could be attributed very reasonably to syphilis. A more definite history of infection could be obtained in Portsmouth than elsewhere owing to the fact that the greater proportion of the patients were connected in some way with the navy and army. The men were of known good physical condition at one period of their lives, and there seemed no reason for such calamitous loss of health, except syphilis, the presence of which could be often demonstrated when all knowledge of the disease was denied, and probably truthfully denied, by the patient. It was true that gonorrhoeal conjunctivitis was the cause of 30 to 40 per cent. of the blindness in the community, but once this disease was cured the final state of the patient was settled. With syphilis it was otherwise. There were worse things than blindness.

The Chairman (Dr. BLACKMAN) and Drs. HACKMAN, CRAWLEY, and COLE-BAKER also took part in the discussion.

Reports of Societies.

RE-EDUCATION OF WOUNDED.

AT a meeting of the Medical Society of London on December 11th, the President, Lieutenant-Colonel D'ARCY POWER, being in the chair, a series of demonstrations were given on the re-education of wounded men.

The Blind.

Mr. ARNOLD LAWSON said that at St. Dunstan's proper there was accommodation for 180 blind men, and for another 200 at Regent's Park College. Included in the scheme were also two large houses in Portland Place for officers, and two others in Paddington, and two convalescent homes, one in Brighton, the other in Torquay. After treatment and training the men were settled through the offices of an after-care department, and for this purpose the British Isles was divided into eight districts, six in England and one each in Scotland and Ireland, 125 men had been fully trained and settled. At present there were 260 at St. Dunstan's and the associated homes and 128 others either in hospitals or elsewhere awaiting treatment—a total of 388. For the purposes of the institution men were considered blind if through visual defects they were incapable of carrying on an ordinary existence and supporting themselves. A difficulty arose with regard to shell-shock cases of blindness; some had come to be treated as blind, others had been referred to convalescent homes, etc. A complete revolution in the training of the blind had been brought about by the war. Before, the inmates of institutions for the blind had chiefly been affected since infancy or were old people. The saving clause of the present situation was the youth and buoyancy of the patients. At St. Dunstan's there was an air of unforced cheerfulness. Self-pity was not permitted; they were taught to accept their lot as an inconvenience, not as a hopeless defect. This lesson was usually learnt in a short time. They were also taught to regain their independence, and for this purpose, after some preliminary drilling, were left to themselves without guides or other helpers on whom they could come to depend. Precautions were, of course, taken to render this course a safe one. The natural suspicion of the blind man had to be overcome, and at first presented a difficulty. They were

then given a routine training, first learning to read and write with Braille types. It was not easy for men to learn to read this type if their fingers had been rendered insensitive by their previous occupation, and typewriting proved easier. Next they were taught suitable handicrafts and trades. Physical fitness was assisted by Swedish exercises for those who could avail themselves of them, the instruction being given by a blind instructor, by rowing in the morning, and by walking, through the help of voluntary workers who took them out. Blind instructors also taught the various handicrafts, massage excepted. It had to be remembered that the blind tired more quickly than men with sight. After from seven to nine months' training the man was settled. This meant that a house was procured and he was set up in business, but he still needed supervision by the after-care department so that mistakes in his work might be corrected and he might be protected from the unscrupulous.

Masks for Face Wounds.

Lieutenant DERWENT WOOD, A.R.A., gave a demonstration of the taking of a mask of a wounded soldier, who was also wearing the finished plate, and exhibited a patient who had a pulsating wound of the cranial vertex, for which a shield covered with hair had been made as a protection. The patient was subject to epileptic fits. The procedure followed was described, the case of a man who had lost his right eye and orbital region and the base of his nose serving as an example. To take the plaster mould the cavity of the wound was filled with the usual dressing, and together with the left eye and eyebrow covered with gold-beaters' skin, all portions of the head not wanted in the mould being bandaged. The nostrils were blocked with cotton-wool. After the exposed portion of the face had been oiled, the plaster was mixed with tepid water and applied for five minutes. The mould was then removed, dried, and French chalked, and a clay or plasticine squeeze obtained from it, giving a positive model of the patient's dressed wound and the surrounding healthy tissues. This was fixed to a board on a modelling stand and a sitting from the patient with his wound undressed obtained. By modelling, the wound was reconstructed in the model in every detail, care being taken that the depths and widths of the wound were accurately measured and reproduced. The model being completed, it was cast and the plaster positive of the wound and its environment procured. Another sitting was then obtained and the portions which were to be hidden eventually by the metal plate were modelled in clay (or wax), the edges being blended to the uninjured parts of the face. This was once more moulded in plaster, and the edge of the proposed plate being marked on the negative, a cast was obtained and the edges trimmed to the marking; the artificial eye was then fitted to the lids from the back of the model, the plaster eyeball being dug out, the requisite thickness of the lids carefully worked down, the glass eye placed in position and the edges of the lids made good with thin plaster. The model was handed to the electrotyper and an exact reproduction by galvano-plastic deposit made in virgin copper $\frac{1}{32}$ in. in thickness, finally well coated with silver. Bands were soldered at the back to keep the eye in place. The plate was again fitted to the patient, and strong spectacles were adjusted at a suitable angle to give a well-distributed pull on the plate. When a large plate was necessary an elastic band around the head was required. The final sittings were devoted to the pigmentation of the plate. False hair on eyebrows and eyelids, it was found, would not withstand the weather; for the eye, Mr. Wood said he had adopted tinfoil split by scissors and soldered into the lid, and for the eyebrows pigment applied to the modelled forms.

Re-education in Walking.

Dr. JAMES B. MENNELL gave a demonstration on limping and the re-education of walking. After injury of any sort, save the most trifling, some muscle or group of muscles always tended to waste; and even if wasting was general throughout a limb, it would nearly always be more marked in one muscle group than in others. In the performance of such a complicated action as taking a walking step most of the muscles in the body co-operated. He illustrated this by showing the effects on the gait of holding the arms in various positions, and pointed out that if the action of extraneous muscles had so marked an effect, lack of co-ordination of the muscles more intimately concerned must have a still more deleterious action. Further, in a weakened muscle a longer latent period elapsed between the receipt of a stimulus and contraction than was required in health. Hence, after injury, direct or reflex, a muscle would act more slowly and more feebly than its uninjured fellows. In re-education for walking the chief aim should, therefore, be to train the injured muscle up to its fellows, and the latter down to the former. In other words, co-ordination must be established between muscles whose relative activities had been altered. Moreover, it was just as necessary to train down the sound limb to the level of its more feeble fellow as it was to train up the latter. He then showed how this could be done—first, by simple swinging exercises of both legs in unison and alternately, then by allowing a portion of the weight to fall on the injured limb, and finally by splitting a full walking step into quarters, each quarter being practised separately until perfect co-ordination had been re-established.

Voice and Speech.

Mr. CORTLANDT MACMAHON dealt with some forms of voice and speech affections in soldiers and the methods he had employed to remedy them.

(*a*) *Shell-Shock Stammering.*—In this there was chiefly a difficulty in the production of the voiced consonants and vowel sounds, but the general difficulties of the ordinary stammerer were little in evidence. It could be described as a more or less severe inhibition of speech and was accompanied in some cases by amnesia. The condition was suggestive of aphemia. The prognosis was usually good, and in mild cases the condition was better left alone, for with improvement in the patient's general condition the stammer disappeared. In more severe cases instruction should be given, and as a preliminary the patient should be taught to fill the lungs in a proper manner by inferior lateral costal expansion, but without raising the upper part of the chest. The next step was to teach the main vowel sounds and their resonator positions—namely, the correct position of the tongue and lips and the distance between the teeth for each main vowel sound. Then the two varieties of consonants, the "voiced" and the "breathed," could be taught. All this was easily acquired, and with a little practice the correct production of the vowel sounds and consonants became automatically performed. Generally this amount of instruction, combined with steady practice in breathing exercises, was sufficient for a stammerer who had only commenced to stammer from shell-shock, and had not acquired secondary physical disabilities incidental to stammering of long standing. There were also many stammerers whose defect had dated from childhood, but had been intensified by shell-shock or wounds, and others whose affliction had been overcome, but had thus been renewed. These were more difficult to deal with, needing more definite and lengthy instruction, but mental strain should be avoided. Generally the laryngeal type of stammerer, who had difficulty in producing the vowel sounds and voiced consonants, was more easily cured than the stutterer. The treatment was both mental and physical, some patients needing more of one and some more of the other kind.

(*b*) *Aphasia.*—The cases treated had been nearly all examples of aphemia in which hearing, writing, and reading were normal, but speech was either almost non-existent or produced with great difficulty. The memory was usually somewhat defective. The same method of breathing should be taught, which by calming the emotions promoted recovery. The aim of treatment was to provide as complete muscular and mental relaxation as possible, to explain that voice was a matter of resonance in the head and chest, and originated only in the vocal cords, and afterwards to inculcate the simple vowel sounds, which the patient usually acquired in a few minutes. Then simple words were learnt. Occasionally normal speech was immediately possible if relaxation of effort could be obtained; this explained the dramatic return of speech which sometimes occurred. More often the recovery was steady, but rather slow.

(*c*) *Functional Aphonia.*—The treatment of this condition was more difficult in soldiers than in civilians because the original cause was more severe and the treatment was attempted too soon. Complete rest in hospital

and subsequently at a convalescent home should precede treatment, for the longer the aphonia had existed the easier was it to cure. Perfectly performed breathing movements, which the author had employed for many years in the treatment of all kinds of speech and voice affections and of neurasthenia, were of special use in shock. The patient should lie recumbent with the eyes half-closed and take steady, long breaths while the operator placed his hands upon the patient's lateral thoracic regions. A rest should be taken after every six movements. The patients should be told that they were undergoing a semi-hypnosis, and that by this breathing they were enabled to overcome the feelings of lost control and depression and were improving their general health by oxygenating their blood. They should afterwards carry out the exercises thrice a day for five minutes each time, or when they felt the need for them, and perform them at night continually, but more gently, until sleep came. The demonstration was illustrated by records of several cases.

PATHOLOGY OF CANCER.

AT the meeting of the Pathological Section of the Royal Society of Medicine on December 5th, when Dr. J. A. MURRAY was in the chair, Professor S. G. SHATTOCK and Dr. L. S. DUDGEON read two papers on investigations carried out jointly.

Grafting Experiments.

The first related to grafting experiments made with normal mouse tissues treated with cell-free extract of mouse cancer, or admixed with the tumour pulp. The object of the experiments was to ascertain whether cancer cells possessed biological properties which would incite normal cells to participate in their purposeless or anarchical growth. For this purpose in one set of experiments a cell-free extract of mouse cancer (No. 63, Imperial Cancer Research) was prepared by shaking the tumour pulp in Ringer's fluid to which glass had been added, so as to destroy the cells. The cell-free extract was then used as a medium in which to soak the normal tissues, which were afterwards grafted subcutaneously. The normal tissues used were (1) mouse testicle and (2) mouse embryo, so as to include all the tissues with their endocrinal interactivities. In neither case did any neoplasm arise, although in the second a slight growth occurred from the fragments of fetal cartilage—a result which takes place independently, however, of any such supplementary factor. As a better extension of the second experiment the tumour itself was minced together with mouse embryo. Fetal tissue of every kind was thus implanted amidst the growing cells of the tumour. No mixed neoplasm arose, although the tumour with which the experiment was commenced was afterwards subcultured fifteen times, and the subcultures rejuvenated with mouse embryo on three occasions. The only tissue which survived was the fetal cartilage, the fragments of which underwent a slight amount of growth; but in no instance did the cartilage present any indication of a sarcomatous transformation.

Feeding Experiments.

The other paper related certain results of feeding mice with mouse cancer. The tumour used was that known as No. 63 (Imperial Cancer Research). The feeding was commenced in May, 1914. For the supply of tumours, mice which had been subcutaneously inoculated were from time to time killed, the tumour being afterwards removed and pinned to a slip of wood; the animals were fed, in addition, with oats, carrot, boiled potato, etc.; they were four in number:

1. March, 1915: One of the four, a female, died. It had received forty-two tumours, the experiment having extended over a period of ten months. A large growth filled the upper part of the mediastinum. In the mesentery there was an enlarged lymphatic gland. Histologically, the growth was an infiltrating round-celled sarcoma; it contained no giant cells. On the lung there were a few minute nodules, which exhibited the same structure, as did also the mesenteric gland referred to.

2. April, 1915: A second mouse was killed, as it had developed a prominent growth in the left labium. It had received forty-two tumours. The growth was found to surround the lower part of the vagina, but without protruding from the canal. Microscopically, it proved to be an invasive endothelioma.

3. A third mouse was killed in July, 1915, since the abdomen had become enlarged, without pregnancy. The enlargement, however, was found to be due to the growth of two masses of fat about the uteri, probably following the close of the reproductive function.

4. The last of the mice (male) died in August, 1916. It had received seventy-two tumours. On one lung there was a small solid formation, which was microscopically of compact, uniform structure, devoid of leucocytes, and consisting of epithelial cells; the surrounding tissue was normal. It was wholly unlike a bronchopneumonic nodule, and the alternate view was that it was a primary neoplasm. The authors possessed a section of a tumour, the size of a pea, which was found unexpectedly in the human lung at a *post-mortem* examination, and which was structurally identical with the foregoing, and, like it, might be regarded as a primary formation arising from the epithelium of the pulmonary alveoli.

In commenting upon these results the authors remarked that as none of the new growths were identical in structure with that used for feeding the animals, they could not be viewed as due to cell implantation. This diversity was parallel with the fact that among the tenants of "cancer houses" the disease affected different organs, and often those deeply seated, where direct implantation was out of the question. In cancerous families it was equally true that the disease might involve different organs, and be of different histological structure in different members; and here, moreover, the appearance of sarcoma might be intermixed with that of carcinomata.

There was, however, a second hypothesis of transference as a post-natal phenomenon, which the various facts brought together suggested—namely, that the cell might be the vehicle of an ultramicroscopic virus symbiotic with it; and that if transplantation of the cell failed, the virus might be freed, and after its absorption and distribution, might infect some structure of a second individual, provided there were any such part prepared for its symbiosis. Whether the virus in hereditary transmission was itself transferred, or whether the transmission were limited to the aptitude of certain cells for post-natal infection, was a matter that need not be discussed.

It was clear, however, that the parasitic theory, as rehabilitated in the form of an ultra microscopic symbiobe, was not disposed of by the facts established in regard to heredity. And the same might be said of the results of the experimental prophylactic immunization against grafted mouse cancer by the antecedent subcutaneous injection of mouse blood, or of mouse embryo, or mouse skin; they so modified the fate of the grafted cells that the virus was rendered harmless, since there were no other cells prepared to symbiose with it.

If the results of the mouse feeding experiments recorded were to be interpreted on a parasitic hypothesis, it would be, then, that the carcinogenic virus was freed on the destruction of the ingested cells, and transferred after absorption, to the body of the host, wherein it incited the formation of a malignant neoplasm in some spot where the cells were prepared for its symbiosis.

[Dr. J. B. CHRISTOPHERSON showed a large salivary calculus removed from the submaxillary gland. Professor S. G. SHATTOCK described the histology of a singular formation for which he proposed the name "pseudotuberculoma silicoticum"; the case is recorded by Mr. C. R. Nitch elsewhere in this issue.]

ACQUIRED SYPHILIS OF THE LUNGS.

A Correction.

IN the report of Dr. F. Parkes Weber's paper on acquired syphilis of the lungs read at the Section of Medicine of the Royal Society of Medicine (BRITISH MEDICAL JOURNAL, December 9th, p. 802), there are two errors: Column 1, line 30 from the bottom, for "by a patch of syphilitic leucodermia," read, "by typical syphilitic leucodermia"; column 2, line 12 from top, for "was not likely to be bad," read, "was likely to be bad."

AT a meeting of the West London Medico-Chirurgical Society on December 1st Dr. Thomas B. Hyslop read a paper on the psychology of warfare, in which he dealt briefly with the subject under the headings of anger, fear, and power and its misuse. He noted certain phenomena connected with hallucinations in times of stress, drew attention to the prevalence of functional disturbances of the nervous system, such as temporary amnesia and aphasia, and dwelt on what he considered to be the most striking problem for consideration—namely, the unmasking of primitive instincts. The paper was discussed by the president (Dr. A. Saunders, who was in the chair), and by Dr. H. A. Smith, Dr. Buzzard, Mr. A. Baldwin, and others.

Reviews.

THE SEX COMPLEX.

DR. BLAIR BELL, in his book entitled *The Sex Complex*,[1] states that he has endeavoured to trace by his own experimental investigation and clinico anatomical observations the influence of the endocritic glands upon one another upon the genital organs, and upon the general metabolism of the body, and that he has been able to show clearly the nature of the association between the different organs. He points out that most investigators have shown reluctance in enunciating general principles concerning the correlation of the internal secretions in regard to the genital functions; consequently he feels the necessity of giving a lead, although he adds that it is impossible, at the present time, fully to correlate all the functions of the endocrine glands. He deals especially with the female genital system, and the position he takes up may best be summarized in his own words:

> The ovary is concerned in the temporary function of reproducing the species, and by its hormones or internal secretions of bending the metabolism of the body to this purpose.
>
> On the other hand, the rest of the endocritic system is related to the genital function in various ways.
>
> First, some of the members, the thyroid, pituitary, and suprarenals, influence the development and subsequently preserve the integrity and activity of the genitalia; while the others—the thymus and possibly the pineal—appear to prevent sexual precocity.
>
> Second, all the endocritic organs acting in harmony control the metabolism in response to the necessities of the genital functions, but in addition they adapt the whole organism to the possibility of the situation, and regulate the secondary characteristics, both physical and psychical, to suit the needs of the individual. Once, however, the reproductive organs are removed or undergo atrophy, the genital functions of the rest of the endocritic system cease, and the rearrangement of the metabolism that follows produces the symptoms of the menopause. Contrariwise, insufficiency of the thyroid, pituitary, or suprarenals may cause the cessation of the genital functions, with atrophy of the uterus.

This is the position taken up by one who has had a large clinical experience, and who supports it by a series of valuable investigations upon animals, which formed the basis of the Arris and Gale Lectures at the Royal College of Surgeons in 1913.

The second part of the book is concerned with pathological considerations. The author commences with an interesting account of derangements in the structural development of the genital organs, and gives some detailed clinico-anatomical descriptions of cases illustrated by photographs and microscopic drawings. Next he discusses derangements in the functional development of the genital organs in relation to the endocrine glands, precocious puberty, absence of the onset of puberty, incomplete puberty, and delayed puberty. This discussion will be of special interest to the student and practitioner, as will also the chapter dealing with derangements of the sex characteristics, and of the fully established genital functions in relation to psychosis, vasomotor disturbances, and general metabolic disturbances. We confess to finding the chapter on psychosis rather disappointing. The references to literature are singularly few, and those that are given are not comprehensive. No reference, for example, is made to the studies of Parhon and Ghiorgiani, who studied the menstruation in 216 cases of which 35 were suffering from dementia praecox. In 25 out of 35 cases they found amenorrhoea. They considered that ovarian changes are frequent in dementia praecox, and that they are connected with mental disorders and not with age. These observations support Mott's conclusions based upon the observations of Dr. Laura Foster by serial sections of the ovaries in a large number of cases of normal and insane persons, including twelve cases of dementia praecox. We think, therefore, that the following statement by Blair Bell is hardly justified: "Mott has recently expressed his belief in the important part played by the internal secretions in insanity, but the arguments set forth by him do not break any new ground." If the author had looked more fully into Mott's work he would have seen that Dr. Laura Foster, whose investigations extended over two years, had at least attempted to break new ground under his direction. The observations of Mott and Brun on the changes in the nervous system in hypothyroidism probably afford an explanation of the depression and slow mental reaction observed in this condition. Again, we should have expected a reference not only to Cannon's work but Elliot's on the function of the suprarenal gland.

The book is well got up; the clinical and anatomical illustrations are numerous and, with a few exceptions, excellent. The author admittedly attempts to establish general principles upon data which as yet are insufficient; moreover, he is not always comprehensively accurate in his quotations from authors, and the bibliography of this great subject is inadequate. For these reasons the book compares unfavourably with Marshall's *Physiology of Reproduction*. Nevertheless, the individual work and the originality of the author's ideas, combined with an easy style, are of such value as far to outweigh faults of omission or commission in reference to such an extensive literature as that of the endocrine glands and the sex complex. The book has this merit—that the busy practitioner or student can take it up at leisure, and the perusal of any chapter in it will arouse his interest. He will find not only much to stimulate him in the study of the sex problem, but also that new ideas are suggested regarding the treatment of women suffering from diseases or disordered function of the sexual organs.

[1] *The Sex Complex.* A Study of the Relationship of the Internal Secretions to the Female Characteristics and Functions in Health and Disease. By W. Blair Bell, M.D.Lond. London: Baillière, Tindall and Cox. 1916. (Demy 8vo, pp. 320. 15s. net.)

SCOLIOSIS.

THE monograph on *Lateral Curvature of the Spine*,[2] by R. W. LOVETT, of Boston, is undoubtedly a standard work in the English language. In the third edition the book is kept well up to date; a chapter on the history of scoliosis, apparently taken largely from the German, now added, enhances the interest of the work. In this connexion, however, we would remark that the name of the coiner of the word "orthopaedia" was not André, but Andry, Dean of the Medical Faculty of the University of Paris. The section on treatment has been largely rewritten in the light of further experience gained of the forcible method of correction by plaster-of-Paris jackets. The extravagant claims made for a particular adaptation of this method six years ago have not been justified by experience. Fifty surgeons practising orthopaedics were circularized by the American Orthopaedic Association. Only one of them claimed to have brought about a cure of undoubted structural scoliosis by forcible correction, and he afterwards retracted the claim. Nevertheless there is evidence of improvement by well-established forcible methods. With many other experienced orthopaedists Dr. Lovett believes that better results may thus be obtained than by gymnastic treatment. Certainly he has published evidence of good results.

THE OMENTUM.

THE author of *The Omentum: its Embryology and Histology; its Physiological Uses*,[3] informs us in his preface that he is still "investigating and originating," and that the present reprint is to be followed by "a whole volume." We imagine that most readers on this side of the Atlantic will await the larger issue with patience. The thesis of the writer is that when the endothelial buds grow out from the primitive veins to form the lymphatic basis, certain of the cells in the neighbourhood of the right sacculus lymphaticus jugularis remain isolated, and later migrate into the dorsal mesogastrium, there to form the spleen and omentum. He is very emphatic on what he terms the "entity of the omentum," declaring that the peritoneum has no closer relationship to it than it has to the viscera of the abdomen. In another place he compares the peritoneum, which he describes as consisting of parietal and serous layers, to "varnish." The chief function of the omentum, in the author's opinion, is to supply a fibrinous exudate in cases of inflammation, or, to use his own words, "to undo the dirty work done by a careless or incapable surgeon who burglarizes the belly." Such a view for those who believe that nature makes structural

[2] *Lateral Curvature of the Spine and Round Shoulders.* By R. W. Lovett, M.D.Boston. Third edition, revised and enlarged. London: W. Heinemann 1916. (Medium 8vo, pp. 224; 180 illustrations. 8s 6d. net.)

[3] *The Omentum: its Embryology and Histology; its Physiological Uses.* By H. Crouse, M.D., F.A.C.S. Reprinted from the Bulletin of the El Paso County Medical Society. 1915. (Med. 8vo, pp. 67;

provision for pathological exigencies has perhaps something to commend it, but if we are to accept it we are at a loss to understand the analogy between the omentum and the spleen, an analogy upon which the author is never tired of insisting.

The text is not remarkable for its perspicuity. Take for instance such a sentence as this: "My conclusion is that the excess of fibrin which appears in the presence of peritoneal inflammation, whether produced by chemical, bacterial, or mechanical irritation, is but the exudation of a product produced by the living endothelial cell metamorphosed into the large mononuclear lymph cell in the omental special structures, the large mononuclear lymph cell mitosing into the polynuclear cell; and that in each stage of cell change the fibrin-producing ability of the original endothelial cell is retained,"—a sentence, moreover, which to our mind betrays an ignorance of physiological processes.

NOTES ON BOOKS.

MAJOR P. M. ASHBURN, Medical Corps, U.S. Army, has written a general account of *The Elements of Military Hygiene*,[4] especially arranged for officers and men of the line. It contains a quantity of useful advice, and is divided into three parts, dealing respectively with recruits, the causes of disease, and the prevention and control of epidemics; there is a supplement on the prevention of mental and nervous diseases. The book is interesting, but gives the impression of having been written in the library rather than in the field; it deals in generalities rather than the particulars required by the practical man.

DR. J. M. DALZIEL'S *Hausa Botanical Vocabulary*[5] is a book that should be of great service to travellers in that far country, particularly if they chance to be either botanists or medical men. It contains an alphabetical list of the Hausa names for plants, with their Latin names and brief details of their appearances and uses. At the end of the book is an index to genera and popular names. One may note that the Hausas chiefly use castor oil externally "for sores on camels, etc." *O sancta simplicitas!*

Paton's List of Schools and Tutors,[6] now in its nineteenth annual edition, is a book compiled to aid parents in the choice of schools for their children, and tutors or coaches for those who cannot go to school. It begins with classified lists of schools of all sorts, and goes on with several hundreds of pages of advertisements of schools and colleges all over the United Kingdom.

[4] *The Elements of Military Hygiene Especially Arranged for Officers and Men of the Line.* By P. M. Ashburn, Major, Medical Corps, U.S. Army. Second edition. Boston and New York: Houghton Mifflin Co. 1915. (Cr. 8vo, pp. [illegible]. 1 dollar net.)

[5] *A Hausa Botanical Vocabulary.* By J. M. Dalziel, M.D., B.Sc., D.T.M., West African Medical Staff. London: T. Fisher Unwin, Ltd. 1916. (Med. 8vo, pp. 172. 6s. 6d. net.)

[6] *Paton's List of Schools and Tutors. An Aid to Parents in the Selection of Schools.* Nineteenth annual edition, 1916-1917. London: J. and J. Paton. 1916. (Cr. 8vo, pp. 799; illustrated. 2s.)

MEDICINAL AND DIETETIC PREPARATIONS.

Dial Ciba.

DIAL CIBA is the name given to a preparation the chemical constitution of which is di allyl barbituric acid or di-allyl-manedyl urea. Veronal is di ethyl barbituric acid, or di-ethyl-manedyl urea. Dial Ciba is claimed to be a relatively more powerful hypnotic than veronal, so that the dose is smaller. It is said to be less toxic than veronal, and to be completely broken up in the body, so that none can be recovered as such from the urine. It is freely soluble in warm water, alcohol, and ether. The drug appears to come within the provisions of the poisons schedule, which includes all allyl derivatives of barbituric acid. It is put up in tablets, each containing 1½ grains, and the agents of the Swiss makers are, in this country, the Saccharin Corporation, Limited, 56, Queen Street, Cheapside, E.C.

THE health service of the military government of Paris has established dispensaries for women munition workers in eight factory centres. In connexion with the dispensaries it is intended to establish lying-in services, cradles where newborn babies will have the advantage of the most recent advances in puericulture, and mutual aid societies for women when sick.

TRINITROTOLUENE POISONING.

[OFFICIALLY COMMUNICATED BY THE MINISTRY OF MUNITIONS.]

BEFORE August, 1914, there had been little practical experience of the toxic action of trinitrotoluene (T.N.T.). No ill effects had been observed from the small quantities used, and it was generally believed to be much less toxic than dinitrobenzene, which had been manufactured in this country on a small scale for many years, and been used as an ingredient of explosive powders in a proportion rarely exceeding 15 per cent. During the past year, however, T.N.T. has shown itself to be dangerous to the health of at least a minority of workers coming into contact with it, and has produced fatal toxic jaundice in fifty cases out of many thousands of workers engaged.

As soon as the dangers from T.N.T. became obvious, administrative measures for their control, including medical supervision in all the factories, were taken, and scientific investigations into the modes of action of T.N.T. were organized. Whatever light is being thrown upon T.N.T. poisoning by such investigation is communicated to the responsible medical officers in the factories concerned for their guidance. Many cases of illness, however, attributed rightly or wrongly to T.N.T. poisoning, have, or may, come to the notice of medical men outside the factories, and it appears desirable accordingly to make generally known to them the present state of knowledge in this matter, as on them now devolves the duty of notifying toxic jaundice, contracted in a factory or workshop, to the Chief Inspector of Factories at the Home Office, London. Apart from such statutory notification, communications from medical men based on observations of any serious effects attributed to T.N.T. would be valued, and might be addressed to the same quarter. It is hoped to make in the early future further communications of results obtained by investigation.

Trinitrotoluene, also known as T.N.T. and trotyl, is a high explosive obtained by nitrating toluene—a product of coal-tar distillation. Toluene is a benzene compound in which one hydrogen atom of benzene (C_6H_6) has been replaced by the radicle CH_3. In the process of nitration three other hydrogen atoms are replaced by the nitro radicle (NO_2), and the formula for T.N.T. may be written, $C_6H_2(NO_2)_3CH_3$. This body is solid at ordinary temperatures, in which state it can be reduced to a fine powder; it melts at about 80° C.

When the skin or hair is exposed to T.N.T. by contact, a characteristic yellow or tawny orange stain is produced, which lasts in the integument for some weeks. Derivatives of T.N.T. produced by the action of alkalis have characteristic colours; if a dilute solution of T.N.T. is treated with alcoholic potash, a deep pink colour results changing to purple and then turning brown. Skin which has absorbed T.N.T. has a bitter taste to the tongue, which is removable by solvents of T.N.T. but not by water, as in ordinary washing.

T.N.T. is soluble in oils and greases as well as in acetone, ether, benzene (benzol), xylene (xylol), and other compounds, and the importance of this will be referred to later. Alkaline alcohol changes the yellow stain in the skin to pink or purple, and the T.N.T. thus chemically changed is soluble in and can be washed out by water.

T.N.T. is used alone as a fine powder, or in a flaked condition, or in the molten state from which T.N.T. in vapour escapes and is deposited in the form of a fine crystalline sublimate upon any surface of lower temperature than about 70° C. When mixed with 40 per cent. to 60 per cent. of ammonium nitrate it is known as amatol, and with 20 per cent. of ammonium nitrate as ammonal. T.N.T. as used is often impure, and contains traces of dinitrobenzene and other similar bodies, but investigation has produced no evidence of its poisonous properties residing in impurities. Pure and crude T.N.T. are equally toxic, and in no cases have the separated impurities been found more potent than pure T.N.T. The separate T.N.T. isomers have also been carefully tested, and their toxicity appears to lie either at or slightly below the toxicity of T.N.T. Of the cases showing jaundice about 27 per cent. have arisen from pure T.N.T., 67 per cent. from amatol, and 6 per cent. from ammonal. Possibly the hygroscopic nature of ammonium nitrate may assist absorption through the skin.

DINITROBENZENE POISONING.

A natural guide to the new experience of T.N.T. toxicity is to be found in the older knowledge of that due to dinitrobenzene (D.N.B.). It has long been known that D.N.B. may be readily absorbed by the skin, and it may be supposed that this absorption is affected or aided by the solubility of D.N.B. in the cholesterin fats of the skin or of greases used either in factory processes or as ointments. It may, perhaps, pass through the skin by the mechanical inunction of minute particles.

The most obvious results of D.N.B. poisoning by skin absorption are changes in the red blood corpuscles. As in nitrite poisoning, there is a conversion of oxyhaemoglobin to the more highly oxidized form methaemoglobin, and this change, if large in amount, produces breathlessness and cyanosis (both removable by breathing pure oxygen), which last until the body has been able to reduce the methaemoglobin to the natural form. Beyond this simple chemical result there may be, when the poisoning is more severe, haemolysis, with degeneration of the corpuscles, and escape of methaemoglobin into the plasma. In severe cases evidence will be found not only of destruction of the red corpuscles but also of activity in the blood-forming organs; nucleated red corpuscles may be found in severe cases, with evidence of imperfectly developed corpuscles, as shown by the occurrence of basophile granulations, polychromasia, and variations in shape and size. Lymphocytosis may also occur.

If the dosage of absorbed D.N.B. is not too great, blood formation seems able to keep pace with blood destruction; cessation from work for a short time enables the blood to recover rapidly from the effects of poisoning.

In D.N.B. poisoning these effects upon the blood are by far the most prominent feature. In very rare cases toxic jaundice may occur. Thus, in 1906 a dinitrobenzene worker after three months' employment died in the Huddersfield Infirmary, having been admitted for symptoms of cyanosis, vomiting, jaundice, and dyspnoea. *Post mortem* the liver was stated to have resembled that of acute yellow atrophy.

These facts suggest that (*a*) while D.N.B. upon absorption produces in all persons alike its chemical effects in the blood, varying in degree according to dosage (this being dependent again upon conditions of work, precautions taken, and perhaps upon varying greasiness or permeability of skin), and according to individual powers or opportunities for blood recovery; (*b*) it produces as an additional phenomenon liver degeneration only in a small minority of persons in whom the body cells are specially susceptible to the poison.

CHLOROFORM AND DOPE POISONING.

Upon this view of D.N.B. poisoning, an analogy to it may be found in chloroform poisoning. In the vast majority of patients chloroform only shows its anaesthetic action. In a very small minority, however, it may also give rise to degeneration of the body cells, especially of the kidney or of the liver, and in the latter case it may kill by liver degeneration and atrophy, with accompanying "toxic jaundice."

A further analogy may be drawn from facts recently made prominent in connexion with the toxic jaundice which became serious in this country for the first time towards the end of 1914 among persons employed in "doping" aeroplane wings, as the result of the presence in the dope of tetrachlorethane ($C_2H_2Cl_4$), which, inhaled as a vapour, acts upon nervous centres and is also a powerful liver poison. The toxic jaundice so caused has now happily ceased since tetrachlorethane has no longer been an ingredient of any aeroplane dope. During the time of its use at least seventy cases of jaundice with twelve deaths are known to have occurred. In the fatal cases the liver and kidneys were always the organs principally affected, and with changes indistinguishable from those to be described as induced by T.N.T. Alteration in the blood was absent, thus distinguishing the cases from toxic jaundice caused by nitro-derivatives of benzene and toluene. Here, then, we have a body, closely allied chemically to chloroform, which, while its anaesthetic properties as used industrially are not so prominent, finds a much larger number of persons susceptible to its toxic action on the liver.

TRINITROTOLUENE POISONING.

In view of the old experience of D.N.B. poisoning, it would appear *a priori* likely that T.N.T. can be absorbed in a dangerous degree by the skin, and recent experiments establishing this absorption will be mentioned below. Fine dust and fumes will reach, besides the exposed skin surfaces, the mucous membranes of nose and mouth—perhaps even the lungs themselves—and must inevitably be swallowed either in the saliva or with the mucous secretions from the nose and windpipe.

T.N.T. may be recovered unchanged from the faeces, and is probably there present in most of the workers. In the urine it does not exist free except by contamination during collection, but in the great majority of all workers it is present in greater or less amount in the urine, though in a combined state. In properly collected urine, not directly contaminated with T.N.T. dust, T.N.T. solvents fail to extract any of the substance. Its presence may be shown, however, by liberating it by acid from a compound in which it is fixed, when it may be revealed by its ordinary reactions. This urine test will be given in detail below. Further investigation is now in progress, but it would appear probable that free T.N.T. in the intestine is combined in the presence of reducing substances, just as other aromatic bodies in ordinary digestion of proteins are converted to ethereal sulphates, and so eliminated harmlessly by the kidney.

It appears at present best to group the symptoms of the poisoning under the following heads:

1. *Dermatitis.*

This appears to be due to a direct irritant action upon the skin. Some persons are more susceptible to it than others; the effects, like those of other irritants, are increased by flushing and perspiration, and by mechanical friction. Further details will be given below.

Some observers have thought that persons specially susceptible to dermatitis are in some rough proportion less susceptible to T.N.T. poisoning in the other ways to be mentioned. If further observations show this to be true, it may be a sign that some skins hold the T.N.T. in combination and suffer local irritation, while other skins allow a readier passage of it to the blood.

2. *Digestive Troubles.*

Gastritis, with abdominal pain, vomiting, constipation (a very constant symptom) with flatulence and distension, may all be early symptoms, and may appear in the absence of actual liver degeneration. It would seem probable that T.N.T. may act as an irritant in the stomach or intestines, as it may in the skin, independently of internal toxic effects.

3. *Blood Changes.*

These appear to be the same in kind as, though less in degree than, those mentioned already for D.N.B. The presence of methaemoglobin may be demonstrated commonly in the blood of workers, though cyanosis and breathlessness are much less evident than in the case of D.N.B. poisoning. Further investigations upon the precise changes in blood are in progress. There seems little reason to doubt that those already recognized are due to a direct action of T.N.T. introduced to the blood as such by absorption from the skin or from mucous surfaces.

4. *Liver Degeneration, "Toxic Jaundice."*

While the blood changes due to T.N.T. absorption are less noticeable than with D.N.B., T.N.T. appears to produce cell degeneration more readily, with the resulting toxic jaundice when the liver is involved. Even with T.N.T., however, only a small minority of persons under present conditions of work have shown signs of toxic jaundice, and the fatal cases have been few in relation to the great numbers of workers engaged.

Upon the comparison already made between the toxic effects of D.N.B. with those of T.N.T. it may be suggested that the very prominence of blood changes due to the former diminishes, by the attention it arouses, the chance of grave poisoning of the liver, and that in the case of T.N.T. the comparatively small note of warning given beforehand allows toxic jaundice to supervene in a certain number of workers who are not withdrawn in time.

The actual signs and symptoms in particular cases will be varying combinations of those in these groups.

Physical Signs.

Evidence of gradual absorption is shown by pallor of the face and an ashen-grey colour of the lips, tending to disappear if the worker becomes excited, as by medical examination. Sometimes the lips and tongue are deeply cyanosed. The tongue is generally free from fur. Abdominal distension is usually pronounced.

Jaundice may be conjunctival or general, and often appears suddenly without preliminary warning, rarely before the fourth week of employment. The liver dullness then is variable and no prognosis can be based on it, but it has been known to diminish rapidly towards the termination of a fatal case. The liver area may be tender. Ascites is present in a few cases. Respiratory distress is not noticeable when the patient lies in bed. Pyrexia has occasionally been observed in severe cases, which have eventually recovered. Neither bradycardia nor pruritus are common. Bile is present in the urine—occasionally albuminuria and intermittent glycosuria. In fatal cases coma and delirium supervene suddenly, usually about three weeks after the first appearance of jaundice.

Two deaths have occurred among T.N.T. workers from profound anaemia (unassociated with jaundice) with reduction of the red blood cells to one million per cubic millimetre. Examination of blood films showed the cells of unequal size, but there were no irregular shapes, poikilocytes, or nucleated red blood cells. Microscopical examination excluded pernicious anaemia. The symptoms in one case began with an attack resembling influenza, followed by bleeding from the nose and mouth, petechiae on face, arms, and neck, and swollen gums. In this case the characteristic atrophy of the liver was found *post mortem*. In the other there was no evidence in the body of the lesions which are associated with hepatic insufficiency. Death resulted from a haemolytic aplastic anaemia, the amount of the blood-forming marrow having been greatly reduced.

Dermatitis.

Localized rashes, especially where there is pressure or friction, as from bands or ill-fitting clothes, are common. The parts most frequently affected are the hands, wrists, face (particularly round the eyes and chin), the neck, and the feet. On the hands the rash is most frequently of the cheiropompholyx type; sometimes it takes the form of discrete red patches on the backs of the hands and wrists, and on the face and neck usually as a superficial erythema attended with swelling. In whatever form it appears pruritus is intense. Fine desquamation usually follows. In a few cases the skin is exfoliated in large flakes. The character of the rash is frequently altered by a secondary infection through scratching.

Speaking generally, the skin affections due to T.N.T. are not of a severe character, and yield readily to the usual treatment for eczema. To allay the itching small doses of quinine have been found useful.

Differential Diagnosis.

So-called T.N.T. poisoning is apt to be confused with gastric disturbance set up by other causes. The history given by a patient is very often misleading. Many of the workers have no idea as to the nature of the substance upon which they are working, and refer to all explosive powders as T.N.T. The staining of the hands is very little guide, as this condition is met with from C.E. (tetryl or tetranitromethylanilin) and lyddite (picric acid or trinitrophenol).*

The following points are of importance for the diagnosis of T.N.T. poisoning:

1. The characteristic appearance as previously described.
2. The character and situation of the abdominal pain.
3. The presence of constipation and abdominal distension.

Post-mortem Examination.

The outstanding feature is the atrophy of the liver, which in acute cases is reduced to one-half the normal weight. The outer surface is smooth, reddish in colour, with slightly elevated gamboge-coloured areas of various sizes. On section in the red areas the tissue is smooth, flat, and firm; the normal lobular pattern is absent, the portal systems being set very close to one another; in the elevated yellow islands the tissue is bulged and soft; an indistinct lobulation is visible, the lobules being larger than normally. Ascites is sometimes present. The bile in the gall bladder may be unusually viscid. The kidneys on section are enlarged and icteric; the cortex bulges and the labyrinths are frequently conspicuously yellow. There is considerable engorgement of the pyramids.

The myocardium is pale, soft, and flabby. Petechial and diffuse haemorrhages are generally found beneath the endocardium, the pericardium, and the peritoneum. They have been observed on the skin, on the rib cartilages, and elsewhere in the body.

Microscopical Appearance of the Liver and Kidneys.

Microscopically a great part of the liver tissue is found to have undergone complete destruction associated with a proliferation of fibrous tissue. In these areas the necrosed hepatic cells have almost entirely disappeared. The areas of complete destruction correspond to the sunken red areas seen with the naked eye. Where the destruction is not complete the histological picture is almost identical with that of the early stages of ordinary portal fibrosis. The liver tissue is traversed by fibrous trabeculae enclosing areas of degenerate, partly destroyed parenchyma; in the healthier parenchyma slight regeneration may be present. These areas of incomplete destruction correspond to the raised gamboge coloured nodules seen with the naked eye. The kidneys show cloudy swelling and fatty degeneration in the tubules.

The jaundice is possibly the result of obstruction, because in sections of the raised areas the bile-dilated intercellular spaces have been found to be confined to the central portions of the lobules whilst the portal bile ducts have shown catarrhal degeneration and the portal ductules narrowing or obliteration of their lumina.

Predisposition.

Case incidence and proportion of deaths from toxic jaundice to attacks is little affected by sex. Thirty-three per cent. of recognized and notified cases have proved fatal. The fatality under 18 years of age is striking—eight deaths out of eleven reported attacked. Duration of employment before appearance of jaundice shows remarkable uniformity, at least 83 per cent. of the cases occurring between the fifth and the sixteenth week. In 105 reports on toxic jaundice not one had been employed for a period less than four weeks. Only two fatal cases have been reported where duration of employment had been more than four months, although thousands of workers have worked a much longer time. It would almost appear as though workers could be divided into two classes—the one (and much the larger) insusceptible and remaining so, however much exposed; the other susceptible and liable to succumb, especially between the fifth and fifteenth week. Although there has undoubtedly been some association between unfavourable industrial conditions and the occurrence of cases, fatal poisoning has sometimes occurred where exposure to dust and fumes at any rate appeared to be quite excluded, as, for example, in trolley work outside the building. In one remarkable case the fatal jaundice developed seven weeks after entire cessation from employment, the deceased having apparently been well during the interval. Long delay in onset of symptoms such as is shown in this case suggests that T.N.T. is gradually absorbed from some part of the body in which it is temporarily stored.

Channels of Absorption.

The problem of determining the chief path by which T.N.T. enters the body has been worked out in a T.N.T. factory. The T.N.T. test referred to was used in the belief that it afforded evidence of elimination after absorption, and as a sign, therefore, of the unavoidable effect of exposure merely rather than of poisoning. Probably T.N.T., after it enters, can be eliminated from the body

* The effects of tetryl and picric acid are both liable to be mistaken for T.N.T., and may in consequence lead to erroneous notification of [illegible] Both stain the outer skin, tetryl a yellow to an [illegible] tetryl affecting chiefly the conjunctiva, the [illegible] and [illegible] the hands and forearms chiefly, very much like T.N.T. Constitutional symptoms from both are slight in comparison with those from T.N.T. No case of toxic jaundice from either has so far been reported, although thousands of workers come in contact with them. Apart from the initial dermatitis (which few [illegible] symptoms of gastritis and bronchitis [illegible] tetryl have been noted from tetryl.

harmlessly in the combined form in which it occurs in the urine. Examining the urine of T.N.T. workers daily for a period of seven weeks, the conclusion come to was that where there is absorption from the skin in susceptible persons the test shows a deeper colour reaction than in absorption from the digestive tract, and this reaction is found to persist for days after removal from exposure. On the other hand, the urine reaction following on ingestion of T.N.T. disappears in less than twenty-four hours. Absorption through the mouth and by breathing is probably only of less importance because when once work is over these paths of entry are no longer exposed to T.N.T., and the amount absorbed, which is less than that gaining access to the skin, is eliminated before work recommences.

Preventive Measures.

In the manufacture and use of dinitrobenzene before the war, need for minimizing the effects was well recognized either by arranging for alternation of employment or by allowing the workers such time off as was necessary for their recovery. Experience had shown that long hours of continuous work were impracticable. Similarly in some large factories where the number of workers and the nature of the processes carried on has permitted of systematic alternation of work on T.N.T. with other work away from it, no cases of toxic jaundice have been reported. And in others where on occurrence of cases alternation has been arranged the number notified has fallen. Hence in considering remedial measures against the danger of T.N.T. in circumstances demanding the utmost output, the aim is, apart from removal of fumes and dust, to employ workers over 18 years of age, to make suitable canteen provision, so that workers can obtain good food on factory premises, to eliminate those showing early signs by frequent medical examination, and to alternate the work or reduce the length of the shift if practicable. Complete protection of the skin is very difficult of attainment, but investigation is being made as to whether this may not perhaps be overcome in another way by the use of solvents such as have been mentioned (benzol, xylol, etc.).

The prophylactic measures adopted, for example, in the Royal Arsenal are as follows:

1. Only persons in good health, and as far as practicable between the ages of 20 and 50, are employed on T.N.T.
2. All workers are inspected by a medical officer once a week.
3. Special clothing is provided, also veils, respirators, and gauntletted gloves.
4. Employment is alternated fortnightly.
5. Adequate ventilation in workshops is arranged for.
6. Mechanical devices are adopted for preventing dust and getting rid of fumes.
7. Workers are warned against sleeping in the clothing worn at the factory, and advised to have a complete change of clothing on reaching home.
8. Facilities are provided for obtaining suitable and sufficient food at proper intervals. Milk is supplied free on the arrival of the workers.
9. Washing of hands and face is insisted upon before meals, and before leaving the factory. Neutral soap and individual towels are provided.

Treatment.

Where jaundice is absent the treatment is simple and satisfactory. The following is the usual procedure adopted at the Royal Arsenal: Removal from contact—rest in bed for a day or two. Diet: Milk, milk puddings, fruit and green vegetables; demulcent drinks, such as barley water, the imperial drink, tea and coffee. For the persistent constipation vegetable laxatives and cascara sagrada are employed. A mixture containing sodium sulphate, potassium citrate, and sodium bicarbonate is given as a routine measure.

In the treatment of cases with jaundice absolute rest in bed from the first is essential; milk, at first in small quantities, slowly increasing the quantity given to four pints a day. The bowels must be kept loose, preferably by mist. alba repeatedly given to maintain its action if necessary.

In cases of jaundice the prognosis is always grave. Alkali-producing drugs, such as citrates and bicarbonates, are given to counteract the tendency to acid intoxication. Rectal and intravenous saline injections have a definite place in the treatment of severe cases.

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ADDENDUM ON A URINARY TEST FOR T.N.T. ILLNESS AND THE EARLY DIAGNOSIS OF CASES SUFFERING FROM T.N.T. ABSORPTION.

It has hitherto been a difficult matter to follow up T.N.T. after it has once entered into the system. The reason is that T.N.T., like many other toxic substances, becomes combined in the body in a reaction which changes it for the time being, and probably renders it less poisonous. Once it has passed into the system and been so dealt with, it is no longer taken up by its well-known solvents, and must be set free again before it can be recognized by chemical tests.

Thus, a sample of urine from a T.N.T. worker loaded up with the altered T.N.T. can be extracted with a T.N.T. solvent, and yet not a trace be discoverable in the extractive. If, however, the substance be first set free with acid, and then extracted with an appropriate solvent, the characteristic reactions of T.N.T. can be obtained from the solution in the extractive.

A considerable experience in testing many hundreds of urinary samples from T.N.T. operatives has led to the following precise way of carrying out the test.

Webster's Test for Presence of T.N.T. in Urine.

Measure out 12½ c.cm. of the urine in a measuring cylinder, then add 12½ c.cm. of diluted sulphuric acid, made up by mixing 20 c.cm. of strong sulphuric acid with 80 c.cm. of water. Pour the mixture of urine and acid into a separating funnel of 100 to 150 c.cm. capacity and provided with a stopcock; add to the mixture 10 c.cm. of ethylic ether (the ordinary ether made from methylated spirit is sufficiently pure for the purpose), shake up well and allow to settle; take out the cork or stopper from the top of the separating funnel, open the stopcock at the bottom and allow the mixture of acid and urine to run off, then turn the stopcock off so as to retain the ethereal solution in the separating funnel. Now add 25 c.cm. of tap water to the ethereal solution in the separating funnel and shake up again to remove the traces of the mixture of urine and acid and allow to settle again for two or three minutes, then run off the water by opening the stopcock, retaining the ether in the funnel. Finally, let the ethereal solution flow into an ordinary test-tube and try for the presence of T.N.T. in it as follows:

Prepare a solution of alcoholic potash by dissolving 4 to 5 grams of caustic potash in 100 c.cm. of methylated spirit or absolute alcohol. Where many tests are to be carried out this solution may be made by having a stock saturated solution of caustic potash, and adding, when a fresh quantity of the reagent is required, 10 c.cm. of this to 90 c.cm. of alcohol.

To the ethereal solution obtained as above described 5 c.cm. of this alcoholic solution of potash are added. When T.N.T. is present a purple coloration is at once developed, varying in intensity according to the amount of T.N.T. present, from the faintest trace to a deep purple. The colour changes rapidly from the purple to a brown colour, and it has been found that the best results as to intensity are obtained by judging rapidly after the colour is struck.

It is easy for each observer to develop, after a little experience in using the test daily, an arbitrary scale of intensity which will enable him to judge degrees and follow relative intensities in the urine, and thus the effect of measures such as cleansing of the patient's clothing and person and removal from contact with T.N.T.

In elaborating the test a scale represented by *trace*, *1*, *2*, *3*, *4*, and *intense* has been used. At present it is impossible to construct a better scale, as the colours of comparative solutions of known strength of T.N.T. vary so rapidly, and as the substance so isolated from the urine does not behave exactly like T.N T. Also, bodies present in the urine and reagents vary the intensity of colour and speed of fading out. However, in the manner described above a fairly good rough standard of intensity can be obtained serviceable for clinical work and experimental observation.

A little experience enables the observer to carry out the test quite rapidly, and a single test can be made when all is ready in four or five minutes. Where a large number of tests have to be made daily, the chief loss of time is occasioned by waiting for the layer of ether to separate at the top of the mixture. This can be obviated by employing a battery of about eight separating funnels and carrying on from one sample to another while the settlement takes place. The eight ethereal extracts after treatment as above described are run off into eight test tubes of equal diameter. Another eight test tubes have previously had marked off upon them roughly about 5 c.cm., and have been filled to this mark with the alcoholic potash, and this is now poured off from each of these latter test tubes into the ethereal extracts, and the results noted down. Working in this way, twenty to thirty tests may be made in an hour, and comparative results so obtained possess an enhanced value over separate tests until the observer has become well accustomed to making the test.

The test is not a difficult one to perform, and when efficiently carried out demonstrates in nearly all cases of T.N.T. workers the presence of T.N.T. passing through the system, but in very varying degree. Some show scarcely any absorption, others give an intense reaction.

Interpretation.

The judgement on the test and its applications clinically must not be made solely on the intensity of the test. There are many workers on T.N.T. whose urine will give the test intensely at night after working during the day, and before going back to the next shift of work the urine may be quite or almost clear. These are not the persons who are in any immediate danger. The real value of the test is twofold—first, in clinching a doubtful diagnosis on clinical symptoms (previous to the appearance of toxic jaundice), and secondly, in watching the clearance of T.N.T. from the system after isolation from T.N.T. and judging whether isolation and other precautionary measures have been effective.

When there is doubt as to the presence of the early diagnostic symptoms, then the test should be made, and if it gives a fairly high result, the patient should at once be taken off work on T.N.T. and the urinary test made if possible daily in the succeeding two or three days.

If the urine clears up within twenty four hours, and clinical symptoms confirm this improvement, the case may be either one of the less harmful ones of absorption by swallowing or not really a case of T.N.T. illness. If, on the other hand, the urinary reaction after removal from work and separation from soiled clothing persists for three or four days, it is almost certain that the case is one of the more serious ones of a susceptible skin, and such a person ought to be permanently removed from T.N.T. work.

In all cases of applying the test, but more particularly in the case of persons removed from work as suffering from T.N.T., care should be taken to judge between accidental contamination of the sample of urine by T.N.T. and T.N.T. which has actually passed through the body. Fortunately this distinction is easily made, because of the way in which the system binds up the T.N.T. Where contamination is suspected, and it is fairly frequent, it may at once be detected by omitting the acid in the above test, and extracting the urine with ether either undiluted or after dilution with an equal volume of water instead of the acid.

When a positive result is obtained without acid it may be set down to contamination from clothing, skin, or hair, in the act of passing the urine. The detection of this contamination is in itself valuable, as it shows that the patient has not carried out instructions, and while supposed to be free from contact with T.N.T. is still exposed to it.

Even in such a contaminated urine, the degree to which T.N.T. is continuing to be absorbed can still be accurately followed up. All that it is necessary to do is to shake up the urine, *without the addition of acid*, with ether as described above, when the test in this quantity of ether shows the degree of contamination. This unacidified urine is now free from T.N.T. *due to contamination*, and can next be utilized for carrying out the test to determine how much is passing through the system.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

Dr. Addison in Charge of Munitions.

The appointment of Dr. C. Addison to be Minister of Munitions, after he has served in that department from its inception as Parliamentary Secretary, will be particularly welcome news to the medical profession, which is not only honoured by the appointment, but is assured also of the fact that the new Minister will have a correct appreciation of the value of medical work in the scheme of national activity. This is the more important to the profession in that at present the building of motor cars is forbidden, as is the manufacture of spare parts for old ones, and of repair work save under special permit and circumstances. As was pointed out in these columns a fortnight ago, there are very sound reasons for a permit giving preference as to the order of executing repair work being not worth the paper on which it is printed, in that the vast majority of motor manufacturing firms are occupied night and day on Government work. Therefore they have not an hour to spare to commence any job under any class for which permits are issued. If this principle were to be applied indefinitely to motor car repair work for the medical profession it would mean, in effect, that probably almost every doctor would presently have a permit, but that permit would be valueless to enable him to get any work done, therefore his activities would perforce have to be reduced to proportions which in some circumstances would be small compared with what they might remain if he had the free use of his vehicle. The new Minister of Munitions will understand the vital necessity of medical service to the nation in this crisis, and will therefore assuredly see to it that permits for work to be done on doctors' cars are issued under such conditions as will more or less ensure that that work can be carried out. In other words, the permit system will no doubt be developed in whatever direction is found necessary as the result of experience.

Petrol Situation Unaltered by German Successes.

The capture of the Rumanian oilfields by the Germans is of value to the enemy, but it does not represent a loss of a material sort to ourselves, despite the fact that British capital is locked up in exploiting many of the fields. The motoring enterprise of the Allies, alike in and out of the war zones, will proceed as before, because the oilfields of the world are producing on an ever-increasing scale, and it matters little to us whence we fetch the oil or petrol, because it has to be brought here by sea. Of course, on economical grounds, we had far sooner buy it from our Allies than from neutrals. But throughout the period of the war we have been able to do without supplies from Rumania, which has accumulated vast stores—a million and a half tons—that are reported to have been destroyed before the enemy reached them. The value of the Rumanian oilfields to the enemy lies in the fact that they produce heavier grades of oils than the Galician oilfields, of which the enemy is also in possession. The value of these resources to Germany and Austria is inestimable; hence, as the victorious armies marched forward there came behind them engineers with all the necessary equipment for getting the oilfields working again in the minimum of time. That was the principle adopted in Galicia, and we may be sure the same system will be exploited in regard to Rumania. Hence the importance of routing the enemy out of that country at all costs before they are really got going. But as to the Allies being rendered short of oil or petrol in consequence of this development, the present German successes can exercise no effect whatever, since we have not, since the commencement of the campaign, been dependent upon Rumanian supplies.

British Medical Journal.

SATURDAY, DECEMBER 16TH, 1916.

FOOD AND DRINK.

MR. RUNCIMAN recently gave to the House of Commons the following details of materials used in the manufacture of beer in the year ending September 30th last: Malt (barley), 41,605,365 bushels; unmalted corn, 77,776 bushels; rice, rice-grits, flaked rice, maize grits, flaked maize, etc., 1,343,930 cwt.; sugar, including its equivalent of syrups, glucose, and saccharine, 2,399,936 cwt. Commenting upon this in a letter to the *Times* of December 2nd, "Agricola" stated that in the village where he lived "each villager keeps a pig or two, which provide the only meat the family will taste for many months in the year. Large numbers, too, are reared by farmers; but since, owing to the demand for barley for brewing, etc., the price has risen to 70s. per quarter, these pigs are being thrown on the market immature and unfit for food owing to the impossible price of feeding stuffs. Why prate of 'economy in food' or shortage when this appalling waste is allowed to continue?" Professor Waller, in the *Times* of December 4th, controverted Agricola's view that materials used in the manufacture of beer could be economically diverted to the rearing of pigs. "The food value," he said, "of beer (*plus* milk and meat per cattle food) is more than half that of the brewing materials used, whereas the food value of the pig meat is less than one-fifth of the same materials." And he argued that by following "Agricola's" advice we should incur "a total loss of 1.2 billion calories—60 per cent. of the original beer value—by the utilization of beer materials for pig keeping." He concluded that "the value of abstinence from beer (and spirits and champagne) under present conditions depends upon considerations other than those to which 'Agricola' appeals." The quantity of malt and grain used in distilleries was in the same period about two and a half million quarters, and of other substances, including molasses, nearly one million hundredweights.

Neither "Agricola" nor Professor Waller can be said to have gone to the root of the matter. In the case of the pig its flesh is the sole result of the barley fed; a large part of the calorie value of its food is spent on its life energy, and the economic advantage claimed by Professor Waller, in the case of beer, depends on the feeding of brewers' grain to cows which consume in addition grass and roots; they produce calves, give milk for many months, and finally become butcher's meat. But surely there is a fallacy in Professor Waller's argument. Barley grown and milled in the district and conveyed to the pig farmer, requires an expenditure of human energy which is very much less than that expended on barley in its conversion into malt, its transport to the brewery, brewing, and the transport and sale of the beer to consumers. A large amount of coal—of which there is a critical shortage—is used in making beer or its transport, a very large amount of mercantile tonnage is occupied by materials for beer which could be utilized for food. A large number of men are kept at the manufacture of beer who might be employed in the essential work of food production at home. Now all the vast sum of human energy spent on beer making and handling is made good out of food, and this expenditure must be taken into account in measuring the relative economic advantage of using barley for beer making or pig raising.

The consumer takes beer because he likes its taste and finds its effect on his feelings agreeable, and not as a food. It is conceded that alcohol does bodily harm to many, and therefore causes an expenditure of energy in their treatment when ill, and that it occasions crime entailing a wastage of human energy in its prevention and punishment. Over-indulgence diminishes working efficiency to such an extent that the Government has had to institute a Board of Control to counter the liquor trade and secure a more adequate output of munitions.

It must be recognized that the waste of calories is enormous in turning grain foods into beef or pork; there is no such waste in using the grass of the pampas, or such grazing land in this country as is unsuitable for the cultivation of grain or vegetables. If the war brings us down to bed-rock diet it will be a diet of standard or wholemeal bread, oatmeal porridge, barley cakes, potatoes and vegetables, such nut-butter and fish as is available, and just so much animal food as can be raised or imported after the national stomach has been satisfied with grain foods and potatoes. The whole calorie worth of the grain food is utilized when man eats it, and therefore its use for brewing beer and feeding cattle and pigs must, as the war continues, be progressively limited.

In the matter of sugar shortage, it should be borne in mind that sugar exists in natural foods only in small amounts; its physiological function in such foods is to act as an appetizer. Starch is the natural carbohydrate food, a colloid which is only converted by the digestive juices into sugar in proportion as it is absorbed. The concentration of sugar from foodstuffs, and its consumption in the pure form as sweetmeats, is wholly artificial, and a quite recent incident in the history of man. There is no doubt that sugar is responsible for a great deal of gluttony and ill health. The abstainer from alcohol may do himself no less harm by his gluttony for sweets and sweet pastries than the drinker does by over-indulgence in alcohol. Not uncommonly he does. The restriction of sugar will do the nation no harm so long as the sugar is reserved for flavouring and making appetizing the natural foods, and not used for the manufacture of sweets and heavily sweetened confectionery. It is only the soldier at the front and the children of the poor who need sweetmeats.

Having in mind the present shortage of meat, one cannot regard with favour the conversion of a part of the world's supply into beef extracts, which hitherto have escaped the attention of the Chancellor of the Exchequer, while all other drinks are heavily taxed. A popular advertisement represents a prime sirloin of beef as going to make a small bottle of extract. We know that the meat extracts contain salts and extractives—appetizers—but that the proportion of protein present when a cup is made is so small as to be negligible as an element in diet. No doubt the protein after the extraction is utilized for making poultry meal, dog biscuits, etc., but the waste of good food remains. The extracts are a luxury, and comparable in that respect to wine.

THE FEES OF PHYSICIANS AND SURGEONS.

During the last five weeks the columns of the British Medical Journal have presented to their readers a discussion of increasing animation upon a topic of perennial interest, and that is the proportion that should obtain between the fees paid to the physician and the operating surgeon respectively. The letters received from our correspondents illustrate the many points of view from which this question may be regarded; they do not, alas!—and, indeed, how could they?—offer any single solution of its difficulties. Discussion as to whether the surgeon or the physician represents the higher branch of the medical profession, using the term in its widest sense, has proved itself once more to be sterile, and calculated to produce annoyance rather than agreement between those taking part in it. Circumstances alter cases, and cases, like the patients who illustrate them and the physicians and surgeons who treat them, vary so widely as to be beyond the scope of any summary generalization. Every practitioner of medicine will be able to call to mind instances in which the fees paid to either physicians or operators have been disproportionate to the merits of their recipients.

The letters received from our correspondents indicate a general tendency to believe that while surgeons commonly receive the full market value in payment for the great services they render to their patients, physicians are by no means always so fortunate. Yet none of our correspondents has succeeded in putting forward a practical scheme for the redress of this inequality, unless it be by improving the education of the fee-paying public. The triumphs of surgery are often solid and sometimes spectacular. Nothing could be less spectacular than the triumphs of medical science, for they are in general negative in the sense that they so often deal in prevention rather than immediate and obvious cure. The result is that so long as seeing is believing—the layman's inevitable criterion—so long will the operating surgeon continue to command his present well-deserved fees, and so long will the physician frequently receive less than he in fact deserves.

The far-reaching suggestion that every surgeon should be his own physician and every physician his own surgeon, excellent in the few instances in which it can actually be realized, will hardly be regarded as an immediate solution to the problem before us, but it may perhaps indicate the lines along which the solution required will in the future be sought. To combine successfully all the qualities of a first-class physician with all those of his surgical compeer must always be beyond the reach of any but the very exceptionally gifted. Hence the necessity for specialism. It is without doubt unfortunate that the practices of surgery and of inner medicine should, as Sir Clifford Allbutt reminds us in his highly interesting account of this dichotomy in to-day's issue, have been so widely divorced ever since the twelfth or thirteenth century. In this latter he goes to the root of the matter by asking us how long we are to go on with a routine which is blind and foolish, and must therefore create false positions. Specialism he recognizes is inevitable, and his plea that it should follow natural lines and be regulated by personal inclination rather than precedent is one which may serve to take the energies of our correspondents into a field to be tilled with more profit. Should it be possible to make the practices of medicine and surgery overlap more widely than they do, something will have been done not only to equalize the fees paid to the exponents of these two branches of the medical profession, but also to help on the progress of medical science as a whole. The hands have always been most important among the teachers of human beings; surgery owes a vast amount to the fact that it is in the best sense of the word a handicraft, and the physician who has the good chance to be able to import the element of handiwork into his professional activities will surely gain in knowledge and skill thereby.

MEDICAL CERTIFICATES.

The article on the responsibility involved in giving a medical certificate has, we are glad to find, attracted some at least of the attention the importance of the matter deserves. The article had special reference to the giving of a medical certificate which might be used before a tribunal to support a claim for exemption on the ground of physical unfitness, and it was founded upon observations contained in the address delivered by the President of the General Medical Council at the opening of its winter session. He once more called attention to "the imperative duty of every practitioner to safeguard the trust confided to him by the law, to treat the certificates he issues as declarations made on honour and conscience, and to ensure that the evidence it purports to afford is not just defensible merely, but above suspicion of carelessness either in its contents or in the manner of its attestation by his signature." He went on to utter the warning that the Penal Cases Committee of the Council would not hesitate to advise a judicial investigation by the Council in any case where it was credibly alleged that a practitioner's certificates or notifications were, in the words of the Warning Notice issued by the Council some time ago, "untrue, misleading, or improper." He in fact went rather further, for, after mentioning that communications had been received from several important Government departments making it clear that in some parts of the country an impression existed among public authorities that some medical men had relaxed their usual vigilance in the matter of certificates, he stated that if any specific charge against a practitioner, supported by prima facie evidence, of culpable laxity had been brought to notice, the Council would, during the last session, have dealt with the charge, "under a full sense of its gravity, in the interest alike of the State and of the good name of the medical profession." He added that an intimation to this effect had been made to the Government departments concerned, and that meanwhile the Council would await their further action.

In commenting on this we said that the Council can be no respecter of persons, and that "if the scandal comes it must deal out even-handed justice alike to the struggling practitioner in a poor area and to the consultant or specialist in a fashionable street." In making this comment we meant no more and no less than the words in their natural meaning convey, and we do not accept the gloss put upon them by one of our correspondents this week, who speaks of the extension of the warning "to the consultant in Harley Street" as parading "a delusive fairness." We adhere to the words used, and repeat that the warning applies to every member of the profession whatever the class of practice in which he is engaged; the amount of the fee, or whether any fee be paid, has nothing to do with it.

It is alleged by some of our correspondents that the immense increase in the number of certificates and notifications required directly or indirectly by the State has somewhat dulled the edge of carefulness. It is true that legislators and the makers of the orders and regulations in which nowadays so many Acts of Parliament are bodied forth seem frequently to forget that weariness of much labour and much certificate-giving may easily conduce to the relaxation of vigilance spoken of by the President of the General Medical Council. But the responsibility attaching to the grant of a medical certificate is at all t mes serious, and in respect of certificates for military purposes is more than ever serious now. Prevention is better than punishment, and we agree with Dr. Murray Leslie who last week expressed the view that the pressure brought to bear upon practitioners by applicants who desire to avoid military service, would be diminished if a form of certificate were provided for the medical practitioner to fill up. We also agree with him that the necessity of filling up such a form would encourage the exercise of greater care, since the practitioner's attention would be thoroughly aroused and his sense of responsibility quickened. We understand that the matter has already been before the Central Medical War Committee and that the draft of a certificate in a form most suitable for the purpose in view is under consideration.

DOCTORS AS MEN OF ACTION.

THE new Ministry contains two doctors. The new Lord Chancellor, Sir Robert Finlay, took the degree of M.D. at Edinburgh, but we do not know whether he ever practised medicine. Dr. Addison, whom we congratulate on his well-earned appointment to be Minister of Munitions, before he took to a political life was a distinguished professor of anatomy. He makes an important addition to the lists recently given in the JOURNAL of doctors who have been more or less prominent as men of action. We take this opportunity of repairing some omissions in those lists. Dr. Robert Farquharson was for many years a familiar figure in the House of Commons; he was a member of the Selection Committee, and rendered excellent service in the promotion of much useful legislation, notably in regard to the reform of the medical service of the army. Sir Charles Cameron has done much for the legislative enforcement of temperance, for the abolition of imprisonment for debt in Scotland, and other social reforms. Mr. John Dillon, who has long played a prominent part in Irish politics, is a member of the Royal College of Surgeons of Ireland. The late Mr. Mitchell Henry, who was for some time surgeon to the Middlesex Hospital, exchanged his original profession for politics and was for some years an active member of Parliament as representative of co. Galway and afterwards for the Blackfriars Division of Glasgow, ending as an agricultural reformer in Ireland. Sir Michael Foster was recognized as the representative of medical science in the House of Commons, and Sir William Priestley won for himself and his profession the esteem of that critical assembly. Going further back, we find among medical M.P.s, Dr. Thomas Lake, who sat for the Port of Hastings in 1572, 1585, and 1586; Dr. John Bathurst, who was physician to Oliver Cromwell, and sat in the Protector's Parliament for Richmond, Yorkshire, in 1656, and in that of Richard Cromwell in 1658; Dr. Jonathan Goddard, who accompanied Cromwell to Ireland as first physician to the army in 1649 and to Scotland in 1650, and sat as representative of Oxford in the Little Parliament in 1653; Sir William Petty, author of *Political Arithmetic*, a pioneer of political economy and founder of the Lansdowne family, who sat for West Looe in Cornwall in 1658; Dr. Thomas Arris, son of the co-founder of the Arris and Gale Lectures at the Royal College of Surgeons, who represented St. Albans in 1661; Sir John Finch, who was Charles II's Minister at the Court of Tuscany in 1665, and his ambassador at Constantinople in 1672; Sir John Hinton, physician to the same King, in whose service he contracted several thousands of pounds of debt; Dr. Nicholas Barbon, originator of fire insurance companies, who represented Bramber and died in 1698; and the famous John Radcliffe, who represented Buckingham in 1713. Dr. John Freind, a very active politician who was imprisoned in the Tower for alleged participation in the "bishops' plot," and was liberated by the good offices of Richard Mead, who refused to prescribe for Sir Robert Walpole till his friend was set free, sat for Launceston in 1722; in 1725 he presented to the House of Lords a petition from the College of Physicians against the "growing and pernicious use of spirituous liquors amongst persons of all ranks and both sexes." Dr. Charles Cotes sat for Tamworth in 1734 and 1741; Dr. Thomas Dimsdale, who inoculated Catherine of Russia against small-pox, and was created a Baron of the Russian Empire with a fee of £12,000 and a pension of £500 a year, was M.P. for the borough of Hertford. All these were Fellows of the Royal College of Physicians of London; doubtless other members of the medical profession besides Joseph Hume and Thomas Henry Wakley, mentioned in a former article, have played a part on the political stage, but neither memory nor such hasty research as we have been able to make has brought up any additional names from the past. Among the doctors who are rightly counted among *auctores imperii* we should not forget Gabriel Boughton, who in 1645 or thereabouts obtained for the East India Company the concession from the Great Mogul which laid the foundation of our empire in the East; William Hamilton, whose successful treatment of a later Emperor had important results in promoting British interests in India; and John Zephaniah Holwell, the defender of Calcutta in 1756, who took command among the prisoners in the Black Hole, and was afterwards temporary Governor of India in succession to Clive. Short accounts of these men may be found in the JOURNAL of May 25th, 1907. Among doctors who have played a political part behind the scenes may be mentioned Sir Alexander Fraizer, physician to Charles II, in whose political sagacity the King is said to have placed as much reliance as in his professional skill; Sir William Knighton, physician to the Prince Regent, afterwards his private secretary and keeper of the privy purse; Baron Stockmar, the trusted counsellor of Queen Victoria and Prince Albert; Dr. Robert Ferguson, physician to Lord Palmerston, who found him a convenient medium for gathering political information and for unofficial negotiation, and Dr. Quin, who was used by Lord Beaconsfield for the same purpose. Turning to France, we find M. de Lanessan, a former Minister of Marine; Professor Cornil, a member of the Senate, to whom is mainly due the law regulating the practice of medicine passed in 1892; M. Viger, who was Minister of Agriculture in several successive Cabinets; and Dr. Fernand Dubief, who died the other day, author, among other legislative measures, of a special tariff of medical fees for accidents to workmen. In France doctors take a larger share in the government of the nation than in any other country.

BRITISH ANATOMY.

AFTER the failure of the *Natural History Review* in 1865 British anatomists and physiologists felt the need of a means of publishing a record of their observations and discoveries. In the following year, 1866, Turner of Edinburgh and Humphry of Cambridge met at Nottingham to arrange the business of the Physiology Section of the British Association. On the initiative of Turner, steps were taken there and then to found a *Journal of Anatomy*

and Physiology, Humphry undertaking the active editorship. Under these two men the journal prospered and became the organ of English-speaking anatomists. It was less successful as a medium for physiologists. In 1878 the *Journal of Physiology* was founded, and from that date onwards physiological papers became fewer and fewer in number in the pages of the *Journal of Anatomy and Physiology*. At the end of last century the American anatomists, who in earlier years had used the British journal, founded one of their own—a very successful and valuable venture, which in size outstrips its British predecessor and certainly rivals it in quality. The *Journal of Anatomy and Physiology* has always been, and still remains, the medium by which British anatomists publish their researches. In recent years it has been managed and edited by Professor Alex. Macalister of Cambridge, who had as his associates on the editorial staff, Professor Arthur Thomson of Oxford University, Professor Arthur Robinson of Edinburgh University, and Professor Arthur Keith of the Royal College of Surgeons of England. Recently Professor Macalister, with the consent of his colleagues, transferred the management and editing of the journal to the Anatomical Society of Great Britain and Ireland. The society has tendered Professor Macalister its grateful thanks through its president, Professor R. Howden. An editorial committee has been appointed by the society to manage and edit the journal. On the committee are Professor T. H. Bryce of Glasgow University, Professor E. Fawcett of Bristol University, Professor J. P. Hill of University College, London, Professor G. Elliot Smith of Manchester University, and Professor A. Keith of the Royal College of Surgeons of England. Professor Keith is to serve as acting editor. The title has been changed to *Journal of Anatomy*, physiologists being amply supplied with means of publication. The *Journal of Anatomy*, although now owned and managed by the Anatomical Society, is open to papers dealing with all branches of anatomy—human, comparative, microscopic, and embryological—whether or not such papers have been read as communications to the society. At the last meeting of the society, Colonel David Hepburn, University College, Cardiff, was elected President in succession to Professor Howden.

THE HEALTH OF TURKEY.

SPEAKING at a meeting of military surgeons at Metz, Dr. Auerbach,[1] who appears to have spent several years in Asiatic Turkey, reviewed the conditions of medical practice in Turkey and the prevalence of certain diseases. In Syria medical practitioners belong to two sharply defined schools, the European and the native. The native physician, who had been taught in Constantinople, was far better educated than the pupils of the Beirut High Schools, where instruction in anatomy, pathology, and midwifery was faulty for want of material. *Esprit de corps* in the medical profession was practically unknown, and though the chemists were, as a rule, well equipped, they were not always reliable, and were, Dr. Auerbach said, invariably tied financially to some physician. The hospitals were almost entirely in the hands of the missionaries. No public health medical service existed. Malaria, chiefly tertian, was the most prevalent disease, but severe forms were rare. Treatment was, as a rule, inadequate. In Jerusalem almost all the inhabitants were affected, and among 8,000 school children examined before the outbreak of war, 25 per cent. were found to be infected at the first examination of the blood. Trachoma was so prevalent that 33 per cent. of the population were infected. In the autumn, dysentery, usually amœbic, was common; it reacted very satisfactorily to gluteal injections of emetine. Typhoid fever, though not rare, ran a milder course than in Europe; it was often confused with Malta fever. Cases of cholera, usually introduced by pilgrims returning from Mecca, were observed almost every year. Epidemics of small-pox occurred every year, and vaccination was not universal. The vaccination was made on the skin between the thumb and index finger. Pulmonary tuberculosis was rare, and was usually introduced from without. Among the natives it was almost unknown, but when they did develop pulmonary tuberculosis it was rapidly fatal, even in cases which at first seemed slight. The miliary form of pulmonary tuberculosis was more common among the natives than the ulcerating, cavity-forming type of the disease. Tuberculosis of the bones was relatively more frequent, and reacted satisfactorily to sunlight. Gonorrhœa and syphilis were far less common than in Europe, probably because of early marriage in the East. During five years Dr. Auerbach had never seen a case of tabes or general paralysis among the natives. Cancer, notably cancer of the uterus, was rare, but displacements of the uterus were common, no doubt on account of frequent confinements. Fecundity among the native women was counteracted by the enormous infant mortality; only about four out of ten children reached maturity. Polygamy was most exceptional. It was not surprising that by the age of 30 the women had become faded, for they had had, on the average, ten to twelve confinements.

[1] *Deut. med. Woch.*, August 10th, 1916.

COMBING OUT THE PSEUDO-TUBERCULOUS.

IN their dire need of men for military service the Germans are, by their own admission, enrolling for active, as well as for garrison, service phthisical patients suffering from the so-called "closed" form of pulmonary tuberculosis. Surely only the most desperate straits can justify this action, not merely from the point of view of the patient, whose "closed" tuberculosis may become "open" at any time, but also from that of his fellow-soldiers and of the military medical service, upon whom the burden of the broken-down soldier necessarily falls. Combing out the healthy from among a large class of cases suspected of being tuberculous is quite another matter, and a scheme the Germans have adopted with this object in view deserves notice. Observation hospitals are staffed only by medical specialists and are equipped with every modern contrivance for diagnosis, principal among which are the *x* rays. How effective such an observation hospital may be has been shown by the late Professor Albert Fraenkel,[1] who found that only 40 per cent. of the cases were really tuberculous, while 40 per cent. suffered from other diseases, and the remaining 20 per cent. were healthy. Of 1,800 soldiers admitted to hospital as tuberculous, 43 per cent. were discharged as fit for active service and 15 per cent. as fit for garrison service. He came to the conclusion that previous residence in a sanatorium was not by any means reliable proof that the man had ever suffered from tuberculosis. In fact, he had recently satisfied himself that fifty men who had been treated in sanatoriums had never suffered from tuberculosis. He had little good to say of tuberculin as a diagnostic agent. Out of 700 cases, it indicated tuberculosis in 280, but only in 8 was the tuberculin reaction of any real diagnostic value, and in all the other cases it merely confirmed the evidence of the *x* rays and the clinical examination. Only in one case was the tuberculin reaction of crucial diagnostic value. The *x* rays were indispensable—both fluorescent screen and skiagram. The latter was, in fact, of almost as great value in the diagnosis of "closed" tuberculosis as the bacteriological examination of the sputum was for the "open" form. In the estimation of the fitness for military service of men suffering from the "closed" form, much importance was attached to the rate at which the temperature fell after exercise; a high exercise temperature, which fell rapidly, might be perfectly

[1] *Muench. med. Woch.*, August 1st, 1916.

normal. Before the war the Germans prided themselves on having reduced the incidence of tuberculosis in the army to 1 or 2 per 1,000; now they are priding themselves on the great number of tuberculous patients they are putting on garrison duty, and even on active service. To us this state of affairs seems tragic; but the thorough way in which the Germans have set about combing out the pseudo tuberculous conscript is worth the close attention of our own authorities.

A CASE OF CHORDOMA.

A CHORDOMA is a very rare form of neoplasm, originating from the remains of the notochord or chorda dorsalis that represents, embryologists tell us, the first axial skeleton or backbone. The bodies of the vertebrae and the base of the skull are developed from the notochord; itself, it disappears during fetal life, leaving behind only small pulpy masses in the intervertebral discs. Its upper limit is the juncture of the sphenoid and occipital bones. In a series of reprints[1] published by the University of Iowa, Professor Albert, the editor, gives an account of a case of chordoma coming under his own observation. The patient, a man of 26, was in a railway smash in February, 1913, receiving bruises about the head, right leg, and coccyx, and breaking a collar-bone. The coccygeal pain continued till May, when pain on defaecation and melaena were noted A tumour was found projecting forwards from the coccyx, but not adherent to it, obstructing the lumen of the rectum. It was removed by operation, and on microscopical examination was found to be a chordoma. Four months later the pain, melaena with discharge of pus, and difficulty of defaecation all became worse. A nodulated annular mass surrounding and constricting the rectum was found, and a piece of it on removal and examination proved to be a chordoma. A modified Kraske's operation was performed, and three inches of the portion of the rectum involved by the tumour were removed. Before long signs and symptoms of recurrence of the growth appeared; a colotomy was performed in March, 1914, but the patient died in the following July. Professor Albert has been able to find only fifteen other cases of chordoma recorded in the literature. The growth was malignant in ten and apparently innocent in six instances. It occurred in the region of the spheno-occipital synchondrosis in ten cases, in the sacro-coccygeal region in the remaining six. The original tumour itself in Professor Albert's case was two inches long, an inch and a half wide, and an inch thick; it was soft, light in colour, and not connected with the coccyx or sacrum. Under the microscope it showed groups or columns of large vacuolated degenerating cells, separated by homogeneous interstitial substance or bands of fibrous connective tissue. The interstitial substance presented the staining reactions of mucin or mucoid substance.

GERMAN RAVISHERS AND THEIR VICTIMS.

IN a thesis for the doctor's degree recently presented to the Paris Faculty of Medicine, M. René Dubois[2] reported ten cases of French and Belgian women who became pregnant after violation by German soldiers. He admits that, in the circumstances, a rigorous scientific control of the patients' narratives was not possible, but the stories, which were usually very concise, never varied; they did not care to dwell on their experiences, and there was no trace of romancing or of any kind of embroidery. They all had an aspect of deep distress; their restless and frightened look was that of creatures overwhelmed by fate. Professor Pinard, to whom the observations were submitted, thought them worthy of publication. It is impossible to give particulars of all the cases; they are too unpleasant for repetition. A few illustrative instances will suffice. In one case a farm servant in Belgium, aged 18, left her place when the approach of the Germans was announced on August 22nd, and with another girl set off for a neighbouring village. They found it in the hands of Germans, who seized them, crying that they must be their servants and their wives. They were mingled with other captives in an empty house, and when the Germans had inflamed themselves with drink, the girls were, under threats of death, compelled to submit to the ravishers. The girl who is the subject of the report was first the victim of an officer, who then immediately handed her over to a comrade. For three days she was forced to sate the lust of her two masters. On the evening of the third day she managed to escape and found her way to Paris, where she was delivered of a girl in the course of the ninth month after violation. In another case a married woman, aged 28, was captured by Germans with some hundred and fifty other women; each was placed in a pigsty on a bundle of straw. They became the prey of hussars. Those who made any resistance were tied hand and foot, and were "brought to their senses" by blows with the butt end of the rifle or kicks. From December 1st to January 11th the unhappy woman had every day to endure the embraces of eight soldiers. On October 3rd, 1915, she was delivered of a girl. In a third case a married woman, Madame K——, aged 22, belonging to a village in French Lorraine, was with fifty young girls locked up in a barn in March, 1915. They were stripped of their clothing and given over to fifty soldiers. The women who refused had their bellies ripped open; only thirty came out of the barn alive. Madame K—— was delivered of a girl in the following December. Full obstetrical details of all the cases are given. The children—six girls, four boys—were with two exceptions of normal weight. In only one case was the confinement premature. In two cases there was an appreciable prolongation of the period of gestation—in one to 292, in another to 293 days; both the mothers were multiparae and their menstrual history was regular. While some of the mothers submitted without reluctance to their babes being taken from them, others parted with them very unwillingly. In nearly all the instinct of motherhood was awakened by the first cry of the child. Only a few refused to suckle or even see the child.

THE NEW MINISTRY.

THE most remarkable feature of Mr. Lloyd George's Ministry, and that in which it departs most from precedent—apart from the smallness of the Cabinet, which has been reduced to five—is the disposition to put experts at the head of departments where expert knowledge is necessary. Hitherto, except in law appointments, this practice has not been followed. The most conspicuous example of the new departure is the nomination of the Vice-Chancellor of the University of Sheffield to be President of the Board of Education, for with the science and administration of education the whole of his career has been concerned. Other examples are Sir Albert Stanley at the Board of Trade, Mr. Hodge at the Ministry of Labour, Mr. Prothero at the Board of Agriculture, Lord Devonport as Food Controller, and Sir Joseph Maclay as Shipping Controller. An exception is afforded by Lord Rhondda, a very eminent financier and a great coalowner, who becomes President of the Local Government Board which, after the Insurance Commission, is the department of the Government that has most to do with medical questions. As a set-off we have Dr. Addison at the Ministry of Munitions, a post for which his scientific training and recent special experience particularly qualify him.

[1] *University of Iowa Monographs: Studies in Medicine.* Vol. i. No. I. June, 1916. Edited by H. Albert, M.D. Published by the University. (Med. 8vo, pp. 94.)

[2] Dix observations obstétricales du temps de guerre: Thèse de Paris. 1916.

THE WAR.

NOTES FROM GERMAN AND AUSTRIAN MEDICAL JOURNALS.

TRAUMATIC EXOPHTHALMIC GOITRE.

SEVERAL papers have been published in the German medical press dealing with the relation of tachycardia and other symptoms to hyperthyroidism, and the sudden onset of exophthalmic goitre in the subjects of hyperthyroidism has also been discussed. One case described by Dr. Schutzinger[1] was that of a waiter, aged 20, who had been weakly as a boy, but had never been seriously ill. He went on active service in May, 1915, and became so excited by prolonged artillery engagements that he often did not know what he was doing. Towards the end of June he noticed his neck was enlarged, and he was troubled by palpitation of the heart, vomiting, and attacks of violent trembling. He became much worse during the battles in September, and when, on October 1st, he was badly shaken by the explosion of a shell, and slightly wounded in one foot, he was sent to hospital, mainly on account of his nervous condition. First he was dieted, and later he was treated with thymus tablets, which in a short time reduced the circumference of his neck. In November he still suffered from nervous restlessness and palpitation of the heart. The pulse was 100, there was considerable tremor of the hands, as well as extreme exophthalmos. Under treatment with thyreoidin tablets and the Roentgen rays the symptoms gradually improved, the tremor in particular diminishing, and finally ceasing.

TETANUS AND ANTITETANUS SERUM.

After recounting his experience of tetanus and of the effects of antitetanus serum in a large number of cases, Professor Kümmell[2] arrives at the following conclusions: (1) The picture of tetanus produced by the severity and the number of cases shortly after the outbreak of the war has disappeared. (2) Early prophylactic injection of the wounded with antitetanus serum is an almost certain preventive of tetanus. (3) An injection should be repeated when, about seven days after the first injection, an operation, even though it be slight, has to be undertaken. Prophylactic injections are also indicated whenever a patient who has recovered from tetanus has to undergo an operation. (4) The relatively low proportion of failures could be further reduced by improvements in the preparation of the serum, by avoidance of errors of administration, and by greater knowledge of the treatment of suspicious wounds. (5) Only in a very small proportion of cases is tetanus unavoidable; this happens only when the blood has been flooded by much virulent toxin, or the patient is exceptionally susceptible to tetanus.

GAS GANGRENE.

Professor Bier,[3] while accepting the general view that gas gangrene is exclusively a disease of the muscles, agreed also that the bacilli might migrate to the intermuscular spaces and subcutaneous tissues. In the true focus of infection, the muscle substance changes could be observed ranging from simple pale-red discoloration to complete reduction of the muscle to pulp. Tissues other than muscles were much affected by the disease only when extensive areas of a limb were involved. If a necropsy were performed immediately after death the distribution of the gas gangrene was strictly limited; its apparent generalization was mainly a *post mortem* change. Bacteriological investigations carried out by Professor Pfeiffer confirmed these views; in the oedematous and emphysematous subcutaneous tissues at a little distance from the track of the wound, either he could not find the bacillus, or it was demonstrable only by cultivation. Bier argued that the rarity with which the brain was affected supported the view that gas gangrene was a disease of the muscles only, and he denied the occurrence of gas gangrene of the lungs. He avoided operations in almost every case, for he believed that the general opinion that gas gangrene was usually a most virulent disease was founded on the most severe forms and the results of their operative treatment.

[1] *Munch. med. Woch.*
[2] *Berl. klin. Woch.*
[3] *Med. Klin.*

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

Lieutenant John Cropper, R.A.M.C. (temporary).

Wounded.

Captain W. H. Payne, R.A.M.C. (temporary).
Captain P. Smith, M.C., R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Barker, W. Gordon, Captain Connaught Rangers, only surviving son of the late Colonel Arthur Barker, A.M.S., of Harley Street, died on December 2nd at Nordrach-on-Dee, after a long illness following on ten months' confinement in Germany as a wounded prisoner of war, aged 30. He was born in 1886, entered the army in August, 1906, became lieutenant on February 27th, 1909, and captain in December, 1914. He served in the first operations on the western front, and was reported missing at the end of August, 1914, and soon afterwards as wounded and a prisoner. He was repatriated in June, 1915.

Dymoke, Walter George, Second Lieutenant, son of Dr. F. Dymoke of Bristol, died on October 3rd of wounds received on October 1st. He was educated at Epsom College, which he left in 1911, and at Bristol University, where he was a student of medicine and in the O.T.C. He spent the summer of 1913 farming in Canada. He got his commission in 1915, and had only been at the front for six weeks when he received his fatal wounds.

Morse, Reginald Stuart, Cadet University of London O.T.C., son of Dr. Morse, died after a long illness at Chalfont St. Peter on December 6th, aged 18.

Mugliston, Thomas Daly, Australian Infantry, second son of the late Dr. H. Boyes Mugliston of Sydney, died on service on December 2nd.

HONOURS.

A SPECIAL supplement to the *London Gazette*, issued on December 11th, contains a further list of awards in recognition of gallantry and devotion to duty in the field. The list contains the names of the following fourteen medical officers, one of whom receives the D.S.O., one a bar to the Military Cross, and twelve the Military Cross.

D.S.O.

Major Philip Burnett, Canadian A.M.C.

For conspicuous gallantry and devotion to duty. He took over the command of the bearers at the front, and for forty-eight hours carried out his duties with great skill and determination under very heavy fire.

Military Cross.

Temporary Captain Mark Blakiston Baines, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended the wounded under very heavy fire, displaying great courage and determination. He rescued several men who were buried. He has on many previous occasions done fine work.

Captain Frederick William Brunker, R.A.M.C.

For conspicuous gallantry in action. He continuously went into the open under very heavy fire and attended to the wounded. He displayed great courage and determination throughout.

Temporary Captain Arthur Barrett Cardew, M.B., F.R.C.S., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire throughout the action, displaying great courage and determination.

Temporary Captain Ralph Annesley Fuller, R.A.M.C.

For conspicuous gallantry and devotion to duty. He led stretcher parties and tended the wounded under intense fire. He displayed great courage and determination throughout the operations.

Temporary Captain Allen Coulter Hancock, R.A.M.C.

For conspicuous gallantry and devotion to duty. He led a rescue party in the open under heavy fire, and rescued twenty-eight wounded men. He displayed great courage and determination throughout the operations.

Temporary Captain Robert Welton Hogg, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. With a party of stretcher-bearers he searched the forward area under very heavy fire, and brought in many wounded. He has previously done fine work.

Temporary Captain Edmund Basil Jardine, R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended the wounded continuously for three days and nights under heavy fire, displaying great courage and determination. He has done fine work throughout the campaign.

Temporary Captain James La Fayette Lauder, D.S.O., R.A.M.C.

For conspicuous gallantry and devotion to duty. He repeatedly with different parties of stretcher bearers searched the forward area under intense fire and brought in many wounded men. He has previously done fine work.

Captain Robert Gerald McElney, R.A.M.C.
For conspicuous gallantry and devotion to duty. He led stretcher parties and worked in the open under heavy fire continuously for thirty-four hours. He set a splendid example of courage and determination.

Temporary Captain Wilfred McFarlane, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led a stretcher party across "No Man's Land," and attended to the wounded. He worked unceasingly throughout the operations under heavy fire and set a splendid example.

Captain Norman Henry Prior, New Zealand Medical Corps.
For conspicuous gallantry and devotion to duty. He went over the parapet and dressed a wounded man under intense fire. Later he worked continuously among the wounded under fire, displaying great courage and determination.

Temporary Captain Henry Strawson Turner, R.A.M.C.
For conspicuous gallantry and devotion to duty. He led stretcher parties and tended the wounded under intense fire. On one occasion he rescued eight wounded men in the open.

Bar to Military Cross.

Temporary Captain James Henry Fletcher, M.C., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led parties of stretcher-bearers in the open under heavy fire. He displayed great courage and determination throughout the operations. (The Military Cross was awarded in *London Gazette*, dated January 4th, 1916.)

SALONICA DISPATCH.

The following additional names of medical officers should have been included among those printed last week as being mentioned in the dispatch of Lieutenant-General G. F. Milne, C.B.:

Lieutenant-Colonel J. R. Whait.
Captains (temporary Lieutenant-Colonels) H. G. G. Mackenzie, G. T. Willan.
Captain (temporary Major) T. H. Peyton.
Captains R. E. Bickerton, C. W. Greene, R. M. Vick.

England and Wales.

THE UNIVERSITY OF LIVERPOOL: VISIT OF SCIENTIFIC AND TECHNICAL JOURNALISTS.

THE Technical and Scientific Circle of the Institute of Journalists has lately been visiting some of the modern universities with a view to acquiring and disseminating knowledge of the work of these centres of education and research, more particularly in relation to the manufacturing industries, to public health, and to the needs of the war. London, Leeds, and Sheffield have already been visited, and from December 10th to 13th a party of journalists representing scientific or industrial publications were the guests of the Universities of Liverpool and Manchester. While all universities have much in common, each takes some colour from its own city, and this was specially evident at both Liverpool and Manchester, the one a great seaport and the other a manufacturing centre, where the local conditions in each case have influenced the direction of university growth.

The University of Liverpool, which was the first of the two to be visited, has set itself to assist commerce, not only through its chairs of modern languages and its School of Geography, but through its School of Tropical Medicine, whose investigations have been the means of making various tropical countries habitable by the white man, and therefore capable of development commercially. A university in a seaport like Liverpool has also a special function to discharge with regard to public health, both that of the city itself, and of the country to which the city acts as a portal. In the laboratories of Liverpool University, for example, daily examinations are made of rats which infest vessels arriving from plague-infected ports, and another vital piece of work is the microscopical examination of foodstuffs which are brought to the docks. In the Department of Entomology critical studies of the breeding habits of house-flies and also of the living organisms other than bacteria found in the water supply have lately been carried out for the local authority. The relations between the city and port and the university are very intimate. The medical officer of health for the city, Dr. E. W. Hope, is Professor of Hygiene at the university, and the Professor of Bacteriology, Dr. J. M. Beattie, is the city bacteriologist. Much of the city public health work is done in the university laboratories, and the Institute of Public Health and Hygiene is jointly administered by the university and the city. The city grant to the university amounts to about £10,000, and the Government grant to about twice as much.

In the absence of the Vice-Chancellor, Sir Alfred Dale, through ill health, the visitors were received by Dr. W. A. Herdman (Professor of Zoology), accompanied by many other members of the Faculty. The university is suffering owing to the absence of many members of the staff and a very large number of the students on war service. The number of students in the last pre-war year was between 1,300 and 1,400, of whom about 900 registered for degree courses. This year the lecture theatres are comparatively deserted. Some of the laboratories have also been turned to quite unusual purposes, and the new buildings of the School of Tropical Medicine have been converted into a hospital for cases of dysentery and malaria among invalided soldiers. In spite of these abnormal conditions, a very excellent view of the work of eighteen or nineteen departments was afforded.

The School of Tropical Medicine, which is under the direction of Professor Stephens, is doing a great deal of routine work in microscopical examinations of specimens from dysentery cases; four trained microscopists devote themselves entirely to this study. A still more recent line of work is the examination of the blood in all cases of malaria in the hospitals in the Liverpool district. The investigation into sleeping sickness and yellow fever and other tropical diseases is being continued, and mention should be made of Professor Newstead's large collection of tsetse flies, now comprising twelve or fifteen different kinds, and including one species, the *Glossina severina*, belonging to the Eusca group from the Belgian Congo, which appears in no other collection in this country.

The departments of pathology and bacteriology are linked up with the Tropical School, and the first of these is the chief laboratory of the 1st Western General and its auxiliary hospitals. Professor Beattie's department of bacteriology is largely concerned with investigations into diphtheria and typhoid cases occurring in the city, and at the present time is particularly engaged upon an examination of shaving brushes obtained locally, some of which have been found to contain the spores of anthrax. This department is the centre of diagnosis for venereal diseases in Liverpool and the adjoining areas under the scheme of the Local Government Board; also of cerebro-spinal fever occurring among the troops. A good deal of work is also done on foodstuffs, and some investigations upon the electrical treatment of milk are now in progress. The more specific war work includes a special study of infected wounds, of trench foot, and of gas gangrene.

Next comes the School of Veterinary Science, in the charge of Dr. Share-Jones, where an attempt is being made to correlate the study of animal and human diseases. The comparative study is continued in the Department of Zoology, where malignant diseases in sea-fish—sarcoma in the ray, for example—have been investigated by Dr. Johnstone, and found to correspond precisely with the human histology.

In the chemical laboratories—Liverpool has four Chairs in Chemistry—a considerable amount of work has been proceeding in recent months on the preparation of beta-eucaine and novocain, as well as the production of salvarsan, phenol, salicylic acid and picric acid, and other substances. One distinctive feature of the work at Liverpool, which is to be found nowhere else, is a Lectureship in Refrigeration; the course includes the construction of cold storages and the general problem of the transport and preservation of perishable foods.

We have touched upon only a few of the departments shown to the visitors, but the general impression was that of a university which, depleted of its students, and interrupted in its ordinary instruction (perhaps especially on the medical side), has continued to justify itself by keeping up as far as possible all the original lines of research, and co-ordinating the university course with the requirements of industry, while at the same time making an invaluable contribution to public health and war medicine.

THE EUSTON HOSPITAL FOR WOMEN, LONDON.

The jubilee of the New Hospital for Women, Euston Road, was celebrated on December 12th. Queen Amelie of Portugal was present. Owing to the absence of Lady Hall through illness, the chair was taken by the Countess of Minto. The meeting was opened by the Bishop of Stepney, and Miss Muriel Foster sang a song of thanksgiving. Sir Alfred Keogh, K.C.B., Director-General A.M.S., said that the hospital was very worthy of support,

but its usefulness was restricted for want of funds; Mrs. Scharlieb, M.D., M.S., gave an account of the great work done by Mrs. Garrett Anderson, the founder of the hospital, and Sir John Bland-Sutton spoke of the good work it had done. He believed that it was the duty of the great hospitals and schools in London to open their doors to medical women on exactly the same terms as to men. Dr. Louisa Garrett Anderson described her mother's pioneer work in the past, and that being done by medical women at the present time. Mr. A. Gordon Pollock appealed for funds to endow more beds; for £1,000, he said, a bed could be named; fully to endow one an investment of £3,000 was required. He also suggested that intending donors should buy war saving certificates and present them to the hospital. The hospital now contains seventy-one beds, and its annexe at New Barnet twenty-three; the waiting list is always long, and the need for enlargement after the war is felt.

Scotland.

THE Corporation of Glasgow has recently decided, after a private session, to appoint a committee to investigate the housing of the working and poorer classes in the city. The object of the inquiry is the production of an ideal plan of the city, taking into primary and full consideration the more clamant cases of uninhabitable property in conjunction with street planning and improvement.

PREMATERNITY WARD OF THE EDINBURGH ROYAL MATERNITY HOSPITAL.

We learn that an anonymous donor has presented a sum of £1,100 to the directors of the Edinburgh Royal Maternity Hospital. The gift is made in memory of the late Sir Alexander R. Simpson, who was for thirty-five years one of the physicians to the hospital, and who was consulting obstetrician to the institution at the time of his death last April. The donation is made on the understanding that it be added to the endowment already held by the trustees of the hospital for a Sir A. R. Simpson bed, and that it be used for a bed in the prematernity ward. It will be recollected that a similar anonymous gift was made to the hospital some sixteen years ago for the endowment of a bed (named the "Hamilton Bed") for prematernity cases. This marked the beginning of the formation of the prematernity department as a specialized part of the work of the hospital.

RED CROSS WORK IN NORTH-EAST SCOTLAND.

In the JOURNAL of December 9th, p. 819, reference was made to Red Cross work in the North-Eastern District of Scotland. We are glad to be able—thanks to the courtesy of the Commissioner, Colonel Scott Riddell, M.V.O.—to supplement that note with further details, which will give an idea of the magnificent help rendered by willing workers in the City of Aberdeen, in Aberdeenshire, Banffshire, Nairnshire, Inverness-shire, Ross-shire, Sutherlandshire, Caithness-shire, and in Orkney and Shetland. The Commissioner's summary of the work done since the beginning of the war, given in his weekly statement for November 27th, shows the activity of the various agencies conducted on behalf of the Scottish Red Cross by the Central Dépôt in Aberdeen for the North-Eastern District. The number of garments and comforts received and distributed up to the week previous to the date of report was 136,608; there was besides a large amount of delicacies, invalid foods, dairy and garden produce and provisions. The number of dressings, bandages, etc., received was over 100,000. In addition to large quantities of game, 1,079,523 eggs were received and distributed. The Scottish Red Cross gave to military and auxiliary hospitals in the district over one and a half million cigarettes, and over 1,100 lb. of tobacco and 1,801 lb. of tea passed through the dépôt duty free. In the rest room of the Joint Station, Aberdeen, 64,583 meals were provided for sailors and soldiers passing through, and in the sleeping quarters in connexion with it 6,207 sailors and soldiers had beds and refreshments provided for them. Between August 25th, 1915, and November 19th, 1916, the Scottish Red Cross in the city of Aberdeen carried in its motor ambulances and cars 64,957 men. There were 21,727 car runs with a mileage of 44,967; the average carried per day was over 143. The moneys collected on flag days and in collecting boxes amounted to £5,906 12s. 7d. In addition the Commissioner was able to forward to head quarters £1,200 in cheques of £50 each to endow twenty-four beds in the Scottish Red Cross Hospital, Rouen, the Hôpital de l'Ecosse, Paris, the Scottish Ward in the Anglo-Russian Hospital, Petrograd, and the National Red Cross Hospital, Bellahouston, Glasgow. Our reference to the Orthopaedic Section at the Oldmill Hospital is not quite correct. The Executive Committee of the Scottish Red Cross does not propose to appeal to the whole of the Highland Divisional area, to a great part of which Oldmill Hospital is not related. The Highland Divisional area extends from Shetland to Argyllshire and includes the whole of the Central Eastern Red Cross District and a considerable part of the Western Red Cross District. It is proposed to hold a meeting in Aberdeen on December 18th when Sir George T. Beatson, K.C.B., Chairman of the Scottish Branch of the British Red Cross Society, will be present, and will meet a small representative committee in Aberdeen, including Colonel Scott Riddell as Red Cross Commissioner, and Lieutenant-Colonel J. Smart, Officer Commanding the 1st Scottish General Hospital, along with the presidents of the counties of the North-Eastern District mentioned above. At that meeting steps will be taken to arrange for the organization of a collection in the counties of a district to provide a sum of from £2,500 to £3,000 which will be required to provide electrical equipment, massage and movement machines, whirlpool baths, orthopaedic huts, and a curative workshop.

Ireland.

A RATHER serious outbreak of typhoid fever is reported by Dr. O'Hara from Clashawann, Clare.

The guardians of the New Ross Union, where there are 811 defaulters under the Vaccination Acts, were asked by the Local Government Board to prosecute the more persistent cases, but adjourned the consideration of the matter till next May.

The Inspectors of Lunacy, in their annual report, point out that the number of inmates in the Ballinasloe Asylum has increased to 1,487; they comment on the grievous overcrowding, but are unable to suggest a remedy, as the financial state of the country forbids any extensive scheme of enlargement.

The Letterkenny Guardians last week again elected Dr. McGinley as dispensary medical officer for the Letterkenny district. The Local Government Board had previously refused to sanction Dr. McGinley's election on the ground that he was of military age. By twenty votes to twelve the Wexford Board of Guardians last week decided to increase the remuneration to Dr. Anglim, Broadway, for discharging portion of the duties of Dr. Doyle, who is at present on military service, by £1 1s. a week. In the Carlow Union the salaries of the medical officers have been increased according to a graded scale. The maximum salary of the medical officer of the Carlow Dispensary District was fixed at £212 a year.

TREATMENT OF TUBERCULOSIS.

At the annual meeting of the Dublin branch of the Women's National Health Association Sir Joseph Glynn, chairman of the Irish Insurance Commission, in moving the adoption of the report, congratulated the branch on the result of the year's work; that of the Samaritan Committee in visiting tuberculous patients in their own homes was of such importance that he thought it a disgrace that it should be left in the hands of volunteer workers. The whole system of tuberculosis treatment from top to bottom needed to be reorganized. Sanatorium treatment and domiciliary treatment were both good, but both were practically useless if the tuberculous patient was not followed into his own home.

Correspondence.

PHYSICIANS AND SURGEONS.

SIR,—Institutionalism—the gradual capture of the spirit by the letter, of thought by dogma, of freedom by custom, of life and spontaneity by the incrustation of form—such are the reflections, such the lessons of history, and of such is that controversy, antique if not ancient, between surgery and medicine which in the last few weeks has returned in the somewhat sordid guise of a battle of fees.

Has not the conventional separation of these two aspects of one thing, long anomalous, become even grotesque? How long are we to go on, as by a Solomon's schism, cutting maladies in halves and distributing one moiety to one professor, the other to another, without laughter or tears? Was that great surgeon serious or sarcastic who eleven years ago allotted the appendix to the surgeon and the caecum to the physician? By two several piles of masonry and by separated vested interests which are stronger than stone walls, we have petrified in a monumental folly the iniquity of the University of Paris, whereby the body of medicine was rent in twain. To Hippocrates, to the great Alexandrians, to Galen, our dilemma, a legacy from mediaeval conceit and intolerance, would have seemed incredible. And we need not search beyond Oribasius to see how active was medicine in its integrity and unmutilated from Celsus to Galen, and in later times in the greater period of Bologna. Down, let us say, to the later twelfth century this dichotomy was never dreamed of. It was not till the century following that certain far-sighted professors of medicine in Salerno began to dread a divorce of surgery from inner medicine, as in clerical and feudal circles surgery became distasteful, and in their opinion servile. Bruno, in his *Chirurgia Magna*, bitterly resented the growing antipathy to surgery of celibate clerks; and already in the *Glosses of the Four Masters* the decadence of medicine was foretold in a conceited aversion from surgery and anatomy.

The axe fell in Paris, when the university excluded all who worked with their hands. Then it was that, in Burdon-Sanderson's words, "Medicine lost its scientific arm." For in the past it has often been that by its surgery, living at the root among lowly and unlettered men, medicine was from time to time renewed and kept in touch with Nature. One blighting effect of this decree of the Paris University was that the sycophantic Faculty of Medicine, with denunciations worthy of Ernulphus, strove to out-Herod Herod in its contempt of handicraft; and even the Surgical Corporation of St. Côme was not ashamed to ape the Faculty. Thus medicine eviscerated herself, and dried into the husks which were mocked at by Petrarch, Rabelais, and Molière. And so the upas tree of Paris blighted medicine in Oxford and Cambridge, in Montpellier and Toulouse. Unfortunately with the Arabs also the sanctions of Islam stifled anatomy and surgery; so that, in spite of Avicenna and the discovery of texts, medicine descended to the depth of the bookish "*médecins reclus*," who did not find it necessary even to look at the patient. A trace of these wiseacres we all remember in Falstaff's doctor, who however was modest enough to speak with some reserve. In the Renaissance Linacre and Caius were more humanist than scientific. It is scarcely now credible that when I proceeded to the M.B. degree in Cambridge no surgery was expected of us, not even certificates of attendance on sugery.

And still we go on with this blind and foolish routine, and then profess ourselves amazed at the false positions it creates. In various but irregular ways medicine and surgery are still trying to come together, but with no full measure of reform or of historical sense. Nevertheless we can at least congratulate the gynaecologists, who alone have had the courage and sagacity to defy these sterile conventions and to claim in their therapeutics a liberal and consistent part in all and any direction, surgical or medical, which in the interest of the patient may seem indicated.

Specialism, of course, there must be, as within the several spheres of medicine and surgery it exists already; but let it be on natural lines and according to personal inclinations, not constrained by the obsolete and narrow pedantry of mediaeval guilds and academies.—I am, etc.,

Cambridge, Dec. 9th. CLIFFORD ALLBUTT.

P.S.—I hope it may not be unbecoming in me to refer the reader to my little book on the *Historical Relations of Medicine and Surgery*, published in 1905.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—The correspondence in the JOURNAL appears to be in danger of becoming both acrimonious and bitter, a state of things neither elevating nor seemly at the present time, and I think it is time to call a halt.

Personally I have always found both surgeons and physicians, if properly approached by the general practitioner, most reasonable and moderate in their fees to patients of moderate means. The unselfish way in which they set aside their other work—often much more profitable—to attend a patient twenty or more miles away in the country at often quite minor fees, should call forth from the general practitioner not revilings, but praise.

Two cases have recently occurred in my own practice where a surgeon has performed serious operations on patients of moderate means—the first an amputation of a breast for an ulcerating malignant tumour, and the second for appendicitis, in either case for under £20, including the anaesthetic and subsequent dressings. The surgeon in question is a first class operator with a big reputation in the Eastern Counties, and I am sure no one will say that these fees are really commensurate with the services performed. So much for the surgeons then. I have found the physicians equally reasonable, whether in London or the provinces.

I am glad to have the opportunity to set on record my sincere gratitude to both classes of consultants for the generosity displayed so freely to patients of moderate means, and the invariable courtesy shown to myself when introducing to them this less highly remunerative work.—I am, etc.,

December 9th. ANOTHER GENERAL PRACTITIONER.

SIR,—I am in general agreement with Sir James Barr's letter in your last issue, which abounds, as his letters usually do, with sound common sense. But I take exceptions to one of his arguments. It is that in which he "tilts" at Dr. Thurstan Holland's objections to any other than a trained medical radiologist attempting to diagnose injury or disease by the use of the *x* rays. His physiology argument is quite beside the point. Of course, a trained scientific man who has made a special study of physiology is able to teach the subject. But he does not attempt, nor is he able, to enter into all the complicated questions of the diagnosis of disease in doing this. The optician, too, in his examination for errors of refraction is not able to analyse intelligently the part played by disease in the eye without a long clinical training in this branch of medicine. That a physicist could easily obtain a knowledge of all that is required of human anatomy or even pathology I am inclined to dispute. Pathology at any rate is so ineradicably mixed up with a general knowledge of clinical medicine and surgery, that without a medical training the physicist's deductions would inevitably be inaccurate. Sir James must not forget that many of the most important points in the *x*-ray diagnosis of disease, especially in heart, lung, stomach, and intestinal troubles, are not solved by the examination of a radiogram, but by careful screening and ocular observations of complex objective movements in the organs involved. Dr. Mercier's letter has in one sense been of positive service. It has shown that there are physicians who even still look on surgery as a mere mechanical handicraft. However absurd this may be, it is no more absurd than the smug complacency of some surgeons who in the same way look at radiologists as mere mechanicians, whose work any individual with a slight knowledge of physics can undertake.—I am, etc.,

London, W., Dec. 11th. JAMES METCALFE.

SIR,—Dr. Lauriston Shaw in his letter to you of November 28th alludes to "advertising dentists." I am under the impression that dentists may not advertise. Am I incorrect, or is Dr. Lauriston Shaw loose in the use of his terms?—I am, etc.,

London, S.E., Dec. 9th. W. L. PARTRIDGE.

SIR,—The correspondence on this subject has not been barren. It has not shown any general agreement on the point at issue, but it has drawn a letter from Sir James Barr, which, though perhaps not an excessively difficult, is always an advantageous thing to do; and incidentally it has decided a logical problem which has puzzled at least five generations of logicians. On the one side are the great names of Kant, Sir William Hamilton, Archbishop Thomson, Bode, Ueberweg, Bain, Bradley, and Fowler, who unanimously declare that if a thing is either this or that, it cannot by any possibility be both. On the other side are the equally great names of Archbishop Whately, Dean Mansel, John Stuart Mill, Stanley Jevons, Venn, and Keynes, all of whom are positively of opinion that if a thing is either this or that, it may in certain circumstances be both. This excruciating problem is now solved for all time, for Sir James Barr reminds us that a man at 40 is either a fool or a physician, and it is certain that a physician who accepts what the lawyers call a contemptuous sum, for services greater than a surgeon would charge a hundred guineas for, is both.

I take no objection to the practice mentioned by Sir James Barr of wrapping the fee in paper, but I do think the College of Physicians might usefully issue an edict against the practices of hiding the fee by putting it on the mantelpiece, or shoving it among the papers on one's table, or of leaving it in one's hand as the patient shakes hand on his departure, as if it were a thing of which patient and physician were equally ashamed. For my part, I am ashamed, not when I get a fee, but when I do not.

With respect to the fees of surgeons, the following story, which I can vouch for, is germane to the matter. A certain business man was advised by his family doctor to consult a surgeon with respect to a malady which, the doctor warned him, might require an operation. "Certainly," said the patient, "but on this understanding, that, if the surgeon advises an operation, it shall not be performed by him. For that I will go to another surgeon." The family doctor thought this an odd proviso, and asked the reason of it. "The reason," said the patient, "is this. If I go to a surgeon for advice, I pay him a couple of guineas, and there the business ends; but if he performs an operation, I shall have to pay him a hundred. Now, it is not in human nature that his opinion should be uninfluenced by this consideration. Consciously or unconsciously he must be swayed by it, especially if the reasons for and against are nearly balanced; and what I want is an unbiassed opinion." This, I think, is a story to be marked, in a proper sense of that ill-used word.

When Mr. Cunning suggests that surgeons should be paid according to the benefits they confer upon their patients, surely he belies his name!—I am, etc.,

Parkstone, Dorset, Dec. 11th. CHARLES A. MERCIER.

*** In view of the larger issue raised by Sir Clifford Allbutt's letter above, the correspondence on the particular aspect of the matter which relates to fees may properly come to an end with Dr. Mercier's reply.

MOBILIZATION OF THE PROFESSION.

Why Not at Once?

SIR,—Your remarks in your issue of December 9th will lead many to wish that a state of suspense, in which we find ourselves, were terminated.

Those of us who, like myself, though of military age and willing to serve, are kept back by circumstances, would welcome some equitable arrangement whereby our work could be done by others, if, at the same time, the loss of our practices, which we see to be inevitable under existing arrangements, were to be guarded against.

My junior partner is on service, and I have been doing my best to keep things together for him, but only at a heavy loss of *clientèle* for him. His loss is equally mine. His neighbours undertook to help as much as they could. Of scores of private calls from his end of the practice, that I have had to decline in the last eighteen months, owing to heavy demands on my own time, believe me, Sir, not one has been sent back to me as having been done for him. I do not altogether blame his neighbours. In a working-class district probably 90 per cent. of the people have been to at least three or four doctors in the district from time to time, and when a patient turns up again no questions are asked. I have myself returned only some half-dozen private cases during the same period to other men on service, after rendering an account for the absentee; and this despite careful inquiry in any doubtful case.

Mobilization, of course, in itself will not solve the difficulty of loss of the capital value of our practices represented as goodwill. The problem of demobilization will be more serious. I make bold to say, however, that of the thousands of medical men who are faced with this serious capital loss, the vast majority would gladly accede to a far-reaching Government scheme carrying with it a guarantee of remunerative work when the war is over, along with a liberal pension scheme in the event of death on service, in which the capital value of the practice at the time of surrender is taken into account.

It is, I am sure, the certainty of this loss, as proved by the events of the last two years, that holds back hundreds of men of middle age from offering their services.

One other suggestion in closing. If we are to be mobilized, it must be compulsion for all registered medical practitioners, including those who, under the privilege of reciprocal registration arrangements, are rendering help in many cases most valuable. These must be utilized to the full, and, if put in charge of our practices, must be held to these until the incumbent is allowed to return.—I am, etc.,

Nottingham, Dec. 12th. A. CHRISTIE REID, M.D.

SIR,—In your article on the above in the JOURNAL of December 9th, p. 809, you define "mobilization" of the profession to mean in principle—

> That every medical man or woman should formally undertake to place his or her services at the disposal of the governing authorities of the country, to give such services, whether military or civilian, as may be indicated, and if civilian, to render the service in any place in Great Britain.

If this undertaking is given voluntarily no possible objection can be taken, and the profession will gladly recognize the self-sacrifice and patriotism of those giving such undertakings. But if it is suggested that these undertakings should be compulsory, it is quite another matter; and it behoves the British Medical Association, as the recognized defender of the rights and liberties of the profession, to enter the strongest protest against such a scheme, unless the compulsory legislation that brings it about throws similar obligations on the whole community. You cite the recent German legislation on the subject; but this does not put any special obligation on the German medical profession as a class. All classes of the community are equally coerced. If the nation is desirous of following the German example our profession would be quite willing to share the common burden. But from an article in this week's *Lancet*, and from the tenor of certain articles in the *Times*, it would seem that the promoters of this mobilization have in their minds a compulsion to be put on the medical profession as a class, and not shared by the community generally.

The British Medical Association could not surely uphold so tyrannical a procedure. Up to the present time, if we have suffered greatly, we have the satisfaction of feeling that what we have suffered has only been our share of the common suffering. If, however, there is to be class legislation, and because of our presumed qualification we are to have obligations put upon us not shared by the rest of the community, the situation would be vastly altered, and the injustice meted out to our profession would not make for efficiency in any service procured in this way. It is true that we have a precedent for such legislation. In the Napoleonic wars, by means of the "press gang," a section of the Royal Navy was recruited in this fashion. But it is a far cry to the early years of the last century. If the supply of medical practitioners for war purposes is inadequate, it must be supplemented by an extension in the age limit of those called up for war services. That is the only equitable way in which the medical needs of our civil population can be properly met.—I am, etc.,

London, N.E., Dec. 9th. MAJOR GREENWOOD.

ECONOMICS OF INSURANCE.

SIR,—In taking over our incomes and redistributing them at its will Parliament has been guilty of a monstrous invasion of civil rights. To state the bare facts is to convict it of what is—in effect—the wickedest thing that has been done by a Parliament since the days of Charles II. For yielding, the profession was itself to blame; it was a short sighted, perhaps an unpatriotic, thing to do. But for the disregard of every one of the pledges made by Ministers to scoop us into their net, down to the right of refusal, the leaders of the Association must be held responsible. To the official eye they represent the profession, and an unyielding attitude on their part must have brought the Commissioners to their knees.

They do not represent the profession as doctors; do they represent us as citizens? Of the many doctors with whom I have corresponded or talked, not one has ever believed that the Act was good for the country at large. I have seen letters to the lay press from others who thought it would do good; but their arguments, examined, always have rested on the individual benefits which any other Poor Law must show; they have never looked at it in its broad aspect, and never at the economic side. Now, the central fact, which can neither be obscured nor condoned, is that it has lessened real—sometimes even money—wages. That effect was clearly foreseen by the author of the Act when (before assemblies of employers) he pleaded that they would "no more pay than they did in the case of Mr. Chamberlain's Act." Can administrative benefits ever overtake a lowered standard of living? In the case of the large borderland class, for which alone could the Act be considered necessary, it is plain that they cannot: for with it, every additional expense must be saved out of food. It is apparent, then, that the Act risks making a large section of the population feebler; and just as the decline in the tuberculous death-rate was reduced in speed from 1896 onwards, when real wages began to fall, as the probable result of the public extravagance which had begun to be fashionable then, so it is probable that this Act will increase the number of cases of tubercle among that class. As for those of other classes who made provision for sickness before the Act, its only effect has been to reduce the purchasing value of the benefit and to enhance the cost of medical attendance. In fact, all doctors will agree that the only unequivocal gainers, as a class, are such well-to-do people with "employed" children as are not ashamed to let them be treated at charitable rates; or as used to pay for their servants, and have ceased to do so now; for they can, and often do, save in one doctor's bill enough to pay many years of premiums.

The moral effects are more serious still, apart from the teaching of such people to rely on State aid. The British working man had worked himself up to a political and social freedom which made him the envy of every proletariat in Europe. On him they have fixed the fetters which perhaps fitted a nation politically so backward as Germany, but which have resulted in a product that called for a most damaging comparison by General von Arnim only the other day. They have crippled him with a great and growing burden, and delivered him as the helpless prey of that parasite of modern societies—the paid and permanent State official. They have thrust on him the status of a child or a lunatic, with rights, indeed, but duties which his "master" must perform. Let us never forget that the Sir Robert Morant of the German scheme retired after twenty years' service with the published verdict that it had been a "gigantic and costly failure, and the cause of the wholesale demoralization of the German people."

It is not a copybook platitude but a hard sociological fact that injustice cannot stand. The apologia of the Commissioners in the JOURNAL of October 14th is nothing but a long-drawn-out confession of injustice *plus* a plea that they cannot help it. It is unjust to make some doctors rich and many others poor. It is unjust to say to employers, "Your customers pay," and then, turning to their employees, to say, "Your masters pay." It is unjust to stamp on a man who sells services the stigma of inferiority to the man who sells goods. It is unjust to spread tubercle in order to build sanatoriums.

Obey the law! Yes. But do not slack in your efforts to work for the fundamental alteration of a law forced on the electorate without its consent; repudiated at every by election where it has been a test question; against which there was before the war an actual majority of English members in the House. A man must be blind to English history, to English character, to current events, not to see that the repeal of the degrading compulsory element is, sooner or later, inevitable.

I know that this summary reflects the feeling of many members. And, Sir, we have the right to some representation in the councils of the Association. If the Insurance Acts Committee cannot in any way reflect this feeling of implacable hostility to a bad law—of determination to hoist with their own petard the men who forced us by threats into this position—we have a right to be told the fact publicly and definitely, so that we may know where we stand. On the Commissioners' own showing, the Act is unworkable without grave injustice. Why keep up the pretence that it can be worked? If our representatives insist on playing the farce through, let them give us notice, so that we may secede in a body, and by joining other more representative bodies show the Commissioners that in dealing with them they are only dealing with a section of the profession. Or if the Council would announce that it would appoint after the war a committee to inquire into and report on the effects of the Act on the nutrition of the poor, it would show that it was not (as is suspected) given over to party. Proof of an open mind would placate men who feel as I do, and help to keep the Association intact. More than that, we are left as the last line of defence of the insured against that cruellest of despotisms - bureaucratic officialism. Lastly, it would be in the interests of scientific truth and its results might be indefinitely great. The mere announcement in the lay press of the intention would entirely change the aspect of affairs.—I am, etc.,

Rayleigh, Essex, Oct. 20th. B. G. M. BASKETT.

MEDICAL CERTIFICATES FOR RECRUITS AND WAR WORKERS.

SIR,—The definition of a certificate given by the President of the General Medical Council as "evidence of fact ascertained by an expert and attested by a man of honour," should be in the mind of all of us at all times; it is a counsel of perfection at which all should aim; but it may be permissible to point out, since the warning is issued at the instance of Government departments, how much these departments have themselves done to degrade certificates, and to deaden the sense of responsibility which should always be present in the minds of practitioners when writing them.

It is not easy to conceive this definition as applying to a certificate compulsorily given for national purposes, and branded as routine and trivial by a contemptuous fee of something less than a shilling.

The enormous number of the certificates demanded from practitioners under the Insurance Act undoubtedly tends to inhibit the judgement and sense of responsibility in this matter. In a small insurance practice of about £300 a year I have frequently written as many as twenty in a day, and in many practices the daily average must be more than double this number. No one can write certificates in this wholesale way—not as the day's work but as a mere incident in it—without the sense of moral responsibility becoming at least blunted.

In addition to compulsory certificates there is the ever-increasing volume of work thrown upon us by the public at the suggestion of the War Department. Within the last month I have had to write all of the following legal documents, the majority of them many times:

1. Identify reservists and pensioners by inspection of "ring paper," and witness their signature.
2. Witness signatures of dependants claiming allowances.
3. Give medical certificates of inability to attend at post office to draw allowance.
4. Witness a power of attorney for the money to be drawn by a relative (weekly).
5. Give certificates for old age pensioners.
6. Give written opinions that men discharged from the army—perhaps months before—have probably been unable to work from the date of their discharge to the present day.
7. Write full and detailed reports on men who have died from disease after leaving the army, to support claim of dependants for special pensions.
8. Meet direct requests from medical boards, for past history of men claiming exemption.

9. Interview police officers in order to satisfy the War Office as to genuineness or otherwise of applications for leave to visit sick relatives or attend funerals.
10. Give, or refuse to give, certificates authorizing publicans to supply spirits, etc., etc.

There would be no difficulty in extending the list.

True, for some of these duties a police sergeant or a minister will serve, but the individual does not happen to know a sergeant or where and when to find a minister, so in practice the whole burden falls on the doctor. It would be interesting to know why a lawyer should not be accepted and suggested as a witness.

There is no question of payment here. The cheap gibe "that we are out for fees" does not apply, for the Government, if willing to pay, could hardly provide the necessary machinery, and that we should exact a fee from the dependant and the pensioner for it is unthinkable, but much of it might be done by official visitors (honorary) appointed from the leisured classes not doing useful war work.

I am no apologist for laxity, and for the major offence of wilfully issuing a false or misleading certificate no apology is possible, but it is not too much to ask that the authorities, who rightly censure wrong doing, should do something to make right doing, if not easy, at least humanly possible.—I am, etc.,

Salford, Dec. 10th. C. R. O. Garrard.

Sir,—Referring to the latter part of your leading article, "A Scorn and a Derision," I should like to say that unsatisfactory certificates could practically be abolished by making a rule that no certificate which had passed through the patient's hands could be accepted as proof of anything.

With regard to certificates to secure exemption from military service, or extended sick leave, what happens is generally this: The patient arrives accompanied by his mother or perhaps his wife. These ladies understand well the methods of the importunate widow, and perhaps in the end a certificate, at first refused, is given. It is unfair to allow the medical man to be subjected to pressure of this kind, especially when it could be avoided by providing the patient with a franked form to be sent direct to the chairman of the tribunal or the commanding officer of his battalion.

The form might contain a few questions designed to elicit the information really required. These questions should not be copied from the form for special reserve recruits, which were apparently framed to defeat any attempt to give information about the man examined.

Further, instead of lashing him with "scorn and derision," is it not time rather to lift the burden of certificates under which the practitioner of to-day is labouring? How can he be expected to feel the importance of a certificate when he writes them by the score, and knows that most of them are needless? Why, for instance, when I have certified that a man has a fractured thigh, must I give another certificate in a week's time to say that it is still fractured? And surely some other means could be found of excusing a man his weekly contribution of 4d. to the Insurance fund than a weekly certificate from his medical attendant. Perhaps with the latest medical certificate to enable a man to purchase sixpennyworth of whiskey, we may have reached the limit of the nuisance, but I am not sure. As long as the medical practitioner is content to write endless certificates without a fee no one will hesitate to take advantage of his "complaisance." But when the public poaches on this same complaisance, the Government, which regards it as its private preserve, complains to the General Medical Council. As a matter of fact, these unsatisfactory certificates usually represent the practitioner's only means of escape from an intolerable nuisance. If the Government will take the trouble to abate the nuisance by providing for direct reports, they will find a great improvement. That would be much more effectual than threatening the general practitioner, even if, to parade a delusive fairness, the threat is extended to the consultant in Harley Street. Does any one go to Harley Street to ask for free certificates?—I am, etc.,

R. H. Botham, M.R.C.S.Eng., L.S.A.

Skelton-in-Cleveland, Yorks, Dec. 9th.

Sir,—I wish most cordially to endorse every word of the letter of "Anxious" as to certification difficulties in the Journal of December 9th. The modern certificate mania is driving some of us to the verge of nervous breakdown, and the more conscientious a man is the greater the amount of unnecessary labour inflicted upon him by the Insurance Certificate Regulations.

To my mind this latter trouble is caused by the fact that the regulations were framed by persons who know little and care less about the difficulties of a general practitioner in a working-class district.—I am, etc.,

London, S.W., Dec. 11th. Albert Shepperd.

COMPULSORY LATIN.

Sir,—May I be allowed, however fruitlessly, to protest against the abolition of compulsory Latin in the preliminary general knowledge tests for medical students? Apart from its obvious value as a key to foreign languages now in use, and to our own medical terminology, Latin stands for much which may be found, when it is too late, to be of unsuspected importance. Latin grammar provides a mental discipline on which experienced and able educational authorities have laid especial stress; what is to replace it? Dr. Alex Hill, formerly Master of Downing, speaking from wide experience, stated that the classically educated boy left the unclassically educated behind in the study of scientific subjects. Has this no bearing on the present proposal? "Latin" includes, not merely a noble language, but a priceless history and literature, which link up closely with our own in fostering that acquaintance with the past that is so necessary a corrective for the insistence of the present; in time as well as in space the saying is true: "Home-keeping youths have ever homely wits." For generations Latin has played a conspicuous part in building up the type of civilization which I have heard even Germans call the highest, the "English gentleman." Does any calling need that type in its ranks more urgently than ours? We know intimately the effects of classical education on large numbers of men, and we know that these effects are good; what real knowledge have we of the effects of a "scientific" education from which classics are excluded? Are we prepared to gamble with the national character? Are we going to Humland for models? Let us be very sure indeed what we are about before we exchange our old lamps for new.

To assert, as some are doing, that "science" and "classics" may be equally well used to form the mind and character, is about as sensible as to assert that "a man can do equally well with food or with a box of tools." Both food and tools are good, but sane people do not regard them as interchangeable. Let us by all means have a reasonable amount of science in education, but let us have classics as well.

Some seventeen years ago a deputation from the British Medical Association waited upon the General Medical Council to protest against the then very inadequate standard of preliminary general education for medical students. Nothing was accomplished, and the opinion was afterwards expressed that we should see the standard further degraded as time went on. If the present proposals are carried into effect the degradation will be even greater than was then anticipated.—I am, etc.,

Exeter, Dec. 13th. W. Gordon.

The Services.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the following medical officers of the Territorial Force:

Major W. E. Miles, F.R.C.S.
Major J. Wilson, M.B. (attached Royal Engineers).
Major (temporary Colonel) H. A. Rudyard.
Major W. L. Martin, M.B. (attached Royal Scots).
Major C. R. Bishop (attached Somerset Light Infantry).
Major A. H. Vernon (attached Hampshire Regiment).
Major T. W. Banks (attached Highland Light Infantry).

EXCHANGES.

Will any Territorial R.A.M.C. officer stationed in England, and who is anxious to go abroad, exchange with Captain R.A.M.C.(T.F.) who has been two years in France with a field ambulance?—Address No. 4879, British Medical Journal Office, 429, Strand, W.C.

Medical Officer, attached Royal Engineers, France (mounted unit), wishes exchange with M.O. doing duty, hospital or C.C.S.—Address No. 4880 British Medical Journal Office, 429, Strand, W.C.

Obituary.

WILLIAM PAUL SWAIN, F.R.C.S.,

CONSULTING SURGEON, SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

MR. PAUL SWAIN, one of the best known surgeons of the West of England, died on November 30th in his 83rd year. He was born at Devonport, where his father was a successful practitioner, and studied medicine at King's College. In 1855 he served as a dresser in H.M.S. *Exmouth* in the Baltic during the Crimean war. He held the offices of assistant house-surgeon and house-surgeon at King's College Hospital, and took the diplomas of M.R.C.S. in 1857 and L.S.A. in 1858. He became F.R.C.S. in 1867. He settled in Plymouth, where he soon gained more than local fame as a surgeon. He was for many years surgeon to the Royal Albert Hospital, Devonport, and for a long time consulting surgeon to the South Devon and East Cornwall Hospital. In 1865 he was awarded the Jacksonian Prize for an essay on diseased conditions of the knee joint. He was also the author of *Surgical Emergencies: A Manual for General Practitioners*, of which five editions have been published; *Hints on the Application of the Felt Jacket in Spinal Curvature; Closure of Jaws from Injury and Arthritic Inflammation*, besides pamphlets on recent improvements in surgery, on the moral and physical results of the Contagious Diseases Act at Devonport, on preliminary medical education at provincial hospitals, and on college politics. He was for many years a member of the British Medical Association. At the annual meeting held at Plymouth in 1871 he was secretary of the Section of Surgery; he was Vice-President of the South-Western Branch in 1900 and several following years.

Mr. Swain's activities were not confined to his own profession. In 1898 he was elected a member of the Plymouth Town Council, on which he served for sixteen years. On entering the council he was at once chosen to be chairman of the Sanitary Committee an office to which he was re-elected year after year. He was an energetic advocate of reform, and regardless of party considerations made the improvement of the health of the town his great object. One of the first schemes he carried through was the enlargement of the isolation hospital, and he took a leading part in promoting the local campaign against tuberculosis. He was keenly interested in the question of providing proper housing for the working classes, and other reforms in which he had a hand were the increase in the number of sanitary inspectors, the improvement of the hospital ship *Maud*, and the provision, jointly with the Port Sanitary Authority, of a motor launch. In 1914 the state of his health compelled him to resign the chairmanship of the Sanitary Committee and his seat on the council. In accepting his resignation the council passed a vote of thanks to him "for the industry, zeal, and ability he has at all times shown in the sanitary administration of the town, and for his energy in elaborating the scheme for the treatment of tuberculosis in the borough." Out of office he continued to take a lively interest in municipal affairs, and he was active in supporting local efforts for the welfare of infants and for rescue work.

Mr. Swain took a very active part in parish and diocesan work; for many years he was warden of St. James-the-Less, where he practically rebuilt the Lady Chapel, and added some beautiful decorations. To St. Peter's Church he presented an exquisitely designed alabaster and iron screen. He was also a generous giver to a large number of institutions.

Mr. Swain was a member of the Alpine Club, and a bold climber. He was married three times, and leaves a widow and a daughter by his first marriage.

CHARLES J. RENSHAW, M.D.St. ANDREWS,

M.O.H. ASHTON-ON-MERSEY.

WE regret to announce the death of Dr. Charles J. Renshaw of Ashton on-Mersey, which took place on December 6th, at the age of 75. He was born in 1841, and was the eldest son of Mr. Jeremiah Renshaw, surgeon, of Ashton-on-Mersey, to whose practice, founded in 1831, he succeeded. He was educated at Norman House, Altrincham, and was the first boy to enter Epsom College, of which he subsequently became a life governor. He took the degree of M.D.St. Andrews in 1862, and in the following year the diploma of M.R.C.S.Eng. After serving an apprenticeship with Mr. Thomas Turner of Manchester he acted as clinical clerk to Mr. Smith and Mr. Heath at the Manchester Royal Infirmary. In 1894 he became a Fellow of the Faculty of Physicians and Surgeons of Glasgow.

In 1895 he was appointed medical officer of health to the Ashton-on-Mersey Urban District Council, and continued to hold that office until his death. He took great interest in local public affairs, and in particular in matters relating to the old parish church, to which he and his family made numerous gifts. He continued in active practice until within about a month of his death. He was Chairman of the Altrincham Division of the British Medical Association in 1903–4 and President of the Lancashire and Cheshire Branch in 1908. He represented the Branch at the International Medical Congresses at Moscow, Paris, Madrid, and Lisbon. In 1906 he unsuccessfully sought election as a Direct Representative on the General Medical Council. He was a vice president of the Manchester Medical Society and a Fellow of the Anthropological Society, and wrote several essays on local history and on historic trees, of which the district possesses a number. He is survived by his widow, a son (Dr. Knowles Renshaw), and a daughter.

CHARLES HOLLAND SKAE, M.D.St. ANDREWS, F.R.C.P.EDIN.,

LATE MEDICAL SUPERINTENDENT, AYRSHIRE ASYLUM.

AFTER some years of indifferent health Dr. Charles Holland Skae passed away at his home, Broomieknowe House, Lasswade, near Edinburgh, on December 3rd. He was the second son of the celebrated Dr. David Skae, who from 1846 to 1873 did so much for the scientific study and treatment of insanity whilst physician superintendent of the Royal Edinburgh Asylum at Morningside. Like his father, Dr. Charles Skae was attracted by the problems which face the alienist. After obtaining the licence of the Royal College of Surgeons of Edinburgh in 1862 he graduated M.D. at St. Andrews in the same year. Thereafter he acted as assistant physician to the Fife and Kinross District Asylum under Sir John (then Dr.) Batty Tuke, with whom also he collaborated in the writing of an article on a new lesion observed in the brain, which was published in the *Edinburgh Medical Journal* for 1868–9. He afterwards acted as assistant physician to the Coton Hill Asylum, Stafford, and then he was appointed to what turned out to be his main life work, the medical superintendentship of the Ayrshire District Asylum at Glengall, Ayr. For many years he rendered admirable service to his speciality there, until, compelled by failing health, he went to live at Lasswade, not far from the scene of his father's labours at Morningside. He did not make many contributions to the literature of his subject, but his article on a case of traumatic insanity cured by trephining the skull (published in 1873 in the *Journal of Mental Science*) deserves to be remembered.

There was a funeral service at St. Leonard's Church, Lasswade, on December 6th.

DR. CHARLES EWART, of Queen's Gate Terrace, S.W., whose death, after a painful illness, occurred on December 7th, will be missed in South Kensington, where he had spent the whole of his active career and had made many friends. He received his medical education at St. George's Hospital, where he was assistant medical registrar. He took the diplomas of L.R.C.P. and M.R.C.S. in 1885 and graduated M.D.Brux. in 1888. His heart and soul were in his profession, to which his life was devoted unreservedly, without any thought for self. "Kind, energetic, living a life of good deeds, helping and giving hope and comfort to every one," the gentleness and modesty of his character made him universally popular. His tastes and talents were artistic, mechanical, and linguistic. Unable to indulge them, he looked forward to their cultivation in years of retirement. But his higher reward has been to die, as he had lived, in the daily service of his fellow men. He is mourned by a widow, a daughter and a son.

Medical News.

THE library and offices of the Royal Society of Medicine will be closed from 2 p.m. on Saturday, December 23rd, to Thursday, December 28th, inclusive.

THE Lasserre Prize for 1916 has been awarded to Dr. Alexandre Yersin, director of the Pasteur Institute of Indo-China, for his work on antiplague serum.

A SUBSCRIPTION throughout Mexico for the establishment of a Red Cross Society with its headquarters at Vera Cruz recently closed. The total amount contributed was nearly £500,000.

THE British Fire Prevention Committee has reissued its warning handbill as to Christmas entertainments, and any hospital that requires copies for posting can receive them on application to the Registrar of the Committee, 8, Waterloo Place, Pall Mall, S.W.

THE City Council of Boston, Massachusetts, has established a medical department and a psychological laboratory in connexion with the city police-court. The opinion of the experts as to the mental condition of offenders will be taken into consideration before sentence is passed. Dr. Victor V. Anderson is the head of the department.

THE operation of the circular of the Local Government Board issued on December 17th, 1915, dispensing with applications for sanctions or reports in certain specified cases in order to reduce the work normally falling upon Poor Law authorities and the Board, has been extended for another year.

AT the ninety-first annual commencement of Jefferson Medical College, Philadelphia, on June 3rd, the degree of doctor of medicine was conferred on 162 candidates. This is said to be the largest graduating class in the history of the college. There were representatives of thirty-four States of the American Union and of Porto Rico, Nova Scotia, England, Persia, and Syria among the graduates.

A ROYAL proclamation was issued on December 11th prohibiting the importation of cocaine and opium into the United Kingdom except under licence. "Cocaine" includes all preparations, salts, derivatives, or admixtures prepared therefrom or therewith, or any solid or liquid extract of the coca leaf containing 0.1 per cent. (one part in a thousand) or more of the drug. The word "opium" means raw, powdered, or granulated opium, or opium prepared for smoking, and includes any solid or semi-solid mixture containing opium.

IT is announced in the *Pensiero Medico* that Professor Luigi Devoto, Director of the Clinic for Industrial Diseases and of the Clinical Institute of Milan, has been appointed Consulting Physician to the Third Army Corps, with the rank of Major General. Our contemporary speaks of this as a well-deserved appointment, and one which will give Professor Devoto opportunities of rendering important services to the army. Since the commencement of the war the Milan professor has taken the greatest interest in the health of the soldiers. In recognition of this and for his important contributions to medical science the King recently conferred upon Major-General Devoto the title of *Commendatore della Corona d'Italia*, an honour equivalent practically to knighthood in this country. We offer our hearty congratulations to the Commendatore.

DR. E. D. PLASS has published a statistical study of 635 labours with the occiput posterior (*Bulletin of the Johns Hopkins Hospital*, June, 1916, p 164). The presentation (either oblique or direct) occurred in 11.57 per cent., although the actual proportion originally in this position was, he suspects, considerably higher. Rotation of the occiput into the hollow of the sacrum, which occurred in 14 per cent. of the cases, was favoured by too slight degree of flexion, small size of the head, and funnel-shaped pelvis. Contraction of the pelvic inlet favoured anterior rotation. Hodge's theory of ischial spines and inclined planes was the most acceptable theory to account for internal rotation. Premature rupture of the membranes was not especially frequent in Dr. Plass's series of occipito-posterior presentations. Spontaneous delivery was the usual outcome. The total operative incidence was 22.9 per cent., but in only 11.02 per cent. was the need for intervention possibly due to the position. Labour was not prolonged, independently of whether the occiput rotated to the symphysis or into the hollow of the sacrum. A contracted pelvis did not increase the incidence of the posterior positions. There was no additional maternal morbidity or mortality, or infantile mortality.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

J. M. is anxious to hear whether any reader knows of a case in which a child has been vaccinated on the foot, and if so whether injurious consequences have been noted.

H. T. P. Y. wishes to know the results obtained by the hypodermic injection of creosote for common colds, what dosage is used, how often injections are given, and where. He also asks if the treatment would be likely to have a beneficial effect in chronic antral (maxillary) suppuration which has defied operative and vaccine treatment.

INCOME TAX.

P. J. G. inquires whether he cannot postpone payment of his income tax on the ground that the Government owes him £257 18s. 6d. in respect of National Insurance work.

*** Income tax is payable on or before the dates fixed by statute, and payment can be enforced at any time thereafter. These dates are laid down by Section 82 of the Taxes Management Act of 1880 as modified by Section 33 of the Finance (No. 2) Act, 1915, and are, January 1st for unearned income, and January 1st and July 1st (moieties) for earned income. Our correspondent has no legal right to postpone payment of the tax, but we suggest that he might lay the facts before the local surveyor of taxes, with a view to obtaining some further time for payment, as an act of grace rather than of right.

ANSWERS.

A CASE OF ARSENIC CANCER.

HISTORICUS writes: In the abstract of a lecture delivered recently by Sir John Bland-Sutton (see BRITISH MEDICAL JOURNAL, pp. 788-9), he is made to say: "The woman with cancer at the knee had with great faith swallowed liquor arsenicalis at intervals for thirty years with the hope of curing her psoriasis, until one day a crack appeared at the edge of one of those curious skin patches, and in a fortuitous way the germs of cancer entered, took root, and led to the formation of a large, stinking, cancerous ulcer." But is not this theory entirely at variance with the generally accepted opinion as to the etiology of arsenic cancer?

LETTERS, NOTES, ETC.

SCHOOL RUNS.

PARENT writes: In the JOURNAL of November 25th, p. 748, I read with considerable surprise your correspondent's inquiry as to public school treatment of "stitch." The boy, following his natural instinct to remove the pain, stops running, and is promptly caned for so doing. Continuous and violent exercise immediately following a heavy meal will produce a fatigue spasm or localized cramp of the diaphragmatic or intercostal muscular fibres, generally known as "stitch." To coerce boys to "run this off" is surely a dangerous practice, and to punish the unfortunate victim by caning is reprehensible to a high degree. Imagination staggers at the type of punishment in vogue at this school for the boy who may contract mumps or measles!

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE INFLUENCE OF ANTISEPTICS ON THE ACTIVITIES OF LEUCOCYTES AND ON THE HEALING OF WOUNDS.

BY

C. J. BOND, F.R.C.S., HON. COLONEL R.A.M.C.(T.),

HONORARY CONSULTING SURGEON, NORTHERN COMMAND; MEMBER OF THE MEDICAL RESEARCH COMMITTEE; HONORARY CONSULTING SURGEON TO THE LEICESTER ROYAL INFIRMARY.

PART II.

IN the BRITISH MEDICAL JOURNAL of June 3rd, 1916 (Part I), I described a method (the use of pigment particles) for the study of the activities of leucocytes in closed aseptic and in open granulating wounds. By the application of indigo, carmine, or carbon particles to different kinds of wounds under different conditions of treatment we were enabled to follow the three chief phases of phagocytosis—namely, emigration of leucocytes, ingestion of foreign substances, and return immigration of loaded cells. We also found that return immigration of loaded phagocytes was probably intimately associated with the phenomena of latent infection and recrudescent sepsis in wounds.

In the present communication I propose to describe some observations which throw further light on this important problem of return immigration. Here, as on the former occasion, we must distinguish carefully between wounds in which the pigment particles have been introduced under aseptic conditions during operation and infected wounds in which pathogenic organisms and their toxins are also present.

The Transportation of Pigment Particles in the Tissues.

It will be necessary first to describe some experiments on animals undertaken with the object of tracing the movement of the pigment particles in the tissues, as it is only under exceptional circumstances that this phenomenon can be observed in the human subject.

EXPERIMENT 1.—*Aseptic Thread in Muscle.*

A carmine thread was introduced under aseptic conditions into the thigh muscles of an anaesthetized guinea-pig. The

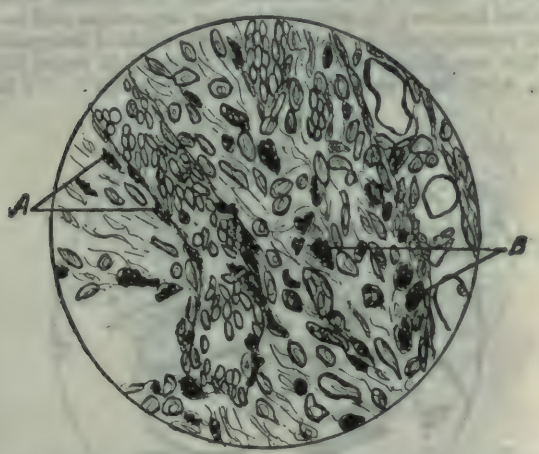
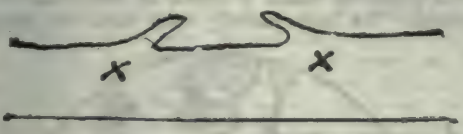


FIG. 1.—Drawing from section through thigh in neighbourhood of carmine thread. Guinea-pig 7. Shows carmine particles A in leucocytes entering capillary and in B fibroblasts. 1/12 in. obj., A oc.

animal was killed seven days later, and the limb hardened in formalin. Suitably stained embedded sections of the muscular tissues in the neighbourhood of the thread showed collections of pigment-loaded leucocytes along the intermuscular connective tissue strands, especially around the blood vessels. In some cases pigment-carrying cells could be traced in the walls and in the lumen of the capillaries. (See Fig. 1.)

EXPERIMENT 2.—*Granulating Wound.*

In the case of the open granulating wound in guinea-pig 9 (described in Part I) which had been dressed with indigo gauze, a further fact was also noted. Although the pigment had been applied uniformly over the whole surface of the wound it was not carried away uniformly by the phagocytes over the whole area. The wound on section was of the shape shown in the diagram, and the return stream of pigment-loaded cells was most marked round the periphery, in the angles formed by the



apposition of the roof and floor of the wound in the situations marked by the crosses. (See Fig. 2.)

The stream of pigment-loaded cells was greatest in fact where the vascular and connective tissue structures favoured movements of phagocytes. These favourable conditions were not present equally all over the floor of the wound, but chiefly in the angles where the floor and the roof meet. These are also the situations where the spread of infection takes place in wounds. Other examples of unequal pigment flow will be described in connexion with wounds which involve bone tissue, but the close

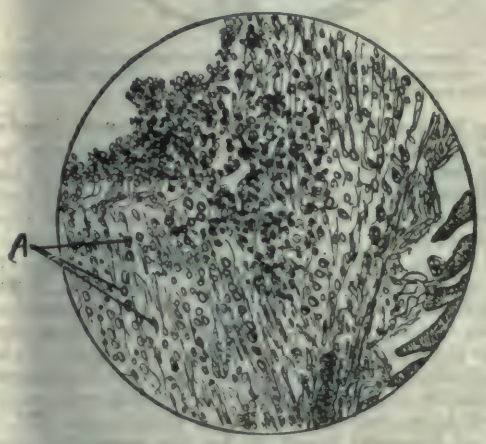


FIG. 2.—Drawing from section through granulating wound dressed with indigo. Guinea-pig 9. Shows indigo carried by leucocytes; A, from surface of wound into deeper tissues. 1/2 in. obj., A oc.

association which exists between the transportation of pigment by wandering cells, and the spread of infection in wounds, supports the suggestion made in the earlier paper that the spread of infection in a wound depends not only on the active growth of the infecting organisms, but on a transportation of the same organisms by wandering cells. I shall, however, return to this subject later; at present I wish to emphasize the fact that transportation of pigment particles and spread of infection both tend to take place by way of the connective tissues rather than along the muscles in the limbs, or the parenchymatous tissues in the internal organs. This does not apply to acute cases of gas gangrene, in which the infection spreads also along the muscle fibres.

EXPERIMENT 3.—*Aseptic Thread in Testis.*

A section was taken from the testis of a guinea-pig at some distance from the site of the insertion of an indigo thread introduced a week previously. The pigment-bearing cells occupy the strands of areolar tissue which connect the seminiferous tubules; they are not found in the epithelium lining the tubules. The indigo chiefly occupies the fusiform fibroblast cells. (See Fig. 3.)

The pigment is undoubtedly taken up by the polymorph leucocytes which collect among the fibres of the indigo thread. In an open granulating wound it is taken up by the leucocytes which emigrate on to the surface of the pigment-coated granulation tissues. Having ingested the pigment these loaded leucocytes (provided they are not thrown off as dead pus cells) can be traced in return-immigration through the granulation tissue to the underlying fibrous and muscular tissue. The paths followed lie chiefly around the blood vessels and the strands of areolar tissue which connect together the skin, muscles, and other structures, or, as in this case, the seminiferous tubules. The loaded leucocytes enter the general circulation, whence they eventually reach the liver and spleen, or they are carried by the lymph channels to the nearest lymph glands, where the pigment granules can be found in considerable

numbers, generally in the peripheral rather than the central portion of the gland.

At this point we reach a break in the chain of direct observation. We have already seen that the pigment is

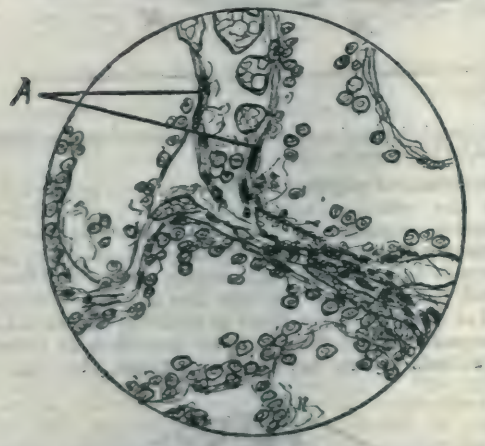


FIG. 3.—Drawing from section of testis after insertion of indigo thread. Guinea-pig 7. Shows indigo grains, A, in the connective tissue cells between the tubules. 1/8 in. obj., A oc.

taken up by the fixed tissue cells. Inasmuch, however, as these pigment particles neither multiply nor have power of independent movement, inasmuch also as there are no fibroblasts on the surface of the granulating wound or in the interstices of the pigment thread in the closed wound, it is evident that the pigment must be carried to the fixed tissue cells by the polymorph phagocytes. The question arises how this transference is effected. We can trace the loaded leucocytes entering the blood vessels and the tissue spaces; we next find the pigment granules inside the fixed tissue cells. Do the fixed tissue cells and the endothelial cells in their turn ingest the loaded leucocytes, or do the leucocytes disengorge the pigment granules after they have reached the tissue spaces, and are the granules so liberated taken up by the connective tissue cells? Close observation of the behaviour of pigment-carrying leucocytes does not suggest that these cells are ingested *en masse* by the fibroblasts.

The Movements of Pigment Particles in Bone Tissues.

It so happens that certain amputation stumps in wounded soldiers which necessitate the removal later of extruded bone afford a favourable opportunity for studying this problem in the human subject. (See Fig. 4.) In several such cases I have had the granulation tissue which forms a cap on the end of the extruded bone dressed for some days or weeks before re-amputation with sterilized indigo or carbon, or latterly with sterilized rice starch. After re-amputation, films from the marrow from the shaft of the removed bone at a distance of one or more inches from the dressed end, have in some instances shown pigment granules in the marrow cells. (See Fig. 5.) Pigment can be seen inside the leucocytes which pass in more or less continuous streams from the surface of the stump to the somewhat abrupt line where the granulation tissue joins the marrow tissue proper. Here there is a break in the continuity of flow; a few loaded cells can be seen in the spaces amongst the marrow cells, but for the most part the pigment in the deeper cells is in the form of minute granules, unlike the coarser masses in the leucocytes; this is especially noticeable in the case of starch granules, and I have not come across any evidence of the ingestion of loaded leucocytes *en masse* by tissue cells. These facts, as far as they go, suggest a disengorgement of pigment by the wandering cells and

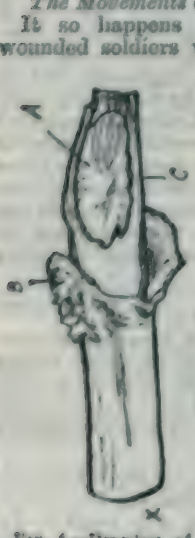


FIG. 4.—Drawing of necrotic bone; re-amputation of thigh stump. A, Granulations in medullary canal; B, granulations covering soft tissues; C, shell of necrotic bone. Pigment traced on a recovered from marrow cells at X.

a reingestion of the liberated particles by the tissue cells. Pigment-bearing leucocytes pass from the surface to the deeper layers in isolated vertical streams. There is no equal downward flow over the whole of the

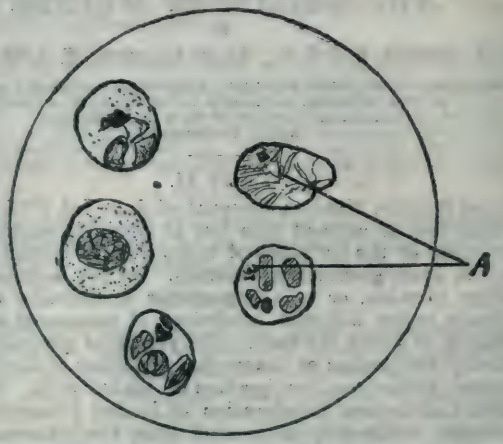


FIG. 5.—Drawing from film of marrow cells from shaft of femur two inches above granulating surface. A, Shows indigo grains in myelocytes. 1/12 in. oil im., A oc.

surface of the granulating area. Depressions on the raw surface appear to act as reservoirs, in which phagocytes collect, and from which they pass directly down to the deeper layers. The furrows between the little knobs of granulation tissue and the groove which forms between the protuberant granulations and the edge of the necrotic bone act as foci for these pigment streams. This affords further evidence of the close analogy which exists between the movements of pigment-loaded leucocytes and the spread of infection in wounds. (See Figs. 6, 7, 8.)

It is anaërobically infected compound fractures and sinuses leading down to necrotic bone which are most liable to recrudescent sepsis. Recent experience in the transplantation of bone has shown that if a bone graft is composed of both compact and endosteal tissue, if it is firmly contacted with living host bone, and if it is early provided with an efficient new blood supply, such a bone graft will prove very resistant to infection. How can we reconcile these apparently contradictory characters in bone tissues: Liability to infection and necrobiosis with a marked tendency to retain infecting organisms and to exhibit recrudescent sepsis under certain kinds of traumatism on the one hand, with a marked capacity to resist infection, when used as a bone graft, on the other? We have

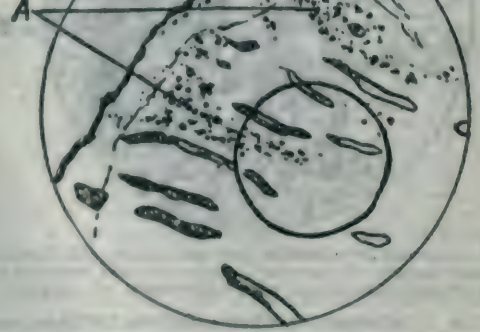


FIG. 6.—Drawing from section through granulation tissue covering re-amputated stump (leg) after application of sterilized rice starch. 1/8 in. obj., A oc. Shows starch grains (coloured blue with iodine) A passing from the surface of the wound into the deeper tissues (the lines from A intersect the surface of the wound on the left).

seen that the marrow cells in the human subject have a considerable capacity for ingesting pigment particles and possibly (but this requires further investigation) of digesting micro-organisms, in which respect they resemble their near relations the polymorph leucocytes. It would seem, therefore, that the problem is bound up with the phagocytic capacity of the marrow cells. In healthy

conditions of the wound and with a good blood supply the cells in the cancellous tissues can deal with a moderate infection. If, however, the injury to the tissues is severe and the infection virulent, as in gunshot wounds, the

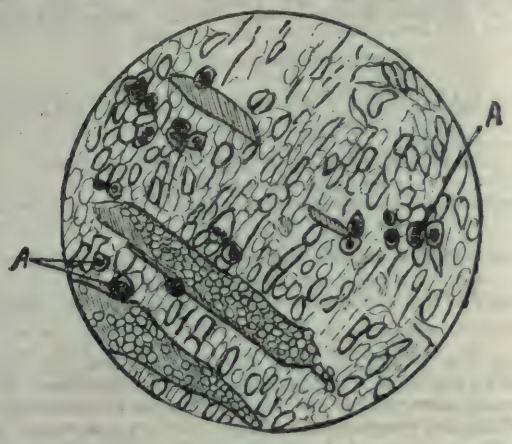


FIG. 7.—Drawing from area included in circle in Fig. 6; higher magnification. 1/12 in. water im., A oc. Shows starch grains in connective tissue cells, A.

organisms can entrench themselves in the bone and become inaccessible to the phagocytes. Or if after ingesting the organisms the marrow cells themselves lose their vitality, then the imprisoned organisms may be liberated and recrudescent sepsis may arise. Microscopic sections from the granulation tissue from these stumps which have been dressed with some easily recognized pigment (such as sterilized rice starch) before re-amputation, show an outward stream of empty cells emigrating on to the surface and a return or immigrating stream of loaded cells passing from the surface to the deeper layers of the granulation tissue, and in some cases to the marrow tissue. Beyond this point it is difficult to follow the ultimate destination of the phagocytes. In experimental wounds in animals pigment carrying cells are found in the nearest lymph glands. Some after entering the general circulation reach the liver and spleen. The presence of minute particles of pigment in the tissue cells at a distance from the end of the bone suggests that an unloading

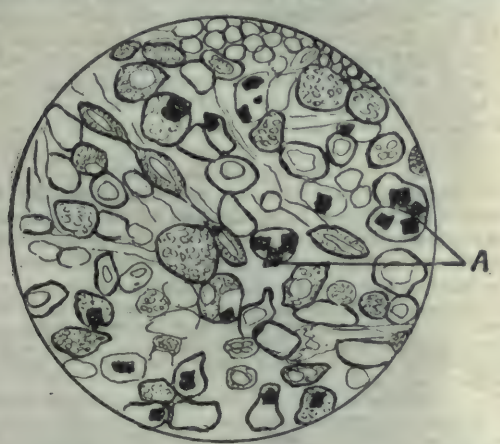


FIG. 8.—Drawing from section through granulation tissue covering re-amputated stump (femur). Previous application of starch for ten days. Shows starch grains in leucocytes and fibroblasts. A. 1/12 in. obj., B oc.

process may take place by which pigment is discharged by the leucocytes and taken up by the tissue cells in a disintegrated form.

Phagocytosis (especially Return-immigration) and Immunity.

A complete visualization of the whole process of the leucocytic circulation in wounds would enable us to realize the extent to which the process of immunization is bound up with efficient phagocytosis, especially in its return-immigration phase. The production of antibodies depends on the introduction into the blood, lymph, or tissues of the host of either living or dead organisms or their toxins. The microbic products which stimulate the defensive reaction are carried into the body by the blood or lymph, or they are transported thither by wandering cells. We have already seen that the return-immigra ion of leucocytes which constantly goes on in open as in closed wounds provides a mechanism by which pigment particles are carried into the tissues, and there are reasons for thinking that organisms and their products are transported in the same way. It depends on the efficiency with which the returning phagocytes digest the interned organisms whether this process of natural vaccination shall take place by dosage with living or with dead organisms. While all the phases of phagocytic activity—namely, emigration, ingestion, digestion, and return-immigration—are important, the factor of return-immigration of germ-laden cells may prove to be of greater significance in the immunizing process than has hitherto been realized. It is possible that return-immigration may provide the mechanism by which dosage is regulated under normal conditions in a wound. It is upon dosage, the amount and the frequency with which toxins are introduced, that the success of natural as of artificial immunization largely depends. Any interference, therefore, which may derange this delicate mechanism is liable to do more harm than good.

Summary.

We shall now attempt to bring the facts derived from a study of the movements of pigment particles when introduced experimentally into wounds into relation with the known facts about the spread of infection in the tissues and the behaviour of phagocytes towards ingested organisms.

First, as regards the phagocytes, Peyton Rous and F. S. Jones[1] showed that certain kinds of pathogenic organisms, when ingested by leucocytes, were thereby protected from the bactericidal and bacteriolytic action of antibodies present in the serum. On the death of the phagocytes, the organisms so liberated were capable of renewed growth. The same observers also found that potassium cyanide in N/150 concentration killed typhoid bacilli while free in a suspension of guinea-pig's corpuscles without killing those cells, but that the bacilli which had been ingested by the corpuscles were protected from the action of the potassium cyanide and grew when the emulsion was plated out. Kenneth Goadby,[2] from a bacteriological examination of sinuses and from a consideration of the action of autogenous vaccines in preventing the reinfection which so frequently occurs in sinus cases, concludes that reinfection is closely associated with phagocytic action.

Dr. Cresswell Shearer and Dr. Warren Crowe[3] have recently shown that the meningococcus may be ingested by human leucocytes in large numbers without undergoing digestion, and they have recovered living germs from these leucocytes in a number of cases. They also bring forward evidence in favour of the view that under certain conditions the leucocytes may act as the carriers of the infection from the nasal passages to the central nervous system. The recovery of pigment-loaded leucocytes from the cerebro spinal fluid after spraying the nasal mucous surfaces with some innocuous pigment would go far to settle this problem.

My own observations suggest that return-immigration of leucocytes is intimately associated with the spread of infection and recrudescent sepsis in wounds

In the second place, the part played by the fixed tissue cells in infection is a very important one. The observations of Kyes show the important part played by the haemophagic cells of the liver and spleen in destroying pneumococci injected into the general circulation of the pigeon, and Bull, at the Rockefeller Institute, has shown that intravascularly agglutinated bacilli ingested by polymorph leucocytes are carried to the liver and spleen and ingested by the cells of those organs. In this paper I have described the process of ingestion by the fixed tissue cells of pigment granules carried by leucocytes and the ingestion of pigment granules brought by phagocytes to the liver and spleen cells. The exact method by which the transference of pigment is effected, whether by internment of the leucocytes *en masse* or by a process of disengorgement and reingestion, requires further elucidation. It is, however, clear that a close analogy exists between the

transportation of pigment by wandering cells and the spread of infection in wounds. The spread of infection is due to a breakdown in one or more of the factors on which phagocytosis depends. Either the wandering phagocytes do not emigrate into the invaded area in sufficient numbers, or, having emigrated, they do not ingest the organisms, or the breakdown of the defensive mechanism may occur at a later stage. The phagocytes may emigrate and successfully intern the invading organisms, but they may fail to digest them, or things may go wrong during return-immigration. The organisms may be liberated by the leucocytes while still alive, just as the pigment granules may be liberated, and they may retain sufficient virulence to originate a recrudescent infection in a new area. It is quite likely that some part of the autointoxication which attends the too free movement of infected limbs may depend on a liberation of ingested organisms brought about by injury to germ-containing leucocytes rather than to a mechanical pumping of the organisms or their toxins into the tissues.

Practical Conclusions.

If it be true that some part (how large a part is at present unknown) of the spread of infection in wounds is due to a breakdown in the defensive mechanism of phagocytosis, of which return-immigration is only one phase; if, in other words, a certain number of pus cells in infected wounds re-enter the circulation or the tissues carrying ingested but still living organisms with them, and if a certain proportion of the latent infection in sinus cases and the recrudescent sepsis which breaks out in healed wounds is due to this same cause, then any method of wound treatment to be successful must deal with the problem of the return-immigration of germ-laden phagocytes. The subject is one, however, of great delicacy and difficulty. If antiseptic solutions when applied to wounds are sufficiently strong to kill the phagocytes and their cargoes, and so prevent their re-entrance into the tissues they will also inhibit emigration and phagocytosis. The irrigation of a wound with normal saline favours emigration and ingestion, but it does not prevent return-immigration. The application of hypertonic saline, on the other hand, may prevent return-immigration by killing the leucocytes, but it also checks emigration and phagocytosis.

A few experiments have been carried out to test the effect of various antiseptic agents on the capacity to ingest pigment or starch by the leucocytes and pus cells exposed to the action of such reagents when applied to wounds. The pus from a case of compound fracture of the tibia in which a cup-shaped granulating wound was dressed with the mixture of iodoform, bismuth subnitrate, and liquid paraffin known as "Bipp," to which also some sterilized rice starch had been added, showed that the percentage of leucocytes containing starch grains was reduced, while the proportion of starch grains free in the discharge was increased, although a considerable proportion of the pus cells from the same wound retained their vitality.

It is interesting to note that the starch grains in the pus from wounds which have been treated with the iodoform, bismuth, and paraffin paste are colourless. The grains in the interior of the phagocytes and the free grains only show the blue colour characteristic of the presence of free iodine after that reagent has been added. This bears on the question of the liberation of iodine in wounds dressed with iodoform paste.

Samples of pus from wounds previously dressed with gauze soaked in Dakin's solution (Dautresne's formula) with the addition of a little rice starch show that the inhibitory effect on the ingestive capacity of the leucocytes is less marked than in pus from wounds dressed with the iodoform paste. In one superficial granulating and healing wound, dressed twice daily with soaks of Dakin's fluid, nearly all the starch grains were ingested by the leucocytes in the fibres of the gauze dressing.

Certain facts stand out prominently in this world-wide and still unsolved problem of the routine conversion of infected into sterile wounds in war. An experiment in immunization is now being carried out in Europe on a colossal scale. The control of the virulent infection set up in the wounded tissues is far and away the biggest factor in the problem of the treatment of wounds in war. One is struck by the rapidity and efficiency of the immunizing process as carried out by Nature in some cases and by the failure of it in others. The difficulty is that we cannot distinguish beforehand those cases in which it will succeed from those in which it will partly or completely fail.

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OBSERVATIONS UPON DYSENTERY CARRIERS.

BY

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DURING the winter of 1915 several hundred typhoidal dysentery cases, in varying stages of convalescence, came under our observation for the purpose of eliminating, by bacteriological examination, those carrying infection. The methods we adopted in the routine examinations were the same in all cases no matter what was the original diagnosis accompanying the patient from overseas. We were led to adopt this uniformity of procedure as many of the cases had been diagnosed at the outset on clinical grounds only, and cases labelled "typhoid" or "paratyphoid" we found on examination to be dysentery.

The urine and faeces of all cases were examined and the procedure was as follows: The morning specimen of urine was obtained, the patient being instructed that while micturating he was to collect the latter portion in a sterile bottle. This was then centrifugalized and the deposit planted out upon plates of MacConkey's bile salt neutral red lactose agar. For faeces a portion was emulsified in ordinary broth, and, after standing, the emulsion was plated upon MacConkey's medium. A small quantity of a second portion of the faeces was emulsified in double-strength Gram's iodine and then a drop of the emulsion was examined microscopically for protozoa. Sometimes an emulsion in saline was examined in addition. After forty-eight hours' incubation the plates were examined and likely colonies subcultured into broth, agar, and various sugar media. Finally, probable cultures were submitted to macroscopic agglutination tests with known serums.

All the cases were examined many times over so as to ensure that no carrier would slip through the net. This involved a large amount of work, as during the winter six months we made about 5,000 examinations altogether, but when the work is organized it can easily be overtaken.

BACILLARY CARRIERS.

We have only met with six cases carrying the *Bacillus dysenteriae*. Three were carriers of *B. dysenteriae* "Y" and three of *B. dysenteriae* Shiga. One of these latter was a combined infection with *Entamoeba histolytica*.

Of the three "Y" infections two of the patients contracted the disease in Gallipoli, and only one gave a history of typical dysenteric symptoms with blood and mucus in the faeces. His illness began in August, 1915, at Gallipoli; he had a relapse in the following October, and we recovered the "Y" bacillus from his faeces on January 28th, 1916.

The second case of "Y" infection contracted in Gallipoli had its onset about the beginning of October, 1915, with general malaise and fever; a week later the bowels became loose for four or five days only, during which period the patient was, at times, only partly conscious, but there was never any blood or mucus at any time, and the diarrhoea never recurred. On January 25th, 1916, we recovered the "Y" bacillus from the faeces, and on February 22nd and March 17th we again isolated the same organism from the faeces. Four examinations later, in April, gave negative results. The third case of "Y" infection is unusually interesting, for the man apparently contracted his infection in hospital. He was attached to a hospital in Lemnos as an orderly and was frequently on duty in the dysentery ward. He had not been anywhere else, and about the middle of October, 1915, after three months' duty in hospital, he was taken ill. For two to three weeks he was fevered and felt ill, but the symptoms were very indefinite and there was nothing to suggest that he was suffering from dysentery. The motions were normal and the bowels tended to be constipated, requiring enemata every second day during the first three weeks of his illness. Five weeks after the onset of his illness he was transferred home, and on January 25th, 1916, we

recovered the "Y" bacillus from his faeces. This patient has never had diarrhoea at any time, the bowels being constipated throughout his illness.

Of the three cases carrying *B. dysenteriae* Shiga, all contracted the disease in Gallipoli, and the symptoms in each were more or less typical of dysentery, diarrhoea with blood and mucus being present.

It is curious that the case with mildest symptoms was the one having the combined infection of the Shiga bacillus and the *Entamoeba histolytica*.

This patient also carried *Entamoeba coli*. His illness began about the end of August, 1915; mucus was present in the faeces, but only a little blood, and he never passed more than six motions per day, and frequently only two. The diarrhoea stopped about two or three weeks later while in hospital at Malta, and he was sent home. He never had any emetine. In October, while in hospital in this country, he had a recurrence of the diarrhoea for a few weeks. On January 22nd, 1916, we found the Shiga bacillus in the faeces, and also a large number of cysts of *Entamoeba coli*; later, in February, we found cysts of *Entamoeba histolytica*.

The second case of Shiga infection contracted his illness on August 10th, 1915, and it persisted with slight and varying improvement until his arrival in this country at the beginning of December. Slight jaundice developed a week before landing, but he made rapid progress in this country and soon became convalescent. On January 28th, 1916, we recovered the Shiga bacillus from the faeces.

In the third case carrying *B. dysenteriae* Shiga the illness began about the beginning of August, 1915, and the patient was invalided home to England on September 18th. The dysentery did not improve until after admission to hospital in this country. After dismissal from hospital at the beginning of October, the dysentery recurred, and he was readmitted on the 18th. He again improved, and left on December 6th for duty. He had another relapse, however, and was readmitted to hospital on January 10th, 1916. At the beginning of March we recovered the Shiga bacillus from the faeces; a few cysts of *Entamoeba coli* were also found.

With the one exception noted above, no *Entamoeba histolytica* cysts were found in the faeces in any of the cases, although frequent search was made, and no other protozoa except the *coli* cysts in the two cases mentioned.

In five of the cases we examined the blood for the presence of specific agglutinins. Of the three Shiga cases, only one gave a positive result; this was the third case described above, and on March 10th his serum gave complete agglutination at a 1 in 15 dilution only, and partial down to 1 in 40 dilution. The two "Y" cases, tested at the end of February, gave a curious result. Both failed to agglutinate their own organisms in dilutions 1 in 20, but with a known strain of the "Y" bacillus they gave positive reactions, in one case complete down to 1 in 500, and in the other complete only down to 1 in 80.

The length of time these cases carried the bacilli varied from four to seven months.

HISTOLYTICA CARRIERS.

Twenty-four cases infected with *Entamoeba histolytica* have come under our observation, including one combined with *B. dysenteriae* Shiga, and two combined with *Lamblia intestinalis*; several also were found to be carrying *Entamoeba coli*. Fourteen cases contracted their infection in Gallipoli and four in Egypt, one in the Cameroons, one in India, one in South Africa or India, and another in Central Africa; one man contracted his infection in Lemnos, and another in England.

All the cases except three gave histories of more or less typical attacks of dysentery—diarrhoea and tenesmus, associated with the passage of blood and mucus.

Of the three atypical cases, one was only taken ill two weeks after arrival in this country from Egypt. He had been quite well in Egypt, and was invalided home for defective vision; after being two weeks in hospital at Netley he developed frontal headache and constipation, and the condition was thought to be enteric fever; he was kept in bed for three weeks. On examining the faeces three weeks later we found cysts of *Entamoeba histolytica*. It is possible that he may have acquired his infection at Netley, but it is more likely he became infected while in Egypt, and, although free from symptoms, carried the infection home. He never at any time had typical dysenteric symptoms. The second atypical case was that of a man who acquired the infection in Gallipoli at the beginning of November, 1915. He suffered from feverishness, headaches, pains in the back, and some vomiting, but he never had diarrhoea at any time, the bowels, in fact, being very constipated. Seven months after the onset of infection we found him to be carrying *histolytica* cysts. The third atypical case was one in which we found some difficulty in eliciting reliable information. The man had been in Central West Africa about eight years previously, but denied having had dysentery there, although he had suffered from indigestion and colicky pains. He had been in France during the latter half of 1915, and was quite well, but had to be sent home about the end of December with an injury to his leg. He was at his own home in the South of England when he was taken ill with vomiting, continuous diarrhoea, associated with the passage of mucus, but no blood. He was admitted to hospital on January 31st, 1916, and rapidly improved under a course of emetine hypodermically. On February 3rd we found *histolytica* cysts, but only in small numbers.

Of the typical cases several showed some features worthy of further mention. One was that of a man who had never been out of England, and who contracted an acute attack of amoebic dysentery while living in contact with a number of soldiers who had all been abroad at some previous time, and several of whom had had dysentery. This case has already been recorded in full elsewhere,[1] and it suffices for us to say that we found active *Entamoebae histolyticae* in the faeces; he recovered completely under a course of emetine hypodermically, and *histolytica* cysts did not persist in the faeces. There can be little doubt that he became infected from some carrier among the soldiers with him.

A somewhat similar mode of infection is illustrated in the case of a camp orderly in Lemnos.

He had been in Egypt for three months before being transferred to Lemnos, but enjoyed good health there. He was orderly corporal in the camp, where there was a large number of dysentery cases, and part of his duty was to supervise the latrines. Three or four weeks after arrival in Lemnos he was seized with a typical attack of dysentery. His condition, however, was said to be enteric, and, slowly improving, he arrived in England at the end of August, 1915. He was in an enteric hospital for some time before being sent on furlough, and never at any time received any emetine. Returning to his dépôt he felt rather weak, with dizziness and palpitation, but there was no return of diarrhoea. In April, 1916, fully ten months after the onset of the dysentery, we found *histolytica* cysts in his faeces, but his serum failed to show any agglutinins to *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, or any of the dysentery bacilli.

The patient who contracted his infection in the Cameroons has an interesting history.

Going to the Cameroons at the outbreak of war he was quite well till June, 1915, when he was taken ill with a typical attack of dysentery. The symptoms came on a short time after drinking from a small brook, and other sixty men who drank from that stream went off sick with dysentery at the same time. The patient stated that the bodies of dead natives were found later buried further up the stream. Receiving only two injections of emetine in Africa he was invalided to England, where he remained in hospital from July to October, 1915, before his condition improved. In October he went to France, and at Christmas the dysentery recurred, but he did not report sick with it till March, 1916. He was then admitted to hospital and sent back to England. In April, May, and June we found him to be carrying cysts of *Entamoeba histolytica* and *Lamblia intestinalis* in the faeces.

Two other of the typical cases are worthy of mention.

The first of these two patients contracted a typical attack of dysentery in Gallipoli in June, 1915, and five days after the onset he received a shrapnel wound in the leg, for which he was sent to Malta. The diarrhoea seemed to stop immediately after wounding, and did not recur except for three or four days in July, when it was associated with vomiting. Abdominal pains, however, persisted from the start, and they were of a colicky nature, chiefly over the colon. On August 17th his appendix was removed, and he was afterwards sent home to this country as a convalescent appendix case. In the middle of December he had a relapse of dysentery, associated with similar abdominal pains, and diarrhoea, alternating with constipation, persisted till February, 1916, when he was admitted into hospital here. Finding cysts of *Entamoeba histolytica* in the faeces, we put him on a course of emetine hypodermically, and he made an uninterrupted recovery. He had never had emetine before.

The second patient also contracted his infection in Gallipoli, and typical symptoms began in July, 1915, whereupon he was sent to Egypt, and he improved under emetine. Returning to duty at a base camp, he had a relapse, and was admitted to another hospital in Egypt. The symptoms were typical of dysentery, and were associated with a good deal of abdominal pain.

He was given a prolonged course of emetine, but the first few doses only appeared to do good, and eventually abdominal section was done in the middle line above the umbilicus. He was thereafter sent home, and the dysentery got worse on the ship. He improved in hospital in this country, but in March, 1916, after rejoining his dépôt, he had another relapse. At this time we found active *Entamoebae histolyticae* in his faeces, and put him on a course of emetine hypodermically, 24 grains in all. We noted improvement after the first few doses only, and for about a fortnight the amoebae disappeared from the faeces. Active forms of the amoebae reappeared, and were associated

with an exaggeration of the dysentery. He was then put upon pulv. ipecac. and pulv. ipecac. co. administered by the mouth, and he made undoubted progress under this form of treatment. For a month after this treatment we failed to find any amoebae or cysts in the faeces. We understand, however, that cysts have since appeared, and it seems likely that the infecting entamoebae are of an emetine-fast strain.

In connexion with these two cases we may mention that the patient previously noted above who contracted his illness in this country had colicky pains in the abdomen for five or six days before the onset of the typical diarrhoea, and a surgical specialist who saw him at this time advised operation for duodenal ulcer; but the onset of diarrhoea and the discovery of *Entamoeba histolytica* in the faeces gave the indication for the successful medicinal treatment with emetine.

The next two cases illustrate the long persistence of the infection and its eventual spread to the liver.

The first patient had been in the South African war from 1900 to 1902, and suffered from "dysentery" there. He was transferred to India for the next five years, during which period he had three separate attacks of dysentery, and in 1907 he was invalided home with "dysentery and a sluggish liver." In 1908 he returned to India, and being in fairly good health he remained till 1914, when he was transferred to France. In February, 1915, he had to be sent home because of "rheumatics" and haemorrhoids. The haemorrhoids were removed, and he remained well until April, 1916, when he began to suffer from pains in the right side over the liver. The liver was found to be enlarged below the costal margin, a tender smooth swelling was obvious in front, and a liver abscess was diagnosed. There was intermittent fever and the bowels were loose, but there was no real "dysentery." We found *Entamoeba histolytica* cysts in the faeces, and the patient was given a course of emetine hypodermically. The hepatic swelling disappeared, the liver diminished in size, and the patient got quite well, although he was still passing *histolytica* cysts three weeks later.

The second case of liver abscess had a less fortunate termination. This patient had had dysentery in India in 1905, and while in France he had a recurrence for three weeks in November, 1914, which was associated with an attack of "pleurisy." In September, 1915, he was admitted to a hospital in England for pain in the right side of the chest; he lost flesh considerably, and in the following month was transferred to the Royal Herbert Hospital, Woolwich. Dullness was found in the right subaxillary region with little or no breath sounds and some pleural friction. Some fever was present, but there was no diarrhoea except for five days at the end of October. The liver dullness increased, and on January 18th, 1916, liver puncture was done in four places with negative result. A subsequent puncture on January 26th was successful and pus was obtained which was found to contain active *Entamoebae histolyticae*. We searched the faeces on three separate occasions previous to this and failed to find any protozoa, and we only found *histolytica* cysts in the faeces after demonstrating the active forms in the liver pus. The liver abscess was drained, but the patient did not improve and gradually became weaker and died.

The length of time these cases carried *histolytica* cysts varied from two and a half months to thirteen years. Less than half of them received emetine in the early stages of their illnesses, and some of these only had a few doses. The case occurring in England, which came under our notice from its commencement, received thorough emetine treatment and apparently became completely free from the infection. Thorough emetine treatment from the beginning of the illness, controlled by repeated microscopic examination of the faeces, seems to us the most hopeful method of preventing the chronic carriers.

While the patient is carrying the cysts there is always the liability to recrudescence of the acute disease and, more serious still, the development of liver abscess. Again, there is the danger of transmitting the infection to other people, which, although slight in this country, is possible, as shown by the case of the man who had never left England.

In only ten of these *histolytica* cases did we have time to test the agglutination reaction of the patient's serum with *B. dysenteriae* "Flexner," "Shiga," and "Y." All gave negative results except two. These showed positive reactions with *B. dysenteriae* "Y" only, one in dilution 1 in 80, the other in 1 in 40. These dilutions are probably too high to be indicative of infection.

LAMBLIA CARRIERS.

In a previous paper[2] we recorded in detail twelve cases of infection by *Lamblia intestinalis*. Since then we have met with another eleven cases in which *Lamblia* was the sole organism isolated. It seems to us there can be little doubt that *Lamblia* may of itself give rise to considerable intestinal irritation and consequent diarrhoea. In each of these cases we have examined the excreta many times without finding any other parasite. In the majority of the cases encysted forms only were found, but in a few, when diarrhoea was present, active free-swimming forms were found. The infection is a very persistent one lasting several months, and slight intestinal symptoms may be present all the time, or there may be exacerbations, and at these times active forms of the flagellate appear in the faeces. In some cases the patient states he is quite well, but on questioning him it will be found that an excitable condition of the intestinal tract is present. He has to be careful with his food; if he takes anything hot—for example, hot fluid—then active peristalsis is set up, and he passes a loose motion shortly thereafter.

The onset of the illness in all cases resembled an ordinary attack of acute dysentery—diarrhoea with, as a rule, passage of blood and mucus, and frequently tenesmus. The acute symptoms persisted for a varying length of time—one to six months—and relapses were common. It is, of course, quite possible that at the outset a double infection with *histolytica* was present and that the amoebae had disappeared under treatment with emetine, which had been given in most of our cases, and that the persisting *Lamblia* kept up the intestinal irritation. But the evidence in our series of cases is all in favour of the conclusion that *Lamblia* of itself can give rise to dysenteric symptoms. The following case is sufficiently illustrative:

A young officer who had previously been a medical student was taken ill in Gallipoli in the early part of June, 1915. He had had diarrhoea with, at first, no blood or mucus, and he controlled it by taking lead and opium pills, with which he had supplied himself before proceeding to the peninsula.

He continued to take the pills until he was wounded about three months later, when he was sent on hospital ship to Malta. As he stopped taking the pills the diarrhoea got worse, and blood and mucus appeared in the faeces. He was a month in hospital in Malta, where he was treated with milk diet and bismuth but no emetine. There was some improvement in the dysentery before he left Malta, but on the ship coming home to this country it recurred as bad as ever, and abdominal pains were severe. After a short time in a London hospital he was sent home on leave. Loose motions persisted all the time, but on only two or three occasions did blood or mucus appear. Early in February he was sent into the Royal Herbert Hospital, Woolwich, by a medical board on account of abdominal pains and diarrhoea associated with the passage of mucus but no blood. On February 12th a specimen of faeces was examined by us, and we found large numbers of *Lamblia intestinalis* present, both active and cystic forms. No other protozoa were found, and no organisms of the typhoid-dysentery group were isolated. The patient was put upon a course of emetine hypodermically, but, although this alleviated the abdominal pains, it had not the slightest effect upon the diarrhoea or the *Lamblia*. An interesting point, by the way, is that the emetine during its administration caused a temporary loss of memory for recent events—for example, the patient forgot his own home address.

Beta-naphthol gr. xv and bismuth salicylate gr. xx were given thrice daily in several seven-day courses, but this had practically no effect. The *Lamblia* cysts disappeared for a few days after each course, but reappeared later when the temporary constipation passed off, and on one occasion active forms of the flagellate came back. A dose of calomel would produce violent diarrhoea with blood and mucus.

We have examined the faeces of this patient on numerous occasions up to the beginning of June, 1916, and practically every time have found encysted forms of *Lamblia* present. No other protozoa were seen, and at no time did we isolate any typhoid, paratyphoid, or dysentery bacilli. The patient, who has never felt fit since his illness began, does not look well, and, twelve months after onset, is still passing two or three loose motions daily.

The majority of our cases contracted their infection in Gallipoli, a few in Egypt, one apparently in France, and another in India ten to fifteen years previously, when he had an attack of true dysentery. This last patient was admitted to hospital for an indefinite illness, with fullness and pains in the abdomen. The motions were loose, and contained mucus, and active forms of *Lamblia* were present in large numbers. A commencing liver abscess was suspected, and the patient improved under emetine, but encysted forms of *Lamblia* persisted in the faeces.

We have tried several drugs in the treatment of the chronic *Lamblia* carriers, but we have not yet found a specific. Emetine hypodermically has not the slightest effect, and neither has the internal administration of beta-naphthol combined with bis. salicylate; pulv. ipecac. with pulv. ipecac. co. given by the mouth also produced no effect on the cysts. Latterly we have tried naphthalene

by the mouth in keratin capsules, but this also has failed. We have found most promise of success in the internal administration of small doses of calomel over a prolonged period associated with a mild morning saline.

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[1] BRITISH MEDICAL JOURNAL, May 20th, 1916. [2] The *Lancet*, June 10th, 1916.

A CASE OF AMOEBIC ABSCESS OF THE LIVER OCCURRING TWENTY YEARS AFTER THE ORIGINAL ATTACK OF DYSENTERY.

BY

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CLINICIANS have often noticed that abscess of the liver may follow many years after an attack of dysentery, or even appear with no history of dysentery at all. Such occurrences have, up to the present, been very puzzling, but recent work carried out on cyst carriers helps largely to explain them.

It has been shown that a person may become a contact carrier and present *Entamoeba histolytica* cysts in his stools without ever having had dysentery or even diarrhoea, and, further, that a person who has had dysentery may become a relapsing carrier and go on discharging cysts regularly or irregularly for many years. Either of this class of case may develop an abscess in the liver at any time, and there is no reason why they should not, as the presence of cysts in the stools indicates that they are still the subjects of amoebiasis. What is still difficult, however, to explain is why some cases develop abscesses and others do not. There would even seem to be a geographical predilection, because in India and other places, for example, they are common sequelae of amoebic dysentery, while in other parts of the world, though there is plenty of dysentery, they are distinctly rare. Further, why should a man the subject of amoebiasis live for years and then suddenly get liver symptoms and develop an abscess? These are points that still require solution.

Recently I have had the opportunity of fully studying a very interesting case of amoebic liver abscess appearing years after a dysenteric attack, and as it raises many points of interest no apology is necessary for publishing it.

A ship's chief engineer, aged 54, was admitted into the Seamen's Hospital, London School of Tropical Medicine, under my care, complaining of pain over the liver and stomach, with vomiting and hiccough.

History.

He was born in England. He went to sea at the age of 22, and has followed the sea ever since with the exception of three years, when he lived ashore in England. He has travelled all over the world—to India, Australia, South America, but not to Africa. In his time he had drunk a fair amount of alcohol, but lately had been more temperate. He had had gonorrhoea in his youth, and, at the age of 25, a chancre, for which he was never treated; apparently he had no secondaries. He had had malaria several times, slight attacks. He had had dysentery twenty years ago at Port Said, with typical clinical symptoms—blood and mucus, tenesmus, straining, etc. He was treated in hospital there, and got better in a week or two. After that he had slight touches of diarrhoea for two or three years; thereafter all signs of bowel irritation disappeared. He is perfectly certain that he never had dysentery again—that is, a fresh infection. In September, 1915, he passed blood. This was found to be due to piles; he was operated on and cured.

Present Illness.

Nine weeks previous to admission to hospital he began to get feverish attacks, with general aching all over the body, diagnosed as influenza and treated as such. He had also slight vomiting. A week later he developed ague attacks, shivering followed by sweating, with headaches; this lasted four weeks. He was treated by his own doctor with quinine. A week later hiccough developed, with pain in the epigastrium and under the right costal margin. As his condition did not improve, and as increasing weakness and loss of weight also became apparent, he was sent into hospital, arriving there on July 5th, 1916.

State on Examination.

The patient's mouth was in a very septic condition, an extreme degree of pyorrhoea alveolaris existing. The tongue was dry and coated, and there were numerous small ulcers in the mouth. The temperature was 101°. There was nothing abnormal in the lungs, and no dullness at the right base. The heart was a little enlarged, the sounds were very faint (? fatty). The pulse was irregular, missing beats regularly, rate 90 to 100. Abdomen: Pain on pressing epigastrium; liver enlarged, upper border fifth and sixth ribs, lower border three inches below costal margin; spleen 9 to 11, not enlarged. No tenderness over colon, nothing in groins. Urine: Specific gravity 1020, no albumin, blood, or sugar. Faeces: No amoebae, cysts, or flagellates; no ova.

Blood examination:

Red cells	4,800,000
White cells	14,000
Haemoglobin	100 per cent.
Differential count:	
Polymorphonuclears	60 per cent.
Large mononuclears	11 ,,
Lymphocytes	27 ,,
Eosinophile	1 ,,
Mast cells	1 ,,

No malarial parasites or pigmented leucocytes.

Diagnosis.

Hepatitis and gastritis, probably septic in nature.

Treatment.

All his teeth were removed at once; Mr. Vaughan, who did this, agreeing that the trouble might all be coming from the mouth condition.

Progress.

July 6th. A little better. July 10th. Temperature keeping up, two or three small rigors. Feels better, however. Faeces: No cysts or amoebae. July 13th. Much better; no more rigors, no sweating; temperature down a little. Leucocytes 14,000. Faeces: Again negative.

July 17th. Worse, rigors again increasing in severity; pain over liver on shaking him. Tender on deep pressure over lower axilla (? a liver abscess starting). Leucocytes, 15,000; no malarial parasites. Faeces: Again negative. Give him emetine, beginning to-night, one grain; mouth quite clean now. There does not seem to be any source of infection there.

July 18th. A dead amoeba and two *E. histolytica* cysts found in faeces to-day. This clears up the diagnosis and verifies the suspicion of an abscess forming in the liver. No rigor to-day.

July 20th. Temperature still raised; no further rigors, however, and no more sweating. The patient feels more comfortable, and says he has lost the liver pain. Sick in the afternoon. Decided that surgeon should see him and explore his liver for an abscess the following morning. No further sickness after afternoon, but pulse became very irregular in evening.

July 21st. Seized with a sudden heart attack at 2 a.m. and died at 2.45. Owing to the irregularity of his heart, and also because of its weakness, the patient had been on digitalis since July 14th.

Table giving Details of the Emetine Treatment and Results of the Examinations of the Faeces and the Leucocyte Counts.

Date.	Dose and Drug Employed.	*E. histolytica* Free.	*E. histolytica* Cysts.	Leucocytes.
1916. July 5	—	—	—	14,000
,, 10	...	—	—	
,, 13	...	—	—	14,000
,, 17	Emetine hydrochloride subcutaneously	—	—	15,000
,, 18	Ditto	+	+	
,, 19	Ditto	—	—	
,, 20	Ditto	—	—	16,500

The temperature is shown in the chart.

Autopsy.

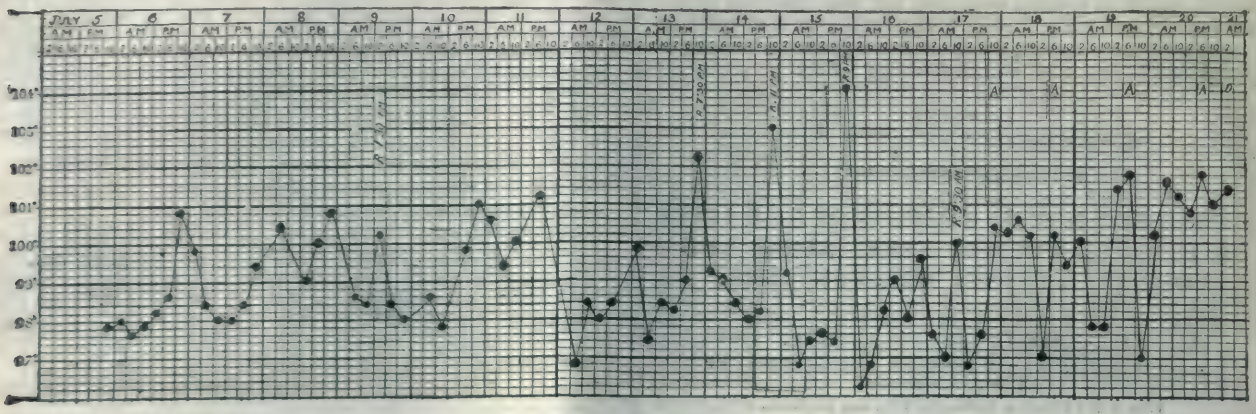
The patient died at 2.45 a.m., July 21st, 1916. *Post-mortem* examination 4 p.m. same day.

External Appearances.—Body well nourished; good layer of fat; old scars on legs look like specific; no scars on penis; otherwise nothing to note.

Head, neck, and spine not examined.

Thorax.—Pleurae: Right, no fluid, adhesions between lung at apex; left, no fluid, no adhesions. *Right lung*, 1 lb. 9 oz., adhesions at apex; no signs of tubercle, however; body of lung congested, and lower lobe oedematous; no pneumonia. *Left lung*, 1 lb. 6 oz., similar to right.

Heart.—Pericardium: No fluid, adherent to wall of heart by old fibrous adhesions. In addition to this, a recent exacerbation of acute pericarditis with fresh lymph. Muscle substance very soft and flabby, advanced fatty degeneration. Valves: Nothing abnormal on right side. On left, aortic *nil*; mitral, old sclerosing endocarditis on both cusps. Aorta: Early atheroma.



R = Rigor. A = Intramuscular injection of emetine, gr. j. D = Died.

Abdomen.—No fluid, no peritonitis.

Liver.—Large, edge lying 3 inches below the costal margin. In a condition of early polylobular cirrhosis. Adhesions between it and the diaphragm rendering its removal difficult. After its removal from body a fairly large abscess became apparent, this being about the size of an orange, and measuring roughly 4 by 5 inches. Its situation was at the junction of the upper and right margins—that is, somewhat to the right of the dome of the right lobe. Its external wall was comparatively thin, and it was here that the chief adhesions between liver and diaphragm had existed. On making an incision into the abscess, chocolate reddish coloured pus, typical of amoebic liver abscess pus, escaped. A microscopic examination of a scraping of the wall made at once showed living and active *Entamoeba histolytica* in the pus. The general substance of the organ exhibited cirrhotic and fatty changes. Weight of liver, 7 lb. 2 oz.

Spleen.—14 oz., enlarged, and very soft. Spleen of sepsis, not definitely pigmented.

Kidneys.—Right 9 oz., left 9½ oz. The capsules stripped easily in both. Substance of organ cloudy swelling.

Intestines.—Small: No ulceration or any lesions. *Large:* No thickening of wall noticeable. Lumen practically normal, with the exception of the following: In the caecum, just at its junction with the ascending colon, there were too little pockets or crypts, with their mouths about half the circumference of a threepenny-bit. Above this there were some very thin places, which looked like healed scars of ulcers. Some of these were also present in the transverse colon, none in the descending or rectum. Over a considerable part of the mucous membrane some greyish-black spots the size of a fair-sized pin-head were seen. These had a glazed appearance.

In the rectum were four small haemorrhagic spots, something like the early lesions of bilharzia disease. These were very small, only a little larger than a millet seed. The mucous membrane over them did not appear to be ulcerated. Scrapings revealed no signs of bilharzia eggs, nor any active amoebae. They were situated within two inches of the anus.

Stomach.—Mucous membrane congested; chronic gastric catarrh present.

Bladder.—Nothing to note.

As far as one could judge from the appearance of the abscess, the character of the pus, and the presence of the living and active amoebae, the age of the abscess seemed to correspond to the onset of the clinical symptoms some nine weeks before. There were certainly no signs of chronic encystment about it. The immediate cause of death was due evidently to the pericardial condition influencing the heart and to the general septic condition, rather than to the abscess, which, after all, was not of an excessive size, and which up to the time of death had not caused any serious complications.

Microscopical Examination.

Sections of the abscess wall showed the presence of amoebae. The deep crypt or pocket in the caecum was lined with mucous membrane, with glands, the intervening spaces being largely filled with a small celled infiltration of mononuclear cells; outside the mucous layer was a fibrous tissue with little or no signs of vessels. Further out again the arterioles seemed to have very thickened walls, very suggestive of syphilis, quite a likely possibility from the clinical history. No amoebae were found in this pocket.

The other pocket was much shallower, more a depression than a real pocket; it was also clothed with a layer of mucous membrane; no amoebae were found in it also. In between the two crypts was a large mass of muscle, its position there being somewhat difficult of explanation. It looks as if there had been extensive ulceration, and that this piece of muscle had been cut off and isolated in the process of healing.

The sections of the thinned-out pieces of bowel showed a faulty mucous membrane with great thinness of the wall. Possibly they represent scars of previous ulcers.

For these microscopical sections I am greatly indebted to Dr. A. C. Stevenson of the Wellcome Institute who cut and prepared them, and also for his help in discussing their significance.

Several very interesting facts are brought out in this case. The practical absence of any gross lesions in the large intestine would seem to point to the patient's statement, that he had only had one attack of dysentery, and that twenty years ago, being correct. Though this is so, the presence of an amoeba and two *E. histolytica* cysts in the faeces on one occasion meant that he still had a bowel infection with the specific parasite, and the fact that he had an abscess in the liver full of *E. histolytica* also supports this. Where in the bowel the parasites were one cannot say. There were certainly no signs of them in the pockets or crypts. They may probably have been present in the small haemorrhagic spots in the rectum. These unfortunately could not be certainly identified after the material had been hardened, and to have found them by sectioning would have involved serial sections of some inches of bowel—a too laborious proceeding. It is also quite possible that they were present in some minute lesion, not apparent to the naked eye, but, if so, this must have been very minute, as the bowel was carefully examined by a hand lens to see if any such place could be detected.

Another point of some interest is that the amoebae were still alive in the pus of the abscess thirteen hours after death, and incidentally also after 4 grains of emetine hydrochloride had been administered hypodermically. Once an abscess has formed in the liver, as in this case, it is difficult to see how the emetine can reach the amoebae.

Much attention has recently been bestowed, and rightly so, upon the danger of chronic amoebic carriers spreading infection to others. This case is a very striking example of the danger of the carrier to himself, and brings forward once more the necessity of properly treating such cases. Fortunately we now possess in emetine bismuth iodide a drug which sterilizes chronic cyst carriers with a certainty not attained by any previous methods.* Since Dobell and myself published a series of cases treated by this drug[1] further results showing its efficacy have come to hand. The results obtained, for example, at Walton Hospital recently, results which have been annotated and published by Dobell,[2] are most striking, and similar successes have been obtained at other places.

It is therefore of the utmost importance that all people who have had dysentery, even though it may have occurred years before, should have their stools thoroughly examined on several occasions to make certain that they are not amoebic carriers; if they are found to be so, they should at once be treated in order to obviate the danger of a subsequent abscess in the liver.

REFERENCES.

[1] *Lancet*, August 19th, 1916. [2] BRITISH MEDICAL JOURNAL, November 4th, 1916, p. 612.

* It is essential, however, that the drug be given as the powder in a gelatin capsule, and not in any compressed form. Since writing this paper I have had a case in which "stearettes" of it were passed in the faeces absolutely unchanged, and the same may take place with keratin-coated tabloids.

THE FULMINATING TYPE OF CEREBRO-SPINAL FEVER:

PATHOLOGY, AND CAUSE OF DEATH.

BY

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AND

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CASES belonging to the fulminating type form one of the most distressing features of cerebro-spinal fever. An apparently healthy person is suddenly attacked, and dies within forty-eight hours from the onset of his illness.

In our series of cases during the epidemic of 1914–16 we noted a considerable number which may be classified under this heading. We have notes, including *post-mortem* records, of ten to twelve of these cases, and in addition clinical notes of several more which have belonged to this type.

All terminated fatally, and pathologically differed from the ordinary type in one essential feature, and it is principally to this that we wish to draw attention.

It has been recognized for some time that cases of intense meningococcal bacteriaemia without any meningeal involvement may occur. While these cases are rare, it is not so uncommon to find others very similar in which the meningeal infection is very slight, and which apparently succumb to the general infection before the lesions of the meninges have time to develop fully. Our notes on one of these cases will sufficiently describe the class.

CASE I.

H., aged 21, became suddenly ill in the evening of April 9th, 1916, with headache, shivering and vomiting. On admission to hospital on the following day the patient looked ill; his face was pale and slightly cyanosed. He complained of slight headache and pain in the ankles. There was slight resistance on antero-posterior flexion of the neck; Kernig's sign was just present. Knee-jerks and the abdominal reflex were absent. *Tache cérébrale* was present, and there was a petechial rash on the trunk and limbs, with many large purpuric blotches. Cardiac dullness was increased to right side of sternum.

Blood Examination:

Total leucocytes:	31,000
Differential count:	
Polymorphs	85 per cent.
Lymphocytes	5 ,,
Mononuclears	7 ,,
Myelocytes	3 ,,

Lumbar Puncture: 50 c.cm. perfectly clear fluid under pressure. No increase of cellular content; protein content not increased; no fibrin; reduced Fehling; 2 c.cm. spread on plate gave four colonies of meningococci; 1 c.cm. of blood in broth gave profuse growth.

The patient remained comfortable for some hours and did not complain of pain, but the pulse became more and more feeble, until it could not be felt at the wrist. The patient died suddenly. He remained conscious to the end; for some time before death no heart sounds could be heard and there was intense cyanosis.

A *post-mortem* examination showed the meninges to be congested. There was a slight amount of exudate about the optic chiasma and on the under surface of the cerebellum; faintly turbid fluid in the lateral ventricle, and extensive haemorrhage into the substance of the adrenal gland. There was also petechial haemorrhage under the pericardium, and into the intestinal mucous membrane, etc.

In the other type, after a similar abrupt onset, the patient becomes almost immediately unconscious. At first the signs of involvement of the meninges are present, but later they may be replaced by complete muscular flaccidity. A profuse purpuric rash appears, the breathing becomes stertorous, and the patient intensely cyanosed; cardiac dilatation commences, the heart becomes more and more feeble, and finally ceases to beat.

The cerebro-spinal fluid is extremely turbid, and is under considerable pressure. It contains many polymorphs and abundant meningococci, both intracellular and extracellular; fibrin is present, and it no longer reduces Fehling's solution. In most cases the meningococcus can be cultivated from the blood.

Blood Examination:

Polymorphs	74 per cent.
Mononuclears	8 ,,
Lymphocytes	18 ,,
Polynuclear count:	
I. 56 per cent.	
II. 27 ,,	... ... 83 per cent.
III. 14 per cent.	
IV. 3 ,,	
V. 0 ,,	... ... 17 per cent.

This shows the extent of the general infection. *Post-mortem* examination reveals extensive purulent infiltration of the cerebral and spinal meninges, and an increased quantity of cerebro-spinal fluid, which is very turbid. There are haemorrhages into the adrenal glands, and petechial haemorrhages into other organs, as described in the first class, may be present.

These two classes are not sharply divided, and intermediate cases are met with.

Pathology.

Post-mortem examination also reveals two types of cases. In one the brain and cord are merely congested. The congestion may not be marked, there may be very little fluid in the lateral ventricles or cisternae, but this fluid is slightly turbid. This small amount, not more than normal, of turbid fluid is found chiefly in the lateral ventricles, and the cisterna chiasmatis, and may be the only macroscopic sign of involvement of the central nervous system. In the other there is extensive involvement of the pia arachnoid, giving the well known appearances.

There are, however, two conditions which have been invariably present in our series of cases of malignant cerebro-spinal fever, namely, a purpuric rash and a haemorrhagic state of the adrenals.

The rash is haemorrhagic, and varies from petechial spots to large areas of several square inches. There may be petechial haemorrhages on the epicardium and on the serous surface of the intestines. The adrenals are found to be dark-red, enlarged and friable. Their weight may be as much as 24 to 28 grams. Microscopically, the medullary substance is replaced by effused blood and very few chromaffin cells are to be seen. The reticular, fascicular, and glomerular zones show distended capillaries, and red blood corpuscles effused between the cortical cells. The cells are distorted by pressure, and many have lost their outline. The refractile granules are much diminished in number.

The occurrence of haemorrhage into the adrenal glands has been noted previously, but sufficient importance has not been attached to its frequency. The destruction, by haemorrhage, of the medulla of the adrenals would account for the curious clinical phenomena, diminution and later absence of blood pressure and muscular flaccidity.

The hypotension is, of course, directly due to the loss of epinephrin, the normal stimulus to the "myoneural function" of the sympathetic autonomic system. The muscular flaccidity, with loss of neck stiffness, Kernig's and Brudzinski's signs, and knee-jerk, is accounted for in the same manner, and would tend to confirm the view that epinephrin not only acts upon the plain muscle innervated by the sympathetic autonomic system, but also has a stimulating effect upon the tone of the skeletal muscles.

The presence of acute haemorrhagic adrenalitis, although not confined to cerebro spinal fever, is so common in that disease as to suggest a selective action by the meningococcus on the chromaffin cells, and the fact that the medulla is developed from the same neuroblastic masses as the sympathetic system affords further grounds for the theory.

But we have no proof that the haemorrhage and cell destruction commence in the medulla. The cortical cells and refractile granules share the same fate as the medullary cells, and it is quite possible that the cortex is the starting point. The lipoids of the cortex, thought to be specially related to the formation of myelin, may have initiated the pathological condition by their sudden withdrawal from the cortical cells, in response to the myelin degeneration taking place in the central nervous system.

Treatment.

The utilization of the knowledge of this tendency to haemorrhagic adrenalitis is important.

In the acute case, with rapidly falling blood pressure, adrenalin should be injected intravenously in such doses as will keep the arterioles sufficiently contracted to maintain the circulation, in the hope that either the chromaphil cells or the other parts of the chromaffin system will increase and take over the functions of the adrenals, or that the medullary cells will recover.

THE TREATMENT OF TRENCH FEET.

BY

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Amongst the mass of literature upon the subject of trench feet that has appeared within the last eighteen months I can find little, if any, stress laid upon two points which, in the experience gained by treating 1,018 cases, appear to be of vital importance to successful treatment.

I. The Value of Counteracting Hyperidrosis.

For the sake of clearness the cases were divided, as far as was clinically possible, into two main classes:

(*a*) Those of mild and medium degree, characterized to a greater or lesser extent by anaesthesia, oedema, and blistering.

(*b*) Those of a severe type, with actual destruction of tissue, and perhaps gangrene, generally of the dry, but sometimes of the moist variety.

Taking into consideration the unavoidable overlapping of the two classes, the number of the first class was, roughly, 850 cases.

In over 800 of these hyperidrosis was most marked, very distressing to the patient, and interfered considerably with success unless great attention was paid to it. The majority of these cases were first seen at dates varying from two to fourteen days after the attack.

In nearly every case the limbs were wrapped in a thick layer of cotton-wool, with a fairly tight bandage over it, the bandage, of course, being started and finally fixed round the ankle. Upon removal, the part was invariably sweating and often odoriferous. It was noted that in a few cases where there was no wool used, the course of the case was undoubtedly better and recovery was much more rapid. As a result, most of the cases were treated upon the lines of the following routine, individual exceptions being treated as circumstances allowed and common sense demanded.

Local Treatment.

1. The part is covered with one thin layer of gauze, arranged, if possible, so that it is in the form of a tent over the part, rather than resting upon it. No wool whatever is applied. Dr. Ramsay Hunt,[1] in this connexion, says, "they are then loosely covered with wool or left exposed"; and certainly upon the experience gained in treating this series of cases, there seems no doubt that the latter alternative is infinitely preferable, and yields better results. The absence of a bandage fixed round the ankle tends also to reduce congestion.

2. The part is left exposed to the air, night and day, every opportunity being given for what sun there is to have free access to the part during the day. The use and value of a sun bath cannot, I think, be overestimated.

3. The foot is powdered three times a day with some antiseptic powder, such as boric acid, iodoform, a combination of the two, or borsal (equal parts of boric and salicylic acid). The cases seemed to do best with the borsal, as this counteracted the hyperidrosis most effectively.

4. If these measures failed after six or seven days' trial, the feet were, in addition, sponged with a weak formalin solution (1 in 1,000) once a day, and this was usually effective.

5. The foot was elevated, all pressure of bedclothes upon the leg below the knee being guarded against by the use of a cradle.

Medicinal Treatment.

White[2] has pointed out the value of calcium lactate in hyperidrosis and other skin diseases, and it seems to be a very useful adjunct in the treatment of the sweating in cases of this kind. I am inclined to think that the best results are obtained by using fairly large doses (3ss to 3j) at intervals of four or five days, rather than smaller doses more frequently.

Thus it was found that, if great attention was paid to keeping the feet dry, results were excellent and fairly quick. It seemed also to minimize the pain, which is so distressing a symptom, and upon these lines the use of any form of fluid for the relief of pain, or any other object, seems to be contraindicated. It was found that if cocaine, menthol, or anaesthesin were added to the dusting powder, a considerable improvement in this direction was obtained.

II. The Question of Amputation.

In dealing with the severe type, the same routine was performed in every particular, with good results. The whole secret of success being, apparently, to combat the sweating and keep the foot dry and warm.

The consideration of the worst cases at once brings us face to face with the question of amputation. Nearly every one who has had experience of these cases will admit that in those in which gangrene of the dry variety supervenes there is absolutely no justification for anything approaching an early operation. All that need be done is the trimming of stumps after the line of demarcation has formed and sloughs separated.

If more stress were laid on this there would not be half the number of men left with amputated limbs and toes. The only cases in this series which needed immediate amputation were those in which moist gangrene was present (these numbered thirty-three), and only then should it be performed if delay should imperil the life of the patient on account of the concurrent toxaemia.

Many, with patience and continued efforts to keep dry, will be saved from amputation, and a final trimming only be necessary.

REFERENCES.

[1] *Medical Annual*, 1916, p. 262. [2] *Journal of Cutaneous Diseases*; 1914, p. 691.

HOME-MADE BREAD SUBSTITUTES FOR DIABETIC PATIENTS.

By R. T. WILLIAMSON, M.D.Lond., F.R.C.P.,

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Many diabetic patients are now finding considerable difficulty with respect to diabetic bread and foods. Owing to the war the cost of diabetic breads has increased, and their postage is slower and less regular.

In England we have a number of diabetic breads which, chemically, are quite satisfactory, and to many patients palatable. But other patients find that many of them are unpalatable, and the cost has always been an objection with poor patients; this objection is greater now as the war has increased the cost of most diabetic breads very considerably. The following directions for home-made bread substitutes may therefore be of some service.

I have used the first two bread substitutes for three years in the treatment of my patients at the Manchester Royal Infirmary and have found them very satisfactory and cheaper than diabetic breads. Before the war the cost of these bread substitutes was only about half the cost of the best diabetic breads, but, owing to the great increase in the price of food, it is now difficult to make a satisfactory comparison of the exact cost.

In my own house we had no difficulty in preparing these cakes. In the kitchen at the Manchester Royal Infirmary difficulties were reported, but these were finally overcome and for three years satisfactory cakes (1 and 2) were prepared for my patients at that hospital.

Many patients find these cakes more palatable than diabetic bread; some find them quite as palatable; whilst others find them less palatable than many pure diabetic breads.

1. *Biogene and Gluten Cakes.*

Biogene * three tablespoonfuls.
Satisfactory gluten † two tablespoonfuls.
Baking powder half a teaspoonful.
One egg well beaten up.
A small pinch of salt.

Mix well together, adding the baking powder last (just before baking). A little water may be added, if necessary. Drop into six tins, and bake for twenty minutes.

The cakes may be cut in two and a layer of cream spread between the two slices, if the patient prefers this addition.

* Biogene can be obtained from Messrs. Callard and Co., 74, Regent Street, London, W. It is a soluble casein containing a small percentage of phosphates.

† Satisfactory gluten flour may be obtained from Messrs. Callard and Co., 74, Regent Street, London, W. It should only contain 5 or 6 per cent. of starch. Only such preparations should be used; the cheap preparations of gluten contain a much greater percentage of starch and are unsatisfactory.

2. *Biogene and Cocoa-nut Cakes.*

Mix a quarter of an ounce of yeast with four tablespoonfuls of lukewarm water. Add one and a half tablespoonfuls of desiccated cocoa-nut powder.* Mix well. Cover and leave to ferment in a warm place (not hot) for one hour. Then beat up one egg with a little warm water; add this and six tablespoonfuls of biogene to the above. All should be well mixed into a stiff paste. Place in six small pattie tins. Bake in a moderate oven twenty or twenty-five minutes. When taken out of the oven allow the cakes to stand for ten minutes, and then slip them out of the tins with a knife, and allow them to dry. The tins should not be greased.

3. *Gluten and Cocoa-nut Cakes.*

Mix a quarter of an ounce of yeast with four tablespoonfuls of lukewarm water. Add one and a half tablespoonfuls of desiccated cocoa-nut powder. Mix well. Cover and leave to ferment in a warm place (not hot) for one hour. Then beat up one egg with a little warm water; add this and three tablespoonfuls of gluten to the above. All should be well mixed into a stiff paste. Place in six small pattie tins. Bake in a moderate oven twenty or twenty-five minutes. When taken out of the oven, allow the cakes to stand for ten minutes, and then slip them out of the tins with a knife, and allow them to dry. The tins should not be greased. These cakes should be toasted and buttered and not eaten cold.

4. *Cocoa-nut, Casein, and Gluten Cakes.*

Desiccated cocoa-nut powder two and a half ounces.
Casein two ounces.
Biogene half an ounce.
Gluten flour one ounce.
Two eggs.

Place the cocoa-nut powder in a dish; mix it with a quarter of an ounce of German yeast; cover it with water and mix well. Leave the mixture in a warm place (not hot) for one hour. Then add the casein, biogene and gluten flour, two eggs (beaten up), and a small pinch of salt; mix well and drop into six small tins. Bake for twenty-five minutes. These cakes only contain a very small amount of starch; to many patients they are quite palatable, and before the war the cost was small.

5. *Cocoa-nut Cakes.*

Half an ounce of German yeast.
Two tablespoonfuls of lukewarm water.
Eight ounces of desiccated cocoa-nut powder.

Mix into a paste, adding a little more lukewarm water if necessary. Leave in warm place for one hour. Then add one egg (beaten up in two tablespoonfuls of milk) and a little salt. Mix well. Place in eight small dishes or tins (well greased). Bake in a moderate oven twenty or thirty minutes. These are the cheapest diabetic cakes.

6. *Almond Cakes.*

These can be made in a similar manner; almond flour being used in place of cocoa-nut powder.

Cakes 2, 5, and 6 are free from starch, and should be practically free from sugar if prepared satisfactorily. Cakes 1, 3, and 4 contain a very small percentage of starch, as the gluten flour used contains 5 or 6 per cent. of starch.

If the patient is unable to eat these cakes, or unable to have them prepared satisfactorily, or if they are too expensive and the pure diabetic bread also too expensive, then it is better that he should take a small amount of ordinary white bread, three ounces daily, rather than take cheap impure diabetic bread in indefinite quantities. It is always desirable that all diabetic breads should be tested roughly by the medical man before they are advised to patients. This may be done by dropping a little of the following solution on to the cut surface of the diabetic bread:

Iodine	1 grain
Potassium iodide	1 ,,
Water	½ oz.

A deep blue-black coloration is produced if the bread contains much starch.

This simple test is sufficient to show that a large number of the very palatable cheap diabetic breads are loaded with starch, and therefore unreliable, unless they be regarded as practically the same as white bread and taken in the same limited quantities.

Diabetic patients should not try one bread substitute only. They should not cease to use all diabetic breads, should the first one tried be unpalatable. A number of the reliable bread substitutes should be tried, and the patient should continue to take the most palatable of these reliable preparations. But the patient should be allowed to try only reliable diabetic breads—that is, those which the medical man has found from his own testing to be satisfactory.

I think that most patients will find one or more palatable cakes amongst the six for which directions for preparation have been given in this note, and the cost will be considerably less than that of diabetic breads. The cheapest are the cocoa-nut cakes and the combined cocoa-nut, casein, and gluten cakes. All are satisfactory chemically, if carefully prepared. Probably most patients will find the biogene and gluten cakes or the combined cocoa-nut, casein, and gluten cakes the most palatable.

* Desiccated cocoa-nut powder can be obtained from Messrs. Burgon and Co., 403, Oxford Road, Manchester, and from Messrs. Callard and Co., 74, Regent Street, London, W., and from many other firms.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TETANY AFTER THYROIDECTOMY: RECOVERY.

A GIRL, aged 20, was admitted to the Church Missionary Society's Hospital, Old Cairo, Egypt, for the removal of the left lobe of an enlarged thyroid. The gland had been very large, and the right lobe had been removed by another surgeon in the hospital some months previously, so at this operation I was careful to leave a considerable portion of the gland, which I considered should be sufficient to avoid complications, and also to disturb the parathyroids as little as possible. She stood the operation quite well, but exhibited slight signs of tetany after thirty-six hours, and on the third day had regular spasms. The extremities were chiefly affected, and the "accoucheur hand" was well marked. Feeding with thyroid gland was at once commenced; at first five grains three times a day, increased after a few days to ten grains. Enemata of calcium lactate in solution were also given. The spasms continued at intervals, some which included the muscles of respiration and produced dyspnoea and marked cyanosis being very alarming. Thinking she was going to die, her relations wished to take her home on the fifth day, and were with difficulty persuaded to leave her in hospital. Under the treatment stated the spasms became less frequent, and then ceased altogether. The amount of thyroid gland was gradually decreased, and stopped after a few weeks, and the patient made a good recovery.

I regard the case as particularly interesting on account of the recovery, as all writings on the subject speak of tetany following operations on the thyroid as a most fatal complication.

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PITUITRIN IN LABOUR.

THE article in the BRITISH MEDICAL JOURNAL of October 14th, by Drs. Haultain and Swift, on the morphine-hyoscine method of painless childbirth was very interesting to me. I happened to be engaged at an extremely prolonged and tedious confinement at the time. I had administered gr. ¼ of morphine and gr. $\frac{1}{100}$ of hyoscine in the first stage, and the patient got some much needed sleep. As on previous occasions on which I had used the drugs, I was not satisfied that I had not prolonged the labour—probably I had given the injection too early. It is quite evident, however, that the proper method of procedure, as summarized by Drs. Haultain and Swift, completely bars the use of morphine-hyoscine in private midwifery practice. This is unfortunate on account of the demand there is for "painless childbirth," brought about by the booming of the subject in the lay press. However, I am finding considerable satisfaction in the discriminate use of pituitrin. The injection of 0.5 c.cm. in the late first stage acts like a charm. The initial pains resulting are often very severe and tetanic, often continuous, but soon subside and become more like normal pains. I am satisfied that a quick labour, such as often occurs after the use of pituitrin, is more gratifying to the patient in every way. Chloroform can be used in addition, but instrumental labours in my practice are becoming surprisingly less frequent. In two recent cases of breech presentation it probably saved the infants' lives.

Padiham, Lancs. A. P. AGNEW, M.B., C.M.

Reports of Societies.

A CLINICAL STUDY OF ANAËROBIC WOUND INFECTION.

AT a meeting of the Surgical Section of the Royal Society of Medicine held on December 14th, Mr. MCADAM ECCLES being in the chair, Miss IVENS, M.S., *Médecin-chef, Hôpital auxiliaire* 301, described the results of a clinical study of anaërobic wound infection with an analysis of 107 cases of gas gangrene. The paper was based on 464 cases of gas infection, of which 107 were clinically gas gangrene, observed during two years' work in a French military hospital of 400 beds receiving its wounded directly from the Somme through an evacuating station where the most urgent cases were taken from the train. Difficulties of minute investigation were increased by the large numbers coming in together after an attack. Attention was drawn to the importance of complete bacteriological study, and the careful examination of the *x*-ray plates, which, in the majority of cases, showed the situation of gas bubbles or streaks according to the species of microbe present, and were extremely valuable aids in a decision as to the form of treatment required. Factors of importance in the production of gas gangrene were:

1. The proximity to contaminated soil. Wounds of the lower limb showed a mortality three times as great as those of the upper, though wounds of the upper were more frequent.

2. Shell wounds were six times as frequent in gas gangrene as in ordinary infected wounds.

3. The presence of an infected "wad" of "capote" kept up infection.

4. The interval between the wound and the first surgical intervention; insignificant wounds might cause fatal results if untreated and severely infected.

5. Early treatment was most important in the prevention of gas gangrene.

6. Vascular lesions were an important factor when due to injury; as a remedial measure, such as ligature of great vessels, they were not important; 22 cases with vascular lesions were followed by gangrene in 6 only.

7. Sixty per cent. of gas infected cases had fractures, and 71 per cent. of those of gas gangrene.

8. Wounds of the calf, trunk, or hip-joint were specially dangerous.

9. Tissue injury had an important influence. Gas abscesses were frequently seen in gas infections at the site of subcutaneous injections or near simple fractures in the same case.

10. Intramuscular tension from within or without was a potent aid in the production of gangrene.

11. Joint injuries occurred in 13 per cent. of gas infections and in 20 per cent. of gas gangrene. They increased the gravity of cases, and damaged joints were difficult to immobilize without pressure.

The flora of gas gangrene was usually multiple: *B. perfringens* was present in nearly every case, *B. sporogenes* in 41 cases, *vibrion septique* in 6 cases (several fatal); *B. histolyticus*, *B. bifidus* IX., and *B. oedematiens* were all reported, but less frequently. Streptococci of a virulent type were present in 59 cases, and added to the gravity of the infection. Tetanus occurred in 15 cases, and was demonstrated bacteriologically in 7. Marked and latent forms of tetanus were described. Intrathecal administration of serum, 30 c.cm. at a dose, together with subcutaneous injections up to 30 or 40 c.cm. a day, proved successful.

Seven clinical forms of gas gangrene were noted:

1. Classic form (Weinberg).
2. Toxic or oedematous type.
3. Mixed forms.
4. Local gas abscess.
5. Superficial and deep-seated gas phlegmon.
6. Chronic and latent infections.
7. Gas septicaemia or pyaemia.

Mortality.

Of 464 cases of gas infection 42 were fatal, 25 dying from gas gangrene, 4 with tetanus, and the remainder with severe fractures, brain or abdominal injuries.

Treatment.

Amputation was considered necessary in advanced cases of gangrene, and performed 65 times, with 48 recoveries, by the open method with lateral incisions. When gangrene was limited to groups of muscles or joints, excision was performed—41 times, with 33 recoveries. Hypertonic salt treatment alone was found to be unsuccessful, but combined with 2½ per cent. carbolic acid had given good results. Iodine vaccine therapy was tried, and appeared to be most successful when added streptococcal infection was present. Other methods used, such as continuous irrigation with eusol, Carrel's solution, or normal saline, apparently gave the same results. Ten cases of very severe gas gangrene had also been treated by antiserums for *perfringens*, *oedematiens*, and *vibrion septique*, kindly supplied by Dr. Weinberg. In five cases (one being a septicaemia with triple anaërobic infection) the results had been successful. The fatal cases were already septicaemic before serum was given. There was distinct evidence that its curative use might be advantageous, and probably its prophylactic use even more valuable.

Reviews.

THE EDUCATION OF CHILDREN AND THEIR PARENTS.

THE value of infants to the State and the importance of their education on proper lines are being very acutely realized nowadays, and books dealing with these subjects are being published in large numbers. Mr. ST. GEORGE LANE FOX PITT, in one of these,[1] discussing the general purpose of education, gives a philosophic exposition of its ideals, and of the balance that should be struck between encouragement of the child's inner life and the regulation of its environment. Education must come from within as well as from without; noble ideals should play a large part in its regimen. Mr. Fox Pitt's book makes great demands on the reader's powers of comprehension, but will be found full of suggestive if apparently impracticable schemes, lines of thought, and comment.

Sex Education,[2] by Mr. M. A. BIGELOW, consists of a series of lectures concerning knowledge of sex in its relation to human life. The subject is a part of the much-discussed social hygiene now so prominently before the public. The author writes temperately, and has no axe to grind. He covers the ground very adequately, and his book may be recommended both to old-fashioned parents who believe in the strength of ignorance, and to those more than up-to-date persons who would conceal nothing that is unpleasant from the young.

The Healthy Girl,[3] by Mrs. CUNNING and Mr. A. CAMPBELL, may be described as an elementary textbook of the physiology and pathology of daily life, written for school-girls. It contains a great deal of information, in scrappy or pemmican form for the most part, and some good advice for the readers it is designed to instruct.

Nervous Children,[4] by Dr. B. R. TUCKER, is a general discussion of the prevention and management of nervousness in the young, with chapters on feeble-mindedness and insanity in children. There is much common sense in Dr. Tucker's comments and advice, and the book, though slight in structure, may be recommended to those who are interested in the subject with which it deals.

Our Baby,[5] by Mrs. J. L. HEWER, is a well known book for mothers and nurses that has been before the public for five and twenty years. It is full of practical advice, and written in a simple and direct style that commends itself.

[1] *The Purpose of Education*. By St. George L. F. Pitt. New edition, with preface by Professor E. Boutroux. Cambridge: The University Press. 1916. (Cr. 8vo, pp. 172. 2s. 6d. net.)

[2] *Sex Education*. By M. A. Bigelow. New York: The Macmillan Co. 1916. (Cr. 8vo, pp. 262. 5s. 6d. net.)

[3] *The Healthy Girl*. By Mrs. Joseph Cunning, M.B.Lond., and A. Campbell, B.A. London: H. Frowde; Hodder and Stoughton. 1916. (Post 8vo, pp. 201; 21 figures. 4s. 6d. net.)

[4] *Nervous Children: Prevention and Management*. By B. R. Tucker, M.D. Boston: R. G. Badger; Toronto: The Copp Clark Co., Limited. 1916. (Cr. 8vo, pp. 147; illustrated. 1.25 dollars.)

[5] *Our Baby: For Mothers and Nurses*. By Mrs. J. Langton Hewer. Fifteenth edition. Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916. (Cr. 8vo, pp. 216; 50 figures. Stiff boards, 1s. 6d. net; limp leather, 2s. 6d. net.)

Life-Saving in War-Time,[6] by Mrs. MABEL PALMER, is a campaign handbook compiled for the Infant Welfare Propaganda Committee. It is meant for the public, and its twelve chapters point out the weak spots in our present way of living, and the methods to which we must look if our unduly high infant and child mortality is to be lowered. It is replete with useful advice to would-be benefactors of humanity who wish to help the coming generation.

The Care of the School Child,[7] edited by Dr. KERR, consists of a dozen lectures delivered under the auspices of the National League for Physical Education and Improvement. It is a book for parents and those responsible for the upbringing of children. Most of the contributors are medical men, and its various chapters are full of sound general advice and useful practical hints.

GYNAECOLOGY.

The Diseases of Women,[8] by Sir JOHN BLAND-SUTTON and Dr. A. E. GILES, has long held the field as one of the most popular textbooks on gynaecology, and authors and publishers alike are to be congratulated on the call for a seventh edition. The seventh age of man is, according to the greatest authority on human nature, characterized by a "second childishness and mere oblivion," and in its seventh age the volume before us has also attained a second childhood. Not that we mean to imply any symptoms of senescence, any trace of slackening in its old vigour, still less any deadening chill from the approaching mists of oblivion! Quite the reverse! The book has undergone a real rejuvenation, not a mere revisal, and, in spite of the dismal and sombre outward trappings which have replaced the more attractive and gayer colours of its first youth, we prophesy a long and successful life for it. The main features of the work are so well known that they need not be dwelt upon—the arresting lucidity of the literary style, the masterly sense of proportion in the allotment of space, the really practical nature of the instruction, and, as the all-important background to the whole, the unquestionable authority which the attainments and the vast experience of the authors give to their teaching. Three features only would we mention. The first is what mainly rejuvenates the book—namely, the adoption of the pathological system of classification of the different conditions instead of the older-fashioned anatomical plan. This is very necessary to the usefulness of any modern gynaecological textbook for students. In regard to the description of new growths and injuries, it is true, it does not greatly signify which method is followed. But a pathological classification is the only possible way in which to give the student a really coherent and scientific view of the important subject of pelvic inflammation, and that in itself is a gain of the greatest practical value. In the second place, the chapter on the development of the reproductive organs has been revised by Professor Peter Thompson, and rendered as accurate and simple as the complex nature of the subject allows. Lastly, attention should be drawn to the valuable section on prognosis, based largely upon the well known researches of Dr. Giles on the after-effects of gynecological operations. Although necessarily somewhat statistical, this section will be found by practitioners one of the most valuable in the book.

Dr. T. W. EDEN and Dr. CUTHBERT LOCKYER have produced a notable volume on *Gynaecology for Students and Practitioners*.[9] Although it is not specifically stated, we presume that it is destined to supersede the popular textbook on the same subject previously published by the senior author, and those who are familiar with that manual will find much that is familiar in the present volume. The new book is, however, a much larger and more ambitious production, running to nearly nine hundred pages and containing five hundred illustrations and twenty coloured plates. The authors have sought to give a comprehensive account of the whole science and art of gynaecology in a form suitable at once for the student and the practitioner, and by means of their collaboration they have endeavoured to keep the balance between the pathological and the clinical aspects of the subject. For the most part they have succeeded in this latter aim, although here and there the balance seems to tip towards the pathological side. But, speaking generally, we can unhesitatingly state that the result of their efforts is a book which is the best of its particular kind known to us—certainly in this country, and probably in the English language. The work is divided into three parts. Part I deals with general gynaecology—that is to say, anatomy, physiology, methods of examination, symptomatology, disorders of development and function, and pelvic infections. The section on the development of the female genito-urinary organs is not one upon which we can congratulate the authors, for it is crowded and involved. Nobody who is not already cognizant of the subject is likely to be able to follow it. A full account of the physiology of menstruation incorporates all the recent work on that subject. The section on disorders of development and function includes ectopic gestation, of which a full and well illustrated account is given. A good deal of criticism might be directed at the authors' use of the words *capsule* and *capsularis* in this connexion, and the use of the terms *internal* and *external capsular haemorrhage* does not seem to lead to any greater accuracy of thought or teaching than the older terms. The section on "pelvic" infection includes, very wisely, if not always with anatomical justification, accounts of cystitis, pyelitis and appendicitis. It is mainly devoted to uterine sepsis and specific infections. We fail to see the logic of dealing with uterine, parametric and peritoneal infections under general gynaecology, and with tubal and ovarian infections under regional gynaecology. But that is one of the weaknesses of the traditional regional classification to which the writers have, to our great regret, adhered. In Part II, dealing with regional gynaecology, the authors by anticipation focus criticism on their accounts of chronic endometritis and chronic inflammation of the ovary. In regard to the former they accept, practically *in toto*, Hitschmann and Adler's conclusions, and base their diagnosis of endometritis upon the presence of plasma cells, round-celled infiltration, and thickening of the vessels in the stroma. They designate as atrophic cases in which the changes are confined to the stroma, (what we formerly knew as interstitial endometritis), and as hyperplastic those in which, in addition to the stroma changes, the glands show an overgrowth reaction. Of the latter form they distinguish two subvarieties, to which they apply the possibly correct but singularly cacophonous names—"diffuse-fungous" and "polypoidal-cystic." On this clear and unequivocal break away from the traditional teaching on chronic endometritis the authors are to be heartily congratulated. They have adopted views based upon unassailable research and observation, and we have no doubt that every gynaecologist who is conversant with practical microscopical study will agree with their main conclusions—but let us hope not with their terminology! The subject of chronic metritis has also been dealt with in the light of modern research, and the works of Fletcher Shaw and Goodall have been embodied, and some of their fine coloured plates reproduced. The last part of the book, devoted to operative gynaecology, furnishes a brief but sufficient account of all the standard major and minor operations, as well as the better known variations in technique. The book is well printed, and the great majority of the illustrations are good. In some cases the colouring of the plates is rather crude. There are also a few errors of spelling, but these are the only evidences of the strenuous time in which the work has been produced. We congratulate the authors very heartily. They have given us a book which ought to spring at once into first place amongst British textbooks of gynaecology; a book which may be confidently recommended to both students and practitioners, and one that no gynaecologist, in particular no teacher of the subject, can afford to neglect.

[6] *Life-Saving in War-Time.* By Mabel Palmer, M.A.; with an introduction by the Right Hon. A. H. D. Acland. London: C. Arthur Pearson, Limited. 1916. (Demy 8vo, pp. 128; 3 diagrams. 1s. net.)

[7] *The Care of the School Child.* Edited by J. Kerr, M.A., M.D., D.P.H.; with an introduction by Bishop Boyd Carpenter, K.C.V.O. London: The National League for Physical Education and Improvement. 1916. (Cr. 8vo, pp 238; illustrated. Paper, 2s. net; cloth, 2s. 6d. net.)

[8] *The Diseases of Women.* A Handbook for Students and Practitioners. By Sir John Bland-Sutton, F.R.C.S.Eng., LL.D., and Arthur E. Giles, M.D., B.Sc.Lond., F.R.C.S.Edin. Seventh edition. London: W. Heinemann. 1916 (Demy 8vo, pp. 585: 150 figures. 15s. net.)

[9] *Gynaecology for Students and Practitioners.* By T. W. Eden, M.D., F.R.C.S.Edin., F.R.C.P., temporary Major R.A.M.C., and C. Lockyer, M.D., B.S., F.R.C.S., F.R.C.P. London: J. and A. Churchill. 1916. (Roy. 8vo, pp. 895; 513 figures, 20 plates. 27s. net.)

A new and magnificent volume on *Gynecology*[10] has emanated from the Harvard School of Medicine from the pen, and as regards the illustrations in greater part also from the brush, of the professor of gynaecology. Both Professor GRAVES himself and the school are to be heartily congratulated on an achievement which is well worthy of the best traditions of its historic birthplace. The book is divided into three main parts. The first is devoted to the discussion of the physiology of the female pelvic organs, and its principal feature—indeed, one of the most notable features of the whole volume—is a description of the inter-relationships between the sexual and other organs of the woman's body. It is satisfactory to find in the sections dealing with the various ductless glands a very clear and reasonably full discussion of most of the modern work on this very complex, fascinating, and important subject. One great virtue of this section is that it is not overloaded with speculative theories, which constitute somewhat of a danger in regard to this problem in the present state of our knowledge, and unless used with great caution do more to hinder than help real progress. The second part is devoted to a description of the pathology and clinical features of the various gynaecological conditions. It is ostensibly designed to meet the wants of the junior student, and accordingly gives a clear and succinct account of the different subjects. The third part is confined to a description of operative technique, and is intended more for the use of senior students and practitioners. All the more important methods of performing the different operations are carefully described and profusely and instructively illustrated. Value is lent to the section by unequivocal indications of the preferences in regard to method to which the writer's experience has led him. The book is freely and handsomely illustrated throughout, mainly from the author's own drawings of his own specimens. Professor Graves is to be envied for his facility and congratulated on his ability as an artist. The printers and publishers have done their part of the work well. For the various portions of the book as such we have nothing but the highest commendation. They are obviously the work of one who is both a past master of his subject and a practical and experienced teacher. But we feel somewhat dubious whether a book which aims at satisfying on such a grand scale the needs of two such distinct classes of readers as junior students and practitioners is not a little apt to meet with less success than the work which is put into it merits. Students, as we know them on this side of the Atlantic, prefer a smaller and handier volume; practitioners, on the other hand, buy large treatises as books of reference, and may feel some disappointment at the comparative brevity of some of the systematic sections in the second part and in the almost complete absence of references to literature. These, however, are matters more for the author and publisher than for the reviewer, and on the book as it stands we again most heartily and unreservedly congratulate Professor Graves.

DR. SKEEL'S *Manual of Gynaecology and Pelvic Surgery*[11] is a comparatively small book which essays to give first an account of the anatomy and physiology of the organs concerned, and subsequently a description of the malformations, injuries, and diseases to which they are subject, with the appropriate treatment. At the end of each chapter is a list of carefully chosen references to representative modern literature. The author has adhered to the old anatomical system of classification of gynaecological conditions, which inevitably involves repetition and a *staccato* passage from one subject to another. Thus, all that is said about the clinical history and symptoms of acute salpingitis has to be repeated under the heading of acute salpingitis. Does the author teach his students that these conditions ought to be regarded as separate clinical entities? Under the heading of peritonitis much of the same ground has to be gone over a third time. In some other respects, too, Dr. Skeel does not show a very just sense of proportion. For example, after dismissing the entire subject of malignant disease of the body of the uterus, including adeno-carcinoma, chorio-epithelioma, and sarcoma, in fifty-six lines, he spends a quarter of a page in remarking that malignant disease of the uterus is the opprobrium of gynaecologists, largely owing to the failure of the general practitioner to diagnose it early enough. The technique of operative treatment is in every instance fully discussed and well illustrated. Indeed, the rest of the book may be said to have been written round the operative sections. Useful chapters are added on conditions akin to gynaecology, such as appendicitis, cystitis, and haemorrhoids, and the final chapter on post-operative complications will prove valuable. The author employs one or two words which are unfamiliar on this side—"mallocation" of the uterus, for example. But surely the authorities responsible for the new anatomical nomenclature did not perpetrate such a term as "constrictor radices clitorides"?—and such a blunder as "scybalae" is a blot on an otherwise well-written book. Dr. Skeel is evidently a practical and forceful teacher, and his book will, we have no doubt, meet with a cordial reception from students and younger practitioners anxious to learn the technique of gynaecological operations.

[10] *Gynecology*. By William P. Graves, A.B., M.D., F.A.C.S., Professor of Gynaecology at Harvard Medical School, Philadelphia and London: W. B. Saunders Co. Ltd. Imp. roy. 8vo, pp. 770; 424 figures. 35s. net.)

[11] *A Manual of Gynaecology and Pelvic Surgery for Students and Practitioners*. By Howard T. Skeel, A.M., M.S., M.D., Associate Clinical Professor of Gynaecology, Medical School of Western Reserve University, and Physician to Lakeside Hospital, Cleveland. Philadelphia: P. Blakiston's Son and Co. 1916. (Post 8vo, pp. 698; 289 figures. 3 dollars.)

NOTES ON BOOKS.

THE first part of a portfolio of drawings by Mr. MUIRHEAD BONE, entitled *The Western Front*,[12] has been issued. Sir DOUGLAS HAIG has written a short preface, in which he says that the drawings illustrate admirably the daily life of the troops under his command. This praise is well deserved, and expresses the particular merit of the drawings. There are two, for instance, of the country over which the battle of the Somme has been waged that convey a very true impression of the wide rolling downs with the ruined German trenches and the bare-polled trees on the horizon. There are two drawings made in Ypres and one of a village church in Flanders which show the utter ruin modern artillery can produce. Two of the drawings are of Red Cross barges being towed along a broad canal, and there is one of a ward on a hospital ship which is very true to life. So also is the sketch of the mess of the officers of a regiment, and another of R.A.M.C. officers waiting at a clearing station with strained attention for the arrival of the first wounded. Subsequent parts are to be issued monthly.

The third volume of the *Reports from the Pathological Laboratory of the Lunacy Department*[13] of the New South Wales Government contains fifteen papers on various subjects of interest to alienists, neurologists, and others. Drs. J. F. Flashman and O. Latham have examined the blood of 988 imbeciles and idiots for the presence of so-called Wassermann reaction. All were asylum patients, and 87 gave a full positive reaction while 51 gave partial reactions—about 14 per cent. of the whole. Drs. Prior and Jones contribute an account of their experience with calcium salts in the treatment of epilepsy. Using Dr. Blair Bell's technique, they find that the epilept has less calcium in his blood than the normal person and excretes less in his urine. They advise that these patients should be treated with calcium and bromides in combination.

The servant question, always acute, always the subject of interminable discussion and bewailings among the female members of the upper and middle classes, is now, we understand, in consequence of the many new openings for labour presented by the war, more acute than ever. A most interesting and valuable contribution to the study of domestic service as a profession has been published in the form of a report,[14] based on an inquiry made by the Women's Industrial Council just before the war. Here the pros and cons of domestic service are set out in full, with illustrative comments culled from the pens of both mistresses and maids, good, bad, and indifferent. The report is short and clearly written. It represents a wise and sympathetic effort to regard the many problems of domestic service from the points of view of both parties,

[12] *The Western Front*. Drawings by Muirhead Bone. Preface by Sir Douglas Haig, G.C.B. Published for the Government by *Country Life* and George Newnes, Ltd. (Price 2s.)

[13] *Reports from the Pathological Laboratory of the Lunacy Department, New South Wales Government*. Vol. iii. Sydney: W. A. Gullick. 1916. (Cr. 4to, pp. 205; illustrated. 7s. 6d.)

[14] *Domestic Service: An Enquiry by the Women's Industrial Council*. Report by C. V. Butler. With a Supplementary Chapter by Lady Willoughby de Broke. London: G. Bell and Sons, Ltd. 1916. (Cr. 8vo, pp. 148. 1s. 3d. net.)

and is full of practical hints indicating the chief sources of friction between the employers and the employed, with plenty of good advice as to the best remedies available in each instance. It is an impartial and unimpassioned production, and it should be in the hands of all employers of household labour.

"Back to the land" has been a popular cry in this country for many years. Simple gardening and the keeping of fowls for profit may both be regarded as methods of putting this precept into practice, partially at any rate if not completely. Both should serve to make the inhabitants of Great Britain less dependent upon foreign countries for their foodstuffs. Mr. L. B. HYDE'S little book on *Simple Gardening*[15] may be recommended to beginners who wish to learn how to grow plants for profit or pleasure; it is thoroughly practical and well illustrated. *Fowls for Profit*,[16] by Mr. A. J. MACSELF, is a more ambitious manual that may be commended to those who want to learn how to keep poultry in town or country. Wisely enough the author does not underestimate the difficulty of making a poultry farm pay; both capital and experience are indispensable, with strict attention to detail and *labor improbus*.

We have received a reprint, described as a new edition, of the sixth edition of Dr. R. GHOSH'S *Treatise on Materia Medica and Therapeutics*.[17] This excellent book was reviewed in the BRITISH MEDICAL JOURNAL of August 14th, 1915, on p. 259, and need not therefore receive further notice here.

Miss LAVINIA DOCK'S *Textbook of Materia Medica for Nurses*,[18] the fourth edition of which has been revised in conformity to the *British Pharmacopoeia*, has been compiled from various well-known American and British volumes on therapeutics. It follows the usual lines on which short manuals of materia medica are written, and presupposes in its readers an elementary knowledge of chemistry, botany, and physiology. It contains a quantity of information that should be of service to those nurses who have the skill to use it. It would be well, perhaps, if the reference to the N rays were deleted from page 220; these rays, at best a figment of the imagination, were finally discredited ten or a dozen years ago.

Fires in hospitals in this country are fortunately rare. In America, according to Dr. O. R. EICHEL,[19] they are not so rare as they should be. He holds that inadequate precautions against the dangers of fire are taken in many hospitals, and he has compiled an outline of the methods of prevention of fires that should obtain in all hospitals. Smoking is said to be one of the chief dangers; candles, oil lamps, and in particular flat-irons heated by electricity, are set down as other common causes of fires. Dr. Eichel's pamphlet should be of service to all who are responsible for the fabric of hospitals, but it has no index, and is issued in a rather costly form.

The second edition of *The Midwife's Pronouncing Dictionary*,[20] edited by Dr. HENRY ROBINSON, is an excellent little book containing short and clear definitions of all the technical and scientific terms a midwife is likely to encounter. There are also other terms in the *Dictionary* that are not, perhaps, so commonly met with; for example, the word "kyestein," defined as "A pellicle seen floating on the urine, supposed to be a sign of pregnancy, but quite erroneously so," is not one which many people, medical men or otherwise, are likely to hear in the daily round. The dictionary is illustrated, and may be warmly recommended to those for whom it is published.

[15] *Simple Gardening* (*School Gardening*). By L. B. Hyde, B.A.Cantab. Edited by T. W. Saunders, F.L.S., F.R.H.S. London: W. H. and L. Collingridge. 1916. (Cr. 8vo, pp. 108; 60 diagrams. 1s. net.)

[16] *Fowls for Profit*. By A. J. Macself. London: W. H. and L. Collingridge. 1916. (Cr. 8vo, pp. 138: 22 plates and many line drawings. 2s. 6d.; by post, 2s. 11d.)

[17] *A Treatise on Materia Medica and Therapeutics, including Pharmacy, Dispensing, Pharmacology, and Administration of Drugs*. By R. Ghosh, L.M.S., Calcutta University. Edited by B. H. Deare, Lieutenant-Colonel, I.M.S., with the assistance of B. N. Ghosh, F.R.F.P.S.Glasg. Sixth Edition. Calcutta: Hilton and Co.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916. (Cr. 8vo, pp. 710. 7s. 6d. net.)

[18] *Textbook of Materia Medica for Nurses*. Compiled by Lavinia L. Dock, R.N., New York State. Fourth edition. New York and London: G. P. Putnam's Sons. 1916 (Cr. 8vo. pp. 290. 5s. net.)

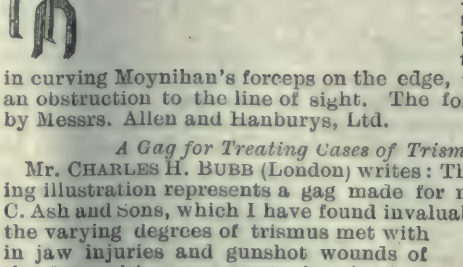
[19] *A Manual of Fire Prevention and Fire Protection for Hospitals*. By O. R. Eichel, M.D. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Limited. 1916. (Cr. vo. pp. 73. 4s. 6d. net.)

[20] *The Midwife's Pronouncing Dictionary of Obstetrics and Obstetrical Terms*. Edited by H. Robinson, M.A., M.D. Second edition, revised. London: The Scientific Press, Ltd. 1916. (4¾ by 3¾, pp. 94; illustrated. 1s. net.)

MEDICAL AND SURGICAL APPLIANCES.

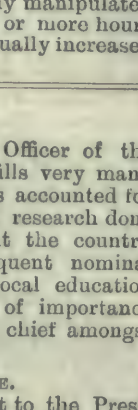
Suture Forceps.

DR. E. W. DIVER (Orpington, Kent) has devised suture forceps the advantage of which will, he thinks, at once be appreciated when the instrument is used. The modification, he says, consists, as will be seen from the diagram, in curving Moynihan's forceps on the edge, thus removing an obstruction to the line of sight. The forceps is made by Messrs. Allen and Hanburys, Ltd.



A Gag for Treating Cases of Trismus.

Mr. CHARLES H. BUBB (London) writes: The accompanying illustration represents a gag made for me by Messrs. C. Ash and Sons, which I have found invaluable in treating the varying degrees of trismus met with in jaw injuries and gunshot wounds of the face with consequent cicatrization. The gag in the closed position is $\frac{5}{16}$ in. high, and can be opened by a key which fits on the extremity K. As the majority of patients needing treatment can open their mouths to this extent in the incisor region, the insertion of it presents no difficulty, and it is surprising how quickly full range of mandibular movement is acquired. I have used this gag in inserting the open bite Gunning splint, which I have employed with success in treating the severer cases of jaw injuries. Another advantage of the gag is, that it can be easily manipulated by the patient and can be retained for two or more hours at a time, the range of movement being gradually increased by an occasional turn of the key.



THE SCHOOL CHILD.

THE annual report of the Chief Medical Officer of the Board of Education for the year 1915[1] fills very many fewer pages than its predecessors. This is accounted for by the reduction of the amount of original research done by the school medical service throughout the country owing to war conditions and the consequent nominal character of some of the reports from local education authorities. Nevertheless, many matters of importance are dealt with in the report, and perhaps chief amongst them is the employment of children.

THE SCHOOL MEDICAL SERVICE.

The covering letter sent with the report to the President of the Board of Education calls attention to the growing recognition of the national value of the work done by the school medical services, and to the efforts that are being made to carry on the essential parts of the work at the present time. The data gathered in eight years' work show that "not less than a quarter of a million children of school age are seriously crippled, invalided, or disabled; not less than a million of school age are so physically or mentally disabled or diseased as to be unable to derive reasonable benefit from the education which the State provides." Special attention is called to the necessity of "good ante-school conditions"—healthy parentage, care of infancy, a desirable home life of nurture—as essential preliminaries to good school conditions and "good post-school conditions"—after-care, continued physical education, supervision of juvenile employment, and some practical guidance in the duties of healthy and responsible parenthood. "What is needed, indeed, is an effective supervision and a sound and practical training of the body from the end of infancy to adolescence. It is said sometimes that, in the interest of economy, the State cannot afford such a complete scheme. My submission is that, in the interest of economy, the State cannot afford to neglect a complete scheme."

A lesson is drawn from the obvious benefits derived by the men of the new armies from the open-air life involved in military training. Every child in the State should have the full advantage of the open air and of a systematic physical training.

[1] Annual Report for 1915 of the Chief Medical Officer of the Board of Education. London: On sale at Wyman and Sons'. 1916. Pp. 169. [Cd. 8338.] Price 9d.

It is claimed that the school medical service has revolutionized the conception of education by showing that the child must be treated as an individual, and that a hundred children cannot be treated as a homogeneous unit. "It is the child, and not his acquired accomplishments, which is of primary value to the nation. A living, unmaimed, normal, healthy child is the product we seek."

The school medical service has sent 338 men to the war; the places of many have been filled by temporary officers, and the net loss in the number of school medical officers and their assistants is about 12 per cent. The diminution of staff has resulted in a rearrangement for the routine medical inspections. The plan usually adopted is for the school nurses to visit the schools regularly, and at as frequent intervals as possible, for the selection, in co-operation with the teachers, of the children who appear to be ailing. The suspected children are examined by the school medical officer or his deputy, either in the schools or at the school clinic. Examination at the clinic tends to save time, "but it is desirable that where the clinic is used for this purpose the medical officer should pay visits from time to time to satisfy himself that the selection of children is sufficiently thorough." The war arrangements mean a reduction of the work of medical inspection to one-third or one-half the normal, according to the peace standard adopted.

Tribute is paid to the work of the school teachers in aiding the work of medical inspection, especially under present conditions; they are vigilant in detecting suspicious cases and in notifying them to the medical officer.

Special Inquiries.

Note is made of the necessary arrest of research work in most areas. But it is urged that the present time is peculiarly favourable for "investigations on certain subjects. It is probable that the incidence of the war may be of considerable assistance in determining how far malnutrition is a consequence of the social conditions of the children. The decrease of poverty owing to the conditions of employment occasioned by the war and the employment of children of school age in agricultural and industrial pursuits may well be the starting points of inquiries into this condition which probably affects no fewer than 600,000 children in attendance at the public elementary schools of the country."

Expenditure on the School Medical Service.

The decision of the Board to meet half the expenditure of approved schemes of medical inspection and treatment had led before the beginning of the war to an expansion of the school services which was not checked until the year 1915, although many authorities which had prepared schemes for treatment have postponed the initiation thereof indefinitely. The medical grant regulations provide that up to one half of the expenditure may be reimbursed by the Board. The total expenditure increased from £325,993 in 1913 to £411,428 in 1915, the proportion contributed by the Board from 44 per cent. to 46.7 per cent., and the number of local authorities obtaining the full grant from 69 to 127.

The analysis of the main heads of expenditure works out as follows: Medical officers and specialists, 47 per cent.; nurses, 13.8; travelling, 5; drugs and apparatus, 3.4.; spectacles, 0.88; contributions to hospitals and nursing associations, 9.5; administration and premises, clerical assistance, stationery, etc., 20.5 per cent.

Education and Infant Welfare.

There has been an increase in the activities of schools for mothers, and more day nurseries have been provided. Within the last year grants paid to such schools have increased from £10,830 to £15,333. In the development of these schools and nurseries it is urged that the educational spirit should be closely safeguarded.

There is a natural tendency for institutions of this nature to degenerate and lose their high qualities for training on the one hand, or become too school and formal on the other. There can be little doubt that the secret of their success has been the happy combination of high educational purpose with friendly voluntary service, and it is important that these two elements should be vigorously maintained.

Physical Conditions.

Defects found amongst the children in routine inspections in ninety areas are grouped under twenty heads. Dental disease heads the list with 69 per cent.; diseases of the nose and throat follow with 20 per cent.; then defective vision with 17 per cent.; uncleanliness of head, 14; malnutrition, 14; defective hearing, 11; defective footgear, 10; uncleanliness of body, 6; mental defects, 5; clothing defects, 5; rickets, 4; diseases of the lungs, 3; of the heart, 3; of the skin, 2; eyelids and conjunctiva, 2; of the ear, 2; deformities, 2; speech defects, 1; nervous diseases, one-half per cent.; non-pulmonary tuberculosis, one-third per cent.

These data are considered under three heads: (1) Uncleanliness, malnutrition, and minor ailments; (2) defective vision and adenoids; (3) heart disease and tuberculosis.

Uncleanliness, Malnutrition, and Minor Ailments.

Generally there was a slight improvement in cleanliness. The lower percentage of clean conditions which obtained in London was due probably to the acknowledged requirement of a somewhat higher standard than elsewhere in the country.

It is stated that about 150,000 children in each million are unclean. Various domestic conditions contribute to uncleanliness, such as bad housing and domestic insanitation, the employment of the mother away from home, the absence of facilities for washing and bathing, the habits of the people in this regard. Various ill results follow in its train.

It is not, perhaps, sufficiently understood even yet how closely allied is uncleanliness to disease. For the child uncleanliness is dis-ease, irritation, and disablement. Infection follows it like a shadow, and maladies of the skin soon arise. Thus the child becomes a victim of dirt, its sleep is disturbed, and its education largely nullified.

Malnutrition is a comprehensive term covering generally what may be thought of as a low condition of health and body substance. Insufficiency of food is probably of less importance than unsuitability; nor is food the only factor. Lack of sleep and premature employment are others. Malnutrition is probably the gravest evil in the child's physique. The ill-nourished child tends to become disabled and unemployable, and incapable of resisting disease. There are signs of improvement. London figures showed a decrease from 9.4 per cent. in 1914 to 6.6 per cent. in 1915; at Doncaster the figure has fallen from 31 per cent. in 1913 to 5 per cent. last year. Similar good returns come from other towns. As a rule the malnutrition of the children is worse in the towns (even though wages are high) than in the country districts. In Bedfordshire an investigation has shown that 22 per cent. of the children suffer from defective nutrition in the urban schools as against 17 per cent. in the rural schools, and in both cases it is most marked between the ages of 7 and 10, and more marked among "leavers" than "entrants."

"Minor ailments" is a term covering a multitude of defects, from scabby faces to ringworm, and a watery eye to "minor degrees of squint" (we should have thought the latter went into another class). It is in the treatment of this large group of ailments that the school nurses fill a most important place; their visits to the homes of the children are most valuable. Dealing effectually with these cases means a substantial gain in school attendance. "Merely as a business proposition the proper organization of this matter in every educational area, large or small, is economical in the best sense of the term. Time and money are saved."

Defects of Vision.

The figures show that 30 per cent. of the children fall short of the standard of good vision, and 17 per cent. to the extent that requires urgent treatment. In the rural areas defective vision is returned as 9.2 per cent.; in the county boroughs, 25.1; in the boroughs, 14; and in the urban districts, 13.3.

A study of the reports of the school medical officers leads to the conclusion that the percentage of children suffering from defective vision is not decreasing as it should. We mend the ailing child with greater assiduity and expenditure than formerly, but we do not stop the manufacture of new cases. . . . But the real solution to the problem has yet to be attempted, and it must be attempted on preventive lines—better lighting, better educational methods from the hygienic point of view, and much less strain of the delicate and growing vision of the child.

(*To be continued.*)

British Medical Journal.

SATURDAY, DECEMBER 23RD, 1916.

FOOD CONTROL.

THE office of Food Controller is new in the history of this country, though probably most of the powers conferred on him have been exercised at one time or another in times of stress by the Government of the day. The bill introduced by the Home Secretary on December 18th gives to the Food Controller power to regulate the supply and consumption of food in order to maintain a proper supply; to take steps for encouraging the production of food; to stop waste; to specify the uses to which any article can be put, and to regulate its mode of manufacture and sale or distribution, and its price. He is to act in regard to the home supply in co-operation with the Board of Agriculture, and, as regards foreign supplies, with the Wheat and Sugar Commissions. The office is to cease to exist on the termination of a period of twelve months after the conclusion of the war. Lord Devonport, the first occupant of the new office, showed in the statement which he made to the House of Lords on December 14th that he fully appreciated the magnitude of his task, and that it consisted of two parts—the provision of a sufficient supply and its just distribution. His first endeavour, he said, would be to ascertain from statistical returns what stocks were available and what stocks were visible, and then to see that they were distributed fairly. There was evidence, he said, that there were many unpatriotic people who were getting hold of supplies in excess of their own wants to stave off the possibility of shortage later. That meant that they were getting more than their share, and others less; it would be his duty to adjust the retail distribution of supplies coming into the country, so that every individual should have an equal chance of getting a fair share. Taking sugar as an example, he pointed out that though the incoming supplies were controlled, there was no control at the final point of distribution, where the retailer and consumer met. Rationing would mean a stupendous and costly organization, but might prove the only way of dealing with this urgent difficulty. The use of commodities of the nature of luxuries and non-essentials, must be abated, such as the flaunting of sugar in connexion with extravagant confectionery; that would have to be stopped. A general diminution in the consumption of staple foods was necessary, and he feared that, though voluntary action was capable of doing a great deal, it could, perhaps, not do all that was required, so that it might be necessary, after full investigation, to make abstinence compulsory. Any one who spent extravagantly on food, or tried to get, as a sort of insurance cover, more than was necessary, was guilty of highly unpatriotic conduct. The Marquis of Crewe, while expressing sympathy with the cautious spirit shown by Lord Devonport, said that it was clear from enemy newspapers that in regard to certain commodities rationing had led to hardship, particularly to the very poor, but he believed that if after investigation it was found to be necessary, the people would cheerfully accept any regulations that the Food Controller considered it his duty to lay down.

Except in the case of sugar and the recent orders as to the quality of flour for making bread, the only definite indication that the country has had of shortage of food has been the rises in price, for we put aside the new regulations as to meals at restaurants and clubs as having little effect on those who frequent these places and practically none on the general population. The increase in the price of all sorts of foods since the beginning of the war has been very considerable. The *Board of Trade Labour Gazette* for December estimates that the average increase between July, 1914, and the present time in the cost of all items ordinarily entering into working-class family expenditure—including food, rent, clothing, fuel and light, etc.—is about 60 per cent., taking the same quantities and descriptions of the various items at both dates and disregarding increased taxation of the commodities, a reservation which affects chiefly sugar and tea. The rents of working-class dwellings are not appreciably higher than before the war; and although many other items of expenditure have increased substantially, they have not advanced on the average so much as food. Taking the country as a whole and making allowance for the relative importance of the various articles in working-class household expenditure, the average increase in retail prices of food between the beginning of the war and December 1st, 1916, was 84 per cent. If the increase in the duties on tea and sugar are deducted the average increase is reduced to 78 per cent. Flour was 85 per cent., or 9d. per 7 lb., above the level of July, 1914, and bread 71 per cent., or 4¼d. per 4 lb., dearer. The average percentage increases for butcher's meat ranged from 55 per cent. for British legs of mutton, to 117 per cent. for frozen breasts of mutton, these percentages being equivalent to advances in the average prices, varying with the cut, of 4⅜d. to 6d. a lb. The prices of butter and cheese were between 65 and 70 per cent. higher, and those of bacon, milk and tea, 55 per cent. higher. Three-fourths of the advance in tea was due to increased taxation, and of the rise of 3½d. in the price of sugar 1½d. was due to increased taxation. The increase in the price of eggs was 178 per cent., due chiefly to our increased dependence on home products. It may be observed incidentally that the egg trade in Europe is not only influenced by seasonal variations, but is very sensitive to transport difficulties. In normal times there was a general movement from east to west; France, for example, imported large numbers of eggs from eastern Europe, but also exported large quantities to this country, the explanation being that the larger and better eggs were exported, and the smaller and poorer were imported from the east to make up the deficiency. The effect of seasonal variations is shown by the circumstance that two-thirds of the eggs exported annually from Ireland are sent during the first six months of the year. Ireland in 1914 sent 6,824,612 great hundreds, valued at £3,383,870, and in the first six months of 1916, 5,439,266 great hundreds, valued at £3,648,841. The *Labour Gazette* also states that the retail prices of food on December 1st, 1916, showed an average advance of 29 per cent. as compared with December 1st, 1915. The increase in the price of meat was from 20 to 30 per cent.; the price of potatoes had considerably more than doubled; granulated sugar was dearer by 40 per cent., eggs by 35 per cent., and cheese by 30 per cent. For flour, bread, milk, butter, bacon, and fish, the increases ranged from 19 to 27 per cent. Margarine is 22 per cent. dearer than in the month preceding the war, and the increase in the last year has been 14 per cent. In the

Dominions there has also been an increase in the price of food. In Australia (August) it was 28.1 per cent. above that for July, 1914, and in New Zealand (September) 18.1 per cent. In Canada (September) the increase is put at 20.9, but it is stated that owing to a reduction of 15 per cent. in the expenditure on rent, the total family expenditure has increased by only 6 per cent. In the United States of America the increase in the cost of retail food prices since July, 1914, is put at 15 per cent., the estimate being founded on returns from forty-four of the principal towns. The price of all articles of food had increased, but the greatest relative increases occurred in the case of flour, 50 per cent.; sugar, 48 per cent.; eggs, 36 per cent., and lard 21 per cent.

Comparisons of the prices in this country with those for Berlin and Vienna are not trustworthy, since in those cities prices are based on artificially fixed maximum prices, and are not comparable with figures mainly based on the prices in a free market. With this reservation it is noted that the increase in the price of foods between July, 1914, and October, 1916, in Berlin was 109.4 per cent., and in Vienna (November), 176.7 per cent.

As a set-off in the case of the working classes is to be put the fact that through the operation of war bonuses and other causes there has been, although there appear to be some serious exceptions in the case of women, a general rise in the rate of wages. There has also been a very noteworthy decline in the amount of unemployment and of pauperism. A very large number of persons engaged as clerks and in allied occupations have, however, benefited only to a small extent, and persons with stated incomes who have incurred liabilities, in the way of housing for instance, which they find it difficult to diminish, are already observing the national Lent spoken of by the Prime Minister, and will welcome the better supervision of retail distribution promised by Lord Devonport.

THE COMPLUETIC REACTION IN AMENTIA.

THE "compluetic reaction" is a new name invented by Dr. H. F. Stephens to denote what is commonly and unjustifiably called the Wassermann reaction in syphilis. The proper name for this reaction, if it is to be eponymic, is "the Bordet-Gengou phenomenon in syphilis," for it was the Belgian Professor Bordet, working with the Belgian Dr. Gengou, who was the first to discover, study, and establish the essential principle of the test. Even more correct would be the term "the complement fixation or deviation phenomenon in syphilis"; Dr. Stephens proposes to simplify this phrase and coins the name "compluetic reaction," compluetic being a portmanteau term derived from "complement" and "luetic." To cast out the undeserving German intruder is undoubtedly a work of grace, now and ever. The new name invented by Dr. Stephens is descriptive at any rate, and as it is not more ungainly than many of those current in the phraseology of scientific medicine it may fairly be regarded as worthy of trial and general adoption. This, however, is by the way.

In his paper[1] Dr. Stephens gives a full account and discussion of the method and results of his investigation of the serum in one hundred institution patients with amentia. The importance of syphilitic infection, particularly of the intrauterine or "congenital" type, in the production of various types of amentia has only recently been adequately recognized. This is perhaps natural, as only the grosser forms of intrauterine syphilis could be identified in the days before the compluetic reaction was invented. Five-and-twenty years ago competent alienists held that "congenital" syphilis was responsible for the mental defect in not more than 2 per cent. of the cases of amentia they dealt with. But Dr. Stephens found a fully or "truly" positive compluetic reaction in twelve of the hundred aments he examined, while in sixteen more the reaction was weakly positive and in fourteen others it was doubtfully positive. Thus 42 per cent. of his cases gave a positive reaction of one sort or another; all his patients were males, seventy were imbeciles, thirty idiots, and none gave any visible evidence of an acquired syphilitic infection. The compluetic reaction was positive in half the idiots examined, and in nearly two-fifths of the imbeciles. The positive reaction was most frequent and strongest in the patients aged from 16 to 21, and it occurred with equal frequency in both primary and secondary forms of amentia.

Dr. Stephens gives a very lucid analysis of his results and material, and concludes that the syphilitic virus is not to be regarded as wholly responsible for the mental defect in his patients. In every positive case the infection was associated with and acted upon tissues that were already inherently defective, diseased and degenerated, or damaged; in no instance was the compluetic reaction a strong one. Dr. Stephens's paper not only contains many points of interest, but he has collected in tabular form the results obtained by over a score of other investigators working on lines similar to his own; it appears that, on the average, about 5½ per cent. of nearly 6,000 mental defectives examined gave a positive compluetic reaction. He himself, as has been noted above, found a positive reaction in 12 per cent. of his cases; while Drs. Flashman and Latham, whose recent paper[2] on the subject seems to have escaped the attention of Dr. Stephens, obtained a full positive reaction in 87, or about 9 per cent., of the 988 imbeciles and idiots whose serum they examined. In addition, 51 more of their patients gave partial compluetic reactions, bringing the total percentage of reactions to about 14, a figure that is to be compared with the 42 per cent. of Dr. Stephens quoted above. It may be added that other observers have obtained positive results in as many as 50 or even 60 per cent. of the mentally defective persons whose serum they tested.

[1] *Journal of Mental Science*, London, 1916, lxii, 657.

[2] Reports from the Pathological Laboratory of the Lunacy Department, N.S.W. Government. Sydney, 1916, iii.

THE MEDICAL INSURANCE AGENCY.

THE Medical Insurance Agency, founded to assist members of the profession in effecting insurances of all kinds, has been able to increase the sums allocated to various medical charities by £305 out of the surplus accumulated between June and November of this year. The total amount for the year is thus raised to £705. It has been possible to allocate £230 to the Royal Medical Benevolent Fund, and £160 to the Royal Medical Benevolent Fund Guild; £145 to the Epsom College Benevolent Fund, £30 to the Royal Medical Benevolent Fund Society of Ireland; £50 to the R.A.M.C. Officers' Benevolent Fund; the same sum to the newly founded Auxiliary R.A.M.C. Fund (Officers' Benevolent Branch); £25 to the *Lancet* Editor's Fund, and £15 to the Royal St. Anne's Schools for Girls. The chairman, Dr. Haslip, at a recent meeting of the committee, in a brief statement, said that Sir John Bland-Sutton had joined the committee as a nominee of the *Lancet*, and that the business of the Agency

had been prosperous. It had, he said, been able to place a large number of life policies, and its guiding principle in that class of business had been to advise the selection of the office which appeared to offer the best investment, having regard to the special circumstances of each particular case. The recent life valuation reports of twenty-two important offices showed that those who had followed the advice of the Agency had had no cause to complain, but quite the reverse. The Agency also did a large business in motor car insurance; and in spite of the fact that many practitioners had laid up their cars the business was maintained, owing, no doubt, to the spread of the knowledge of the fairness and promptness with which the Agency had been able to get claims settled. The original aims of the Agency, he said, were to assist and advise intending insurers, and to give support to medical charities. Its success in the first aim was shown by the fact that since its foundation it had been able to return to those insuring through the Agency substantial sums, representing a direct saving to the medical profession of approximately £5,500. On the benevolent side it had been able to allot altogether a sum of £2,405 to medical charities. Judging from the growth of the business of the Agency there is every reason to expect that the amount available for allocation for benevolent purposes will go on increasing, so that those who insure through the Agency will have the satisfaction of feeling that they are doing something for the less fortunate members of their profession, while at the same time enjoying certain advantages themselves—not only an actual saving in expenditure, but also the assistance and advice which the Agency is able to give, drawn from an ever-increasing experience. A prospectus and full particulars can be obtained on application to Mr. Guy Elliston, Secretary and Agent, at 429, Strand, London, W.C.

EPSOM COLLEGE.

IN the JOURNAL of December 9th an appeal was published from Sir Henry Morris, Treasurer of Epsom College, for funds to enable the Council to carry on the work of the Royal Medical Foundation with unimpaired efficiency. Like nearly every other charity in the country the Epsom Foundation is suffering from the drain on private resources caused by the war, and unless fresh sources of revenue are found, the public-spirited men who have taken upon themselves the burden of management of the fund will be faced with a very serious situation. The medical profession has sacrificed its material interests to such an extent in the service of the nation that it has little left to spare for the support of work beneficial to itself, and there could be no more striking testimony to the generous spirit of doctors than the fact that even at this time of financial stress so many should still be found ready to help their poorer brethren. The claims of the Epsom Foundation in its double function of educating the young and relieving the helplessness of the old should make a personal appeal to every one of us, for in a profession in which success or even moderate prosperity depends so much on the accidents of fortune, none knows what fate may have in store for him. Calls for subscriptions, however eloquently framed, are apt to be regarded as sermons applying to other people. Any novel mode of stimulating charity is therefore to be welcomed. In a letter published at p. 887, Dr. Neil Maclay of Newcastle-on-Tyne makes a suggestion which seems to us in every way excellent. All of us are at one time or another dependent on our brethren for professional aid to ourselves or members of our families. It is not always easy to express gratitude for such services in a manner at once adequate and delicate. Dr. Maclay proposes that a doctor who finds himself under an obligation of this kind should give a donation to the Royal Medical Foundation of Epsom College or other selected medical charity. The doctor whose timely help is thus acknowledged should receive from the treasurer of the charity an intimation of the form in which his brother practitioner's gratitude has been expressed. We commend Dr. Maclay's suggestion to the attention of all members of the profession; we have no doubt that, properly organized, the plan would bring an increase to the Epsom Fund which would relieve the minds of the Council of a heavy anxiety.

MEDICAL MEMORIES OF WATERLOO.

THE *Edinburgh Medical Journal* for September gives some interesting extracts from a "Report of observations made in the British military hospitals in Belgium after the battle of Waterloo," by John Thomson, the first professor of military surgery in Edinburgh. With Dr. Somerville, P.M.O. in Scotland, he went to Belgium, arriving there on July 8th, 1815. Every facility was afforded them for visiting the hospitals at Brussels, Antwerp, and Termonde. The official estimate of the number of wounded on June 16th and 18th was 8,000; those who could not be accommodated in Brussels were sent by canal to Antwerp. Several thousands of French wounded had been left on the field, and these were sent to Antwerp and Termonde. Thomson has a good deal to say about "symptomatic fever," which "put on much of the appearance of a bilious remittent or continued fever," and which began to prove fatal by the seventh day after the battle, and continued to be so till the twenty-first day, when the number of deaths suddenly diminished. The hospitals of Brussels and Antwerp were free from contagious fevers, a fact which Thomson attributes to the great attention paid in the British hospitals to cleanliness and ventilation and "to the habits and discipline of our troops with regard to personal cleanliness." Hospital gangrene when once it had gained a footing in a ward spread with considerable rapidity, but it is somewhat surprising to read that Thomson was doubtful as to its being communicated by one patient to another, and was inclined to believe that it was "endemical and dependent on the same causes as the fevers of the country." The number of cases of tetanus was inconsiderable, but the disease was of a chronic or mild type, "a form of tetanus in which recovery often takes place without much aid from medicine." As to gunshot wounds, Thomson says: "No fear is now entertained, either by medical men or soldiers, of any kind of poison being introduced into the body by means of musket balls. All the consequences, immediate and remote, to which these balls give rise are justly referred to the contusion, laceration and division occasioned by their impulse. Accordingly surgeons now no longer think it necessary to dilate, cauterize, or suck such wounds for the purpose of destroying or extracting poison." Gunshot fractures of the femur were then, as now, a source of great anxiety to the surgeon. Various attempts were made to apply continuous extension, but apparently without much success. Secondary haemorrhage was frequent and usually occurred from the twentieth to the thirty-fifth day. Thomson concludes with a warm tribute to the humanity shown by the inhabitants of Brussels and Antwerp to the British wounded. Even after the hospitals were fully established, several hundreds were voluntarily received and taken care of by the inhabitants. Sir Charles Bell also hurried off to Brussels after the battle. He was accompanied by his brother-in-law, John Shaw, afterwards surgeon to the Middlesex Hospital. The only passports they had were surgical instruments, which Shaw shook in the faces of the officials; these credentials passed them. On July 1st Bell writes: "It was thought that we were prepared for a great battle, yet here we are, eleven days after it, only making arrangements for the reception of the wounded." He offered to perform all the capital operations on the wounded French. He was much struck by the appearance and "capacity of adaptation" of Napoleon's soldiers. "These fellows," he writes, "are brought from the field after lying many days on the ground, many dying,

many in the agony, many miserably racked with pain and spasms, and the fellow next to him mimicks him and gives it a tune. Ah! ha! vous chantez bien!" After his return Bell wrote to his friend Francis Horner that he took the knife in his hand at six o'clock in the morning, and "continued incessantly at work until seven in the evening; and so the second and third day. All the decencies of performing surgical operations were soon neglected. While I amputated one man's thigh there lay at one time thirteen, all beseeching to be taken next; one full of entreaty, one calling upon me to remember my promise to take him, another execrating. It was a strange thing to feel my clothes stiff with blood, and my arms powerless with the exertion of using the knife! And more extraordinary still, to find my mind calm amidst such variety of suffering. . . . There must ever be associated with the honours of Waterloo, to my eyes, the most shocking sights of woe, to my ears accents of entreaty, outcry from the manly breast, interrupted forcible expressions of the dying, and *noisome smells*." Bell's attention had been long turned to the state of army hospitals. At Brussels he had carefully watched the system in those that came under his immediate inspection, and what he saw made him eager to obtain improved conditions for the sick and wounded under treatment. He addressed a memorandum on the subject to the Duke of York, but the time for carrying out the reforms he proposed had not yet come.

TRAUMATIC PNEUMONIA AND TRAUMATIC TUBERCULOSIS.

BOTH law and life assurance are interested in the question how far pneumonia and various forms of tuberculous infection may properly be described as due to trauma. The question has recently been discussed,[1] with a wealth of illustration from practical experience and the literature of the subject, by Dr. Parkes Weber. He shows that traumatic pneumonia, described by Litten in 1881 as contusional pneumonia, occurs as the more or less direct result of injuries at all ages. We say the more or less direct result because the interval of time between the receipt of the trauma and the onset of the pneumonia may vary widely. In some cases only a few hours intervene between the two; in most the interval extends to days, from two to four, or even six. In exceptional instances, as in one recorded by von Leyden, the pneumonia may be delayed for as long as a fortnight, and here naturally opinions will differ on the point whether the injury was really the cause of the subsequent pneumonia or not. It may be added that the experimental production of pneumonia in animals with tough ribs, like dogs, or fragile ribs, like rabbits, has not proved successful, though haemorrhagic infiltration of the contused lung may be produced. It would be interesting to know how far contusional fat embolism of the lungs may have been confused with pneumonia in some of the recorded traumatic cases of that disease. Dr. Parkes Weber notes that traumatic pneumonia was recognised in English courts of law as long ago as about the year 1870, when Sir Clifford Allbutt encountered an instance of it. With regard to traumatic tuberculosis, Dr. Parkes Weber has collected a great deal of interesting information from the extensive literature of the subject. Dismissing from his review cases of traumatic tuberculosis from direct inoculation of the bacilli, he arranges the remaining instances in which the bacilli could not have been introduced from without into three clinical groups, each illustrated by the reports of cases. The first group contains examples in which decided traumatism of some kind is followed either by acute generalized miliary tuberculosis with death in a month or two, or by metastatic localized tuberculosis in parts of the body remote from the site of the injury. Bloodless operations, the manipulations of bone-setters, or even massage, directed to the cure of tuberculous disease of joints, may have these untoward results. The second group consists of cases in which signs of pulmonary tuberculosis follow, or are first noticed, after a supposed injury to the lungs. On the whole such instances, the author thinks, must be very rare. The third group comprises instances in which an injury to bones, or joints, or parts of the body other than the lungs, is followed by signs of tuberculosis more or less localized to the region of the trauma. Dr. Parkes Weber concludes, after discussing the results of experimental investigations made upon animals, that the so-called traumatic cases in man must be explained as the rendering manifest and active of a pre-existing quiescent or latent tuberculous infection at the injured spot. The general conclusion to which he comes is this: that it must always be difficult and doubtful to decide what part has been played by the trauma in any particular case of alleged traumatic tuberculosis. Searching questions must first be answered: Did the trauma merely accelerate the progress of an existing tuberculosis? What were the probable extent, distribution, and activity of the original tuberculous lesion at the time of the injury? Was there any clinical evidence that the patient was already tuberculous at that time?

[1] Reprint, with additions, from the *Clinical Journal*, July, 1916. London. Price 6d.

CONJUNCTIVITIS PETRIFICANS.

PETRIFYING conjunctivitis, or calcification of the inflamed conjunctival membrane, is a rare condition and but little understood. Dr. O. Valli, who has recently described[1] a case, has only been able to find thirteen other instances recorded. His own patient, a healthy soldier of 39, was struck by a branch in the left eye. This set up a mild and painless conjunctivitis, and the man was sent to hospital. He came under Dr. Valli's observation ten weeks after the receipt of the injury. On drawing down the patient's lower lid there was seen on the conjunctiva of its median third a small oval depression with sharply-defined margins, like the depressed scar resulting from conjunctival cauterization. It measured 6 mm. in width and 5 mm. in height, and was covered with epithelium and richly supplied with blood vessels; its floor displayed numerous white specks, scattered or grouped together. In the region of transition the conjunctiva exhibited an irregularly oval elevation, whitish in colour, 5 mm. in length, and situated in the conjunctival tissue; vessels of various calibres arrived at its periphery and disappeared into it, a few passing over its surface. Touched with a probe this nodule seemed hard and solid; near by were four small whitish specks, slightly elevated above the surface, and covered with epithelium. The upper lid was less injected than the lower, but showed whitish specks and a depressed area similar to but smaller than that described above. The bulbar conjunctiva was moderately injected, and displayed a number of small and slightly elevated spots of a milky-white colour; a larger one, the size of the head of a small pin, was placed 3 mm. to the right of the limbus a little above the median horizontal line. The cornea, iris, fundus, and visual power of the affected eye were all normal. The patient gave negative Wassermann and von Pirquet reactions, and his blood count was normal. He remained ten weeks under observation; during this period many of the whitish conjunctival spots were absorbed spontaneously, while other new ones made their appearance in the conjunctiva of both the lids and eyeball. The man left the hospital with the condition of his left eye much improved. Bacterial cultures of the conjunctival secretion showed the presence of a few staphylococci and xerosis bacilli, or else gave negative results. One of the conjunctival nodules was excised, and portions of it were implanted in the anterior chamber and also under the bulbar conjunctiva of a rabbit; both fragments remained inert, and gave rise to no inflammatory process. Dr. Valli made elaborate histological and histo-chemical examinations to discover the

[1] *Giorn. d. R. Accad. di Med. di Torino*, Turin, 1916, lxxix, 367.

structure and nature of the nodules he excised from the patient's conjunctiva. Stained sections of these tissues showed that they were covered by unaltered conjunctival epithelium, and consisted of collagenous fibrous tissue infiltrated here and there with lymphocytes, plasma cells, or small groups of eosinophile corpuscles; the white flecks consisted of deposits of calcium carbonate and phosphate in fibrous tissue that had undergone hyaline degeneration. The neighbouring hyaline tissue also contained minute calcareous granules in its interstitial spaces, and hypertrophied connective tissue cells enclosing calcified particles, in the vicinity of the areas of extensive calcification; this, Dr. Valli says, is usual in the calcification of tissues that are not necrotic. The vessels in the calcareous patches were surrounded by rings of hyaline tissue. The hyaline tissue stained by Mann's method showed basophilia; no evidence of fatty or lardaceous degeneration could be found. Dr. Valli concludes that the slight inflammatory infiltration shown by the nodules was in part a legacy of the original trauma, in part a reaction to the process of calcification. He doubts whether the commonplace injury originally sustained by his patient can be held to account for the occurrence of so rare a form of conjunctivitis. In none of the other thirteen cases he has found in the literature was a simple trauma mentioned as the cause. In several, however, there was a suspicion that the petrifying conjunctivitis was factitious, provoked and maintained by the patient (generally a young woman or boy); yet in no case has one of these patients been detected in the act of cultivating or tampering with the lesion. Dr. Valli exonerates his own patient from any suspicion; beyond suggesting that the process may sometimes have been initiated by the accidental or intentional introduction of lime salts into the eye he leaves the pathogenesis of petrifying conjunctivitis unexplained.

GASTRIC ULCER FOLLOWING REMOVAL OF THE ADRENALS.

VARIOUS Italian observers have noted the fact that gastric ulcers commonly develop in experimental animals that have had the adrenal glands excised. Durante attributed these ulcers to injury of the lesser splanchnic nerves at the operation. The matter has been investigated afresh by Dr. F. C. Mann,[1] who remarks that ulcer of the stomach is not common in normal cats and dogs. He finds that the experimental removal of one adrenal gland does not give rise to the production of gastric ulcers in these animals. Nor are such ulcers produced if both adrenals are removed at a single operation and the animal is kept etherized until, in the course of some hours, it dies. But in animals surviving the removal of both the glands development of gastric or duodenal ulcer, or both, was the rule, and began only a few hours after the excision of the adrenals. The ulcers formed were of two types. Some were round, punched out, usually multiple, and very similar to peptic ulcers, so-called. Others took the form of superficial erosions of the mucosa about the fundus of the stomach. The duodenal ulcers, appearing in the proportion of one to eight gastric ulcers, were just distal to the pyloric ring, and penetrated to the muscular layer of the mucosa. Discussing the pathogenesis of these various ulcers, Dr. Mann notes that they were not due to the regurgitation of pancreatic juice, as they developed in animals previously subjected to ligature of the pancreatic ducts. The gastric contents remain acid in animals after excision of the adrenals, and Dr. Mann attributes the ulceration to this acidity. He found that the administration of sodium bicarbonate with the object of neutralizing the gastric juice would almost always prevent the occurrence of the ulceration. To throw more light on the connexion between gastric acidity and ulceration, he experimented further with a series of animals having loops of jejunum implanted into the posterior wall of the stomach. The notion was that if the ulceration was due solely to the acidity, then the implants of the jejunum —a viscus accustomed to alkaline media—would show very extensive ulceration after excision of the adrenals. The jejunal implants, however, were hardly ulcerated at all, while the gastric mucosa showed the customary ulceration after the adrenal glands had been removed. Dr. Mann therefore concludes that the acidity is but a secondary, although necessary, factor in the ulcerative process. The primary cause, he says, lies in the intrinsic mechanism of the gastric mucosa.

[1] *Journ. Experim. Medicine*, New York, 1916, xxiii, 203, and xxiv, 329.

TUBERCULOSIS IN X-RAYED GUINEA-PIGS.

THE value of animal inoculation in the diagnosis of tuberculosis has been recognized since Marcet's experiments in 1867. Klebs repeated and confirmed this work in 1868, and the constant employment of the guinea-pig test since that time has proved it to be the safest diagnostic method we have. For the diagnosis of renal tuberculosis it was first used by Damsche in 1882; here, however, the method has the disadvantage that it is necessary to wait for about six weeks before the diagnosis can be made in order to give sufficient time for the development of tuberculosis in the experimental animal after the inoculation with the suspected material has been made. Dr. J. J. Morton has recently published[1] a method which promises to make a very considerable reduction in this period of waiting. Following up the work of some other investigators, he found that guinea-pigs could be exposed to a massive dose of *x* rays without any apparent detriment to their general health. The average number of their white blood corpuscles, however, was reduced by the exposure from the normal figure of 12,000 or 15,000 per cubic centimetre to from 4,000 to 6,000, the main reduction being in the lymphoid cells. The count remained depressed for over a week, which was as far as it was followed. Inoculating these *x*-rayed animals with urine known to be tuberculous, Dr. Morton found that they developed marked lesions of the disease in a much shorter time than normal animals. Further experiments showed that an *x*-ray exposure given shortly after inoculation was as effective in reducing the resistance to tuberculosis as when given before the inoculation. It was found that the *x*-rayed guinea-pig developed the pathognomonic tuberculous lesions in from eight to ten days after the intraperitoneal injection of 1 or 2 c.cm. of tuberculous urine. The massive dose of *x* rays was given by placing the animal in a small cardboard box for ten minutes, at a distance of a foot from the target of a Coolidge tube, through which passed a 5 milliampère current, backing up 8½ in. of spark between points. It is clear that Dr. Morton's method may be of considerable practical service in the speedy diagnosis of early tuberculosis in the urinary tract.

[1] *Journ. Experim. Medicine*, 1916, xxiv, 419.

PARLIAMENTARY REPRESENTATION OF EDINBURGH AND ST. ANDREWS UNIVERSITIES.

THE appointment of Sir Robert Finlay to be Lord Chancellor has created a vacancy in the parliamentary representation of the Universities of Edinburgh and St. Andrews. At a meeting of prominent members of the profession in Edinburgh last week it was resolved to recommend Dr. R. McKenzie Johnston as a suitable candidate. Dr. Johnston has done a great deal of work for Edinburgh and for his profession, to whom his election to Parliament would be most welcome. It is also reported that Sir Arthur Conan Doyle has been invited to become a candidate. He retired from medical practice some six-and-twenty years ago, when his success as a novelist was already great. He contested Central Edinburgh in 1900 and the Hawick Burghs as a Tariff Reformer in 1906.

THE WAR.

NOTES FROM GERMAN AND AUSTRIAN MEDICAL JOURNALS.

DISCIPLINARY TREATMENT OF SHELL SHOCK.

F. KAUFMANN[1] is the accredited author of a system of treatment which even some of his fellow countrymen have considered inhuman. He has recently published an account of it which begins with the general statement that the "psychical disturbances produced by the war are essentially the same as those observed in peace, but their frequency is out of all proportion greater." He calculates that, at a low estimate, 100 such cases are discharged annually from every army corps district, and that putting the annual expenditure on each at 500 marks, the total cost to the twenty-five army corps districts in Germany must every year be 1,250,000 marks. At the nerve hospital in Ludwigshafen to which he was attached a large proportion of the patients afforded evidence of the shortcomings of the various schools of suggestive treatment, and the experience in other military hospitals was the same. Kaufmann worked out a system of combined suggestion and painful electrical shock, aiming at a drastic cure in one sitting. The germ of this principle dated from 1903, when, as an assistant to Erb, he observed the beneficial effects of remorseless electrical treatment on a case of hysterical muscular contraction. His system included the four following principal features:

1. Preliminary suggestion, consisting not only of the stock methods of suggestion, but also the "atmosphere" of a hospital in which successful cures are numerous. It was impressed on the patient that, though the treatment would be painful, the cure would be complete and permanent.
2. Powerful electrical shocks supplemented by vigorous "word-suggestion." As a rule, the sinusoidal current of a pantostat was preferred to the faradic current. It was combined with the galvanic current when there were symptoms of hysterical anæsthesia. Some idea of the patient's sensations may be gathered from the term *Ueberrumpelung* (unexpected attack), used in the author's description.
3. Maintenance of an atmosphere of strict military discipline. From the moment the patient was admitted to hospital he was impressed with the spirit of unquestioning, unresisting obedience.
4. Masterfulness and pertinacity were essential; it might take hours before the desired effect was obtained, but with perseverance and the exertion of the physician's whole personality success was ultimately achieved.

This system, he admits, is unsuited to ambulatory cases, and in slight, early cases might be superfluous. It was contraindicated in patients recently exposed to prolonged mental strain and for acute neurasthenics. The system called for less specialized training in the physician than hypnosis. Again, patients might defy the influence of hypnosis, whereas the *Ueberrumpelung* system left them no choice. After the ordeal the patient should be kept in hospital a few weeks to diminish the chances of a relapse. He should not be sent back to active service, and it was even doubtful whether he would be fit for garrison duty.

Professor Otto Schultze,[2] who has published a review of the reception the Kaufmann system has been given by the medical profession in Germany, admits that it has been stigmatized as inhuman, although it does not, he thinks, inflict pain very different from that which a woman in labour suffers. At his nerve hospital he found the ordinary methods of treating hysterical motor disturbances unsatisfactory, whereas the adoption of Kaufmann's system led to far better results. Of the patients discharged between January 1st, 1915, and July 1st, 1916, 40 per cent. were unfit for service, 40 per cent. were fit for service, and 20 per cent. were transferred to other hospitals or asylums. Before practising the Kaufmann system he relied mainly on the peaceful atmosphere of his mountain hospital, on good food, rest in bed, kindly treatment, the ignoring of symptoms, and the use of sedatives and hypnotics. In 54 cases thus treated marked improvement or recovery was obtained in 4 only; but out of 15 patients treated on Kaufmann's lines, 13 benefited appreciably. The average stay in hospital of 40 patients suffering from hysterical motor disturbances was 35 weeks, an average which in Professor Schultze's opinion could be greatly reduced by the use of Kaufmann's system. Following Kaufmann's example, Professor Schultze publishes calculations to show how many thousand marks a year could be saved for the State by one physician applying Kaufmann's system to the nervous wrecks discharged from the army.

[1] *Munch. med. Woch.*, May 30th, 1916.
[2] *Ibid.*, Sept. 26th, 1916.

EXERCISES TO RESTORE TIRED LIMBS.

Shortly before the outbreak of the war the Medical Department of the German War Office recommended the introduction of certain exercises among exhausted soldiers. These exercises were devised by Professor E. Weber, of Berlin, as the result of physiological experiments on means for increasing the functional capacity of tired muscles. According to the instructions issued to the soldiers, they were to flex the forearm as forcibly as possible, and keep it held firmly against the upper arm for thirty to sixty seconds. This manœuvre was to be repeated about every twenty minutes, when the legs felt very tired on the march, which was not to be interrupted. Cyclists, when feeling very tired in the legs, were instructed to take one hand off a handle bar and to hold the forearm as forcibly flexed as possible against the upper arm for about half a minute. This act was to be repeated every fifteen to twenty minutes, and was to be performed while the cyclist kept pedalling slowly. He was also about every hour to dismount and rotate his arms about the shoulder-joints fifty times forwards and fifty times backwards as hard as he could. It was anticipated that these energetic movements of relatively fresh muscles would help to drive out and neutralize the products of exhaustion stored in the other, tired, muscles. On the march, long rests were to be replaced by several short rests, none of which was to be longer than ten minutes. After every hour's march there should be a rest of about eight minutes. Tested in the war, these exercises have, on the whole, been found satisfactory in the case of cyclists, but the reports from the other branches of the army are conflicting. It was found difficult to introduce these exercises during the war; skilled supervision was lacking, and prejudice and inertia were formidable obstacles to their systematic application. The exercises were most successful in the case of cyclists, because the arms and shoulders were so much fresher than the tired legs; among other troops there was not this marked difference between fresh and tired muscles. It was found that the exercises were most successful when the muscular exhaustion was most limited.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Captain H. S. A. Alexander, R.A.M.C. (S.R.).
Captain J. D. MacCormac, M.C., R.A.M.C. (temporary).
Captain G. B. MacGregor, R.A.M.C. (temporary).
Lieutenant G. F. Fordo, R.A.M.C., attached Worcestershire Regiment.

DEATHS AMONG SONS OF MEDICAL MEN.

Harlock, Philip, Lieutenant Royal Navy, second son of the late Dr. Harlock of Chichester, lost at sea recently on active service, aged 23.

Jardine, G. B. T., Second Lieutenant Argyll and Sutherland Highlanders, attached Cameron Highlanders, son of Dr. Robert Jardine of Glasgow, missing since October 18th, supposed killed on that date.

O'Farrell, Harward Patrick Curtis, Lieutenant-Colonel, Recruiting Officer, Nuneaton district, fourth son of the late Dr. Harward O'Farrell, J.P., D.L., of Boyle, county Roscommon, died at Nuneaton on December 6th. He was formerly in the 6th Dragoon Guards (Carabineers), and recently was in command of the 15th and 16th battalions of the Hampshire Regiment, holding the rank of lieutenant-colonel from April 28th, 1915.

NOTES.

HONOURS.

THE Distinguished Conduct Medal has been awarded to Privates W. T. D. Bristow and L. J. Simpson, both formerly of the Royal Fusiliers and now of the R.A.M.C., for distinguished service and devotion to duty during the spring and summer of 1915 in the prisoners of war camp at Gardelegen, in Germany. The horrors of the Gardelegen camp were described in the BRITISH MEDICAL JOURNAL of November 20th, 1915, and November 4th, 1916.

England and Wales.

THE UNIVERSITY OF MANCHESTER: VISIT OF TECHNICAL AND SCIENTIFIC JOURNALISTS.

FOLLOWING upon the visit to Liverpool University, described in the last issue of the BRITISH MEDICAL JOURNAL, the Scientific and Technical Circle of the Institute of Journalists went to Manchester, and under the guidance of Sir Henry Miers, the Vice-Chancellor, were conducted over the university. Normally this university has about 1,600 students, but at present there are not many more than half that number, who are fairly equally divided between the sexes. There were seventy women students in the Faculty of Medicine last session; in the session of 1909–10 there were only twenty-two. The war has also influenced the university by turning many of the laboratories to unusual purposes. Nearly a dozen of the departments, including those of Public Health and Pathology, are engaged in special national service, advisory or experimental.

In Manchester, as elsewhere, the general development of the university has been affected by the special conditions of the area from which it draws its support. This is seen most obviously in the strength of the Faculty of Technology and the great emphasis laid upon industrial research. Manchester has associated with its university a Municipal School of Technology, which claims to be the largest institution of its kind in this or any other country, save for one example in Germany. This school, which is maintained at an annual cost of £50,000, and of which Dr. Maxwell Garnett, the Dean of the Faculty, is principal, was originally the Manchester Mechanics' Institution, and is now a college of university rank. It is assisting British technology in various ways, chiefly, of course, by the training of men to occupy positions of responsibility in the engineering, chemical, textile, and other industries. A tour round the school, to which the visitors devoted an afternoon, is an impressive experience, for the place touches on almost every side of industry, from spinning and weaving to electrical engineering, and from the dyeing of fabrics to the making of paper.

The science departments also are very strong. The Chair in Chemistry was made famous by Frankland and Roscoe. It is now filled by Professor A. B. Dixon, who, with his staff, is devoting a great deal of attention at present to the question of high explosives, and, in the applied chemistry department, to the production of drugs. All the high explosives manufactured in the Manchester area are tested in this laboratory. Sanitary chemistry and pharmaceutical botany are also among the subjects dealt with in this large range of laboratories. The associated department of physics has at its head Sir Ernest Rutherford, whose laboratory, although now concerned with special war investigations, is continuing the former lines of research in radio-activity as far as possible. The department possesses 450 mg. of radium, originally a loan from Vienna, and a good deal of work is being done on radium emanations and the production of fine emanation tubes which can give play to the full effect of the helium atoms.

The medical school is also busy with special work relating to the war. It was stated that in the department of pathology the amount of military work done during the past year was more than equivalent (so far as the number of specimens examined was concerned) to the regular work of the laboratory, which had been carried on concurrently. Much pathological work is done for the 2nd Western General Hospital, which really comprises about 200 separate hospitals, including in all some 20,000 beds; and between twenty and thirty members of the medical staff are engaged on military hospital work. Professor Elliot Smith, the dean of the faculty, explained that a number of investigations had been undertaken over and above those which fall within the scope of the ordinary official arrangements. Nerve injuries have been specially studied, and psycho-analysis has been applied to those cases to which the term shell-shock is commonly given. Some of these investigations have already been published, and the whole of the work is to be the subject of a forthcoming volume. The pathological department is also working on the diagnosis of dysenteries and the preparation of vaccines and in the study of the paratyphoid fevers. Professor Dean is also carrying out researches in the serum treatment of tetanus, and the black contaminated soils of Flanders are being investigated from this point of view.

Before leaving the university, the guests saw one of its greatest treasures—namely, the Christie Library, which now numbers 146,000 volumes, making it by far the largest library possessed by any modern English university. The annual additions even in these war years are 3,000 volumes. It includes the Forbes Collection of scientific books, but the chief feature is the collection of 800 volumes relating to Horace. The visitors were afterwards entertained at the City Hall by the Lord Mayor, and he and others expressed the view that the throwing open of the universities to the general inspection of a body of technically-trained journalists was desirable in order that a medium of communication might be found between the universities and the public. The public have considered—and it has not been wholly the fault of the public—that universities were something aloof from common life, absorbed in obscure and abstruse calculations and experiments, having little relation to the immediate needs of the community. Nothing could be more misleading than this conception, for the universities are well to the forefront with constant contributions of incalculable value in these years of national emergency, and they are not only helping in the military struggle, but already they are munitioning the nation for the commercial and economic struggle that is to follow.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

At the meeting on December 15th of the Governors and General Council of King Edward's Hospital Fund for London, for the purpose of awarding grants for the present year, the treasurer, Lord Revelstoke, stated that the receipts on capital account for the year to December 11th amounted to £269,526 18s. 6d. This included £100,000 cash received in respect of the residue of the estate of the late Isabella Countess of Wilton; the fund had already had transferred to it securities amounting to over £22,000. Sir William Collins stated that so far as could be ascertained there was no reason to doubt that the League of Mercy would be in a position to make for the fourth year in succession a grant of £14,000 to the Fund, and to make a distribution of something like £3,000 in the extra-metropolitan district. These amounts would raise the total grants made in seventeen years to £244,000.

Viscount Iveagh, who was in the chair, read a letter written by direction of the King, patron of the Fund, congratulating the Council on the distribution of £170,000 this year, a sum exceeding last year's total by £30,000, and any previous record in the years just before the war by £12,500. The increase in the amount distributed was due, Lord Iveagh said, primarily to the receipt of £32,000 from legacies as against only £4,000 last year. The Finance Committee had resolved to retain such part of the Countess of Wilton's legacy as had been received in cash, for it was impossible to foresee what the difficulties of the hospitals might yet be as a result of the war. Though the contribution made by the Fund to the hospitals was large, it amounted to only a little more than one-ninth of their total ordinary expenditure, and the increase in the maintenance grants would not cover the increase in ordinary expenditure since the war began, reckoning only the year 1915. The burden of 1916 would inevitably be greater. The chairman made special reference to the receipt of a series of contributions, amounting in all to a total of over £270, from the war fund of the citizens of East London, South Africa. The Benenden Sanatorium, an effort on the part of the workers themselves to deal with the scourge of consumption, had had to face special difficulties owing to the war, and though it had been able to surmount them by its own efforts the Fund has been glad to give it special assistance in the reduction of its mortgage debt.

The report of the Distribution Committee, presented by Sir William S. Church, stated that the total amount distributed to London hospitals was £162,500, as against £133,500 in 1915. The position with regard to the amalgamation of the throat, nose, and ear hospitals, so far as the Fund was concerned, remained as last year, with the exception that an extra grant was recommended to the Amalgamated Hospital for Diseases of the Throat to assist it in meeting additional expenditure incurred in

consequence of the postponement of the building scheme, owing to the war. The report contained the following paragraph:

The committee receive year by year evidence of the increasing work done by the voluntary hospitals (quite apart from the treatment of naval and military patients) in the cure or prevention of disease in co-operation with State or municipal authorities. This is one of the numerous ways in which the hospitals take their part in the development of fresh methods of promoting public health. The attitude of the Fund towards these activities, as they affect its distribution, depends, generally speaking, upon their results as shown in the statistics of work done and in the relation between income and expenditure. The latest development in this direction is the preparation by various hospitals of schemes for the treatment of venereal diseases in co-operation with the Local Government Board and the London County Council in accordance with the recommendations of the recent Royal Commission. These schemes naturally do not affect the accounts and statistics for 1915, or even, as a rule, 1916. But in one case, that of the London Lock Hospital, an application for a capital grant in aid of sanitary and other improvements at the Female Hospital has been received, and in view of the importance of increasing the efficiency of this hospital in these respects the committee are recommending a substantial grant towards the sanitary improvements. The committee further recommend that the Council, which has already by large grants enabled the Male Lock Hospital to be brought thoroughly up to date, should also offer substantial assistance towards an approved scheme for the reconstruction of the Female Lock Hospital.

The report of the Convalescent Homes Committee stated that the sum distributed to convalescent homes and consumption sanatoriums was £7,500, as against £6,500 in 1915. The number of beds reserved at consumption sanatoriums for the use of patients in London hospitals had been slightly increased, owing to the fact that certain women's beds no longer available had been replaced by children's beds.

A vote of thanks to Lord Iveagh for presiding was moved by the Governor of the Bank of England, seconded by the President of the Royal College of Physicians of London, carried unanimously, and duly acknowledged.

Central Midwives Board.

At a penal session of the Central Midwives Board on December 13th, Sir Francis Champneys presiding, reports from local supervising authorities on three women resulted in all of them being removed from the roll. In one case, partially heard in November, regarding a conviction for drunkenness, the woman was cautioned and advised to abstain from the use of alcohol in future. Six fresh cases were heard. Three of the women were struck off, and the local supervising authorities were requested to report on the other three in three and six months. The charges, apart from those of ignorance with regard to the taking of pulse and temperature and general breaches of the rules, included serious neglect in cases of ophthalmia neonatorum and inflammation of the navel.

An application for restoration to the roll on the part of Alice Bamber, Barrow-in-Furness, was granted.

At the monthly meeting of the Board on December 14th the action of the secretary was approved in having returned a candidate's fee, and excluded her from the examination of December 13th on account of her having taken drugs and stimulants prior to and on the first day of the October examination. In reply to letters from the M.O.H. of West Hartlepool asking the advice of the Board, it was decided to inform him that—

1. Where a midwife has been engaged to attend a confinement, any engagement by her of an uncertified woman to attend on the patient must be

(a) As a monthly nurse only, and not as a midwife.

(b) In addition to, and not in substitution for, all obligations to attend on the patient entailed on her by the Rules of the Board, and in particular by Rule E. 1.

2. Whether an illegal act is involved depends upon the bona fides of the transaction in the following circumstances: A doctor having been engaged beforehand for a confinement, and the patient calls in an uncertified woman when the child is about to be born, the doctor not being present at the birth, nor until some hours afterwards. The habitual occurrence of the incident in the case of any one woman would affect the judgement of the Board in dealing with the particular case.

The secretary was instructed to give notice to the approved training schools, lecturers, and training midwives in Scotland that the Board does not propose to renew its approval after March 31st, 1917, as after that date all schedules presented by candidates from these institutions, who desired to enter for examination in England, must be approved by the Scottish Board.

Tuberculosis Schemes.

Some account has already been given in the Journal of the annual meeting of the National Association of Insurance Committees, but the annual report just issued contains a summary of returns as to tuberculosis schemes throughout England in the various insurance areas. It appears that in eighty-two areas schemes more or less complete exist, though in a few cases it is noted that agreements have not yet been settled between insurance committees and local authorities. The total number of beds in sanatoriums or hospitals for cases of tuberculosis can only be given approximately, as twenty five of the eighty-two areas supply no statement; in the fifty-seven which give a return, there are about 6,850 beds available for the whole population of these areas. As to the number of beds specially reserved by the Insurance Committees for insured persons, sixty-four of the eighty-two areas give a return and show just under 2,000 beds reserved for the insured. But in the case of five other areas it is stated that there is "no limit," and as these five areas are Liverpool, Middlesex, Salop, St. Helens, and Surrey, the total number reserved for the insured must be considerably over 2,000. In only two of the eighty-two areas are no tuberculosis dispensaries mentioned; the total number of dispensaries for the other eighty areas is stated to be about 370. In addition, there are fourteen other areas not having complete schemes but having only dispensary schemes, though the number of dispensaries is not given. There is a further list of nine areas returned as having no tuberculosis schemes at all. It will thus be seen that the statistics presented are far from complete, and though they show that a considerable provision has been made for institutional and dispensary treatment, it is quite clear that in a few areas proper provision has not been made for either the insured or the non-insured population.

A Mothercraft Hostel.

A scheme, which has the approval of Dr. Mary Scharlieb, Sir Bertrand Dawson, and Dr. David Forsyth, for the training of educated women and girls in the management of babies, is to come into force next February. It is to be known as the Marlborough School of Mothercraft, after the president, the Duchess of Marlborough, and the students are to reside in the house, in which there is also to be a nursery for eight or ten babies, who are to be fed on clean raw milk, modified as necessary, but containing not more than 10,000 bacteria to the 10 c.cm. The course is to last nine months, during the last four of which the students will attend a recognized infant welfare centre, there to gain experience in home visiting. It is stated that a nursery day school will also be established for children of the professional classes; it will, it is thought, prove useful to professional women who have been drawn out of their homes by war work.

Ireland.

On the nomination of the governors of Sir Patrick Dun's Hospital, the Board of Trinity College, Dublin, has appointed Mr. Charles Benson, M.D., F.R.C.S.I., to act as deputy for the professor of surgery to deliver clinical lectures in Sir Patrick Dun's Hospital, and the hospital board has appointed Mr. Benson a visiting surgeon to the hospital.

The Most Reverend Dr. Foley, Roman Catholic Bishop, preaching in the Cathedral, Carlow, said that the time might come when people would regret that they had neglected to have their children vaccinated. It was amazing to find Catholics refusing to have their children vaccinated on what they called conscientious grounds. He regretted to say that some Catholics allowed their minds to be poisoned by the propaganda which had its origin among people beyond the water, and the result was that parents thought it was a sin to submit their children to vaccination. Generally speaking, there was no foundation for such an attitude on the part of the parents.

A report by Mr. F. J. McCarthy, Local Government Board inspector, made to a recent meeting of the North Dublin Union, showed that the rate of infant mortality, both in the North Dublin and in the South Dublin workhouses, was too high. It was much higher among motherless

infants than amongst those having maternal care. Of the former the majority before their admission had been placed out at nurse for reward, and their condition when admitted was often pitiable. Both unions had institutions for the maintenance and education of children belonging to the respective workhouses, and he thought that there would be obvious advantages if all the children from both unions above 5 years of age requiring institutional accommodation, owing to their parents being workhouse inmates or unfit guardians, were housed in one building. The other building could then be made available as a nursery for all infants of both unions. This might be brought about in various ways, but amalgamation of the unions was proposed.

Teaching of Medical Ethics.

Dr. W. Robert Davison, chairman of the Belfast Division of the British Medical Association, in an address at the winter meeting, made a plea for the teaching of medical ethics. After referring to the difficulties encountered by any one who took an interest in the organization of the profession, he laid it down that a doctor in civil life should be prepared to sacrifice some personal interest for the honour of his profession if called upon to do so, but asked how the recently qualified man was to learn that his profession claimed from him a loyal allegiance to its highest and best traditions and that he should keep its honour unstained. "We spend," he said, "five, six, or seven years at college or university, and we leave, never once having heard that we owe anything to the profession of which we have become members. We leave it knowing that not one lecture in the whole curriculum has been devoted to conduct or ethics. At least it was so in my day, and I think it is so still. We leave college and go out into the world to meet fierce competition. Every other doctor if not an enemy is an opponent whose interests are opposed to ours, and we fight hard for a place in the sun, or it may be only for our living. Is it any wonder that under such circumstances and with such a training we play the game of life to win, regardless of how we do it, so long as we keep within the law of the land? Is it any wonder that we leave the fight for the interests of the profession to a few men here and there while most of us stand selfishly aloof and discourage their efforts by unfair criticism and refuse to pay our subscriptions?" With all its drawbacks, and after twenty-eight years' experience of the ups and downs of a doctor's life, he would, he said, choose no other profession, and his sons were students of medicine by his advice. But though he placed the medical profession first of all he was not blind to its shortcomings, and would fain see it first of first by universal consent. By this he meant not first in professional ability, for no comparison could be made with any other in this respect, nor first in securing universal approbation, but first in that subtle something that included everything and commanded the respect of all. This intangible something included a high standard of honour as well as *esprit de corps*, and the spirit that actuates the man who "played the game" all through for the honour of his profession. That was the something that should penetrate and leaven and actuate the whole profession. If the profession was to command the respect of those whose respect was worth having it must itself be worthy of respect, and the student and doctor must be trained to respect and honour it. This training should begin but not end in the class-room.

At the conclusion of the address the following resolution was unanimously passed:

> That we, the members of the Belfast Division of the British Medical Association, record our opinion that at least one lecture on medical ethics be delivered to medical students during their final year at college and university.
>
> That attendance for this lecture be made compulsory, and that in it the duty which each doctor owes his profession be pointed out, and the absolute necessity of subordinating his professional interests to the general interests of the profession, if this be called for by the representative associations of the latter.

Poor Law Medical Officers' Graded Scale of Salaries.

The Enniscorthy Board of Guardians has adopted a graded scale of salaries for their seven medical officers. With the exception of Enniscorthy dispensary district, where the initial salary is to be £150 and the maximum £190, the initial salary in all cases was fixed at £120, rising to a maximum of £160. The Carlow Board of Guardians recently appointed a committee to consider the application of the medical officers of the union for a graded scale of salaries, and at its last meeting the board received the report of the committee, which was adopted with the exception that the increments were fixed to take place at the end of every six years instead of three, with the result that many of the Poor Law medical officers would have to be in the service of the guardians close on forty years to reach their maximum salaries. The scale, however, was retrospective in effect—that is, past service counted for all existing medical officers. The scales varied from a minimum of £120 per annum to a maximum of £180, and in the Carlow dispensary district from £140 to £212. A scale was also adopted for the doctors of the workhouse and other hospitals in the county.

National Campaign against Venereal Disease.

A public meeting of the medical profession of Belfast and neighbourhood, called jointly by the councils of the Ulster Medical Society and Ulster Branch of the British Medical Association, was held on December 15th in the Medical Institute, Belfast, to consider what steps should be taken locally in the national campaign against venereal diseases.

Mr. Robert Campbell, F.R.C.S.Eng., President of the Ulster Medical Society, occupied the chair, and Mr. R. J. Johnstone, F.R.C.S.E., acted as secretary. Professor Lindsay, F.R.C.P., proposed;

> That the medical profession of Belfast and neighbourhood take steps to have a branch of the National Council for Combating Venereal Disease formed.

The present time, he said, was opportune for action, as there had been advance in the pathology and treatment of syphilis. The Royal Commission had dealt in its report with the registration of deaths due to venereal disease, with diagnosis and treatment, with changes in the law, but not recommending notification, with quack advertisements, with privileges of doctors' communications, with marriage, and with educational efforts. Professor Lindsay referred to steps taken to form branches elsewhere, and to the action of the Local Government Board in Scotland. Dr. Darling (Lurgan), in seconding, laid stress on the fact that the interests of the medical profession had been considered fully, and that it should prove a strong influence in the movement. Dr. Georgina Darling had found a positive reaction in one in every six cases in the Belfast Maternity Hospital.

The resolution was supported by Drs. Gray, Allworthy (member of the Public Health Committee), Professor Symington, Cahill, J. R. Davison, W. R. Mackenzie, W. Calwell, McKisack, Gardner Robb, and R. J. Johnstone.

In the general discussion Mr. R. J. Johnstone read an apology for absence from Professor Sir John Byers, who suggested that the medical profession of Belfast and neighbourhood should strongly urge, from their professional knowledge of the disastrous effects of venereal diseases in every department of medical practice, that the most modern scientific methods be made more freely available for diagnosis and treatment, and should declare that the time was ripe for the Local Government Board of Ireland to issue regulations, after consultation with the profession, for the guidance of local health authorities in preparing schemes for the control and prevention of these diseases, as has been already done by the Local Government Boards of England and Scotland.

The original motion was passed, and on the proposition of Mr. R. J. Johnstone, seconded by Dr. Gardner Robb, a motion on the lines suggested by Sir John Byers was also passed. A large committee was then appointed to take the necessary steps to inaugurate the movement.

Scotland.

THE new orthopaedic department of the Scottish National Red Cross Hospital at Bellahouston was opened on December 15th. The new building provides special rooms for remedial exercises, for electrical treatment, radiant heat, massage, and baths, including whirlpool and pool baths. Manual curative workshops will be provided with

as little delay as possible, and Sir Frederick Milner, Bt., who performed the opening ceremony, said he hoped that some day one of the Roberts Memorial workshops would be established in Glasgow.

The Edinburgh Pathological Club began a discussion on child welfare at a meeting held in the Research Laboratory of the Royal College of Physicians on December 15th. Mrs. J. C. Johnston read a paper on the scope of purely preventive work in connexion with the medical treatment of infants and young children, and Dr. Lewis Cruickshank spoke on the care of children of school ages. The discussion will be resumed on January 5th, 1917, when Dr. Ballantyne will speak on the health of the mother in relation to infant welfare, and Dr. Dingwall Fordyce on infants and young children.

Victoria Infirmary, Glasgow.

The report presented to the annual meeting of the Victoria Infirmary, Glasgow, showed that the average daily number of in-patients was 248, and that the total number of in-patients treated was 3,743, numbers slightly lower than in the previous year, owing to beds being kept in readiness for wounded soldiers. The average daily number of patients receiving *x* ray or electrical treatment was 16, making a total of 5,075 consultations. During the year 2,014 surgical operations were performed. Owing to the depleted staff it had not been possible to carry on the work of the dispensary, except in the special departments at the infirmary, and such patients had, since June, been sent to Bellahouston Dispensary. The convalescent home at Largs had again proved a valuable adjunct to the infirmary, and had received 664 patients. The total expenditure, including that on the dispensary and convalescent home, amounted to £24,861, and the ordinary income to £14,889. The deficit of £9,971 had been met partly by special donations (£2,805), and partly out of legacies (£7,232), so that the adverse balance was only £217. It was announced that the subscriptions from employees had gone up by £300, which was considered a wonderful result in view of the fact that about a quarter of a million men who were workmen in the city had gone on naval or army service since August, 1914. Archbishop Maguire, in moving a vote of thanks to the medical staff, testified to the maintenance of the efficiency of the medical work of the infirmary in spite of the shortage. The medical profession was suffering probably more than any other from the shortages due to the war, and if things became worse he believed that every one would have to go to the infirmaries when they required treatment. Mr. Maylard, in acknowledging the vote of thanks, paid a tribute to the nursing staff, and added that if everybody by and by went to the infirmaries for treatment the doctors' source of emoluments would almost disappear, an observation which seemed to cause his audience some amusement.

Tuberculosis in the City of Aberdeen.

A short but very informative report by the Medical Officer of Health for the City of Aberdeen, prepared for the enlightenment of a Conference of Insurance Committees in October last, contains several noteworthy points illustrative of the steps that have to be taken to set up a satisfactory system, and the results achieved during the last fifteen years. By means of exhibitions and lectures the subject of tuberculosis has been kept persistently in the public mind. More and more accommodation for institutional treatment has gradually been provided, home visitation has been vigorously carried on, and many surveys of insanitary premises undertaken. Supplies of ordinary and special medical comforts have been maintained, including the occasional loan of bedding, the whole scheme being regulated from a central tuberculosis dispensary under the general control of the medical officer of health. No difference appears to have been made between insured an uninsured persons except in the matter of payment.

As in so many other cities, a direct relation has been found between the number of cases notified and the degree of overcrowding in the homes. Fully one half of the pulmonary cases were found to be occupying the same bed with other inmates, and at least two-thirds sleeping in the same room with others.

With an estimated population of over 165,000, the approximate expenditure on tuberculosis during the year 1915 amounted to £12,292. The fall in the death-rate as compared with that for all causes, although continuous, was less marked during the last twenty years than in the period prior to 1886.

Maternity and Child Welfare Schemes.

Representatives of the upper and lower districts of the county of Renfrew and of the burghs of Renfrew, Johnstone, Barrhead, Port Glasgow, and Gourock, recently held a conference to consider a suggested combination for the introduction of a maternity service and child welfare scheme. Dr. A. Campbell Munro, county medical officer, said it was only intended in the meantime to provide clinics at consultation rooms where expectant and nursing mothers and infants, if there was no doctor in attendance, could see a medical officer, preferably a woman doctor, and get advice at a different hour from the tuberculosis patients. The cost would be small, and a grant of one-half of the outlay would be received from the Local Government Board. The conference agreed to report generally in favour of the scheme. In an address on infant mortality and welfare, delivered to the Aberdeen University Medical Society on December 8th, Dr. J. P. Kinloch, lecturer on public health, said that while the death-rate in Scotland from all causes had fallen from 21 per 1,000 of the population in 1855 to 13 in 1914, infant mortality showed no real sign of diminution. So far as vital statistics were concerned it was the great industrial and working classes that counted. There was as yet no proof that schemes of maternity and child welfare were of value, but the advice and assistance of competent health visitors could do nothing but good to mothers rearing children, often under adverse circumstances.

Aeroplanes and Meteorology.

At a meeting of the Scottish Meteorological Society on December 15th to discuss the desirability of multiplying rainfall observation stations, Major Gold, D.S.O., commanding the meteorological unit with the British Expeditionary Force, stated that at the French front in November there was nearly twice as much rain at general headquarters as elsewhere, and that on one day there was seventy-seven times as much rain as at another station not very far away. Large variations might occur over comparatively small distances, especially when there was any irregularity in the surface of the ground or in the distance from the sea coast. Lieutenant C. K. Douglas, of the Royal Flying Corps, sent a paper on weather observation from an aeroplane, in the course of which he stated that he had had the opportunity of studying the formation of both stratus and cumulus clouds at close quarters, and submitted some records of the temparature and other conditions under which they developed. A cumulus cloud, which was the visible evidence of a stream of rising air, might give rise to a thunderstorm, but only if the fall of temperature from the ground upwards was very great. A knowledge of the temperature gradient was thus very important for the prediction of thundery weather. He urged the use of the aeroplane in peace for meteorological purposes. At a height moderate for an aeroplane the view was so extensive that distant thunderstorms could easily be observed, and at a height of 8,000 feet he had himself seen clouds 100 miles off. At present flying men were mainly engaged in military observation, so that their meteorological work was quite secondary, but in the future much might be done for the science by aeroplane observers.

Canada.

National Service and Women's War Work in Canada.

During the past few months it has become more and more apparent that the recruiting measures now in force in the Dominion are not sufficient to raise the 500,000 men for overseas service, promised by the Government at the commencement of 1916. It was recognized at the time that the promise was one that would not be easy of fulfilment, but the heart and soul of Canada is with Great Britain and her Allies, and there is no doubt that the promised number of men will ultimately be recruited. Over 270,000 have enlisted already, and more than 100,000

are now in the battle lines. In the meantime the question of importance is, What measures should be taken to bring the Canadian overseas forces up to the required number in the quickest time? An Order in Council was issued last August which provided for the registration of ineligibles, but it has not yet been put into practical operation. In October a National Service Commission was appointed, with Sir Thomas Tait as Director-General. The subsequent resignation of Sir Thomas Tait and the refusal of Sir Wilfrid Laurier, as leader of the Liberal party, to co-operate with the Government in the formation of the Commission, was followed by the appointment of Mr. R. B. Bennett, M.P., of Calgary, as Director-General of National Service. An earnest appeal for the co-operation of the Canadian people was made by Sir Robert Borden, and a resolution was recently passed by the Canadian Military Institute to the effect that all men between the ages of 18 and 30 who are unmarried, or widowers without children, should be enrolled immediately and allotted to production or training as may be most necessary.

Canadian women have been glad to follow the example of the women of Great Britain, and to undertake work at home so that the men by whom such work was done previously might be able to enlist for active service. Up to the present, however, there has been no great demand for the services of women in industry. Thousands of women have volunteered to work in munition factories, and some 1,500 are already employed in this work. An investigation into the employment of women in such factories has been made by the Hon. T. W. Crothers, Minister of Labour, who has pronounced it to be a decided success. Miss McKenna, a graduate of the University of Toronto, has been appointed to exercise general supervision over women workers of the Dominion, and to deal with the question of wages and labour conditions. Women correspondents have also been appointed in the different centres, who will report to Miss McKenna. In order that women workers should be available in case of need, a women's emergency corps was established in Toronto about two years ago, and a women's war register was opened in Montreal last June, when 200 women registered. Since then numbers of others have registered, and in Montreal there are now 363 names on the register. The object of this register is not to flood the market with workers, and thus lower the rate of wages, but in case of a shortage of labour to supply women workers who up to the present have been unemployed to take positions which cannot be filled by returned soldiers, men who are too old or physically unfit for active service, or women who in normal times earn their living in industrial work.

Correspondence.

EPSOM COLLEGE.

SIR,—I have before me the special appeal issued by Sir Henry Morris on behalf of the Royal Medical Foundation of Epsom College, and it has led me to make a suggestion to you and your readers.

The charities, which are peculiarly our own, must, I feel sure, appeal strongly to each member of the profession, even during the days of good health and prosperity, when there is possibly little time or inclination to look carefully at circular letters. Many of us know what it is to feel grateful to a brother practitioner for services rendered generously and helpfully to ourselves or our families, and some of us also know how very difficult it has been to express adequately our gratitude. May I suggest that, under those circumstances, a donation given to a medical charity such as the Royal Medical Foundation of Epsom College would be a splendid way of "giving something tangible"?

I would further suggest that the treasurer of the charity selected, in addition to sending a receipt to Dr. A., should send as well a note of acknowledgement to Dr. B., telling him that a donation has been received from A. in grateful recognition of services rendered by B. to A. or A.'s family, as the case may be.

I am sure that a scheme of this kind, properly organized, would augment our benevolent funds very substantially, and in this way lighten the burden for those who, when health fails, must necessarily face privation in some degree.—I am, etc.,

Newcastle-on-Tyne, Dec. 13th. NEIL MACLAY.

PATHOLOGY OF CANCER.

SIR,—We are gratified to see in your issue of December 16th, p. 840, that Professor Shattock and Dr. Dudgeon, as the result of experiments on feeding mice with tumours, suggest virtually the same hypothesis as one we published[1] in March of this year, as a deduction from the results of injecting sarcoma filtrate or feeding on streptothrix isolated from rat sarcoma. We there suggested that the parasite is very small and enters into the cell, possibly the nucleus, from which it may be set free by the mincing process.

The streptothrix appears to be a parasite frequently present in tumours, and in one cycle of its growth may be really ultramicroscopic. But although we have not, so far, succeeded in obtaining a differential stain to demonstrate the parasite in the tissues, in spite of its comparatively easy cultivation from them, it does not follow that it is ultra-microscopic. We experienced the same difficulty again recently in a case of streptotrichosis in a cow. The streptothrix isolated from the tissues proved fatal to a guinea-pig in three weeks and was recovered by cultivation from the guinea-pig tissues, but it could not be shown in the sections or films prepared from the tissues of either the cow or the guinea-pig.

Of course, the successful production of tumours in mice by feeding with malignant material has been observed and recorded at least once before—by Ford Robertson in 1909.—We are, etc.,

A. S. LEYTON.
Leeds, Dec. 18th. H. G. LEYTON.

SIR,—In your report of the papers by Mr. Shattock and Dr. Dudgeon on the above subject before the Royal Society of Medicine last week no reference was made to the discussion. In the absence of the President of the Pathological Section, I occupied the chair at the meeting, and wish to correct the impression which the report may produce that their views passed without criticism from me.

I pointed out that the mediastinal and pulmonary growths are conditions common in old mice and of doubtful malignancy. This leaves one undoubted malignant tumour out of four animals experimented upon. This is not an exceptional frequency in mice of 2 years of age or over. Hence, in my opinion, it is unnecessary to assume that feeding with transplanted tumours had anything to do with the result.—I am, etc.,

J. A. MURRAY.

Imperial Cancer Research Fund, Dec. 18th.

MOBILIZATION OF THE PROFESSION.

SIR,—The weak points in Dr. Major Greenwood's declamation against tyranny in your issue of December 16th are very obvious.

1. If the whole nation could be mobilized for service as easily, effectively, and economically as the medical profession, it is difficult to believe that it would not be done, and at once. Would a compulsory scheme of service, as outlined by you, do grievous harm to the profession? Would it secure larger services than are at present rendered voluntarily? These questions must be discussed by those informed of facts and figures.

2. The general argument in the letter is weak. Surely we would be mobilized only to develop our professional capacity. A general mobilization of the nation would, on the other hand, seriously interfere with the special training and capacity of many. No such dislocation would occur in our case. Our mobilization, therefore, need not, on *a priori* grounds, wait for a general mobilization of the nation.

3. The distinction may be carried further. Demobilization of a nation would offer a problem of bewildering complexity. But the Government has already many medical services under its control, and is in a fair way to acquire more. Many medical men on demobilization would gladly settle in these, thus reducing our problem to very narrow limits.

In opposition to Dr. Major Greenwood, I look to the Association to prepare at once a far-reaching and equitable

[1] *Lancet*. March 4th. 1916.

scheme in order (*a*) to secure the requisite number of medical men for army and navy, (*b*) to guarantee those who have made present sacrifices against future loss.—I am, etc.,

Nottingham, Dec. 16th. A. CHRISTIE REID.

THE IRISH MEDICAL PROFESSION AND THE WAR.

SIR,—The attention of my committee has been directed to the leading article appearing in your issue of December 2nd, from which it might be presumed that the Irish medical men were not "doing their bit" in the existing crisis, since no reference to the contribution to the Royal Army Medical Corps from this country was made by the President of the General Medical Council in his address, or by you in your editorial. It is unnecessary to remind you that there is no compulsion in the matter of recruiting in Ireland, and the following extract from a letter, dated November 10th, 1916, received from the secretaries of the Central Medical War Committee, bears eloquent testimony to the patriotism of the Irish doctors: "We enclose up-to-date lists of applications, postings, etc., and we should like to take this opportunity of offering our warmest congratulations to your Irish Medical War Committee on the steady flow of volunteers it is securing."—I am, etc.,

MAURICE R. J. HAYES,
Honorary Secretary,
Dublin, Dec. 14th. Irish Medical War Committee.

MEDICAL CERTIFICATES FOR RECRUITS AND WAR WORKERS.

SIR,—Allow me to endorse and support the contentions of your correspondents in the BRITISH MEDICAL JOURNAL of December 16th.

The constant stream of applicants for certificates, notes, reports, vouchers, etc., all needing some thought and care in wording, has become to many of us a nightmare, and is rapidly making the practice of medicine a degrading form of clerical drudgery. The correct diagnosis and treatment of the patient fade into insignificance before the paramount need of signing endless bits of paper in rapid succession and ever-varying phraseology.

Cannot the General Medical Council do something to help the medical practitioners by suggesting restrictions on the occasions on which a medical certificate may be properly asked for, and so render the profession a service of value?—I am, etc.,

Macclesfield, Dec 16th. J. H. MARSH.

VENEREAL DISEASES.

SIR,—I wish to draw attention to three matters in connexion with the subject of venereal diseases. The first is a word of warning as to what is likely to be done by local authorities if the Local Medical Committees do not take action, the second is as to the alleged prevalence of venereal diseases, and the third is as to whether more severe measures should not be taken to prevent these diseases.

In the county of Bucks we had heard nothing whatever about any scheme being prepared for the treatment of venereal diseases until a member of the county council informed me that a scheme had been drawn up by the county M.O.H. and was being submitted to the county council the next day. I procured a copy of the report containing the scheme, and it was evident that there were many points on which a difference of opinion would exist. The county M.O.H. takes full control, and he states in the report "a few patients might prefer to be treated locally by their own medical attendants"; then he states, "Few practitioners probably will be anxious to undertake the modern specialized treatment." The cases are to be sent to London or elsewhere for treatment, or, in a few exceptional cases, a specialist, if asked by the county M.O.H. to do so, will visit cases, give advice, administer drugs, or take specimens. No mention whatever is made as to where the practitioner comes in, or if he is to be even consulted. It is the same story of presuming that the general practitioner takes no interest in his work, and is paving the way to a State medical service. A sum of £1,000 a year is to be paid to special hospital departments and for railway fares to and from London, and no thought of providing local facilities for treatment is entertained. This is not the way to obtain the co-operation of general practitioners.

My second point is to question the prevalence of venereal diseases in rural or semi-rural districts to any such extent as alleged. Our M.O.H. allows for 1 per cent. being affected. To ascertain whether gonorrhoea and hard and soft chancre were prevalent in this county I circularized every practitioner practising in the county. What is the result? The population is 220,000, and the average total number of these cases treated per annum in the whole county is considerably under 200. And three-quarters of the cases were gonorrhoea. So that it is only one in a thousand instead of 1 per cent. I know quite well that it will be said that this return proves nothing, because most cases go to a chemist or quack and not to a medical man. And if this is the case what is the use of providing expensive treatment and yet allowing this sort of unqualified practice to continue? Persons having the disease will still go to them rather than risk publicity or special treatment that may be somewhat dangerous.

But the great argument is, of course, that the soldiers will bring back the diseases and spread them. Up to the present there has been no special prevalence of disease of this kind here, and it is to be hoped that the military high command abroad will take special precautions to safeguard our soldiers when they are stationed in hotbeds of disease.

This brings me to my third point. One can conceive great objection to compulsory notification, in that concealment would result. But what objection can there be to making it a penal offence to knowingly spread the disease? A man or woman who contracts disease, and then tries every possible way to get cured, can be forgiven. But all who knowingly allow others to contract the disease from them deserve no forgiveness, and ought to be punished severely.

It appears to me that if free treatment is provided by the State, it is the duty of the State to the taxpayers to try to prevent the spread of the diseases by making it a penal offence to spread them. Provide every facility to a sufferer to get cured, but tell him or her quite plainly that if they spread the disease they must suffer the penalty.—I am, etc.,

ARTHUR E. LARKING,
Secretary to the Bucks Local Medical
Buckingham, Dec. 9th. Committee.

SAFE ANAESTHESIA.

SIR,—I am glad to see Dr. Levy (December 2nd, p. 781) is again urging the dangers of a too light chloroform anaesthesia. I am aware that his views are not universally accepted, but I am convinced of their soundness. In an experience of sixteen years I have had one death on the table in my own practice and seen another.

My case was a man subject to attacks of laryngeal spasm due to cerebral syphilis; he died during the struggling stage of induction, an attack coming on before he was under. Oddly enough he had been in the habit of relieving his attacks by the inhalation of a few drops of chloroform. Other factors than ventricular fibrillation may, of course, have been at work here.

In the other case the anaesthetic was being administered by the house-surgeon (chloroform by the Junker method) for an operation on the jaw. Whilst preparing to take the case over I noticed that the patient was lightly under, groaning and moving slightly; he suddenly collapsed and died. There was certainly no question of overdosage here.

In the matter of choice of anaesthetics and methods we are all, to a large extent, guided, after a time, by our own experience. Mine has led me to adopt for some years past a combination of alkaloids (full doses) and ether breathed through valves in my inhaler, which I have described elsewhere.[1] If this does not give a sufficiently deep anaesthesia, it can be converted into a closed ether method by abolishing the valves and adjusting a wide-mouthed rubber bag to the ether chamber. I speed up the induction with ethyl chloride. Under this method I never even see a danger signal. Even shock seems to be very largely abrogated; in some thousands of administrations I doubt if I have seen it half a dozen times. Patients and nurses state that the after-effects are very different from those following chloroform.

[1] *Practitioner*, November, 1910.

The anaesthesia produced is, of course, not the third degree of narcosis. It is just something deeper than "twilight sleep." Some surgeons do not like it, especially for abdominal cases. Chloroform no doubt gives a better anaesthesia from the operator's point of view. Their percentage of deaths is hardly affected by the fractional addition of the chloroform risk. My experience, however, leads me to plead earnestly that they should put the patients' safety and comfort before their own convenience. Is it not better that an operation should be held up for a few minutes by rigidity than for the performance of artificial respiration? No doubt there is still room for improvement in our methods. I think it will come by the addition to our preliminary injection of some alkaloid which will ensure relaxation.—I am, etc.,

London, W., Dec. 3rd. G. A. H. BARTON.

COMPULSORY LATIN.

SIR,—I think that some of the following choice specimens, culled from recent examination papers by candidates for the third M.B. examination of this university, are in themselves a mute appeal for the inclusion of Latin (and Greek) in the course of preliminary training of medical students:

In this media	Dyptheria
Basiluria	Hæmorrage
Accomodation	Enabling the heart to more completely empty itself
Detatched	Unconcious
Diptheria	

The argument might be put forward that, as they have presumably been through the mill of the previous examination, these candidates have passed an examination in Latin and Greek, and therefore the inference is against the utility of including these languages in a preliminary course of training. I maintain, however, that no person who has received an adequate training in Latin and Greek could forget that "media" is the plural of medium, or that there are such letters as ϕ and θ in the Greek alphabet. Moreover, it is (or was) quite possible for a person of average intelligence to satisfy the examiners in these languages in the previous examination on a three months' course of "cramming"; and this does not constitute a training in any sense of the word.

There is, I think, little doubt that inquiry would reveal the fact that the candidates who were responsible for these choice specimens had not in fact studied Latin and Greek at school, and had undergone such a "cramming" in order to pass the previous examination.

Now these men are, or will be in the near future, qualified medical practitioners, and as such their writings will be open to the scrutiny and criticism of such people as pharmaceutical chemists. Is it more desirable that medical men should spell correctly the words that they must use in everyday life, or that they should understand the differential calculus?—I am, etc.,

Cambridge, Dec. 17th. DOUGLAS COW.

CANADIAN ARMY MEDICAL SERVICE.

SIR,—My attention has been called to a note in your issue of December 9th, p. 816, in which you refer to your comments on the appointment by the "High Commissioner of Canada of a Board of Inquiry into the Administration of the Canadian Army Medical Corps in Europe," and I observe that you repeat in that note the very objectionable forecast which you made in your issue of November 25th as to the tenor of the report of the Board of Inquiry then sitting, and by way of explanation of the same intimate that this forecast only expressed your own *hopes* and *anticipations* as to the finding of the Board.

I have considered very carefully your comment, under the heading of "Canadian Army Medical Corps," in your issue of November 25th, and your note under the same heading in your issue of December 9th. I now desire to make the most emphatic protest in regard to your comment in your issue of November 25th, as being inaccurate, misleading, and tending to prejudice the Board in their deliberations.

In regard to your *anticipations* or *belief* as to the tenor of the report, I presume these anticipations have some foundation. It may be your informant is in such close touch with the members of the Board as to be able to forecast their findings, or possibly your article was written with the idea of endeavouring to influence the Board in its findings. It is impossible for me to say. In any case I can only regard it as most objectionable, from whatever standpoint, and your so-called explanation in your issue of December 9th, if anything, accentuates what you published in your former issue.

The publication of a note from your correspondent in Montreal in your issue of November 25th is to my mind the clearest possible indication of the animus which underlies the whole comment.

I do not know whether you have read my report, or whether you are aware of the situation in reference to the Canadian Army Medical Corps in England and France. In any case, your comments are, I think, most uncalled for and most unfair, and I regret to say that I can only conclude that your informant has induced you to publish this article with the idea of injuring me, both professionally and as an officer of the Canadian Army Medical Service.

I must say in conclusion that I am more than surprised that a journal of your standing would publish anything without being conversant with all the facts. I am therefore writing you in the hope that you will correct the inaccuracies and withdraw the comments which you so unjustly made.—I am, etc.,

H. A. BRUCE, Colonel,
Special Inspector-General, Canadian Medical Service.

London, W.C., Dec. 18th.

*** Our hopes and anticipations were founded wholly upon knowledge of the excellent work done by the Canadian Army Medical Corps in France and in this country. We did not seek in any way to influence or anticipate the results of the investigations of the Board of Inquiry, even were it possible for us to do so, which, in view of the eminent and impartial character of its members, would be unthinkable. We have no information as to the proceedings of the Board, and have never professed to possess such information. Colonel Bruce's report has not, so far as we are aware, been published in this country or in Canada. It is stated, however, that extracts from it published in Canada show it to contain serious charges against the Canadian Army Medical Corps. We are very ready to correct any inaccurate statement and to withdraw any erroneous comment, but surely it is open to us with propriety to express the hope that the charges may prove on full and impartial investigation to have been mistaken.

Medical News.

DR. R. V. CLARK, M.O.H. Croydon, has been elected a Fellow of the Royal Sanitary Institute.

DR. WALTER H. POLLARD of Edgbaston has been appointed to the Commission of the Peace for the county borough of Smethwick.

DR. EDWARD BENJAMIN GRAY, sometime Litchfield Lecturer in Clinical Medicine in the University of Oxford, left estate of the gross value of £53,737.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, London, has opened a new temporary building as an antenatal department, and is also establishing an infant welfare centre. Since the outbreak of the war over 3,000 wives of soldiers and sailors have either been received in the hospital or attended at their homes.

THE American Association of Labor Legislation has invited some fifteen hundred antituberculosis associations in almost every part of the United States to take part in a campaign for health insurance. Bills providing for legislation on the subject are to be introduced in more than twenty States.

MR. MALCOLM E. MACGREGOR will be glad to exhibit actual specimens of the insects described by Lieutenant-Colonel Andrew Balfour, C.M.G., in his pamphlet on the medical entomology of Salonica in the museum of the Wellcome Bureau of Scientific Research, 10, Henrietta Street, Cavendish Square, on any week day except Saturday, between 10 and 4 p.m. We have received from Mr. MacGregor a letter in which he expresses the view that some recent experiments on methods of freeing clothes of lice have not been conducted on the most profitable lines, and that further inquiries should be made not in the laboratory but in the field. As repellents powdered naphthalene and a mixture of naphthalene (95 per cent.), iodoform (2 per cent.), and creosote (2 per cent.) have met with the most approval, but the surest means to success in the destruction of lice is the sterilization of the clothes by steam, or the application to separate garments of heat, steam, petrol, paraffin, or turpentine.

Obituary.

SIR FREDERIC EVE, KT., F.R.C.S., L.R.C.P.,

TEMPORARY LIEUTENANT-COLONEL R.A.M.C.

CONSULTING SURGEON, EASTERN COMMAND; CONSULTING SURGEON, LONDON HOSPITAL.

THE death of this able and distinguished surgeon on December 15th, after a very few days' illness due to the prevailing influenza, came as a great shock to his numerous private and professional friends. Born in 1853, Frederic Eve was the son of Mr. William Eve, of The Manor, North Ockendon, Essex. He entered St. Bartholomew's Hospital as a student in the year 1872, and held the appointment of house-surgeon to the late Mr. Luther Holden in 1876–7. He also studied at Leipzig under teachers of great authority, who impressed him, among other things, that their country intended to dispute our naval supremacy by arms as soon as it had settled with French ambition. This he would relate to his colleagues in England as long since as the end of the Seventies. The authorities of St. Bartholomew's Hospital made him curator of its museum (1879–81), where he distinguished himself by compiling, together with Sir Anthony Bowlby, an admirable catalogue, which supplied a great want. He took the diploma of L.R.C.P. in 1876, and became F.R.C.S. in 1878. In 1881, when in place of the appointment of pathological assistant to the museum of the Royal College of Surgeons of England, Sir James Paget, Sir William Flower, and others brought about the establishment of the office of pathological curator, Eve was at once elected. He more than fulfilled the high esteem in which he was held at the date of his election. As early as in 1882 he became Erasmus Wilson lecturer, and delivered a most instructive course of lectures on cystic tumours of the jaws and on the etiology of tumours, which appeared, well illustrated, in the JOURNAL in the next year. He assisted Sir James Paget and his co-editors in the completion of the Pathological Catalogue of the Museum, and afterwards issued yearly a full descriptive catalogue of annual additions to the collection, an example to be followed by all curators of large museums, else there will inevitably be much lost history which cannot be retraced and, in consequence, many worthless specimens.

Sir Frederic Eve became assistant surgeon to the London Hospital in 1884, and full surgeon in 1898. He held successively in the medical school the appointments of lecturer on pathology 1893–1898, on surgical pathology 1899–1902, and that of lecturer on ophthalmic surgery 1889–1899, he having undertaken eye cases as long back as 1877–8, when ophthalmic house-surgeon under Power and Vernon at St. Bartholomew's Hospital. He retired from the active staff in 1914, and was elected consulting surgeon. Eve was a dexterous and successful operator, and, owing to his scientific abilities and careful self-training, his opinion in surgical cases was much valued. He received the honour of knighthood in 1911.

Sir Frederic Eve was a member of the British Medical Association, was secretary of the Section of Surgery at the Annual Meeting at Nottingham in 1892, vice-president of the Section of Diseases of Children at the annual meeting at Bristol in 1894, and president of the same section at the annual meeting at Cheltenham in 1901.



Photograph by SIR FREDERIC EVE, KT. [*Elliott and Fry.*

Sir Frederic Eve, after serving on the Court of Examiners and Dental Board of the Royal College of Surgeons, became a member of the Council in 1904, Vice President for three years, and Bradshaw lecturer in 1914.

The JOURNAL published several important articles by Sir Frederic Eve, including an essay on the pathology and treatment of tumours of the jaws, which appeared in 1907, twenty-five years after the lectures already mentioned. In 1910 his paper on gastroptosis was published in our pages, and he also wrote in the *Lancet* on non-malignant diseases of the stomach, in 1908, dwelling on their surgical treatment. His "Symptoms and surgical treatment of gall stones," issued by the *Clinical Journal* in 1908, excited much attention, as in his earlier days he witnessed the development of hepatic surgery under Tait, Knowsley Thornton, and others, and he was thus able to review the development of the subject with an intimate personal knowledge of all its stages.

Before the war he was attached with the rank of Major to the 2nd London Territorial General Hospital. In December, 1914, he was appointed surgeon to the Eastern Command, with the temporary rank of Lieutenant-Colonel. In the July following he organized, with the assistance of Dr. R. S. Woods, a hospital at Croydon for the treatment of men suffering from the results of gunshot injuries of peripheral nerves, stiff joints, etc., and with Dr. Woods he published in our columns a paper on operative treatment of gunshot injuries of nerves.

Sir Frederic Eve married in 1889 a daughter of Mr. H. E. Cox of Jamaica, and leaves a son and daughter.

THOMAS BARR, M.D.GLAS., F.F.P.S.,

SENIOR SURGEON, GLASGOW HOSPITAL FOR DISEASES OF THE EAR, NOSE, AND THROAT; LECTURER ON AURAL SURGERY, UNIVERSITY OF GLASGOW.

THE news of the death of Dr. Thomas Barr, of Glasgow, will come as a great shock to his numerous friends throughout the country, for probably only a limited number were aware that he had been lying seriously ill at his residence during the past few weeks.

Born at Elderslie, Renfrewshire, on April 18th, 1846, he graduated as a Bachelor of Medicine and Master of Surgery with highest honours at Glasgow University in 1866, and in 1870 received the degree of Doctor of Medicine. During the years 1865–1867 he had the good fortune to study under Lister at a time when that great master mind was initiating and developing the principles and practice of antiseptic surgery. Contact with such a man could not fail to leave its impress, and on many occasions Barr said how mentally refreshed and invigorated he was by watching the evolution of Lister's laborious efforts, which as all the world knows completely revolutionized the practice of surgery.

After having been engaged in general practice for nine years, Barr turned his attention to otology, and studied under such distinguished exponents of the art as Professors Politzer, Gruber, Schrötter, and Urbantschitsch in Vienna.

In 1887 he was appointed dispensary surgeon for diseases of the ear in the Glasgow Western Infirmary, a position which he held for thirty-eight years. During this long period he conducted with great regularity and with much acceptance theoretical and practical classes on otology for university students. In 1879 he was appointed lecturer on aural surgery in Anderson's College Medical School, a position he held for sixteen years. In addition, he held the post of honorary aurist to the Glasgow Sick Children's Hospital from 1879 (the date of the opening of this institution) until 1914 a period of thirty-five years. On the death of the late Dr. James Patterson Cassells, in 1884, he was appointed aural surgeon to the Glasgow Ear Hospital, now the Glasgow Hospital for Diseases of the Ear, Nose, and Throat, a post which he resigned only a short time ago. In 1895 the University of Glasgow instituted a lectureship on diseases of the ear, to

which he was at once appointed, and he conducted large and successful classes. For a period of thirty-six years Barr regularly taught otology, keeping himself abreast of all the modern improvements and discoveries in this rapidly advancing branch of the healing art.

His reputation as an aurist is evidenced from the fact that he acted as president of the Otological Section of the British Medical Association at its meeting in Glasgow in 1888, as president of the Otological Society of the United Kingdom during the years 1903–1905, as president of the Glasgow Pathological and Clinical Society in 1899–1901, and as president of the Scottish Otological and Laryngological Society at its meeting in Glasgow in 1911. He was also one of the vice-presidents of the Otological Section of the International Medical Congress held in London in 1910.

He was a frequent visitor, and always a welcome contributor, to the various societies devoted to diseases of the ear, and wrote many valuable and practical papers upon subjects of otological interest. Possessed as he was of a peculiarly shrewd and discriminating turn of mind, his opinions and deductions were acceptable to his colleagues. At the London meeting of the British Medical Association in 1895 he brought forward a very full report on his experience in operation through the mastoid process for intractable suppuration of the middle ear, and took an active part in the discussions on cerebral complications in middle-ear disorders, and on Ménière's disease and other affections producing vertiginous symptoms which simulated it. In 1886 he discussed the effects of loud sounds upon the hearing of boilermakers and others who work amid noisy surroundings before the Glasgow Philosophical Society, which was published in its *Transactions*, and at the annual meeting of the British Medical Association at Birmingham in 1890 he read a paper in which he expressed the conviction that the ear was injuriously affected by the shrillness of railway whistles, and a resolution was passed on the subject.

His most important literary effort was his well-known *Manual of Diseases of the Ear for the Use of Students and Practitioners*; the first edition was published in 1884 and the fourth in 1909. In the preparation of the last edition he was ably assisted by his only son, Dr. J. Stoddart Barr, whose painful and prolonged illness was a great blow to the devoted father. Seldom, indeed, has it been given to father and son to have more cordial, sympathetic, and intimate interests in life. He was also the author of a *Guide to the Examination of the Ear and the Hearing* (1908), and of articles on the diseases of the external ear in the *Encyclopaedia Medica* (1899), and on methods of examination and general semeiology of the ear in Allbutt's *System of Medicine* (1908).

Possessed of a peculiarly lovable temperament Thomas Barr gathered around himself many friends to whom he was an inspiration, and a true helper in times of doubt and difficulty. His hearty handshake, his genial laugh, and his never-failing urbanity will long be remembered and cherished by those who had the privilege of his intimate friendship.

The present writer, who had the good fortune to know Barr intimately, and who on many occasions had the pleasure of entertaining him, will never forget his sunny disposition and his boyish enthusiasm, not only in all things otological but in everything pertaining to the advancement of the profession to which he was so devotedly attached. Possessing as he did a kindly and domesticated nature he was happy in his home and in his family circle, and there sought and found rest after his daily labours.

By his death the profession have lost a large-hearted, generous, and wholly lovable colleague. Truly, very truly, he was one of Nature's gentlemen.

DR. HUGO MÜNSTERBERG, professor of psychology and director of the psychological laboratory at the University of Harvard, died of heart failure while lecturing to a class on December 16th. He was born at Danzig in 1863 and studied philosophy, natural science, and medicine at Leipzig and Heidelberg. He was assistant professor at Freiburg from 1887 till 1891. In 1892, at the suggestion of William James, he was invited to Harvard where he remained for the rest of his life. He was a copious author, among his writings being *Psychology and Life* (1890), *Principles of Art Education* (1905), *Eternal Life* (1905), *Science and Idealism* (1906), and *Psychology and the Teacher* (1909). He told Americans what he thought of them and what they should think about themselves in two works, *American Traits* (1902) and *The Americans* (1904). His books are readable and suggestive, though the arrogant tone characteristic of the German professor is irritating to minds of less confident temper. Whether his work has in it much of solid value may be doubtful, but he was a stimulating teacher. His analysis of the value of human testimony in the volume entitled *On the Witness Stand*, published in 1907, and *Psychotherapy* (1908) are of particular interest to medical readers. In *Psychology and Industrial Efficiency* (1913) Münsterberg shows a shrewd appreciation of the effectiveness of various methods of catching the public eye, but some of his admirers must have regretted that he should have, in the words of Iago, profaned his own gained knowledge by applying it to the service of advertisers. Besides his activities as a teacher and a writer, Münsterberg practised professionally as a psychologist. It was as a pro-German propagandist, however, that he made himself most prominent. He entertained Prince Henry of Prussia when he visited Harvard in 1902, and put himself forward as an unofficial representative of the Fatherland, whose function it was to foster "cultural relations" between Germany and the United States. He was one of the "exchange professors" brought into being by the Kaiser ostensibly for the mutual benefit of the two nations. Since the war Münsterberg had been very active as an advocate of the cause of Germany. He published a book entitled *America and the War*, in which he set forth with Athanasian strength of anathematization the belief which the citizens of his adopted country should hold. Like Marius, he went about, from President to editors of all sorts, trying to stir up hostile feeling towards the Allies. His voice was loud, and his industry in his chosen vocation indefatigable, but his psychology was too much of the kind that is made in Germany for his methods to be successful.

BRIGADE SURGEON ALEXANDER CAMPBELL MCTAVISH, Army Medical Department, retired, died at Kilmartin, Kingswear, Devonshire, on December 2nd. He took the diploma of L.R.C.S.Edin. in 1858, and entered the army as assistant surgeon on January 12th, 1859, becoming surgeon in 1871, and surgeon-major in 1873. He retired with a step of honorary rank on July 7th, 1880. Most of his service was in the 60th Rifles and 17th Lancers. The *Army Lists* assign him no war service.

The Services.

EXCHANGES.

R.A.M.C.(T.) Captain, at present with Divisional Engineers in France, desires exchange with an officer at present in England, for domestic reasons.—Address, No. 4940, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.C.). M.O. Cavalry Regiment in France, seeks transfer with M.O. in base hospital, casualty clearing station, or hospital ship.—Address, No. 4939, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

A PAMPHLET of about a hundred pages, entitled *The Crimes of Germany*, founded upon the special supplement issued by the *Field* newspaper some months ago, has been issued by the Field and Queen Ltd., at the price of 1s. Its scope is explained on the title page, where it is described as an illustrated synopsis of the violations of international law and of humanity by the armed forces of the German empire, based on the official inquiries of Great Britain, France, Russia, and Belgium. Sir Theodore Cook contributes a preface, in which he says, truly enough, that some people are beginning to forget the atrocities committed in Belgium in August and September, 1914, and do not realize that Germany has continued them in one form or another ever since. The evidence of what was done in Belgium is drawn from three sources: first, the evidence of the Belgians themselves, and of the French people who were treated in the same way, as well as of British, French, and Belgian soldiers who witnessed the atrocities, or were aware of their results; secondly, the evidence from the diaries and notebooks of German soldiers killed or taken prisoners; and thirdly, the evidence officially taken by the German Government itself, which is damning.

Universities and Colleges.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

FINAL M.B. AND CH.B.—*G. E. Archer, E. R. Gilmore, J. B. Leigh, B. L. Lloyd, *J. A. Panton, C. R. Sandiford.

*Awarded distinction in Obstetrics and Diseases of Women.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part I:* R. A. Cooke, S. G. Evans, Phoebe A. Ince, W. A. Jackson, W. M. Jones, V. Levy, G. A. Mitchell, S. G. Mohomed, F. A. Prosser, W. L. de Silva, G. S. Swan, H. G. Young. *Part II:* E. H. T. Cummings, A. L. Davies, R. I. Duggle, R. R. Evans, H. P. Williams.

DIPLOMA IN TROPICAL MEDICINE.—M. Barseghian (Basil), H. L. H. Lim, A. L. J. Lim, G. N. Metzger, E. D. Söderström, L. Wheeler.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on Friday, December 15th, when Dr. Frederick Taylor, the President, was in the chair.

Admission of a Fellow.

Dr. Joseph Arthur Arkwright, who was elected to be a Fellow on April 27th last, was by a resolution of the College admitted to the Fellowship *in absentiâ*.

Gift to the College.

A resolution was passed that the best thanks of the College be given to Mr. F. W. Mitchell for his generous donation, through Dr. E. Malins, F.R.C.P., of Birmingham, of £500 to be devoted to the research, investigation, and treatment of tuberculosis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on December 14th, when Sir Watson Cheyne, President, was in the chair.

Examinations for the Fellowship.

The question of temporarily discontinuing the examinations in anatomy and physiology for the Fellowship and for the Final Fellowship was discussed; it was decided, however, that both examinations should be continued.

Issue of Diplomas.

Diplomas of Fellowship were granted to the following four candidates found qualified at the recent examination, for which seventeen candidates presented themselves: T. J. Cobbe, W. E. Tanner, H. B. Walker, and A. E. Woodall.

The diploma of Member was conferred upon H. G. Grant, M.D. Dalhousie, who had complied with the necessary by-laws.

Diplomas were issued to thirty-two candidates found qualified for the licence in dental surgery.

Meeting of Fellows and Members.

As no quorum was present no official meeting was held on Thursday, November 16th.

The President, in answer to questions put at the meeting, stated that no further meeting would be summoned for the year 1916, and that no reduction in the quorum was advised.

Voting of Fellows Resident Abroad.

On August 1st, 1916, there were 1,619 Fellows, of whom 289 were resident abroad, distributed as follows: Europe 2, Asia (including 52 in Indian Medical Service) 85, Africa 53, America and West Indies 36, Australia 66, New Zealand 37. The Council decided that Fellows resident abroad should be enabled to vote for members of Council, the necessary alterations for this purpose being made in the by-laws, namely:

RULE IV. *Election and Admission of Members of Council.*

Clauses 1 and 2 shall be and the same are abrogated and annulled, viz.:

1. The place and time appointed for every meeting of the Fellows for the election of Members or a Member of the Council shall be announced in the *London Gazette*, and in two London daily newspapers, not less than thirty days and not more than forty before the day of meeting.

2. Not less than ten days prior to the day fixed for such meeting the Secretary shall deliver or send by the post to every Fellow of the College, whose address in the United Kingdom is registered at the College, a voting paper in such form as the Council of the College may from time to time direct.

The following shall henceforth be and are hereby made and ordained by laws of the college, viz.:

1. The place and time appointed for every meeting of the Fellows for the election of Members or a Member of the Council shall be announced in the *London Gazette*, and in two London daily newspapers, not less than one hundred days and not more than one hundred and twenty before the day of meeting.

2. Not less than ninety days prior to the day fixed for such meeting, the Secretary shall deliver or send by the post to every Fellow of the College, whose address is registered at the College, a voting paper, in such form as the Council of the College may from time to time direct.

General Medical Council.

The best thanks of the Council were given to Sir Henry Morris for his services as representative of the College on the General Medical Council.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

W. G. writes: In reply to "J. M.," I had a case of vaccination on the foot which became septic and caused unnecessary suffering. A baby kicks continually, and there is a liability of contamination by excreta.

LETTERS, NOTES, ETC.

VAGITUS UTERINUS.

MR. H. CALTHROP ALLINSON (Consulting Surgeon, West Norfolk and Lynn Hospital) writes: In reference to Dr. W. L. Dickson's communication (December 2nd, p. 784) and your editorial remarks, the following case, which occurred in 1898, may be of interest. I was called by a midwife to see a multipara who had been many hours in labour, and found that all pains had long passed away, and that the liquor amnii evacuated. A vertex presented. Owing to the total inertia there was some difficulty in applying forceps. As this did not in any way stimulate contraction, I returned home for powdered ergot, leaving the handles of the forceps all but buried in the vagina. On my return some half hour later I was told that matters were *in statu quo*, but whilst washing my hands I heard the child crying. Assuming it had just been born, I raised the bedclothes, and found the condition just as I had left it. I was told that the child's cries had been heard during my absence; they resembled in every way the cries of a newborn infant placed in its usual flannels, and were to be heard all over the room. This crying continued until the recent infusion of ergot took its usual prompt effect, and delivery occurred mainly by uterine contraction. The mother died two years later of pulmonary phthisis; the child is now serving in France.

ACIDOSIS IN CHILDREN.

DR. K. B. PINSON (Cheadle, Cheshire) writes, with reference to the note on acidosis in children by Dr. A. Campbell Stark, in the JOURNAL of December 2nd, p. 756:

When locumtenent in 1914 I frequently examined the urine of children taken ill with diarrhoea, with or without vomiting, for acetone. I usually found it, and can confirm most of his statements. Those I examined appeared all seriously ill. They had at first some fever, were more or less prostrated, often having a pale, somewhat livid, hue, and in some cases there were convulsions. At first, too, there was usually marked vomiting. The acetone in almost all cases was strikingly abundant. I treated the diarrhoea with sodium bicarbonate and teaspoonful doses of glucose. The acetone diminished rapidly, disappearing altogether, very regularly in six or seven days. Constipation followed the diarrhoea about the third day. All got perfectly well, although perhaps their condition was at first somewhat alarming. The initial cause of their illness, in two cases, was unripe fruit. I took no notes and had not many cases, but was impressed by the sudden and profuse appearance of acetone.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

BACILLAEMIA DUE TO INFECTION WITH B. FAECALIS ALCALIGENES.

BY

CAPTAIN C. H. SHEARMAN, R.A.M.C.,

BACTERIOLOGIST, No. — GENERAL HOSPITAL, MEDITERRANEAN EXPEDITIONARY FORCE.

Clinical Notes by

CAPTAIN T. G. MOORHEAD, R.A.M.C.,

CONSULTING PHYSICIAN, No. — GENERAL HOSPITAL, MEDITERRANEAN EXPEDITIONARY FORCE.

In epidemics of disease due to the enterica group of organisms, especially when occurring among troops under war conditions, many cases are met with which are more or less atypical, and in which a diagnosis can only be reached with certainty by bacteriological methods.

More especially is this true under present conditions, when the disease as seen is frequently modified by previous prophylactic inoculation. Without a well-equipped laboratory to aid in the diagnosis, by means of haemoculture and serological tests, many cases of pyrexia due to other causes would undoubtedly be confused with this modified type of enteric, while others which clinically do not resemble enteric but are proved bacteriologically or serologically to be so, would be overlooked.

In speaking of making a diagnosis in enterica infections, I refer to the three types—*B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B—as one group, and as causing one disease, namely, enteric. I am not here concerned with making a differential diagnosis between the three members of this group—which, of course, can only be done in the laboratory—but rather of differentiating between such an enterica infection and the various other pyrexias of unknown origin.

During the past nine months at this hospital I have had occasion to make blood culture examinations of considerably over a thousand cases of enterica and suspected enterica infections. In the course of this work I have on several occasions recovered in pure culture from the blood of such cases an organism which has up to the present time been regarded as more or less non-pathogenic—namely, the *Bacillus faecalis alcaligenes*.

During the height of the enteric epidemic last summer this organism was isolated only on a few rare occasions—two or three times by myself and a similar number of times by my colleague, Lieutenant Willmore. Recently, however, cases have occurred from whose blood I have isolated the same organism with almost sufficient frequency to constitute a mild epidemic, and quite frequently enough to identify it as playing a pathogenic part, and being the definite cause of a mild pyrexia in which the true condition is a bacillaemia. Further proof that the organism is the causative agent was given by testing the agglutination power of the blood of several of these cases against the various strains isolated, after waiting for a sufficient length of time for specific agglutinins to be formed. In this way it was found that agglutination occurred up to a dilution of 1 in 200 of the patients' serums with homologous and heterologous strains—in some cases in even higher dilutions—while control serums from normal patients failed to agglutinate the various strains, even in dilutions of 1 in 50. During March and April eleven cases have occurred whose blood culture yielded this organism.

It is quite possible that several other cases of pyrexia, which were thought to be modified enteric, though in them no connexion with the enterica group could be proved by blood culture, agglutination tests, or by examination of faeces, were really due to infection with this same organism. In this latter condition, as in enteric, blood cultures to be of value must be taken as early as possible in the pyrexial period. The initial pyrexial period is of short duration, lasting but two or three days. During the past two or three months most of the cases admitted to this hospital have come from camps more or less in the immediate neighbourhood, the men having been ill for two or three days when admitted. All cases sent in as suspected enterica—as most of these infections by *B. faecalis* have been—are blood cultured as soon as possible after admission, either on the day of admission or the day after. In any case the initial pyrexial period may easily have passed when this is done, so the blood culture in many of these would be sterile. Until recently, infection with this organism not being recognized as a clinical entity, no further steps were taken to establish a relation between these cases and the organism in question, but subsequent pyrexial periods lending colour to the view that they were modified enterics, agglutination tests, and faeces examinations were carried out, but in several instances no connexion with the enterica group could be proved.

Some of these cases might well, then, be assumed to be unrecognized cases of infection with *B. faecalis alcaligenes*. This assumption is further borne out by the fact that since we have recognized that this organism may give rise to a definite pathological condition, I have tested the agglutination titre of the serum in some of the above-mentioned doubtful cases, and have found that in two or three of them the titre ran up to 1 in 400 for this organism, while for the members of the enterica group it was practically *nil*, what little agglutination for this group was present being no more than would be expected in inoculated subjects.

The points which I consider worthy of note in recording these cases are, first, that infection with this organism may clinically be mistaken for modified enteric, from which it can only be diagnosed with certainty by haemoculture or serological tests; and secondly, that an organism which has hitherto been regarded as practically non-pathogenic may invade the blood stream, and so give rise to a definite train of symptoms—a disease of which the dominant sign is pyrexia.

With regard to its pathogenicity, it is quite probable that in colder and more temperate climates the organism merely occurs as a harmless member of the intestinal flora, but that in climates such as this, where gastro-intestinal disturbances are rife—especially among fresh troops who are exposed to unusual hardships before becoming acclimatized—the catarrhal condition of the bowel so set up provides a *locus minoris resistentiae*, and the organism, hitherto passive and harmless, now assumes an active part and invades the blood stream.

Macé, in referring to Petruschky's original description of this organism, states: "Il se place tout au voisinage du Bacille typhique dont il a bien des caractères."[1] While Petruschky recognized its relation to the typhoid bacillus, the fact that it has so frequently been found to occur in the motions of healthy people and in contaminated matter, without, so far as I have been able to gather, being definitely described in relation to any disease, has undoubtedly led us to assume that it did not occur in a pathogenic part. Henderson Smith, in his recent article on the identification of the pathogenic members of the typhoid-colon group of bacilli, definitely mentions it as constituting a non-pathogenic group.

The characteristics of the strains isolated by me agreed with those given by Petruschky in his original description of the organism with one or two exceptions—namely, a variability in its motility, and, in the case of one strain, a rapid tendency to peptonize litmus milk. On some occasions the strains would be freely motile, and then for no apparent reason would on other occasions lose their motility while still remaining alive, as shown by their power to be subcultured. Probably this variability depended on some slight variability in the composition of the media on which they were grown. Apart from this they agreed in all other respects—that is, they were Gram-negative bacilli growing abundantly on agar-agar as a thick slimy growth, producing intense alkalinity in litmus milk (with the one exception noted), and alkalinity in such of the carbohydrates and alcohols as were at my disposal to grow them on. In peptone broth they rapidly produced turbidity, with a very thin transparent scum on the surface of the medium, and after a few days a deposit at the bottom of the tube. No liquefaction occurred in gelatine, and no indol was formed.

With regard to agglutination tests with this organism, having no electric shaker I had considerable difficulty in getting a homogeneous emulsion from agar cultures for the purpose of carrying out macroscopic tests. I found it necessary to centrifugalize the emulsion obtained by rubbing up the growth with normal saline, then to pipette off the supernatant fluid, and filter it through a sterile filter paper.

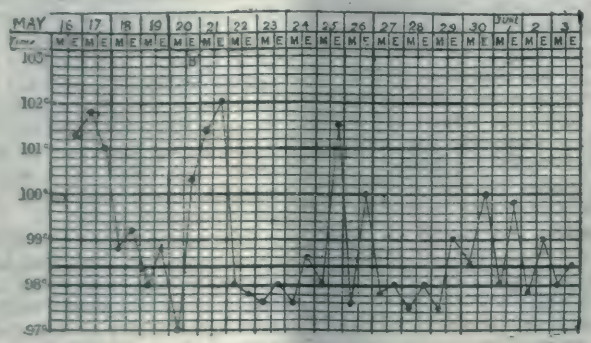
[1] Macé, *Traité pratique de bactériologie*, vol. ii, p. 250.

In this way a fairly homogeneous emulsion was obtained, but control tests in normal saline were always put up when carrying out agglutinations. It was usually found that a very slight amount of pseudo-agglutination occurred in these controls—nothing to be compared to the very definite agglutination in those that were positive.

As a further control I repeated the tests microscopically, and the process of agglutination became very apparent when watched under the microscope, thus eliminating any possibility of pseudo-agglutination being confused with the actual phenomenon.

The blood cultures were made as follows:

Five c.cm. of the patient's blood was drawn off aseptically from the median basilic vein and placed in 50 c.cm. of a 2½ per cent. solution of taurocholate of soda in distilled water. This was incubated for twenty-four hours, then plated out on MacConkey plates, which were again incubated for twenty-four hours. The agar used in making the MacConkey plates was specially prepared with pancreatized bullock's heart according to a formula by Lieutenant-Colonel Dudgeon.



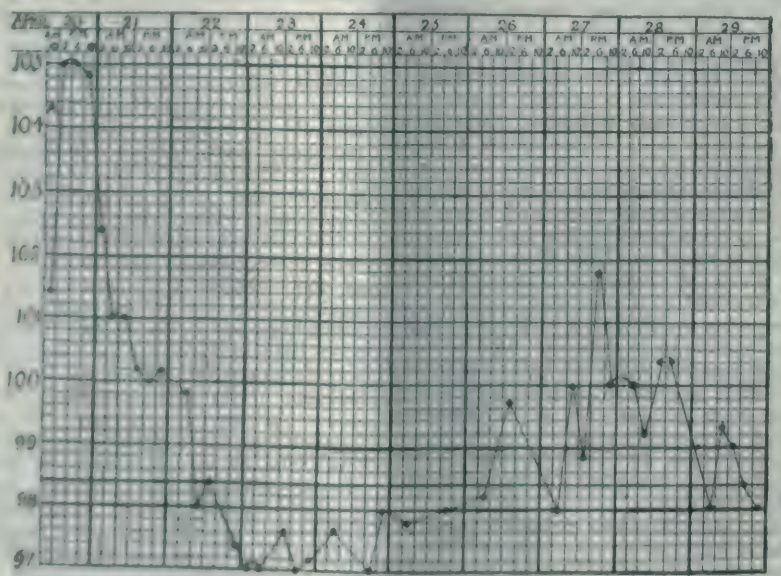
B = Blood culture taken.

Colonies from the MacConkey's plate were picked off into mannite litmus agar, stab stroke culture being made to note the presence of gas, if any, as well as the reaction of the organism on the mannite.

The absence of any acidity on this medium with a gradual production of alkalinity was sufficient to differentiate the organism from the enterica group in the preliminary examinations, the further characteristics being worked out later.

None of the strains isolated so far are agglutinated with stock (Lister Institute) typhoid or paratyphoid antiserum.

It might be as well to mention here that on the first occasion of its isolation I was rather inclined to think that I had recovered a Shiga-Kruse bacillus from the blood. Subsequent investigation showed that the organism was not connected with the dysentery group, nor was it agglutinated by Shiga antiserum.



A = Admission to hospital.

Since writing the above I have isolated this same organism from a further series of ten cases. In five of these I repeated the blood culture examinations five days after isolating the organism, and in two of these I again recovered the organism in pure culture. In the other three cases in which haemoculture was repeated the pyrexial period was passed at the time of taking the second culture.

In two of these cases I have examined the urine bacteriologically, but in each it proved sterile. On first meeting with these infections by *B. faecalis*, I was inclined to think they were cases of mild enterica in which the *B. faecalis* had entered the blood stream with an organism of the enterica group, and had outgrown the latter. But agglutination tests with the serums from these cases have failed to show any relationship with the enterica group, while, as stated above, a specific agglutinin is developed for *B. faecalis*. This, together with the fact that in all these cases the organism has occurred in pure culture in the blood, is, to my mind, sufficient evidence that a genuine and specific infection occurs with this organism.

I am indebted to Lieutenant-Colonel Ledingham, consulting bacteriologist to the Mediterranean Expeditionary Force, for the following notes on the characteristics of the *B. faecalis* group, as well as for the notes on previously reported cases of this infection, and for the table of references.

B. faecalis alcaligenes.

The organism to which the name *B. faecalis alcaligenes* was given by Petruschky in 1896, in view of its intense production of alkali in litmus milk, was originally recovered by the same observer in 1889 from a specimen of stale beer, and later from human faeces. In many of the cultural tests at that time in vogue for the differentiation of organisms this bacillus agreed closely with *B. typhosus*, but was sharply differentiated therefrom by its property of rendering litmus milk alkaline. At a somewhat later period the controversy which arose over certain observations by German workers, tending to show the possibility of transforming *B. typhosus* into *B. faecalis alcaligenes* and vice versa, again drew attention to this organism; but, as the observations referred to were discovered to be due to contaminated cultures, the matter has only a historical interest for us.

In more recent years the biological properties of *B. faecalis alcaligenes* have been fairly fully defined. Krencker (1905), for example, found that no fermentation took place in media containing glucose or lactose, while Klimenko (1907), who examined a fairly large number of strains, recorded the fact that alkali production only occurred in glucose, galactose, cane sugar, lactose, raffinose, arabinose, and dulcite.

It has also been established that the flagella of *B. faecalis alcaligenes* are always polar, and not peritrichal, as was originally stated by Petruschky. (N.B.—The sugar reactions given by Castellani (1912) for this organism are incorrectly stated.)

At the present time *B. faecalis alcaligenes* may be defined as an organism occurring in human dejecta, particularly in diarrhoeal or dysenteric conditions, and either alone or in association with organisms of the typhoid-paratyphoid-dysentery group, or with non-lactose fermenters such as *B. proteus vulgaris*, Morgan's bacillus No. 1, etc. It produces turbidity in broth, sometimes with pellicle formation; it produces no indol, and does not ferment carbohydrates, media containing which being rendered intensely alkaline, as also is litmus milk. Gelatine is not liquefied, and there is no pigment formation, though a brownish growth on potato has been described.

Pathogenicity for Laboratory Animals.—The organism possesses little pathogenicity for guinea-pigs and mice, except possibly when inoculated intraperitoneally in fairly

Pathogenicity for Man.—Definite evidence of the pathogenicity of this organism for man is very scanty, although there has been on the part of certain writers a tacit assumption of its association with a low form of gastro-intestinal disease. When found in the dejecta in diarrhoeal and typhoidal infections as the sole non-lactose fermenter, it has most commonly been regarded as simply an associated organism which has overgrown the more specific organisms and rendered their recovery impossible. In more recent years, however, a few cases have been reported in which this organism has been recovered from the blood, and has apparently been accountable for the symptoms in the respective cases.

Thus Straub and Krais (1914) record two cases, of which the following are brief notes:

Female, aged 19 years, admitted January 6th, 1913. Pain on defaecation, with two or three stools a day, since middle of December, 1912. Stool formed, but containing mucus. On January 2nd pains in the umbilical region. Since January 4th vomiting of bilious watery material without blood. Little appetite. Temperature 39° to 40° C., pulse 130. Herpes labialis. Heart and lungs normal; abdomen tender on pressure, no distension; spleen not enlarged. Temperature fell by lysis from January 11th, and patient was discharged on February 8th. From the blood a pure culture of an organism allied to the *f. ecal s* group, but liquefying gelatine, was recovered. Total leucocytes 4,500, with relative lymphocytosis. Serum of patient did not agglutinate *B. typhosus* or the two paratyphoid bacilli.

Male, aged 19 years. Admitted April 24th, 1913. Took ill on April 3rd with headache and rigors, but continued at work till April 14th. He then received ambulant treatment till April 24th. On admission he complained of stabbing pains in the chest, with cough, headache, and night sweats. Stools were regular. Temperature 39.9° C. Pulse 100. Spleen not palpable. Leucocytes 7,100, with 50 per cent. lymphocytes. Fever was continuous till April 30th, when a brief remission occurred. It continued, however, at 38° C. till May 12th, when it became normal. The patient was discharged on June 3rd. There is no record of haemoculture, but from the urine an organism giving all the characters of *B. faecalis alcaligenes* was recovered on May 17th. Twice during the pyrexia (on April 30th and May 3rd) the urine had been found sterile. This organism did not liquefy gelatine. The serum of the case did not agglutinate typhoid or paratyphoid bacilli, but agglutinated the homologous strain of *B. faecalis alcaligenes*, as well as that recovered from Case I, in a dilution of 1 in 1,000.

Rochaix and Marotte (1916) give a brief but concise account of two recent cases of benign typhoid-like illness in which typical *B. faecalis alcaligenes* was recovered from the blood.

The two patients complained of gastro-intestinal symptoms. During the first two or three days the temperature oscillated between 39° and 40° C., then fell progressively to normal in ten to twelve days. Blood culture performed on the day following admission gave a pure culture of *B. faecalis alcaligenes*. Six days later a second haemoculture proved negative. The serums of the two patients did not agglutinate paratyphoid bacilli, but agglutinated *B. typhosus* in 1 in 100 and 1 in 50 respectively. (Both cases previously vaccinated against enteric.) The homologous organisms were, however, agglutinated by the serums of the cases in 1 in 200 and 1 in 500 dilution respectively. Also the serum of the first patient agglutinated the organism recovered from the second case in 1 in 200 dilution, while the serum of the second patient agglutinated the organism of Case I in 1 in 1,000 dilution.

Two or three isolated and less authenticated cases are here omitted, and no evidence is on record of the occurrence of cases of this character in apparently epidemic form. The series of cases here recorded by Captain Shearman constitute the first record of what may be called an epidemic prevalence of infection due to *B. faecalis alcaligenes*.

Clinical Notes of Cases admitted into No. — General Hospital.

Nearly all the cases referred to by Captain Shearman were at first admitted into the Observation Ward of the No. — General Hospital, Egypt. This ward is one into which all cases of obscure pyrexia, in which no physical signs or symptoms are present to explain the occurrence of the fever when the patient first presents himself and in which in consequence there is a suspicion of enteric or typhoid fever, are received direct from the reception room. From this ward cases are weeded out day by day as an accurate diagnosis becomes possible.

The symptoms this group of patients complained of may be briefly summarized. In nine out of the eleven cases there was a sudden onset with slight chill, severe headache, usually frontal but sometimes also felt in the occipital region, nausea, occasional vomiting, and general aching of the limbs. Abdominal pains with constipation were also usually complained of. In two of the cases the onset was gradual, but the symptoms complained of were those above enumerated.

On examination after admission there was very little to note except in a negative way. In all cases the face was flushed, the tongue furred, and all the usual phenomena of pyrexia were apparent. The pulse was under 100, and not dicrotic; nothing of note was found in the chest; the abdomen was slightly distended and tender on palpation, but no enlargement or tenderness of either liver or spleen was found. The urine was normal, and in each case the diazo test was negative. In one patient there was a diffused urticarial eruption, which disappeared in twenty-four hours, but returned a few days later.

The type of temperature recorded was interesting. In nine cases there was an initial period of pyrexia of from two to five days' duration, reaching a height of from 101° F. to 102° F., and falling by lysis. This was followed by a normal period of from two to five days, after which there was a second pyrexial period similar to the first, but lasting only two to three days, during which period there was a return of all the symptoms complained of at the beginning. In two cases there was a third rise of temperature similar to the first and second. In two cases no second pyrexial attack occurred.

Blood examinations, apart from the bacteriological findings, throw no light on the condition. The white cell count, with one exception, was in each case examined under 10,000 per c.cm., averaging about 8,800, and the differential count was normal.

No spirilla or malarial parasites were found. In one case a leucocytosis of 16,000 was found. As it is probable that cases similar to these are occurring elsewhere, and as in other places where paratyphoid fever is prevalent they might easily be taken for mild and unusual forms of that disease, it is important to call attention to their existence. The diagnosis, of course, depends entirely on the bacteriological findings.

Typical temperature charts from two of the cases accompany this note (p. 894).

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CYTOLOGICAL EXAMINATION OF THE JOINT FLUID AS AN AID TO PROGNOSIS IN PENETRATING GUNSHOT WOUND OF THE KNEE.

BY

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THE treatment of gunshot wounds of the knee-joint continues to be one of the most pressing surgical problems of the day. Consequently any method whereby a juster opinion of the future progress of the case can be made on its first examination is likely to be of considerable use. This fact must be my excuse for presenting a manifestly incomplete account of the method I have adopted at a base hospital in France for over a year.

The pathological principle upon which it depends is simple. Damage having been done to the joint, Nature sets about repairing the damage, and the first step consists in sending leucocytes into the synovial fluid. Now, it is a fundamental fact in the pathology of inflammation that aseptic damage to a part is associated with migration of mononuclear leucocytes chiefly, septic damage with migration of polynuclear leucocytes. Moreover, up to a point where negative chemiotaxis comes into play, the heavier or more virulent the infection the greater the migration of polynuclears. Pus, which consists of

practically 100 per cent. polynuclears, is a surgically visible sign that infection of the part has occurred. Hence determination of the degree of local leucocytosis roughly indicates the degree of local damage, and a differential leucocyte count made of a sample of fluid removed by aspiration affords evidence as to whether the injury is aseptic in a practical (as distinguished from a bacteriological or a strictly surgical) sense, or is septic. Manifestly the surgical treatment must differ in the two cases.

Starting from the point that normal synovial fluid of the knee-joint is acellular—when gunshot injury occurs and haemorrhage takes place into the synovia the ratio of leucocytes to reds found immediately must be that of normal blood, say, 1 leucocyte to 500 reds. With the subsequent migration of leucocytes due to inflammatory reaction the number of whites goes up. Thus I have notes of cases in which the ratios of leucocytes to red blood corpuscles were 3 : 500, 5 : 500, 9 : 500, 25 : 500, 50 : 500, 70 : 500, 125 : 500, 1,000 : 500.

Further, normal blood contains roughly 70 per cent. polynuclears, 30 per cent. mononuclears, and the leucocytes found in the mixture of synovial fluid and blood immediately after the injury must be present in these ratios. If the subsequent migration of leucocytes be called forth by an "aseptic irritant" the ratio will remain unchanged or the percentage of mononuclears may even increase. If the migration be called forth by a "bacterial irritant" the polynuclear percentage will increase. Hence, if a sample of knee-joint fluid removed from a patient in hospital shows, for example, 500 reds to 5 whites, and a differential count of the whites shows 50 per cent. polynuclears and 50 per cent. mononuclears, it differs fundamentally from another sample showing, for example, 1 red to 4 whites, when the whites on differential counting are 99 per cent. polynuclears and only 1 per cent. mononuclears. The case from which the first sample was taken is clearly one in which infection is absent or negligible, the second is one in which it has undoubtedly occurred.

So far as concerns the prognosis for a specific case, one cannot entirely depend upon the two factors that have been given above, but must also take into consideration the absolute number of cells present. This is to some extent true where the presence of a mononuclear increase indicates an aseptic condition (a joint with 20 c.cm. of blood effused into it must be in a worse condition than one with only 1 c.cm.), but it is markedly true when a polynuclear increase indicates that infection has occurred.

In the latter instance it makes a profound difference whether the cells are so few that films for examination can only be obtained from the deposit after centrifuging, or so numerous that they crowd the field of the microscope. If very few in number, a 99 per cent. polynuclear count is certainly evidence that infection has occurred and has been slight, but the migrated leucocytes may have effectively dealt with the invading micro-organisms and re-established sterile conditions. On the other hand, where the cells are numerous, not only does a 99 per cent. polynuclear count indicate that infection has occurred, it also indicates that it has been heavy, and, *a fortiori*, that it is less likely to have been overcome. Consequently, whereas a bad prognosis for the joint may be amply justified where there is a high polynuclear count and the absolute number of leucocytes is great, it is not necessarily justified, and may even be wrong, when the absolute number of leucocytes is quite small.

Results.

In all I have examined fluids and given prognoses in 89 cases. These are shown in the table. Cases notified as "no operation; joint settled down" were treated by complete physiological rest, obtained by bed and a back splint to the limb; they were not sent to England until temperature and pulse had been normal for at least a week. In cases notified as "joint opened widely" the ligaments were cut, and the limb was put up on a triangular splint.

The following table shows the prognosis for joint based on cytological and bacteriological examination of fluid removed by aspiration, and also the subsequent result furnished by the surgeon:

TABLE I.—*Showing Prognosis and Result.*

Prognosis.	Cases.	Result.	Cases.
Good	... 27	No operation; joint settled down	... 24
		Joint opened widely or amputation	... 3
Probably good ...	... 5	No operation; joint settled down	... 5
Doubtful	... 5	No operation; joint settled down	... 3
		Joint opened widely	... 2
Probably bad ...	... 11	No operation; joint settled down	... 2
		Lateral incisions into joint ...	... 4
		Joint opened widely	... 4
		Amputation	... 1
Bad	... 41	No operation beyond removal of foreign body; joint settled down	... 3
		Lateral incisions into joint ...	... 2
		Joint opened widely and/or amputation (amputation 17)	... 27
		Joint opened widely; death with or without previous amputation ...	... 9

Pathological Details.

Preparation of Films and Cultures.—Films are prepared after tubes of broth and of glucose agar have been sown. The glucose agar is used as a combined shake, stab and slope culture. After melting and cooling to about 45° C. the agar is heavily sown from the knee-joint fluid, well shaken, and allowed to set under the tap, the tube being held at an angle of 45 degrees. When solidified, a stab culture is made in the same agar, and the charged platinum wire is spread over the small sloped surface of the medium. In the one tube, therefore, gas formation, anaërobic growth (if anaërobiosis be not too strict), and aërobic growth can be detected. The stab is useful for obtaining samples of any anaërobic growth which would be difficult to obtain from colonies in the shake culture.

The films for cytological examination are made from the upper part of the clot or the deposit if there be no clot. The clot is chosen in preference to the fluid because it is richer in cells, and the upper part because it will probably contain a larger percentage of leucocytes than any other part. Having removed a small portion of the clot with a platinum wire a drop is examined direct with the low power. If the cells be many, films are made as in the preparation of ordinary blood films; if they be few, the fluid from the portion of the clot taken is allowed to drain away until the original mass has shrunken considerably, and smears are made on microscope slides with the remaining portion. After drying, some of these are stained by Leishman's, others by Gram's method.

The only real difficulty met with is when the fluid contains much synovia. Frequently it is then straw-coloured or orange, the clot is filmy, colourless, pale yellow or perhaps red from admixture of blood, and cells may be few. In any case the tendency of synovia to swell with water makes the latter part of Leishman's staining (that is, the washing with distilled water) difficult to carry out. The film is detached with great ease from the slide and the cells often stain so deeply that differential counting is impossible. Complete avoidance of water and rapid washing with methyl alcohol after staining one to two minutes with Leishman's dye usually provides films from which determinations can be made, though the nuclei stain much less deeply than those in which water has been used. Sometimes a good differential count can be made from a Gram-stained film counterstained with aqueous fuchsin. In practice I differentiate cells in the usual way, finally combining them into the "granular" and "agranular" groups.

So far as concerns the number of cells present, after noting the macroscopic appearances of the fluid I usually confine myself to forming a rough estimate of the total number of cells per c.mm. (as compared with a good film of normal blood) and of the ratio of reds to whites by counting them in twenty or more fields of the microscope. On several occasions I have tested the numbers thus obtained by actual counts on a Thoma-Zeiss slide after breaking up the clot finely and vigorous shaking, and find that the quick method gives values of sufficient accuracy for the purpose in hand.

After estimating the cell content and making the differential count of leucocytes a search is made for micro-organisms, both in the Leishman and the Gram film.

Upon these data and the presence or absence of growth in cultures next day the prognosis is based.

Obviously judgement is easiest where the prognosis is frankly good or frankly bad, but the dividing line will be

best shown by giving the actual values obtained in the "Probably good," "Doubtful," and "Probably bad" groups of cases.

TABLE II.

	Character of Fluid.	No of Cells (rough).	R. : L.	Polynuclears per Cent.	Micro-organisms.		Clinical Result.
					Films.	Culture.	
Prognosis "Probably good."	Bloody	500,000	45 : 1	70	0	0	Good.
	Bloody	500,000	45 : 1	57	0	0	Good.
	Bloody	1,250,000	20 : 1	73	0	0	Good.
	Bloody	1,250,000	500 : 1	79	0	0	Good.
	Clear	25,000	1 : 1.5	68	0	Staph.	Good.
Prognosis "Doubtful."	Straw bluff clot	200,000	1 : 1	94	0	0	Bad.
	Orange, turbid	200,000	116 : 100	97	0	0	Bad.
	Straw, blood (bright) deposit	5,000,000	8 : 1	85	0	0	Good.
	Slightly bloody	100,000	3 : 1	87	0	0	Good.
	Orange, turbid, slight blood deposit	250,000	4 : 1	90	0	Bacilli	Good.
Prognosis "Probably bad."	Straw, light clot	500,000	(a)	100	0	Cocci	Bad.
	Bloody	1,000,000	21 : 1	91	0	0	Bad.
	Straw, deposit of pus	1,250,000	No reds	94	Cocci	Cocci	Bad.
	Bloody, muco-pus	1,250,000	1 : 2	100	0	0	Bad.
	Bloody, ill-formed clot	1,250,000	10 : 1	93	0	0	Bad.
	Dark, bloody...	3,000,000	11 : 1	100	0	0	Bad.
	Yellow, dark clot	1,000,000	4 : 1	99	0	0	Bad.
	Yellow, blood deposit	500,000	2 : 1	100	0	0	Bad.
	Yellow, curdy deposit	800,000	(a)	96	0	0	Good.
	Yellow, muco-pus	800,000	No reds	91	0	0	Bad.
	Bloody	1,000,000	(b)	(c)	0	0	Good.

(a) L. = many times R. (b) Great leucocytosis.
(c) ? (degenerated).

From Table II it appears that an 80 per cent. polynuclear count marks roughly the dividing line between good and bad prognoses. Similarly, the dividing line is roughly indicated *when cells are present in considerable numbers* by the ratio reds to whites equals 20 : 1.

So far as concerns the bacteriological side of the investigations absence of micro-organisms from films and cultures of a knee-joint fluid is so common, although the nature of the injury makes it certain that some degree of infection must have occurred, that such absence, considered by itself, carries but little weight in forming the prognosis. On the other hand, the presence of even two or three short chains of streptococci or clumps of staphylococci in a large film, associated as it usually is with copious growth in cultures, is highly significant of a heavy and still active infection.

In twelve cases I have made two or more examinations, samples of fluid having been withdrawn from the joint at intervals. Such repeated examinations are at times very useful, as they indicate, of course, the progress of the local condition. A second sample, taken twenty-four hours after the first, may be enough to clear up a doubtful case and enable one to say whether the joint will settle down or not.

Finally, it must not be supposed that prognosis in these cases can be converted into a mathematical certainty. Balancing of the data obtained in the manner set forth above and formation of an accurate prognosis will still demand good judgement on the part of the pathologist. The attempt is worth making, for the frequency with which micro-organisms are neither found in films nor obtained by culture is evidence that the knee-joint has great powers of dealing with infection when the natural processes are not hindered by "physiological unrest." After penetration by a projectile a knee-joint is in a precarious condition, and the unstable equilibrium may easily be upset by a well-intentioned but ill-judged procedure to the disadvantage of the joint, possibly even at the cost of limb or life. Though the method advocated is obviously susceptible of many improvements the proportion of accurate prognoses made thereby is sufficiently high to indicate its practical value in helping the surgeon to decide in a given case whether he will operate or whether he will forbear.

PSYCHO-ANALYSIS.

BY

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READERS of the BRITISH MEDICAL JOURNAL know that I am not a fanatical devotee of psycho-analysis. I have so often questioned its principles and its methods that it may be supposed that I regard it as wholly useless. This would be a mistake. In my opinion psycho analysis performs a very useful function, which I will presently describe, and this being so, it is expedient that those who wish to avail themselves of its aid should know how to do so. At present there is no systematic exposition of psycho-analysis. There is a voluminous literature, but there is no systematic exposition. The writings of Freud and Jung, the chief priests of the cult, are disconnected, and from them we have to pick out the principles as best we can from among detailed records of individual cases. From this it has resulted that some of the most enthusiastic devotees of psycho-analysis have not grasped its principles.

It is true that psycho-analysis is past its perihelion, and is rapidly retreating into the dark and silent depths from which it emerged, but as it has in certain cases an unquestionable value, and as, moreover, the historian of medicine of the future will have difficulty in finding any account of it, it is well that it should be systematically described before it goes to join pounded toads and sour milk in the limbo of discarded remedies.

The first step towards the mastery of psycho-analysis is to obtain a command over its vocabulary, and the chief term used in the art is "The Unconscious." Upon this term the whole system is built, and it is therefore much to be regretted that there is no intelligible definition of it. Many have tried to define it, but no one has succeeded in producing a definition that is intelligible. This failure raises, of course, the prima facie presumption that the term has no meaning at all, that it is *vox et praeterea nihil*, and gives us the assurance that any meaning that does attach to the word is so misty, vague, and inchoate that to found practice upon it would be most unsafe. It may seem unlikely that men sufficiently intelligent to obtain positions as professors in universities would found a system of psychology and treatment on a notion so hazy and impalpable as to be wholly undefinable, but history, from Plato to Paracelsus, and from Paracelsus to Mill, shows that it has often been done, and no doubt it will often be done again. However misty and incomprehensible the notion may be, it seems that those who use the term as the basis of their system must attach some sort of meaning, if only a negative meaning, to it. I believe, though I speak with diffidence, that this is the case, and I shall try later on to explain the meaning that appears to attach to the term, as far as it has any meaning at all.

The next most important term used in psycho-analysis is "Libido." This has both an esoteric and an exoteric meaning. To the initiated it means lust, especially morbid and unnatural lust, incest, pederasty, bestiality, and so forth; but its exoteric meaning, as explained to those who are not fully initiated, and might be repelled by the esoteric meaning, is very different. To them it is explained as having the meaning of "wish," or "energy," or some other which is quite cleanly.

"Mentality" is another favourite term of the psycho-analyst. Its proper meaning is "mindness," which is of course nonsensical; but mentality does not sound as nonsensical as mindness. It sounds as if it meant something, and may be used when it is desired to strike an attitude, and impress the reader with a belief in the superior attainments of the writer.

"Œdipus-complex" and "Electra-complex" are other terms for incestuous lust. They are used for readers who are not fully indoctrinated with psycho-analysis, and might be disgusted with the plain term.

With this glossary, the student will be prepared for the study of psycho-analysis, and may now proceed to master its principles. Its basic principles are two: the principle of Sexuality and the principle of Conflict.

The first basic principle of psycho-analysis is that the key to every mental state, normal or morbid, is sexuality. On this principle we assume that every one of our thoughts has, whether we know it or not, a reference to sex; that every feeling has a sexual origin, every emotion a sexual nature, every act a sexual motive; that we live and move and have our being in an atmosphere of sexuality, which envelops us as completely as the physical atmosphere, from which it is just as impossible to escape, and of which we are just as unaware. However pure, innocent, and free from sexual colouring our ideas may appear to be, this appearance is delusive, for they are nevertheless steeped and saturated in sexuality. Nor is this sexuality which engrosses all our thoughts and feelings and prompts all our acts healthy and normal in character, if excessive in amount. It is distorted, debased, and depraved. Sexuality, like the letter H, is allotted to man with his earliest breath, attends him at birth, and awaits him at death. It is in sexuality alone that we live and move and have our being. The newborn infant, nuzzling against its mother's breast, has always been considered to be actuated by hunger, and to be seeking nourishment. The psycho-analyst teaches that this is a mistake: that the infant is actuated, not by hunger, but by a sexual attraction towards its mother. It is manifesting an incestuous craving. If we ask how the psycho-analyst knows this, we get no answer. He knows. He is the psycho-analyst. To question his assumptions is to shake to pieces the whole fabric of his doctrine. Therefore his assumptions are not to be questioned.

As soon as the girl baby is able to distinguish one person from another, she is consumed by a burning sexual passion for her father, a passion which clings to her throughout life, and dominates her career. When she grows up and falls in love, her lover attracts her not for himself, but for his likeness to her father, and is therefore always a person who resembles her father. In all her sexual relations with her husband, he is only taking the place that is really her father's, and it is with her father that she is all the time in imagination. In the case of a man, it is not his wife that he loves and with whom he has marital relations. She is but the inferior substitute for his mother, to whom he is vicariously married. Again if we ask the psycho analyst for his ground for this assumption, we get no answer, unless it is an answer that he twists and wrings and distorts the results of his examination of this and that patient until they can be forced to appear to corroborate his assumption. The real ground of his assertions is that he is the psycho-analyst, and he knows.

These morbid and unnatural sexual thoughts and feelings are omnipresent in the lives of all. Everything solid that is seen, thought of, imagined, or especially dreamt of, and especially if it approximates to the cylindrical shape, has a sexual significance. It symbolizes the phallus. If we see or think of, and especially if we dream of, a ruler, a pen, the leg of a table, the trunk of a tree, or anything else that is solid—a house, a book, a hill, or any other solid object—we see, or think, or dream of it, not as itself, but as the phallus. Similarly, everything hollow, a tea-cup, a valley, the hold of a ship, the interior of a room, a railway carriage, a box, or a well, symbolizes the corresponding female structure, and suggests obscenity.

This is the first cardinal assumption on which psycho-analysis is founded. It is not stated by psycho-analysts as an assumption, however. They state it as an ascertained and certain fact.

It is commonly supposed that sexual modesty, reticence, and concealment are innate in human beings, and appear naturally at a certain early age, and at a certain stage of mental development; that they are instinctive, and arise from within. The psycho-analyst teaches that this is a mistake. Sexual modesty, and the conduct which it prompts are, according to him, the products of education. If we do not allow our thoughts to be occupied exclusively with obscenity, it is because we have been taught in early life to exercise an unnatural suppression and control of them. We are engaged in a life-long struggle to suppress those sexual thoughts and feelings by which our minds are dominated. It seems to me that every one of us is as competent as a psycho-analyst to decide this question. We can all of us judge from our own recollection of our own early experiences, and from our own observation of the early experiences of other people, and it is not a fact that children are taught by their seniors to be sexually modest. The experience of us all is that sexual modesty grows from within, and is not implanted from without. The experience of all but psycho-analysts is that there is no struggle. The temptation to think of obscene things does not trouble us; we do not put forth any effort to suppress such thoughts; they are naturally abhorrent and disgusting to every one but a psycho-analyst; and no one but a psycho-analyst experiences any struggle in repelling and rejecting them. It is quite true, the psycho-analyst admits, that we are unaware of this struggle, that the temptation to obscene thought does not trouble us, and that we are not conscious of any effort to suppress such thoughts; but the reason of our ignorance is very simple. This is where the second cardinal principle of psycho-analysis finds its application. It is, in fact, to surmount this very difficulty that the second cardinal principle of psycho-analysis was invented.

The second cardinal principle of psycho-analysis is the existence and activity of *The Unconscious*. The reason that we are not aware of the terrible and vital struggle, in which we are all our lives engaged, to subdue the flesh, is that this struggle is carried on, not in our minds but in our unconscious; and it now becomes necessary to explain, as far as it is possible to do so, the meaning which psycho-analysts attach to this term. Up to the present it has been found impracticable to define it or to describe it in intelligible terms, but it plays such a preponderant part in psycho-analysis, and is so vitally necessary to the whole theory and practice of the art, that it is necessary to take pains to understand it. I am not sure that it is possible to understand it. I am not sure that it has any substantial meaning at all; but after prolonged study of the writings of psycho-analysts I have arrived at what is, I think, in their minds, and though the term cannot be either defined or described or explained, yet we may gain some approximation to its meaning by the help of illustrations.

The struggle in the mind between obscenity and chastity may be likened to a mutiny on board ship. Suppose such a mutiny, in which the crew are struggling to overpower the officers, and the officers are trying to subdue the mutinous crew. Suppose that you go on board the ship, and can find no sign of a struggle. Everything seems to be proceeding peacefully and orderly. The crew are to all appearance obeying the officers, and the officers are to all appearance in full control of the crew. It does not appear that any mutiny is taking place, and you are inclined to deny that there is any mutiny on that ship. You ask the nauto-analyst what reason he has to suppose there is a mutiny, and his answer is that you are altogether deceived by appearances. There is a deadly struggle going on, but you cannot see it because you are looking in the wrong place. What goes on in the part of the ship that you can see may be peaceful and orderly enough, but is of no importance whatever. *The mutiny is in the Overboard* of the ship, and what goes on in the Overboard is far, far more important than what goes on aboard the ship.

Take another illustration. You suffer from constipation, and you ask your doctor for a purge. The doctor happens to be a gastro-analyst, and he explains to you that what appears to you to be constipation is really dyspepsia, and is due to a violent struggle that is going on in your abdomen between the duumvirate, which is rebelling against the archaeus, and the archaeus, which is trying to overpower the duumvirate. "But, doctor," you say, "I have the digestion of an ostrich. I have eaten blubber with the Esquimaux, and baked leg of camel and couscoussou with the Arab of the Desert. I could eat ragoût of old shoes, or stew of worn-out motor tyres without suffering from dyspepsia. There cannot be anything the matter with my digestion." "That," says the gastro-analyst, "has nothing to do with the case. You are suffering from terrible indigestion, but you do not feel it because the indigestion is not in your material stomach; *it is in the Outbody*, and what goes on in the body is of no importance at all. Your health depends entirely upon what is happening in the Outbody."

If we want to understand what goes on aboard ship, the

proper method is to study, not the behaviour of the crew, but the Overboard; if we want to understand what is going on in the body, the proper method is to study, not the processes going on in the body, but the Outbody; and if we want to understand what is going on in the mind, the proper method is to study, not the consciousness, but the Unconscious. Let us see, then, how the Unconscious is to be studied. It would appear from what we now know of the Unconscious that the study of it would be attended by certain difficulties; but fortunately, nothing in the world is easier. It is so easy that it appears positively childish; and the more we know of it the more childish it appears. There are two methods of investigating the Unconscious: the Verbal method, and the method of Dream-interpretation.

The Verbal method is to repeat to the patient a number of disconnected words, and instruct him to tell you what each word suggests to him. His answers come straight out of the Unconscious, and so afford us a clear insight into what is going on there. I know of no evidence to show that the answers come from the Unconscious, but it is important to recognize that in investigating the Unconscious we are altogether outside the realm of evidential knowledge. We are here dealing with matters of faith alone; and it would be as irrelevant and disrespectful to require evidence of the truth of what a psycho-analyst asserts, as to require evidence of the truth of the Koran. We are to receive his assertions with unquestioning faith, and to base our mental attitude towards him on that of Quintilian—*Credo quia impossibile*. We are to repeat to the patient a number of disconnected words, and ask him to say as rapidly as possible what other word is called up out of the Unconscious by the word we repeat to him. The words we repeat to him should not be arranged in any logical order, and should not convey any sense. This is a little difficult at first, but a short training in psycho-analysis enables us to speak without logic or sense. Let us suppose, for instance, that you say to your patient "How!" and that he has been instructed to reply by uttering immediately the first word that this suggests to him; and let us suppose that his answer is (as has actually happened) "Sow," or "Cow." This answer reveals as clearly as possible the direction of the sexual passion which is burning with fury in the Unconscious. The patient is in love with a sow or a cow, and is longing to mingle his embraces with those of the beast. He may not know it. He is certain to deny it, but we have now fathomed the depths of his mentality, and laid bare his Unconscious. Our task, however, is only begun. Of course, under the guise of a sow or a cow, the real object of his libido is his mother. We are therefore to examine and cross-examine him with respect to the character and appearance of his mother, and prove to him that in this respect and in that her resemblance to a sow or a cow is so close that all doubt about the identity is removed from his mind. This is of course the difficult part of our task. The patient's mother may be of dark complexion, and the sow or the cow may be a white one. This is because the struggle in the Unconscious is still proceeding, and the Unconscious is trying to elude our investigations and deceive us. He (or it) is full of cunning tricks and dodges, and unless we keep steadily in mind the necessity of tracing the patient's malady to incestuous passion, we may very easily be thrown off the scent. We must therefore continue to badger the patient with questions, suggestions, and cross-examinations until we conquer the resistance of his Unconscious, or until the patient becomes sick of it and refuses to put up any longer with our ministrations. It is in avoiding failure from this last cause that the skill and adroitness of the psycho-analyst are shown. If at length we succeed in wringing a confession out of our patient, we may, if we please, regard the cure as complete; but the more usual course is to continue the treatment as long as the patient will stand it, and as long as his funds hold out I have known cases in which the patient has put up with bi-weekly and tri-weekly séances for many months.

The second mode of investigating the Unconscious is by interpreting the patient's dreams. Dream-analysis is said by Dr. Jung to be the *real instrument* of psycho-analysis. The verbal method that has just been described is therefore not the real instrument; but still, it should be used, and the psycho-analyst does use it. The reason that dream-analysis is the *real instrument* for searching out the Unconscious is that "the dream is a product that has a subconscious origin." It has been charged against psycho-analysts that they never give reasons for their assertions, but merely assert, and require us to accept their assertions. This cannot be said of Dr. Jung. "One objection has often been made," he says, "namely: Why should the dream have a subconscious content at all?" It seems a natural objection to make, and one that will occur to most people; and we are the more grateful to Dr. Jung for stating it so candidly and refuting it so conclusively. His refutation is complete. "This objection," he says, "is unscientific." That settles the matter. That is a smashing retort. Its value is that it is equally efficacious with every objection that can be raised against psycho-analysis. What reason have we for supposing that all the thoughts and feelings of every human being are saturated with sexuality? The objection is unscientific. How do we know that the baby at the breast is satisfying, not an appetite for food, but an incestuous passion? The objection is unscientific. What evidence is there that every woman loves her husband, not for himself, but for his likeness to her father, whom she perhaps detested? The objection is unscientific. No one nowadays has the audacity to confess himself unscientific, nor would his opinion carry any weight if he were so audacious. To say that the objection to any assertion is unscientific proves that that assertion is true, as Dr. Jung very well knows.

We are therefore to investigate the Unconscious by interpreting the patient's dreams. It may be objected that some people do not dream, or if they do, do not remember their dreams. The objection is unscientific; and to be candid, when I say that an objection is unscientific I mean that it is awkward, and would be fatal to my case unless it was disposed of; but then I am not Dr. Jung. Fortunately, I can dispose of this objection. Those people who say that they do not dream or do not remember their dreams are lying. They do dream, but they will not confess it. Their Unconscious is too many for them, and will not allow them to confess. It is the old story of the struggle in the Unconscious, the mutiny in the Overboard, the revolt in the Outbody. Every one does dream, and every dream has a sexual and incestuous meaning. To suppose otherwise would be unscientific. Take the following case:

An eight year old boy was brought to Dr. Jung to be cured of wetting the bed. Dr. Jung questioned the boy about his dreams, and found that "He dreamt very often of a *black snake which wants to bite his face*." The inference is clear and manifest. The boy "identifies himself with his mother, and proposes a similar relationship for himself with his father." That is owing to his homosexual component which feels like a woman towards the father. The wetting of the bed "must be regarded as an infantile sex-surrogate." "The infantile attitude here, it is evident, is nothing but infantile sexuality." Of course it is. Any other view would be unscientific. It is obvious that any other dream can be interpreted in the same way, if only we study it with the inflexible determination to find in it a sexual and incestuous signification, and if we remember that everything solid, especially if, like a snake, it is cylindrical, represents the phallus. Jung does indeed say that "it is quite incorrect to assume that the snake, when it appears in dreams, has a merely phallic meaning," but this admission has little or no effect on his practice.

Another patient dreamt that he was going upstairs, and "I shall now show you how," says Jung, ". . . this dream may be translated so that it has a sexual meaning." It is a difficult case, and requires the skill of a master to achieve the desired result, but a sexual meaning must be found. The dream must be so translated as to prove that it has a sexual meaning, or psycho-analysis will be at fault. Note the masterly ingenuity with which Jung discovers sexuality in this seemingly insignificant dream. "We know that the incest phantasy plays a prominent part in the life of a neurotic." Of course we know it. Have not Freud and Jung asserted it? To suppose otherwise would be unscientific. "The 'stairs' have a sexual meaning that is supposedly well established." Why supposedly? Why admit the intrusion of supposition among these certainties? "They represent the

sexual act because of the rhythmic climbing of steps." There we have it. There is proof incontestable. In the same way walking represents the sexual act, because of the rhythmic succession of steps. To suppose otherwise would be unscientific, that is to say, it would tell against psycho-analysis.

I have said that psycho-analysis performs a very useful function. By this I mean that it brings comfort, relief, and satisfaction to many a sufferer, and many who use it have reason to bless Dr. Freud and Dr. Jung. The sufferers I refer to are not those upon whom the method is practised, but those who practise it. The assumptions of psycho-analysis do approach the truth in this respect, that there are people who have strong sexual inclinations which they have no legitimate means of gratifying, and who are restrained by scruples of conscience from obtaining gratification by means that are straightforward and efficacious but manifestly immoral. Such persons are too conscientious to commit fornication, or to indulge in conversation that is frankly sexual and nothing else; but their sexual instinct craves for expression in some way. It is a god-send to them to be provided with a decent excuse for allowing their thoughts to dwell upon sexual matters and for freely talking and writing about them. Some, like the late W. T. Stead, find an excuse in "purity," and those who can remember *The Maiden Tribute of Modern Babylon* know how excessively rank purity can be made. As an expression of sexuality, the purity vein is worked out, for many conspicuous examples show that the subject can be discussed with perfect decency. Krafft-Ebing provided another excuse. Sexual aberrations were to be studied "scientifically," and under the cloak of science he indulged, and enabled others to indulge, in such orgies of beastliness that his mode of "scientific" investigation became discredited. The disguise were too thin to be a disguise any longer. Freud, the successor of Krafft-Ebing, has been more astute than his master. He spreads his net much wider, and undertakes the treatment, not only of abnormal desires of a very repulsive kind, but of all mental and nervous diseases. This vastly extends the opportunities of the psycho-analyst, and enables him to discuss sexual matters with the utmost freedom with all his patients.

Not content with applying his ministrations to the unsuspecting adult man and woman, the psycho-analyst is now engaged in a most insidious effort to gain a footing in our schools, and contaminate the children. Thus says Dr. Jung: "Is it not a sacred duty to enlighten them [children] as to the shaky foundations of the so-called 'moral' conceptions of the past, which have only a dogmatic basis; is it not a duty to educate them into full freedom by courageously unveiling Truth? I ask this, not so much with regard to the analysing doctor as to the teacher. May not the creation of *free schools* be looked for as one task for the psycho analyst?"

Here is a plain warning that cannot be misunderstood. We are warned in plain terms that the purpose of the psycho-analyst is to get hold of the children and undermine the foundations of their "so-called" morality. This campaign is already begun. Three or four long articles on psycho-analysis have already appeared in the well-known periodical *Child Study*, and other measures are being taken.

This is Kultur with a vengeance. For more than twenty years I have been demonstrating the rottenness of German teaching in mental disease, and during all that time I have been as the voice of one crying in the wilderness. There is no folly so egregious, no sham so transparent, that the alienists of this country will not gulp it down with greedy credulity if only it comes from Germany. The superstition that Germany is pre-eminent in mental disease is as deeply rooted and as irrational as the superstitions that she is pre-eminent in organization and in science generally. The last are now exploded. The whole world is at length ashamed at having so long suffered itself to be imposed upon by braggart boast-ery. Even Americans, the most gullible people in the world, as they are the most generous in giving intellectual credit, are realizing that Kultur is a sham, and the marvellous German capacity for organization and for scientific discovery an imposture. It is left for the alienists of this country, and for a little knot of other physicians, to be the very last to cling to an exploded superstition. I do not hope that anything I have said in this article will have any effect on them. The man with the muck rake was deaf to persuasion, and refused to lift up his eyes unto the hills; and no doubt the psycho-analysts will continue their raking in the muck; but it is as well that those who hear their noisy propaganda, and take for granted that there must be some sense at the bottom of it, should learn the true state of the case, and should know of the attempt that is being made to corrupt the rising generation.

CERTAIN POINTS OBSERVED WITH REGARD TO CEREBRO-SPINAL FEVER IN THE BELFAST MILITARY DISTRICT

*DURING 1915 AND UP TO NOVEMBER, 1916.**

BY

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EPIDEMIOLOGY.

CASES of cerebro-spinal fever were not recognized in the Belfast district until several months after their occurrence amongst the troops in England. New huts had been erected and were in occupation before the disease made its appearance. There was no overcrowding, and on the whole the general sanitary condition of the camps was good. The chief defect in the district was the wet and muddy condition of the ground in the neighbourhood of the huts. The first case was discovered at Randalstown Camp on February 17th, 1915. The winter was not severe, but there were great and sudden variations in temperature, and many cases of colds were observed, especially in the spring of 1915. During colds great numbers of diphtheroid bacilli are often found in the nasopharynx, and the presence and effects of these would appear to be either inimical to the meningococcus or to render its recognition in culture plates more difficult.

In 1907–8 an extensive epidemic of cerebro-spinal fever occurred in Belfast, and from 1907 almost every year a few cases were discovered. In 1914 there were four cases. During the epidemic in Belfast sporadic cases occurred in the neighbouring towns and villages. It is noteworthy that in this epidemic and in that of 1907–8 Londonderry and the north-west of Ireland remained free from the disease. If we can assume that carriers were absent from this district, some information may be available as to the incubation period of the disease when the history of a visit to Belfast of a soldier stationed in this northern district is considered. Pte. J. O'B., 4th Batt. Royal Inniskilling Fusiliers, left Clonmany, a camp in the Innishowen peninsula, co. Donegal, on April 17th, and reached Belfast the same evening. At this time cases of cerebro-spinal fever were occurring amongst the civil population in Belfast. Pte. J. O'B. presented symptoms of the disease on April 22nd, and was admitted to hospital on April 24th. This seems to point to an incubation period not exceeding four days. It is probable, however, that cerebro-spinal fever resembles pneumonia in having no definite incubation period. The history of one of our contacts, who afterwards developed the disease, led us to infer (1) that a susceptible subject may have meningococci in his nasopharynx for a fortnight and yet not develop the disease; (2) that the same individual, months later, may be severely attacked. Evidently the virulence of the cocci, or the resisting power of the individual, are of far more importance than the presence of the cocci in the body for a definite period.

As regards the source of infection in this outbreak, it is probable that it was not introduced from England or Scotland, but was due to the persistence in the nasopharynx of certain members of the population of meningococci which had caused the 1907–8 epidemic. One of our "carriers" harboured the meningococcus for five months, and it is easy to conceive that such chronic carriers and a few cases of the disease could bridge over the seven years between the two outbreaks. As already mentioned, a few cases of the disease also occurred every year. The first case occurred at Randalstown Camp, and it was thought that the infection might have been acquired in that

* This investigation was assisted by a grant from the Medical Research Committee.

neighbourhood, since, prior to this case, there had been several sudden deaths among children in the surrounding rural districts. These deaths were not certified as being due to cerebro-spinal fever, but when their symptoms were subsequently viewed in the light of the epidemic, it was considered probable that they were instances of meningococcal infection. There was, however, closer communication between Randalstown and Belfast than between Randalstown Camp and the surrounding habitations.

In no instance did two cases occur in the same hut. Only in four cases of the series was there somewhat close contact between the patients. In this instance the four cases occurred in the same company of the same battalion, and the infected huts were located in the same part of the camp.

Contacts and Carriers.

Secretions of the nasopharynx of all occupying the same hut, and in some instances of all using the same dining-room, were examined for the meningococcus. Among 1,038 contacts examined 119 were found to be meningococcal carriers—that is, over 11 per cent. of the total. The number found was subject to great variations, and in the later cases more of the contacts have been found to be positive. The method employed by us for taking swabs differed from that usually followed. Our practice is to use an ordinary throat "swab," but to have rather less than the usual amount of cotton-wool on it, and to pass this horizontally along the inferior nasal meatus until the posterior wall of the pharynx is touched. In our experience there has been no difficulty and little or no discomfort to the patient in procuring material in this fashion.

No cases occurred during June or July, 1915. At the end of this phase of the outbreak 711 contacts had been examined and 48 found to be positive, a percentage of 6.7. During the last five months of 1915, 7 cases occurred, and amongst the 183 contacts 32 were positive, a percentage of 17.4. Amongst 144 contacts examined during 1916, 39 were positive—that is, 27 per cent. Some of this increase of positives may have been due to the use of a new medium for cultivating the secretions. This point will be referred to later.

As regards the length of time during which carriers continue to harbour the meningococcus there is a difference between our earlier and later experience. Of 48 "carriers" examined during the first half of 1915, in the case of

34	the meningococcus	disappeared	within	one week	
6	"	"	"	"	two weeks
2	"	"	"	"	three weeks
5	"	"	"	"	five weeks
1	"	"	"	"	five months

In other words, in 70 per cent. of the carriers the meningococcus is no longer found at the end of one week; in 13 per cent., 4 per cent., and 11 per cent., two, three, and five weeks respectively are required for its disappearance. In 2 per cent. a chronic carrier condition is found. The chronic carrier Sergeant D. was the contact of a case which occurred in Victoria Barracks, Belfast, on May 22nd, 1915, and meningococci were found in his throat from a "swab" taken on May 24th, 1915, and it was only on October 6th, 1915, that examinations were found to give negative results. He is known to have been a carrier for four and a half months, and probably for a longer period, since he had suffered from nasopharyngeal catarrh for some time before swabs were taken. It is not improbable that the case of cerebro-spinal fever, of which Sergeant D. was a contact, may have acquired the infection from Sergeant D., and not vice versa. Sergeant D. had a cold for some days, and was employed in the orderly room in the same office as that in which a telephone orderly contracted a fatal attack.

In our second more recent period up to November, 1916, the meningococcus remained longer in the nasopharynx.

In the case of

4	the meningococcus	disappeared	within	one week	
18	"	"	"	"	two weeks
9	"	"	"	"	three weeks
4	"	"	"	"	four weeks
14	"	"	"	"	five weeks
5	"	"	"	"	six weeks
4	"	"	"	"	seven weeks
2	"	"	"	"	eight weeks
1	"	"	"	"	nine weeks
2	"	"	"	"	eleven weeks

The eight remaining of the thirty-two carriers examined at this period were still positive at the end of two months.

In other words, approximately 5 per cent. of these carriers were free from meningococci at the end of the first week, 30 per cent. at the end of the second week, 40 per cent. at the end of the third week, 45 per cent. at the end of the fourth week, 61 per cent. at the end of the fifth week, 68 per cent. at the end of the sixth week, 80 per cent. at the end of the eighth week, whilst over 10 per cent. still harboured the germ for more than two months.

Treatment of Carriers.

Throats were sprayed with 1 in 1,000 potassium permanganate solution, 0.25 per cent. hypochlorous acid, 50 per cent. urea solution, 0.5 per cent. formalin solution, and with 1 in 100 carbolic acid. As far as we could discover, all were equally ineffective. Insufflation of an antiseptic powder was also tried, but the results were not encouraging.

"Carrier" Developing the Disease.—An example of this is the case of Pte. R. J. M., who developed the disease on March 3rd, 1916, at Enniskillen. M. was a contact of Pte. H. when the 12th Royal Inniskilling Fusiliers were stationed at Newtownards, and in his nasopharynx meningococci were found on December 20th, 1915, and again on December 31st, 1915. The results of swab examinations on January 7th, 1916, and January 12th, 1916, were negative, and M. was then sent back to his regiment which in the meantime had been transferred to Castle Barracks, Enniskillen. M. was granted leave from January 18th to 27th, 1916, and then returned to Enniskillen. On March 3rd, 1916, he developed cerebro-spinal fever, and meningococci were cultivated from his cerebro-spinal fluid. The question arises, Was M. a carrier from December 20th, 1915, until he developed the disease, or did he actually get rid of meningococci from his nasopharynx and then get reinfected at Enniskillen? When the contacts of M. at Enniskillen were examined two out of twenty-two were found to be positive. In our experience nasopharyngeal catarrh is seldom found in association with the carrier state.

Bacteriology.

During 1915, 307 specimens of cerebro-spinal fluid and 1,119 swabs from the nasopharynx were examined. During the first half of the year ascitic agar was the culture medium mainly employed by us, and for fermentative experiments this had incorporated with it glucose, laevulose, galactose, maltose, and saccharose, litmus being added as an indicator.

In addition to the military cases, we made bacteriological examinations of the civil cases, numbering 75, treated in the City Fever Hospital, Belfast, and our best thanks are due to Dr. A. Gardner Robb, the Medical Superintendent of the hospital, and to Drs. Jackson, J. C. Houston, and S. Barron for obtaining and putting the material at our disposal.

Of the 129 cases of cerebro-spinal meningitis, in 113 the meningococcus was discovered, and in most cases cultivated, in five the tubercle bacillus, in one a streptococcus, in two the pneumococcus, and in one the typhoid bacillus.

In one case, Sergeant C., the lumbar puncture fluid was clear and sterile, and it was the discovery of meningococci in almost pure culture in the nasopharynx that led us to conclude that his was a case of meningococcal infection. Particulars of his case are as follows:

Sgt. C., 9th Royal Inniskilling Fusiliers, aged 22, service one year seven months, returned from France to his home at Milford, co. Armagh, on June 3rd, 1916. On June 15th he was seen by the medical officer in charge of the troops at Armagh (Dr. Hampton Gray), and was admitted to Armagh Fever Hospital on June 16th. He had distinct signs of meningeal irritation, severe headache, muscular tenderness, and irritability. On his admission to hospital his temperature was 101° and his pulse was 88. On June 17th and 18th his temperature did not rise above 99°, but on June 19th and 20th it remained at about 102°, and at this time his pulse varied from 64 to 76. The slowness of the pulse in reference to the temperature was a striking feature of the case. On June 19th lumbar puncture was performed, and as the fluid was quite clear and was not under great pressure no serum was injected. A swab was taken from his nasopharynx and showed meningococci in almost pure culture. The cerebro-spinal fluid contained no pus, and was sterile. No further punctures were made, and the case made a good recovery after a somewhat slow convalescence. He was declared well on July 26th, 1916.

In the great majority of the cases the cerebro-spinal fluid was turbid at the first puncture and contained numerous pus cells. In four cases the fluid at the first puncture was clear and free from cells and cocci, but in subsequent punctures pus cells and cocci were abundant. The general results of our examinations of the fluids seemed to confirm the usual finding that in a case which does well there is first a phase in which the cocci are few, then they become more numerous and are partly intracellular and partly extracellular, then become almost entirely intracellular, and as the fluid at each puncture becomes clearer the demonstration of the cocci becomes more difficult. In cases that do badly the numbers of extracellular cocci are often enormous. In mild cases very few of the cocci ever become extracellular. In two cases the meningococcus was accompanied by the pneumococcus. One of these cases died, the other made a good recovery; in the latter case the pneumococcus was apparently the primary infecting organism, since it was first found in the cerebro-spinal fluid. In the other case both micro-organisms were found at the same time. The notes of our examination of one of these cases are as follows:

July 14th, 1915. Fluid turbid, lanceolate Gram-positive diplococci.
July 16th, 1915. Fluid turbid, a few lanceolate Gram-positive diplococci.
July 20th, 1915. Gram-negative meningococci. No pneumococci.
July 21st, 1915. Fluid clear.

Gram-positive cocci, apparently of the nature of the *Micrococcus crassus*, were found in ten instances. In eight cases the Gram-positive coccus was accompanied by the meningococcus, but in two no meningococci could be found, although the cases were probably due to infection with the micro-organism. The Gram-positive cocci were not mere contaminations, since they were found in most of the cases at several successive punctures, and in two cases in which blood cultures were made the same Gram-positive cocci were obtained. We need only refer in this connexion to the great frequency with which the Gram-positive cocci are encountered in the urine in this disease. Specimens of urine taken with aseptic precautions were centrifugalized and planted on blood agar plates. In all cases numerous Gram-positive cocci were found. In several instances the cocci were staphylococci, in others they seemed to agree with the descriptions of the *Micrococcus crassus*. In two specimens of urine Gram-negative cocci were found which were not meningococci, but belonged to the class of cocco-bacilli which will be described presently. Attempts to cultivate the meningococcus from the urine were all negative. The characters of the meningococcus and the methods employed for its recognition were much the same as those used and described by one of us (W. J. W.) in the 1907-8 outbreak.

The only sugars fermented by the meningococcus are glucose and maltose. One of our strains had no action on any sugar, and one which was isolated from a chronic case, which was recognized as cerebro-spinal fever only after being two months in hospital, at first fermented no sugar, but after a few transplantations began to ferment glucose, but was still inert as regards maltose. The cerebro-spinal fluid in this case was almost clear and contained little albumin. In such a saline solution fermentative power would appear to be readily lost. During August, 1915, we experimented with blood broth as a medium for preserving the viability of the meningococcus, and found that most of our strains lived one month at least under these conditions. The broth contained 5 to 10 per cent. of blood. In September, 1915, we found that laked blood agar was the best medium in our experience for cultivating and preserving alive the meningococcus. As we can recommend most strongly this medium for general bacteriological work, a brief description of its preparation may not be out of place.

Laked Blood Agar Medium.

A wide-mouthed bottle containing 10 gr. of sodium citrate dissolved in 10 c.cm. of water and 1½ c.cm. of formalin is taken to the slaughterhouse and filled with blood up to a 1,000 c.cm. mark. The blood is well shaken during its collection. The use of formalin is exceedingly useful for sterilizing the blood. Thirty c.cm. of ether are added to the blood, which is kept in a well stoppered bottle. When blood agar plates or tubes are to be prepared 3 c.cm. of the formalin-etherized blood are added to every 100 c.cm. of melted nutrient agar cooled to 50° C. The great dilution of the blood annuls the antiseptic action of the formaldehyde, and by either keeping the fluid medium at 50° C. for an hour or by incubating the plates and tubes overnight at 37°C. the ether is driven off.

This medium, the blood for which is sterilized by a modification of the method of Bernstein, Epstein and Fildes, has great advantages. Why meningococci should survive for months on it appears to be due to the fact that they less readily undergo autolysis when growing on it. It is not improbable that the haematin, lipoids, and other constituents of the red blood corpuscles prevent or lessen the autolytic ferments in the meningococci. The capacity of lipoids to absorb complement is well known, and complement and the autolytic enzyme are bodies of the same class.

This medium is very suitable for the examination of meningococcal contacts. The meningococcal colonies on it are flat, moist, and have not the opaque appearance of the colonies of most other micro-organisms occurring in the nasopharynx. In slope cultures in tubes of this medium even recently isolated strains of meningococci remain alive for three weeks at 37° C. without transplantation. If evaporation is prevented by the use of rubber caps, recently isolated meningococci on this medium have been found alive at the end of six months.

On plates of laked blood agar discrete colonies of meningococci often attain a diameter of 5 mm., and in the course of a few days show papillae or secondary colonies raised above the general surface. We have obtained cultures at the end of a fortnight from such plates even where they had been inoculated directly from the cerebro-spinal fluid. We have used Vedder's starch agar and have found that the growth of meningococci on this medium is very luxuriant, but that the very luxuriance of the growth renders colonies of the meningococci less easily recognized.

In recognizing meningococcal colonies on plates made from contacts we lay stress on (1) the flat, moist, non-opaque appearance of the colony; (2) the presence of tetrads in the films and the degenerate appearance of many of the cocci; (3) the fermentation of glucose ascitic litmus agar slopes and the non-fermentation of laevulose or galactose litmus ascitic agar.

The discovery of a solid medium on which freshly isolated meningococci can survive for prolonged periods without transplantation requires to be emphasized, and that our statement is not based on one or two experiments is shown by the study of the viability of the following fourteen strains, many of which had just been isolated at the beginning of the test.

Strain.	Source.	Planted on laked Blood Agar.	Strain.	Source.	Planted on laked Blood Agar.
		1916.			1916.
M—ks	Cerebro-spinal fluid	Mar. 21	K—l	Nasopharynx	Apr. 9
L—n	" "	Mar. 21	C—l	" "	Apr. 17
D—n	" "	Mar. 21	H—s	" "	Apr. 17
M—n	Nasopharynx	Mar. 21	R—y	Cerebro-spinal fluid	Apr. 20
T—r	" "	Apr. 9	G—n	Nasopharynx	Apr. 20
D—n	Cerebro-spinal fluid	Apr. 9	McC.	" "	Apr. 28
M—rs	" "	Apr. 9	L—y	Cerebro-spinal fluid	Apr. 29

Transplantations made to discover if the strains were still alive, gave good growth with all strains on June 1st, June 29th, July 30th, and August 14th; and again with all strains except "C—l" and "G—n" on September 22nd.

After growing on laked blood agar for a week or two even newly isolated strains become in most cases capable of growing on ordinary agar. In several cases it was observed that the cultures on agar were almost entirely composed of tetrads, whilst those on blood agar contained only a moderate number.

After this increase of their viability has been established the strains can be readily tested as to their fermentative action on sugars. On glucose neutral red agar good growth occurs, and after a week prominent papillae appear on the surface of the growth and at these places the fermentation of the glucose is especially indicated by the reddening of the yellowish medium.

Blood Cultures.

Attempts to recover the meningococcus from the blood of patients were made in eleven cases. Eight of the specimens remained sterile; in one there was a pure culture of meningococcus, and in the remaining two cultures of Gram-positive cocci which were also found in the cerebro-spinal fluid. One of our experiments was carried out during the first week of the disease; the positive result was obtained from a patient in the tenth day of his illness.

Other Germs Associated with the Meningococcus in the Cerebro-spinal Fluid.

One of the most interesting facts brought to light by the study of the present epidemic was the frequent finding of one or two micro-organisms associated with the meningococcus in the lumbar puncture fluids. For convenience we shall refer to these as the cocco-bacillus (*meningitidis*) and the bacillus (*meningitidis*).

Cocco-bacillus.

This micro-organism was found associated with the meningococcus in eight different cases. It has been found at the first puncture and at several successive punctures of the same case. The characters of the micro-organism, which was first described by Arkwright[2] and Wilson,[3] briefly are as follows:

Morphology.—Diplococcus having the coffee-bean shape and size of the meningococcus. Many of the individuals at times are ovoid, and amongst them distinct bacilli are seen, or even threads, which at their ends show evidence of segmentation into cocci. The cocci are (1) quite Gram-negative; (2) stain more uniformly than meningococci; (3) show no tendency to form tetrads, but rather to the formation of short chains consisting of four to six individuals.

Growth is good in bouillon and on gelatine and agar, both at 37° C. and at 22° C., and is more opaque than that of the meningococcus. Gelatine is not liquefied. This micro-organism has no action on glucose, laevulose, galactose, maltose, lactose, or saccharose.

On the Conradi-Drigalski medium and on MacConkey's bile salt agar plates profuse growth occurs. This fact points to the habitat of the micro-organism being the intestine, and, indeed, similar micro-organisms were isolated from the stools of cerebro-spinal fever cases by one of us (W. J. W.)[4] in 1908. Recently we have cultivated this micro-organism from the urine of two cases.

Bacillus (Meningitidis).

The micro-organisms which we distinguish by this name have been found by us in the cerebro-spinal fluid of thirty separate cases. In fourteen consecutive cases of our series this micro-organism was found, often at the first puncture, and at several of the consecutive punctures. In one case it was discovered at the first puncture, and in this fluid no meningococci were found, but they were present in the cerebro-spinal fluids drawn off at a later date.

Characters of the Bacillus.

Morphological.—An exceedingly slender curved rod, reminding one of the appearance of the *B. tuberculosis*. In some specimens the curving is well marked, and the appearance is that of a film of the *Vibrio cholerae*. Whether it should be called a vibrio or a bacillus is yet uncertain. The micro-organism is exceedingly actively motile, and is Gram-negative.

Cultural.—Luxuriant growth on all media, both at 37° C. and at 22° C. The growth on agar resembles that of a very profusely growing *B. coli*, and in some cases the appearance is slightly yellowish. Gelatine was liquefied by all except three of the strains, which may belong to a different group, as they also differed from the others in forming acid in glucose.

Fermentation.—No action on glucose, laevulose, galactose, maltose, saccharose, lactose starch, and mannite was observed.

Good growth occurs on the Drigalski medium and in bile salt media. The habitat of the micro-organism is evidently the intestine, and from stools we have isolated similar germs. What the exact position of this micro-organism in a bacteriological classification should be will require further study, but it is evidently allied to the vibriones, the *Bacillus faecalis alcaligenes*, and the *proteus* groups. The pathogenic action of this micro-organism on animals has not been fully studied, but experiments made by us on rabbits would seem to indicate that it acts as an adjuvant to the meningococcus. We found that it was possible by the injection of the bacillus to cause the death of rabbits and to recover one or other germ from their blood or cerebro-spinal fluid.

Effect of Inoculation of Patients, Contacts, and Healthy Individuals with Vaccines.

The growth from several strains of meningococcus was dried and weighed and made into a vaccine containing 1 mg. in 1 c.cm. Several patients and healthy individuals were inoculated with $\frac{1}{10}$ c.cm. (400 million) of this vaccine. The patients presented practically no local and no general reaction, whereas the non-infected showed an area of redness about 3 inches in diameter at the site of inoculation. The same local reaction occurred in nine "carriers" who were inoculated with a vaccine which was only about one-fifth the strength of the above.

Treatment.

Nearly all of the cases were under the care of Dr. Gardner Robb, and were treated by intraspinal injections of serum. Dr. Robb will no doubt publish his results, which support the view (of which he is a pioneer) that the intrathecal injection of serum following lumbar puncture is the best means of lowering mortality in this disease. To what extent the lumbar puncture and the serum respectively contribute to the result is open to question; we have an impression that, before the intrathecal route was employed for serum injections, lumbar punctures were not systematically repeated, and that on this account many of the beneficial results claimed for serum may have been due to a great extent to the drawing off of the opsonically inert cerebro-spinal fluid and to its partial replacement by an exudate from the patient's blood vessels. We may recall the work of Houston and Rankin, which showed that the patient's serum had a far greater opsonic effect than various commercial serums.

Laboratory experiments conducted by us seemed to show that antimeningococcic serum containing no preservative had no bacteriolytic but some bacteriotropic action, whilst serum containing a preservative had its bacteriotropic effect reduced.

The lavage of the spinal canal with antiseptic solutions seems worth a trial in such a surgical condition as septic meningitis. In one case we tried lavage with weak eusol solution (0.1 per cent. hypochlorous acid), and the case, which also had serum treatment, recovered. From experiments recently made by us we would favour the trial of 0.5 per cent. formalin.

We may briefly state that of the 44 military cases, 25 recovered and 19 died.

Commentary.

The part of our investigations which seems to us the most interesting is that relating to the presence in the cerebro-spinal fluids of micro-organisms of the *alcaligenes* class. In our studies we had already noted their presence, when we read with great interest a paper by Hort, Lakin, and Benians,[5] which indicated that this association of bacilli with the meningococcus occurred in England as well as in Ireland. We do not think that this phenomenon is of universal occurrence, as no such bacilli were discovered in the 1907-8 Belfast epidemic, although one of us (W. J. W.) would have welcomed their discovery in order to explain why the blood serum of the cases in Belfast at that time had an agglutinative action on bacilli of the *alcaligenes* class (*vide* "Agglutination of bacilli of the *alcaligenes*, colon, and typhoid group by the blood serum of cases of cerebro-spinal fever," by Symmers and Wilson, in *Journal of Hygiene*, vol. viii, No. 3, p. 313, June, 1908).

Wilson, in reference to the above subject, made the following remarks: "The explanation of the production of heterologous agglutinins may be that infection with certain germs leads to an alteration of the bacterial flora of the intestine. As the result of this secondary autoinfection, along with the agglutinins for the primary infecting organism, agglutinins are formed for the intestinal micro-organisms also."

We think that data is accumulating to show that such a double infection does occur. Experiments conducted by Elser and Huntoon[8] tend to confirm the observations of Symmers and Wilson and to offer a similar explanation, as is made clear by the following extract from their paper: "In rabbits we have shown that injections of the meningococcus render the mucosa of the intestinal tract more permeable for the typhoid bacillus (or its products) administered with the food. Animals thus treated developed agglutinins for the organisms administered by mouth, while no augmentation of the agglutinins was observed in the controls which were fed with typhoid bacilli but received no injections. These experiments suggest an explanation for the frequent occurrence of mixed infections in animals receiving experimental inoculations of the meningococcus, and also offer an explanation

for the appearance of heterologous agglutinins in the serums of such animals, and in the serums of individuals suffering from epidemic cerebro-spinal meningitis."

These facts seem to us to be important in view of the recent work of Hort and Caulfeild.[9] May not the fever and other symptoms following injection of monkeys with filtered meningococcal suspensions and filtered cerebro-spinal fluid derived from cases of cerebro-spinal fever have been due to a secondary subinfection from the intestine—the result of the action of meningococcal toxin on the mucosa—and not to the presence of a living ultra-microscopic virus? Such an explanation was evidently considered by Hort, but his reasons for discarding it do not seem to us to be quite convincing.

An instance in which the meningococcus may have rendered the intestine more permeable to the *B. paratyphosus* B came under our notice: Ten wounded soldiers were being treated by Dr. Tate in the County Infirmary, Downpatrick. Four of them presented symptoms of influenza, and from the nasopharynx of these, but not from the others, the meningococcus was isolated. One of the patients continued to show febrile symptoms, and from his blood and cerebro-spinal fluid the *B. paratyphosus* B, but not the meningococcus, was isolated. It is possible (and in fact our few animal experiments point in this direction) that the activity of bacilli of the *alcaligenes* class may help to break down the barrier opposed to the entrance into the blood and meninges of meningococci from the nasopharynx. Of our 119 "carriers" one only developed meningitis, and this experience seems to be that commonly recorded. It is evident that the meningococcus can cause meningitis only under certain conditions. May not the activity of intestinal germs be a predisposing factor?

Whether the meningococci or *alcaligenes* bacilli are the primary infectors must at present remain doubtful; but there can be no doubt of the importance of recognizing that, in cerebro-spinal fever, the toxic action not only of the meningococcus but also of other germs has to be considered. In the blood serum of the patient, antibodies for all the micro-organisms concerned in the infection are formed, and it would doubtless be an advantage if anti-meningococci serum also contained these substances in a high concentration. A *post-mortem* examination of the first case occurring in this outbreak was made by Professor Symmers, and, like others which we have made, it showed the usual enormous enlargement of the mesenteric glands, haemorrhages into the bowel wall, and swelling of the lymphoid tissue of the gut. The liver showed yellowish areas of degeneration.

It is a remarkable fact, and one which has been noted by Symmers on several occasions, that these abdominal lesions are often very marked when there is very little evidence of inflammation of the meninges. These lesions would seem to point to a general infection and would seem to indicate that treatment should not be confined to the septic complication in the meninges. If antimeningococcic serum is of value, one would expect that it would be rational to inject it into the blood so as to deal with the general infection. If the statement is true that the subcutaneous and intravenous injections of antimeningococci serums are of no benefit, then the evidence that the benefits of intrathecal injections are due to the antibodies in the serum must be much more convincing than that which has so far been furnished.

The following treatment would seem to us to be reasonable: (1) The subcutaneous or intravenous injection of antimeningococcic serum; (2) the treatment of the septic condition of the meninges on general surgical lines by lumbar puncture and lavage with hypertonic solutions or antiseptics.

References

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DR. W. A. JEFFETT, of the Federal Bureau of Mines, has prepared statistics showing that every worker in the United States loses on an average nine days' work in the year by disease which could be prevented by sanitation and the use of proper machinery.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CEREBRAL COMPRESSION: OPERATIONS: RECOVERY.

THE following case is not without interest in that no obvious lesion was found at the operations, and yet rapid improvement followed this treatment.

A Chinese woman, aged 27, jumped from a moving train on July 26th, and was admitted to the railway wards of Shantung Road Hospital, Shanghai, about twenty-four hours later. On admission there were definite signs of compression of the brain. There was partial paralysis of the right arm and leg, the right knee-jerk was absent, and the right pupil was dilated and fixed. The pulse was 60, the breathing quiet, and she was completely unconscious. No bones were broken, but there were several abrasions, one being over the left parietal region.

Six hours later she was definitely worse—the paralysis was more marked, and the pulse 56, and of poor quality; and a decompression operation was decided upon. A trephine opening was made over the anterior branch of the left middle meningeal artery; the artery was found bleeding freely, and was occluded by pressure. There was no extra-dural clot, but as the dura was bulging and did not pulsate it was incised, and about two ounces of clear cerebro-spinal fluid escaped under pressure. There was no sign of subdural clot; the trephine circle was replaced and a gauze drain left under the flap. Immediately after operation the pulse was 65, stronger and better, and by the following day it was evident that she was going to live. The drain was removed in twelve hours.

During the subsequent three weeks her general condition improved considerably; twenty-two days after the accident there was still complete paralysis of the right arm, right side of face, eyelid and eyeball; there was paresis of the right leg, but she could walk about a little when assisted; she had no control over the bladder—it emptied itself when full. The movements of the left side of the body were quite normal. As the paralysis seemed likely to be permanent unless something could be done to relieve it, it appeared advisable to explore the Rolandic area to ascertain if there were any localized pressure on the cortex. This was done on the twenty-third day after the accident; as no Gigli saw was available three trephine circles were removed and connected by saw cuts giving a very thorough exposure of the whole Rolandic area. There was no extradural clot; the dura was incised and there was no subdural clot and no evidence of any pressure on, or damage to, the cortex. The trephine circles and connecting bridges of bone, which had been kept in hot saline, were replaced and the wound closed without drainage.

There was some rise of temperature the same night, but it was subnormal next day and remained so thereafter; the wound healed by first intention. On the third day after operation she was first seen to move her right arm voluntarily, and on investigation all movements seemed to be present but weak. Each day the muscles gained power, and after ten days there was little appreciable difference between the two sides of the face when she showed her teeth; and by this time, too, she had regained control over the bladder.

She insisted on leaving hospital seventeen days after the second operation. She could then walk without assistance, and had quite good power in all the muscles of the arm; there was, however, still some ptosis of the right eyelid, dilatation of that pupil, and incomplete co-ordination in the movements of the eyeball with those of the left eyeball. She promised to return and report progress, but failed to do so.

Probably the first decompression operation relieved an oedematous condition of the brain, and it certainly saved her life. The condition previous to the second operation can hardly have been due to oedema, as it was very localized—practically to the arm and face centres. But whatever the condition may have been the improvement after wide exposure of the Rolandic area was strikingly rapid.

Shanghai. N. HAY BOLTON, M.D., F.R.C.S.E.

Reports of Societies.

CEREBRO-SPINAL MENINGITIS.

AT a meeting of the Leeds and West Riding Medico-Chirurgical Society on December 8th, when Dr. T. CHURTON was in the chair, Major C. W. VINING read a paper on cerebro-spinal meningitis. In discussing the symptoms of the disease he cited cases illustrating the remarkable variation in the intensity of the infection, and laid emphasis upon the possibility of cases being missed unless the fact that the disease could occur in a mild form was kept in mind. The onset in Major Vining's cases was consistently sudden, although in about half it was preceded by indefinite symptoms, such as catarrh of the respiratory passages, intermittent headache, or sensation of chilliness. The symptoms of the developed condition were fairly consistent, practically all experiencing acute headache and changed mentality; vomiting at the onset was common. A purpuric rash was the exception rather than the rule; when it occurred, it appeared early and in the more malignant type of case. In discussing the treatment of the cases the importance of frequent lumbar punctures and the administration of antimeningococcal serum was insisted upon. In quite a number of undoubted cases the meningococcus was not seen in smear preparations of the cerebro-spinal fluid, and even on cultivation growth was sometimes not obtained. If, however, the fluid was first incubated by itself or with serum broth, a growth was nearly always obtained on plating the incubated material. The importance of the examination of contacts and the isolation of the carrier was discussed, and in connexion with this it was pointed out that quite a number of people amongst the general population harboured a Gram-negative diplococcus in the nasopharynx which was indistinguishable by all the present known tests from the meningococcus. Present evidence seemed to show that cases of the disease, at any rate in its endemic form, developed amongst the carrier population, and Major Vining brought forward facts to show that meteorological conditions appeared to be related to the occurrence of cases. He stated that a high rainfall consistently preceded cases, and was usually accompanied by a low, rapidly fluctuating barometer, a series of high relative humidities and low temperature.

Reviews.

EFFICIENCY IN FACTORIES.

WELFARE work in factories, as it is now called, or the provision of all arrangements and facilities that will benefit the workers without detriment to their work, is really an old institution in this country. It can be traced back into the eighteenth century at least, and to judge by contemporary descriptions was well developed in many of the cotton factories of Scotland and the North of England as early as the year 1835. During the present century it has been made the subject of much study and experiment, with the result that two main types of welfare work in factories have developed. In one of these types the humanitarian point of view is adopted, and the benefit of the worker is considered first and foremost; high wages, short hours of work, adequate holidays, comfortable homes, and first-rate opportunities for education and recreation are provided. The second type of welfare work in factories has a less altruistic scope. The main object is to increase the efficiency and output of the worker; his convenience is considered only in so far as his efficiency may be increased. Welfare work of the first type is now being undertaken on a vast scale by the Health of Munition Workers Committee, to mention but one example out of many; canteens and rest hours are being instituted, while overtime, Sunday labour, and long hours of work are being abolished. Welfare work of the second type is illustrated by two books now before us. *Fatigue Study*,[1] by F. B. and L. M. GILBRETH, is a short and practical account of the way in which to attack the problem of reducing the workman's muscular and nervous fatigue by attending to his bodily comfort while he is at work. He should be placed in a good light, given a comfortable and well-fitting seat or chair, and encouraged to make the smallest amount of muscular effort compatible with his particular duties. The last point is effected by kinematograph or "chronocyclegraph" analysis of the movements required by the work, and also by analysis of the individual workman's particular capabilities. The net outcome of this fatigue study is to increase the worker's output, and, no doubt, his wages. The second book,[2] by M. J. M. LAHY, is an analysis of the methods of speeding up production in factories devised and advocated by Mr. F. W. TAYLOR. Both Mr. Taylor and the Gilbreths have written extensively on the subjects of shop management, scientific management, increasing the efficiency of the workman, and the like. M. Lahy makes a careful and profound analysis of their methods; and, while he admits that they are effective, he concludes that they are somewhat inhuman from the worker's point of view. His wages are increased, but he is robbed of all initiative in his work and is converted into a mere machine. He is allowed to interest himself, while at work, only in his output; no provision is made for dealing with the mental or psychical fatigue resulting from constant work at the highest practicable speed. M. Lahy would have Mr. Taylor collaborate with a psychologist and a sociologist for the improvement of the "Taylor system" of scientific shop management. At present it pays too little attention to the "professional fatigue," the mental tedium and exhaustion that result from hours of concentration on a single cycle of muscular movements and adjustments.

NOSE, THROAT, AND EAR.

THE first edition of Professor SKILLERN'S book on the nasal accessory sinuses[3] was reviewed in our columns in January, 1914 (BRITISH MEDICAL JOURNAL, January 10th, 1914, p. 92). Its success is proved by the fact that a second edition is already required, for it is a large work devoted entirely to inflammatory diseases of the accessory sinuses, and appeals more particularly to the specialist. The first hundred pages are given up to "general considerations," including anatomy and physiology, etiology and pathology, and a general description of symptoms, diagnosis, treatment, and complications. The remaining sections are allotted respectively to the maxillary sinus, frontal sinus, the ethmoid labyrinth, and the sphenoid sinus, to which is now added a final chapter on multiple sinusitis. Another new feature is a short account of sinus disease in children; the use of the nasopharyngoscope has now adequate mention. There are descriptions of a very complete series of the numerous operations on the various sinuses. For chronic antral empyema the author prefers a modification of Canfield's operation—opening the anterior angle of the sinus by intranasal removal of part of the crista pyriformis; after suppuration has ceased the artificial opening is allowed to close. This would appear to be a grave disadvantage, and surely the packing of the cavity, on which the author insists after all antral operations, is unnecessary. No account is given of the method of entering the frontal sinus through the "agger" cells; the author considers that about 95 per cent. of cases are cured by removal of the middle turbinal and curettage of the anterior ethmoidal cells, and that most of the remainder require the external operation, so that there is little scope for the radical intranasal procedures. Misprints are more numerous than one might expect in a second edition, and it is not over-captious to dislike such words as "turgescency," "hypodermatically," and "ostiums"; but the illustrations are numerous and excellent, the index adequate, and, above all, the references to authorities copious. The book should be in the hands of every specialist.

[1] *Fatigue Study: The Elimination of Humanity's Greatest Unnecessary Waste. A First Step in Motion Study.* By F. B. Gilbreth, and Lilian M. Gilbreth, Ph.D. London: G. Routledge and Sons, Limited. 1916. (Post 8vo, pp. 159; 33 figures. 6s. net.)

[2] *Le système Taylor et la physiologie du travail professionnel.* Par J. M. Lahy. Paris: Masson et Cie. 1916. (Post 8vo, pp. 208; 11 figures. Fr. 4.50.)

[3] *The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose.* By R. H. Skillern, M.D. Second edition, thoroughly revised. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 439; 247 figures, 8 plates. 21s. net.)

Mr. W. G. PORTER'S little manual on diseases of the throat, nose, and ear[4] was published in 1913 and has now been revised during the author's absence on war service by Dr. P. MCBRIDE. There is not much to add to our previous notice (BRITISH MEDICAL JOURNAL, May 24th, 1913, p. 1115), as few alterations or additions have been made beyond a reference to suspension-laryngoscopy and an excellent little summary of vestibular reactions. The book is a very successful attempt to compress a sufficiency of information on the throat, nose, and ear into the compass of just over 250 pages of text; this is done by omitting all descriptions of major operations, even of tracheotomy, and of procedures which are outside the scope of the general practitioner. The indications for operations are well given, and special attention is paid to diagnosis. We think, however, that the after-treatment of mastoid operations might have been described, as it is difficult, and often falls to the lot of the practitioner. The illustrations are good, the index is now full and accurate, and the text singularly lucid and complete. The book is not intended for students reading for examination, but we know of no manual of its size better suited to the needs of the general practitioner.

NOTES ON BOOKS.

The Thistle Souvenir Book[5] is a gay and interesting publication designed to tempt shillings from the pocket of the public into the coffers of the Scottish Women's Hospitals for Foreign Service (N.U.W.S.S.), a voluntary organization that has done excellent work for the sick and wounded of our allies, France and Serbia. The reader will find short stories, poems, and pictures of no little literary and artistic merit. Authors and artists whose names are well known to the public have contributed to the volume; the editor is to be congratulated upon the skill with which he has performed his duties, and the printers have turned out the book in first-rate style.

Physics and Chemistry for Nurses[6] is a compilation from which it is intended that the members of a patient and much tried body of women should learn the elements of natural science generally. It contains chapters on such subjects as the properties of matter, energy, the ether, light, electricity, sound, inorganic chemistry, water, textiles, the chemistry of nutrition, metabolism, and the urine. Its composition has clearly been a labour of love, and shows evidence of good intention. Its perusal furnishes the student with a fine lot of mixed reading, and brings to his mind Sheridan's remark about easy writing.

The *Wellcome Photographic Exposure Record and Diary* for 1917 has been issued, and presents the characters to which the popularity of previous issues has been due. Its scope is best described by the title of the first article, which is "A short guide to photographic practice." It contains also tables for timing development with many varieties of prints, and at many temperatures.

[4] *Diseases of the Throat, Nose, and Ear, for Practitioners and Students.* By W. G. Porter, M.B., B.Sc., F.R.C.S.Edin. Second edition, fully revised for the author during his absence from England in the service of his country by P. McBride, M.D.Edin., F.R.C.P.Edin., F.R.S.E. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1916. (Demy 8vo, pp. 256; 67 figures, 7 plates. 7s. 6d. net.)

[5] *The Thistle Souvenir Book in Aid of Scottish Women's Hospitals for Foreign Service.* Glasgow: J. Horn, Ltd. 1916. (Demy 4to, pp. 94. 1s. net.)

[6] *Physics and Chemistry for Nurses.* By Amy E. Pope. New York and London: G. P. Putnam's Sons. 1916. (Post 8vo, pp. 424; 71 figures. 6s. net.)

THE SCHOOL CHILD.

(Concluded from p. 876.)

Adenoids.

The percentage of children reported with adenoids was 3.7, and with marked adenoids 1.34. The latter groups are almost certainly cases needing operation. The percentage is highest in the municipal boroughs—namely, 5.8; in the counties it was 3.6, urban districts 3.4, and the county boroughs 3.1 per cent.

Enlarged tonsils and adenoids are important on account of their direct effect on the child, and also because of their sequelæ in local and general health. In response to the suggestion of the Board's medical officer made last year, special attention was paid to these conditions by some authorities. The report contains an account of an admirable piece of work done by the London department, and extracts from work in other areas. The London report shows how constant is the association of catarrhal conditions of the respiratory passages with adenoids, and the widespread effect of these growths in the production of deafness and ear discharge, and possibly of mental dullness and retardation of intellectual progress.

It is usual at routine inspections to record the mental capacity of children by the figures 1, 2, and 3. These figures necessarily vary from class to class and from observer to observer, and are found not to be statistically reliable. The educational machine, however, sorts the bright and defective children out very accurately. The brightest children are examined as scholarship candidates, and mentally defective children are drafted into special schools. Dr. Thomas has analysed the results of examinations during 1914 of scholarship children, of normal children as leavers in elementary schools, and of children examined at the age 11 to 12 in special schools, with the following results:

Percentage of Children referred for Treatment for Adenoid Growths and Enlarged Tonsils (ages 11 to 12).

	No. Examined.	Boys.	Girls.
Mentally defective children	1,042	5.8	9.2
Children in elementary schools	67,151	4.7	5.4
Scholarship children	3,470	1.9	2.2

No question of personal equation between examining officers arises on these figures, which are also free from any disturbing influence caused by age. They appear to indicate, *ceteris paribus*, that either the presence of adenoid growths and enlarged tonsils tends to produce mental defect or backwardness in school, or that the conditions favouring the development of adenoid growths also bring about a lowering of mental capacity.

The effect of treatment other than by operation has been under consideration.

The general opinion is that open-air treatment, breathing exercises, and similar measures cannot take the place of operative removal of the obstruction, although they are very desirable in all cases in the after-treatment of children who have been operated upon. Thus, for example, Dr. Birmingham, in the report on playground classes at Gordonbrock Road School, remarks that "the results are so unsatisfactory in the cases of children suffering from enlarged tonsils, adenoids, mouth breathing, or enlarged cervical glands, that I would advise they be not sent to the playground classes but placed under operation or other treatment more likely to give quick and certain benefit."

Tuberculosis.

The report contains references to the close connexion between the work of the tuberculosis officer and that of the school medical officer. In many instances both offices are held by the same medical officer. The provision of sanatorium schools for children suffering from tuberculosis is slowly increasing; in 1915, 18 schools were returned, as against 15 in 1914.

It is often observed that the effects of sanatorium treatment are not lasting, the chief reason advanced being that the duration of the stay is too short to secure a permanent result. Without question, a prolonged residence under the ideal conditions of a sanatorium is a desideratum, but in view of the expense incurred and of the fact that the accommodation at present provided by residential sanatoriums is inadequate to meet the national requirements it is generally not possible. *The main remedy lies in after-care.* A child who has been an inmate of a sanatorium should be the object of the utmost special attention which the school medical service can afford. If possible, his attendance on his return from the sanatorium at an open-air day school should be secured. The school nurse should be instructed to inquire into his environment, and to procure co-operation of the parents in assisting him to live in the best hygienic conditions possible.

Medical Treatment.

In spite of the war there has been a considerable increase in the amount of medical treatment in a number of areas. In most instances it has been carried out either by establishing school clinics or referring the children to neighbouring hospitals. The number of local education authorities which provide medical treatment by means of school clinics is 212 out of 317. Upwards of 450 clinics have now been established, and others are in contemplation. But more than half the authorities have done nothing in respect of dental treatment, only 93 have made any provision for dealing with enlarged tonsils and adenoids, and only 71 have provided *x*-ray treatment for ringworm.

Cinematographs.

Many local education authorities and their medical officers have been anxious for some time past as to the

alleged injurious effects on the eyesight of children of frequent attendance at cinematograph entertainments. There is little doubt, this report states, that frequent or prolonged gazing at "pictures" produced in this way imposes an undue strain on the developing eyesight of children, who often occupy seats close to the screen. Speaking generally, the physical harm which may result from excess in this way is mainly dependent upon the following conditions: Uncorrected errors of refraction of the eye of the child viewing the films; excessive and prolonged gazing at the films; the unsatisfactory atmospheric conditions surrounding attendance at these exhibitions. It cannot be doubted that late hours, loss of sleep, malnutrition, bad atmosphere, and continued excitement contribute not a little to any ill effect arising from eye strain.

The Physical Education of the Child.

The positive issue which must ever be held in mind as one of the principles of a sound education is the necessity of providing a way of life for the child which shall assist and stimulate its development, to furnish it with the conditions necessary to its sound and adequate nutrition, and to surround it with a school environment which shall help and not hinder its natural growth. Remove obstacles and provide incentives to health and the child will grow. Four principal means by which this can be obtained are set out as: The teaching of hygiene and cleanliness; the feeding of school children; systematic physical education; open-air education. In a number of educational areas use is made of the school clinics and the medical inspections as a means of promoting school hygiene in the widest sense. The Care Committee members attend; they are informed of the defects of the children; and they are instructed as to the best manner of approaching parents so as to secure treatment of the defect and alteration of bad conditions fostering them.

At Brighton students were drafted from the local training college to the clinics, and there taught how to recognize common school ailments; and visits are made to schools for normal and defective children, so that differences between the normal and abnormal may be understood. Temperance is taught in some schools by the teachers; in others by the medical staff; in still others by voluntary associations. It is stated that the activities of the Central Control Board (Liquor Traffic) have increased the interest taken in the instruction of children in this subject.

Under the heading of "The feeding of school children" it is written:

> Some medical officers are able to report that the children are better nourished since the war began. Dr. Tattersall (Salford) writes that malnutrition was very prevalent soon after the war began, but latterly their state of nutrition has materially improved, "this being no doubt due to the more liberal allowance made by the Government to soldiers' dependants, the almost entire absence of unemployment, and the more generous allowance of tissue foods in the free meal dietary." This is a gain, if but a temporary one, and demonstrates that poverty is a potent ally of malnutrition.

The value of the Swedish system of exercises is noted. It may begin in the simple, free-standing exercises of the elementary school, and proceed to its full development in the elaborately equipped gymnasium of the secondary school or physical training college. To routine gymnastic exercises should be added games, field sports and athletics, and dancing in its many forms.

The experience of the past years has established the fact that the most satisfactory and economical form of open-air education is that provided by the day open-air schools. The planning of new schools so as to provide for much of the instruction to be given under open-air conditions does not necessarily lead to additional excessive expenditure. In the case of school extensions cheap temporary buildings of an open-air type—such as huts used in military camps—offer adequate accommodation, provided that arrangements are made to keep the children warm and dry. In view of the excellent results obtained throughout the country in these schools the Board urges local education authorities to consider seriously the extension of present facilities for open-air education.

Juvenile Employment.

It would appear that in January, 1916, there were 45,000 fewer children, of the age groups 11 to 12 years and upwards, on the registers of the public elementary schools than, in the light of the experience of the past ten years, would have been expected.

The decrease has taken place chiefly in the age groups 12–13, 13–14, and 14–15 years. It is believed that the loss of children has been greatly increased since January last. The total does not take into account children normally liable to attend school but excused for longer or shorter periods by local authorities for agricultural and other employment, nor does it include children engaged in half-time employment; 15,000 were excused for the purpose of agricultural whole-time employment alone by May 31st, 1916. Several authorities have, during the past months, passed resolutions in favour of exempting children under 12 years of age. On the other hand, a number of authorities have successfully resisted proposals for the release of such children. It is stated that it is very doubtful whether children under 12 who are excused for agricultural employment will ever return to school, at any rate for an effective period. It would be a grave misfortune if large numbers of children in rural districts under 12 years of age had their education permanently interrupted. The Board of Agriculture has expressed the opinion that if women of the country districts, and of England generally, took the part they might take in agriculture, it would be quite unnecessary to sacrifice the children under 12.

As regards industrial employment, there has undoubtedly been an extension of the employment of children, but, with some exceptions, the extension has been within the law. At Sheffield it was decided that boys between 13 and 14 years of age might be released from attendance at school during the continuance of the war for employment in occupations approved by the Education Committee. The committee decided that every case should be considered on its merits, and that there should be no relaxation of the by-laws. The work should be light, and the child must be physically fit, and control must be maintained over the health of the child, and boys under 14 years must not be put on night shifts. Arrangements were made for collaboration between the school medical officer and the certifying factory surgeon, and there appears no reason why they should not be adopted generally.

Numerous references are made to the effect of the employment out of school hours on the health and progress of the children. It is evident there is great need for effective supervision of the conditions of such employment. Excessive hours of labour are found often to be associated with conditions of mental and physical strain, and it is obvious that children so employed are incapable of attention and concentration of mind during school hours. Similarly, as regards "half-timers," most teachers report that within a short period there is a decided change for the worse in the quality of the work of these children as a result of overstrain due to long hours. It is recommended that all children known to be employed to any material extent, and certainly all half-timers, should be examined by the school doctor as "specials." The discovery of defects would indicate unsuitable conditions of employment and lead to improvement of these conditions.

The "Leavers."

To safeguard young children against the effects of unsuitable employment on leaving school it is urged that there should be: (*a*) Careful examination of all leaving children as a universal practice. (*b*) Prompt and adequate remedy of defects found. (*c*) The closest co-ordination between the school medical officer, the certifying factory surgeon, and the juvenile employment committee or the labour exchange.

COLONEL ARTHUR HUGH LISTER, Lecturer in Clinical Medicine at Aberdeen University, who died of pulmonary tuberculosis on his way home from Egypt, left £31,720 gross.

THE New York Committee on After-Care of Infantile Paralysis Cases is endeavouring to co-ordinate the various efforts in this direction by forming one organization to look after all children discharged from hospitals, and to provide for the training of nurses for the work. Dr. Holt is said to have estimated that there are in New York between 3,000 and 4,000 children who will need care throughout the next year; in many cases provision will have to be made for the child's future.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on December 12th, 1916, thirty cases were considered, and £317 15s. granted to twenty-eight of the applicants. The following is a summary of some of the cases relieved:

L.R.C.P.Edin., married, who practised at Bervie, N.B. Owing to ill health his earnings have only been about £70 a year for some time, and his wife, aged 70, is now blind; a daughter who was a housekeeper has had to give up her post so as to be able to nurse her father and mother. Voted £24 in two instalments.

Daughter, aged 69, of M.R.C.S.Eng. who practised at Cambridge and died in 1887. Applicant was able to earn a living by taking in paying guests on the south-east coast until the war commenced, but since has not been successful, and has had to give up her house. Only income £35 per annum. Relieved once, £12. Voted £12 in twelve instalments.

Daughter, aged 70, of M.R.C.S.Eng. who practised in London and died in 1875. Applicant was a governess in Russia when the war commenced, and all her savings were in a Berlin bank. For the last two years she has earned a living by clerical work, but her eyesight has now failed and she has had to give it up. Only income a pension of £30 from another charity. Relieved twice, £24. Voted £12 in twelve instalments.

Daughter, aged 50, of M.R.C.S.Eng. who practised in India and London and died in 1873. Applicant left unprovided for, and owing to ill health unable to earn a living. Only income £22 per annum. Relieved three times, £20. Voted £10 in two instalments.

Widow, aged 59, of L.S.A.Lond. who practised at Bournemouth and died in 1913. Has endeavoured to earn a living by taking in lodgers, but since the war has been unsuccessful, and has only received £3 this year. Has received a gift of £26 from another society. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 74, of M.R.C.S.Eng. who practised at Rye, and died in 1891. Applicant's income is not more than £50 per annum, and she has cataract in both eyes. Her two daughters are married and unable to help her. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 55, of M.R.C.S.Eng. who practised at Yelverton and died in 1908. Left without means, and endeavours to make a living by taking in boarders, but is not successful. Her eyesight is bad. Relieved ten times, £119. Voted £12 in twelve instalments.

Widow, aged 75, of L.S.A. who practised in Bermondsey and died in 1887. Applicant managed up to the commencement of the war by keeping a boarding-house on the south-east coast, but has had to close it, and is still responsible for various charges against the house. Two children, who help all they can. Relieved once, £15. Voted £2, and referred to the Guild.

Daughter, aged 56, of L.R.C.S.Glasg. who practised at Glasgow and died in 1883. Endeavours to earn a living by teaching music, but cannot obtain sufficient pupils. Only permanent income, £25. Recommended by the Glasgow Branch of the Guild. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 58, of L.S.A.Lond. who practised at Limehouse and died in 1894. Applicant was left unprovided for with two young daughters, both of whom are now working but only able to earn a little. Earns a little by needlework but finds it difficult to meet expenses. Relieved nine times, £98. Voted £12 in twelve instalments.

Widow, aged 71, of M.D.Edin. who practised at Cambridge and died in 1903. Applicant endeavours to make a living by taking in boarders but is not successful. Friends provide £18 per annum. Relieved six times, £48. Voted £12 in twelve instalments.

Widow, aged 57, of L.S.A.Lond. who practised at Islington and died in 1905. Applicant left unprovided for with two sons, both of whom joined the army; one was killed and the other is missing. Applicant is nearly blind, and her health is very precarious. Relieved twelve times, £146. Voted £18 in twelve instalments.

Daughter, aged 64, of M.D.Edin. who practised in London and died in 1873. Applicant has two sisters, and they endeavour to make a living by keeping a boarding house. The recent death of the mother has depleted the family income as she had a pension which died with her, and the high cost of living makes it difficult to get on. Relieved once, £10. Voted £10.

Daughter, aged 59, of L.R.C.P.Lond. who practised at Brierley Hill and died in 1872. Has never been able to work through ill health, and has recently fractured her ankle. Only income a pension from another society of £25. Relieved nine times, £81. Voted £12 in twelve instalments.

Daughter, aged 48, of M.B. who practised at Southampton and died in 1892. Applicant is a trained widow to, but owing to suffering from Bright's disease and heart trouble is unable to work. Only income 10s. 6d. per week allowed by friends. Relieved three times, £36. Voted £12 in twelve instalments.

The committee also granted special war-time Christmas gifts of £1 each to 150 annuitants and 120 grantees.

Subscriptions may be sent to Dr. Samuel West, honorary treasurer, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

A meeting of the Committee was held at the *Lancet* Office on December 14th, when the position of the Fund at the close of the second year of working was considered, and the following balance-sheet, duly audited, was presented by Dr. H. A. Des Vœux, the honorary treasurer, being a cash account of the Fund from December 1st, 1915, to November 30th, 1916:

Receipts.	£ s. d.	*Payments.*	£ s. d.
Dec. 1st, 1915:		Relief	6,635 5 9
Balance	15,608 12 0	Clothes	105 14 4
		Administration expenses	12 14 3
Nov. 30th, 1916:			6,753 14 4
Donations	929 19 7		
Interest	803 8 0	Balance at bank, £2,699 3s. 7d.; Treasury Bills at cost, £7,889 1s. 8d.	10,588 5 3
Total ...	...£17,341 19 7	Total	£17,341 19 7

Messrs. Crewdson, Youatt, and Howard, chartered accountants, have examined the above account with the books and vouchers of the Fund, and have certified it to be correct.

The Treasurer gave a general summary of the financial circumstances and showed that the total donations to the Fund up to November 30th amounted to £19,500 6s. 5d., including the sums collected by national committees in Scotland and Ireland; the interest on Treasury Bills and money on deposit amounted to £826 14s. 6d.; while the financial position on the day of the meeting was that £10,000 remained in hand after sending the sum of £800 per month for a considerable period to Belgium for the relief of doctors and pharmacists and their wives. On November 18th Treasury Bills for £8,000 were bought, which mature in February. From the beginning of June up to the end of November £627 2s. 8d. was received, and during this period £4,904 was expended, £4,800 of this being the *mensualités* sent direct to Belgium. A little over £100 had been distributed in small sums in England for the relief of Belgian doctors and pharmacists or their wives or dependants during the period.

The Committee, on considering the financial statement, decided to continue the *mensualités* to Belgium for the ensuing four months, though aware that at that rate of expenditure the sum at present in hand would not last more than a year. It was decided, however, to prepare a brief statement setting out the position and activities of the Fund, so that, in making any further appeal that might be necessary, the evidence would be clear of the valuable nature of the Fund's activities.

The question of the possibility of assisting Russian medical men, prisoners of war, under whose care many English prisoners have derived benefit, was brought before the committee. While it was not thought that the Fund raised for Belgian doctors, pharmacists, and their dependants could be administered for the good of any one else, the idea of starting a small fund among English medical men on similar lines, and having the Russian doctors prisoners of war as its object, was discussed sympathetically.

Sir Rickman Godlee, Chairman of the Committee, announced that he had received from Canada a case of instruments, which had been dispatched straight to Belgium through the intervention of Mr. Hoover.

The address of the honorary treasurer of the Belgian Doctors' and Pharmacists' Relief Fund is Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W., to whom all subscriptions should be sent. The honorary secretaries are Dr. S. Squire Sprigge, the *Lancet* Office, 423, Strand, London, W.C., and Mr. W. J. Uglow Woolcock, the Pharmaceutical Society, 17, Bloomsbury Square, London, W.C.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

British Medical Journal.

SATURDAY, DECEMBER 30TH, 1916.

VOLUNTARY MOBILIZATION OF THE PROFESSION.

THREE weeks ago we indicated that there was a growing opinion that the time had come for the application of the principle of general mobilization to the whole medical profession. Since then the matter has been fully and carefully considered by the Central Medical War Committee for England and Wales and the Scottish Medical Service Emergency Committee, and also by the Reference Committee of the Royal Colleges in England. The Central Medical War Committee approved of the principle of mobilization of the medical profession apart from any question of general mobilization of the whole community, so that every individual whose name is on the *Medical Register* should be held bound to give such service as he is competent to give when called upon to do so. The Scottish Medical Service Emergency Committee also approved the principle of the complete organization of the medical profession for the period of the war and for six months afterwards, in order that every person whose name was on the *Medical Register* should be held bound when required by the Government to give such service as he or she is competent to render for naval, military, or civil practice. In each case the proviso was made that the organization of the profession should be in the hands of a medical committee.

This opinion had been expressed before the Prime Minister's speech on December 19th, when he said that the matter had been considered by the War Committee of the late Government, which had unanimously decided that the time had come for the adoption of the principle of universal national service, and that one of the first acts of the new War Cabinet was unanimously to approve the conclusions come to by the preceding Cabinet. The Prime Minister went on to announce that Mr. Neville Chamberlain had been appointed Director-General of National Service, and that he would have the assistance of two directors—civil and military. The military director would be responsible for recruiting for the army. The first duty of the civilian director would be to make a schedule of industries and services and to invite the enrolment of volunteers. If by this volunteer system it was found impossible to get the number required, the War Cabinet would not hesitate to ask Parliament to release it from pledges given in other circumstances and to grant the necessary powers for rendering the plans fully effective. The nation was fighting for its life and was entitled to the best services of all.

On the following day the matter was very fully discussed at a meeting of the Central Medical War Committee, which arrived at the conclusion that the position had changed since mobilization of the whole nation had become a matter of practical politics. It was considered that the medical profession would desire that its special position and difficulties should be laid before the responsible authority as soon as possible; and the Committee therefore resolved to send a deputation to the Director of National Service and to invite the Reference Committee of the Royal Colleges in England and the Scottish Medical Service Emergency Committee to nominate representatives to join that deputation. This proposal has been approved in Scotland by the Emergency Committee and representatives have been nominated. The Committee of Reference of the Royal Colleges in England has also recorded its opinion that it is desirable that the Colleges should join in the deputation to urge upon the Director of National Service that the mobilization of the medical profession should be organized under his direction by a representative body selected from that profession. The Scottish Medical Service Emergency Committee has resolved also to address a letter to the Prime Minister setting out a short history of the Committee and pointing out that it first came into existence in August, 1914, to deal with the civil needs of the community, but in May, 1915, added to its duties that of providing the ever-increasing number of medical officers required for the army. The formation of this Committee preceded that of the sister committee for England and Wales by a short time, but their later history has been identical, and both were recognized by the Government on June 1st, 1916, as Central Professional Committees under the Military Service Acts.

The position, then, is this—that the three representative committees of the profession in Great Britain have resolved that the principle which had already obtained widespread approval in the profession before the Prime Minister's speech, should be carried out, and that the profession should at once respond to his appeal for volunteers by offering to organize itself for the purpose.

THE DIAGNOSTIC VALUE OF THE COLLOIDAL GOLD REACTION.

THE colloidal gold reaction was first employed by Lange, in 1912, to distinguish between syphilitic and non-syphilitic serums, but without success. With the cerebro-spinal fluid, however, results were obtained which corresponded closely with those of the Wassermann reaction in cases of syphilis. Lange[1] found that while normal cerebro-spinal fluid, diluted with a 0.4 per cent. solution of sodium chloride, caused no change in a solution of colloidal gold, abnormal fluids caused partial or complete precipitation, with resulting colour changes which appeared to be almost specific for certain diseases, especially those of syphilitic origin. This apparent specificity was represented by maximal colour changes occurring in certain dilutions of the cerebro-spinal fluid. The colour changes passed from red-orange through red-blue, purple, blue, and pale blue to complete decolorization. The dilutions of cerebro-spinal fluid with 0.4 per cent. sodium chloride were ten in number, commencing with 1 in 10, and increasing by geometrical progression up to 1 in 5,120. It was found that cerebro-spinal fluid from cases of tabes and cerebro-spinal syphilis gave the maximal colour reactions within a range of dilutions constant enough to warrant the use of the term "luetic curve"; that fluid from different types of meningitis gave the maximal reactions in the higher dilutions, and that fluid from cases of general paralysis caused complete decolorization in the first four to six dilutions so regularly as to suggest the term "paretic curve."

The true explanation of this reaction is still unknown. Lange regarded it as due to different qualitative mixtures of proteins, but this view is untenable, since it has been shown that globulins exert a protective influence on colloidal gold solutions. Others

[1] *Berl. klin. Woch.*, 1912, xlix, 897.

look upon it as an immunity reaction, in accordance with the view that immunity will ultimately be reduced to terms of colloidal chemistry. Others, again, consider it to be a purely physical phenomenon, probably of electrical nature. In spite of this diversity of opinion as to the nature of the reaction, most observers recognize its specific significance, differing, however, as to its clinical value.

The colloidal gold reaction has been investigated by Miller, Brush, Hammers, and Felton,[2] of the Johns Hopkins Hospital. The objects they had in view were: (1) The preparation and standardization of a suitable colloidal gold solution by a simple and reliable method; (2) the determination of the clinical value of the reaction in syphilis of the central nervous system, extraneural syphilis, and non-syphilitic cases; (3) comparison of the reaction with the Wassermann and other tests.

The gold solution was prepared by the method of reduction because of its simplicity and the greater stability of the resulting solution. For further details on this point and on the laboratory methods followed the reader is referred to the original article.

The results obtained by these observers were briefly as follows: (1) In the great majority of cases normal cerebro-spinal fluid gave no reaction with colloidal gold. (2) The reactions in tabes and cerebro spinal syphilis were not characteristic, but were, as a rule, of the syphilitic type, and hence valuable in confirming a doubtful diagnosis, especially when the result of one or more of the other tests was negative. (3) The reaction type in general paralysis was uniform and gave complete precipitation in the first four to eight tubes. It also occurred in cases in which all other abnormalities of the spinal fluid were absent, and may therefore be regarded as specific in this condition. Occasionally it was observed in cases which were clinically syphilitic, but showed no signs of general paralysis. A "paretic reaction" must therefore be regarded as of grave prognosis in cases of syphilis, as general paralysis may ultimately develop. (4) In congenital syphilis, with the exception of juvenile general paralysis, the reaction was less characteristic, and of less value than the Wassermann. (5) In early tuberculous meningitis the reaction was often of the "luetic type," and apt to be misleading unless the examination was repeated several times, when there was a gradual transition to the meningeal type of reaction. (6) In multiple sclerosis the reaction was very similar to that of general paralysis. This is interesting in view of the fact that the cerebro-spinal fluid from cases of multiple sclerosis often shows pleocytosis, and a positive globulin reaction, and occasionally a positive Wassermann. (7) Comparing the gold reaction with the Wassermann test, the authors found that in 252 spinal fluids from cases of tabes, general paralysis, and cerebro-spinal syphilis there was never a positive Wassermann with a negative gold reaction, but in four cases of general paralysis the gold test was positive, while the Wassermann was negative. (8) The colloidal gold reaction does not replace other tests of known value for the cerebro-spinal fluid, but in some instances it is more sensitive and more specific, especially in general paralysis. The value of the reaction depends entirely upon the use of a reagent suitably prepared and standardized.

The authors conclude that no reaction or group of reactions obtained from the cerebro-spinal fluid is pathognomonic of syphilis of the central nervous system, and utter a note of warning against the growing tendency to divorce laboratory diagnosis from clinical observation. "The two are fundamentally complementary, and each will lose in value unless they remain so."

[2] *Johns Hopkins Hosp. Bull.*, December, 1915, p. 391.

ADMINISTRATION OF VENEREAL DISEASE REGULATIONS.

THE Local Government Board in England has issued to the councils of counties and county boroughs a circular letter, a memorandum, and a sheaf of documents with reference to details of administration of the Venereal Diseases Regulations, 1916. The memorandum sets out the returns required to be made by the authorities of institutions approved by the Board for the diagnosis or treatment of venereal diseases, together with a prescribed form for the register to be kept by the pathologists of approved laboratories, and a model system of case papers and registers for the use of hospitals and other approved institutions.

The Board informs the councils that it has approved certain brands of dioxy-diamino-arseno-benzene-dihydrochloride, to be issued and used in place of the brand known as salvarsan. The brands sanctioned are kharsivan, made by Messrs. Burroughs, Wellcome and Company, and arsenobillon, sold by Messrs. May and Baker, Limited. The Board persists in speaking of these brands as "substitutes for salvarsan," a most unhappy expression, as the drugs sold under the name of kharsivan and arsenobillon are chemically identical with the drug sold under the name of salvarsan. The Board has also approved the issue and use of novarsenobillon, also sold by Messrs. May and Baker, and identical, we believe, in chemical constitution with neosalvarsan, the trade name given by Ehrlich to sodium dioxydiamido-arsenobenzene-monomethane sulphonate. Kharsivan, arsenobillon, and novarsenobillon, whichever brand or substance may be selected, will only be issued gratuitously if administered by the medical officer of the clinic or by a medical practitioner authorized by him, and this authorization is to be limited to practitioners who are known to have had experience in the administration of these drugs. The medical officer of the clinic, however, is instructed, on the request of a medical practitioner, to administer the preparations at medical institutions other than the clinic, or at the patient's home if circumstances justify this course. The new circular letter and memorandum contain arrangements for supplying gratuitously to medical practitioners the necessary outfits for the collection of pathological specimens. The regulations directed that laboratory facilities should be provided for the microscopical examination of discharges for detection of gonococci, confirmed in exceptional cases by cultural methods, and of discharge from sores, mucous patches, condylomata, etc., for detection of spirochaetes or of other organisms; for "Wassermann" tests of the blood serum of patients (*a*) for the diagnosis of syphilis, (*b*) as a control of the effect of treatment; for the examination of fetal tissues for the presence of spirochaetes; for "Wassermann" tests and microscopical examination of the cerebro-spinal fluid of patients; and for other tests directly concerned with the diagnosis or treatment of venereal diseases. An outfit for the collection of pathological specimens is to be supplied gratuitously to medical practitioners on application on the proper form to pathologists appointed under the scheme, or to the medical officer of health, and to save practitioners the trouble of applying for repayment of postage a uniform payment of 6d. to cover out-of-pocket expenses in the transmission of specimens is to be made for each specimen sent to the laboratory.

Every medical practitioner will receive from the council of the area in which he resides copies of certain documents, including instructions to patients suffering from either form of venereal disease, a leaflet containing information couched in popular language on the dangers of venereal diseases and on facilities for treatment, and a form of warning to be given to a patient after the administration of the organic arsenical compound selected. The Board has also agreed with some hesitation to sanction the payment by the county council of travelling expenses, within reasonable limits, to and from an approved hospital of persons suffering from, or suspected of suffering from, venereal diseases, subject to the approval of the medical officer of health, who must satisfy himself that the patient could not receive the treatment he requires unless his travelling expenses were paid; the patient as a rule would be required to attend the clinic nearest his residence. In coming to his decision on this matter the medical officer of health is to be guided by the opinion of the doctor. These charges for travelling expenses will be included in the general cost of the scheme of each county council, but 75 per cent. of the total cost of carrying out any scheme approved by the Local Government Board will be met out of imperial funds. The repayment will be made after the close of each financial year, when the actual expenditure has been ascertained and the accounts certified.

In a written reply to Major Astor, circulated in parliamentary papers two days before the prorogation, Mr. Hayes Fisher (Parliamentary Secretary to the Local Government Board) said that schemes for providing for diagnosis and treatment of venereal diseases had been formally submitted by 34 of the 146 councils, and in practically every other case the Board had information that schemes were in preparation. In a large proportion of these cases the negotiations with hospitals and other bodies, which were an essential preliminary to the framing of a scheme, were nearing completion.

LITERATURE AND SCIENCE IN EDUCATION.

MR. A. C. BENSON, C.V.O., President of Magdalene College, Cambridge, read a paper before the Royal Society of Arts on December 20th in which he discussed the aims of education and the relation between what might widely be called literature on the one hand and science on the other in the educational curriculum. The aim in education, he said, was primarily the training of character, and in this respect we had succeeded in England beyond reasonable expectation and even beyond unreasonable hope. Intellectually, we had not done so well; we had not taught the right things, or we had not taught them in the right way, and he believed the reason for our non-success to be that we had not sufficiently recognized the differences of temperament and taste. Mr. Benson regarded as a wholly false division the separation of education into ancient and modern, with the classics forming the bulk of the ancient, and modern languages and science forming the modern; the true division was between the literary and the scientific. It was not until the nineteenth century that modern and scientific subjects really began to claim attention in the schools, and then they all came with a rush; the result was a hopeless congestion, and the elements of so many things had to be taught that only the cleverest boys contrived to accumulate what might be described as an intellectual Kedjeree. There was a danger, in depreciating the classical system, of ruling out literature altogether, and substituting one tyranny for another. The ideal, he thought, was a combination of literary and scientific education, meaning by literary education the study of all that concerned the emotions and desires of mankind, and by scientific education the study of all that concerned man's material environment. While giving its due place to this latter, he held, nevertheless, that it was more important for the ordinary human being, apart from the specialist, to know something about human nature than to know about ocean currents and tides, light and heat, stars and meteors. The only part of scientific knowledge which was of practical concern to most human beings was the elementary facts of physiology. He was wholly in accord with the desire to teach human beings something about the wonders of the physical world in which they lived, but to turn one's back upon human nature, its hopes and fears, its visions and dreams, its sins and failures, seemed to him a most short-sighted policy. There was too great a disposition to think that knowledge in itself was valuable. It was valuable precisely in so far as it inspired and animated and trained the mind. The mere knowledge of facts was very unimportant. The expert must know the facts and processes of his subject, but, apart from this, no knowledge was valuable which did not mean the kindling of interest and faculty. In the present push for science as an educational subject this aspect of the matter was, he thought, overlooked. A thing which was practically useful had not necessarily any educational value. He pleaded, in conclusion, for a simple and elastic curriculum which should cater for individual taste and aptitude, and correspond in a general way with human faculties and interests. Then, when special aptitude was discovered, in the later stages, a certain specialization might begin. Viscount Bryce, who was in the chair, after expressing his agreement with Mr. Benson's conclusions, said that literary studies had been ruined in the minds of many boys by an undue insistence upon grammatical minutiae, which were very interesting to the teacher, but, many of them, beyond the intelligence of the ordinary boy. The great aim of education was to stimulate curiosity and to create the habit of observation. It was not knowledge that was important but the love of knowledge.

PLAYING THE GAME.

ONE of the results of the present world-conflict is a disposition to take stock of psychological and practical idiosyncrasies peculiar to our own and the other nationalities involved, with a view to determining their influence as the sources of combative strength or weakness. From the dawn of its history the Anglo-Saxon stock has been characterized by a love of and aptitude for outdoor sports, taken with a seriousness and progressively developed to a pitch of co-operative skill and complexity which no other people on this side of the Atlantic pretends to rival. It may fairly be claimed for us that in this respect at least the mantle of Hellas has fallen on the shoulders of Great Britain, and that we have done more than merely perpetuate the Greek tradition which glorified the perfected individual athlete, for by demonstrating the potentialities of the "organized group game" we have enhanced the cultural ideal. In a recently published thesis[1] by Dr. Mabel Jane Reaney, the problem of organized play is ably treated from the psychological standpoint. The theories which regard play as a means of discharging surplus energy, as a recuperative process, as experiment or practice in the future activities of life, are historically reviewed, and a measure of truth is found in each; but the authoress favours most the recapitulation theory of Dr. Stanley Hall, who regards play as "the motor habits or spirit of the past of a race persisting in the present as rudimentary functions, sometimes of and always akin to rudimentary organs." By careful observation of the typical games of children and

[1] *The Psychology of the Organized Group Game.* By Mabel J. Reaney. Preface by Dr. Kimmins. *The British Journal of Psychology* Monograph Supplements IV. Cambridge: The University Press. 1916. (Sup. roy. 8vo, pp. 76.)

young people it has been found possible to define a series roughly corresponding with the stages of man's ascent from the animal, through the savage, nomad, and pastoral, to the tribal stage of development. "In play," says Dr. Hall, "every mood and movement is instinct with heredity. Thus we rehearse the activities of our ancestors, back we know not how far, and repeat their life-work in summated and adumbrated ways." Miss Appleby, failing to find any definite parallelism between the play of children and that of adult savages, has suggested that the types of play are modified by the stages of somatic development. Professor Marshall holds that there is in biology an effort to escape the necessity of recapitulation; the same may in that case be expected in the psychological domain, and in any case the problem is to modify spontaneous play from the educational standpoint so as "to supersede the play which too markedly exhibits primitive action, primitive beliefs, primitive ethics." It has been suggested by Karl Groos and others that play has a "kathartic" action, helping to carry off undesirable instinctive activities, or to transmute them, we should prefer to say, into higher and more controlled potentialities. The organized group games or team games —football, baseball, hockey, lacrosse, etc.—with which Dr. Reaney deals, belong in their full development to the period of adolescence, corresponding with the highest (tribal) stage of prehistoric evolution. They provide an outlet to the characteristic emotions and instincts of youth —loyalty, courage, the admiration of physical prowess, the love of adventure—which are in great measure baulked by its modern industrial environment. For the full enjoyment of the game a faithful adherence to its established rules is found necessary; a tradition is thus established, which holds a separate and important place in the mind of the adolescent. Passed on by suggestion to each new participant, this habit of thought—it might almost be called an ethical code—has important results on the national character, a fact testified to in the Iron Duke's legendary attribution of our victory at Waterloo to the "playing fields of Eton." As a result of her investigation of the subject of group games, Dr. Reaney concludes that they definitely favour mental development; that play ability and general ability vary together; that football is the most educational game for boys and hockey for girls; and that these games should be compulsory.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

An abundance of medical terms is met with in the new (double) section of the *Oxford* or *New English Dictionary*.[1] The editors have now reached the letter V, and are making progress in the tenth or concluding volume of the whole work. Volume IX. it is true, is not finished, but it is not far from completion, and may be expected to come into the hands of readers within the year. The editor (Dr. Craigie), with his accustomed comprehensiveness, gives a medical meaning for the letter V; it stands for vision in ophthalmology. A group of words takes origin in vacca, a cow. Vaccicide (the killing of a cow) and vaccimulgence (the milking of cows) are scarcely medical terms; but vaccinable, vaccinal, vaccination, vaccinator, vaccine (substantive and adjective), vaccinee, vaccinia, vaccinide, vaccinifer, vaccinist, vaccinization, vaccino-, vaccinogenic, and vaccinoid certainly are. What a world of medical progress and of non-medical opposition, of health and disease, of reason and superstition, of statistics and blind unreason, and of controversy and disputation lies revealed in that small etymon vacc! Much of it can be seen by the perusal of the illustrative quotations, not a few of which come from past numbers of this JOURNAL. What will the conscientious objector say to this quotation from the year 1803: "the small-pox will never be extirpated till every parent is in the habit of inserting the vaccinia in the arm of his child"? Much, too, is conveyed by the expression, "the calf becomes the vaccinifer instead of the child." Vaccinium, it is pleasant to relate, takes us out of the region of controversy; it is a genus of plants many species of which bear edible berries—in fact, a bilberry. Another group of medical terms includes vagina, vaginal, vaginismus, vaginitis, and vagino-, in various compounds; and vago- appears in connexion with the pneumogastric nerve. Vagus, it may be noted, is classified as a completely naturalized English word. The chemical significance of valency is not forgotten among the definitions, and valerian, valerianate, valerole, and the rest are all carefully set forth—"the great garden valerian is an alexipharmic, sudorific, and diuretic" (1753). Valetudinary and its affiliated terms are well illustrated by quotations; it comes from the now obsolete word valetude, which, it is worth while to note, meant "good health." Certainly, many a valetudinarian may be said to suffer from good health! He does not enjoy it, perhaps. Other medical words which are fully considered are valve and valvular (in the cardiac sense), vapour bath, valgus, varus, varicella (given as non-naturalized), varicocele (regarded as naturalized), varicose, variola (not naturalized), varioloid (naturalized), and variolous. Variola, it should be noted, is derived from the Latin *varius*, speckled or variegated, the reference being to the spots and pustules. Another group of medical terms contains vas, vasal, vascular, vasculum (as used by the medical student, at any rate), vasectomy, vaseline, vaso- (in compound words), and vauqueline (strychnine). Vectis is defined as used in surgery, obstetrics, and in eye operations; vegete is a word, surely little used, meaning healthy; vehicle, in the pharmaceutical sense, is not omitted; and vein, with its many affiliated terms and compounds, is fully described, the quotations under venesection being especially instructive. Venereal, of course, is included, and ventose, a cupping-glass, which comes from ventus, wind. Medically, this is a most interesting section of the big dictionary.

[1] *A New English Dictionary on Historical Principles*. Edited by Sir James A. H. Murray, Henry Bradley, W. A. Craigie, and C. T. Onions. Vol. X. V to Vesuvius. By W. A. Craigie, M.A., LL.D. October, 1916. Oxford: at the Clarendon Press. (Price 5s. net.)

AURICULAR VENOUS PULSATION IN THE LIVER.

In certain cases of heart disease the systole of the right auricle gives rise to pulsation in the liver. This is the auricular venous pulsation of that organ, first described by Friedreich fifty years ago. From time to time it has been noted by other authors since that date, notably by Mahot and Potain in France, Dagnini (1894) in Italy, and Mackenzie in England. At one time Mackenzie appears to have considered such pulsation to be diagnostic of stenosis of the tricuspid valve; this view he relinquished later. It may be added that Dagnini had been led by this pulsation to diagnose a moderate degree of tricuspid stenosis in a patient with mitral incompetence and stenosis, a diagnosis confirmed subsequently at the autopsy. Volhard in 1904 recorded a case of exudative pericarditis with auricular pulsation of the liver, and other authors have described the same phenomenon in cases of pericardial adhesions, mitral disease, Graves's disease, myocarditis, and the Adams-Stokes syndrome. The subject was discussed in 1912 by Joachim, who concluded that the auricular (or presystolic) pulsation in the liver became more noticeable when the heart was acting well, if it was due to tricuspid stenosis, on this point agreeing with Dagnini, whereas, in the other cases, the pulsation tended to disappear as the heart's action improved. The whole question has recently been reviewed by Dr. C. Pezzi,[1] who gives polygraph tracings of auricular hepatic pulsation in seven patients observed by himself in Paris or Pavia. The first of these was a woman with the cardiac murmurs of mitral incompetence and stenosis and the diastolic Graham Steell murmur, as it is called in this country, of relative

[1] *Il Policlinico*, Rome, 1916, xxiii., sez. med., 129.

pulmonary incompetence. The presence of the auricular pulsation in the liver was taken to prove that the tricuspid valve also was stenosed; and this diagnosis was confirmed at the autopsy, when, it may be added, the pulmonary valves were found to be competent. The next three patients had one cardiac feature in common—namely, gallop rhythm. One was a woman of 30 with exophthalmic goitre, hypertrophied heart, and tricuspid incompetence thought to be organic in origin; here the tracing of the hepatic pulsation showed a double wave, the first element auricular in origin, the second ventricular. The next patient was an alcoholic and syphilitic coachman of 37, with granular kidneys, and a heart both hypertrophied and dilated, and evidence of both mitral and tricuspid incompetence. In this instance the tracing from the liver showed a double pulsation, as in the last; and both these pulsations disappeared as the patient's cardiac action improved and returned to the normal. The third case of auricular hepatic pulsation with gallop rhythm was that of a man of 62 with granular kidney and failure of the hypertrophied heart. As Dr. Pezzi points out, gallop rhythm of the heart is generally due to exaggerated activity of the auricles, which contract with undue violence and distend the hypotonic ventricles with blood so suddenly as to give rise to a perceptible cardiac sound; the recent work of Offenbacher (1914) on this point is quoted, and Dr. Pezzi concludes that both the auricles and both the ventricles contribute to the production of gallop rhythm. It is easy to see, therefore, how it comes about that gallop rhythm of the heart may be associated with auricular venous pulsation of the liver. The last three of Dr. Pezzi's seven patients had different forms of congenital heart disease; as none of them came to obduction, the exact diagnosis of their cardiac lesions was impossible. One, a deeply cyanosed woman, aged 23, was thought to have congenital stenosis or atresia of the tricuspid orifice, combined with defects in the interauricular and interventricular septa. Congenital pulmonary stenosis and defect of the interventricular septum were diagnosed in the second, who was a healthy-looking man, aged 24; the same diagnosis was made in the case of the third patient, a cyanosed kyphoscoliotic woman of 19, who often exhibited a cardiac gallop rhythm while under observation in hospital. In these three patients the auricular wave in the jugular phlebogram was very prominent, as is, indeed, usual. Dr. Pezzi concludes that an auricular or presystolic pulsation in the liver is commonly present in cases of congenital heart disease affecting the right side of the heart, with or without tricuspid stenosis; in the case of gallop rhythm of the heart stenosis of the tricuspid valve can be excluded on *a priori* grounds, as he points out.

PIG OR RABBIT?

IN 1915 the German medical press was full of articles on the comparative values of various foods, and one writer contributed an eloquent indictment of the rabbit, alleging that, as compared with the pig, it was a spendthrift, converting a large proportion of its fodder into heat and other wasteful forms of energy. The pig, on the other hand, by the sublime tranquillity of its temperament and constitution, converted a relatively greater amount of the material it consumed into fat and other useful substances. The writer expatiated on the insight of the German nation with regard to the rearing of pigs and rabbits, as compared with the French. The German bred his economic pig, the Frenchman squandered his substance on the wastrel rabbit. A reaction has now set in, and Professor Raebiger[1] has recently advocated the extensive breeding of the utility rabbit throughout Germany. He points out how frugal the tastes of rabbits are, and how easy they are to rear on foodstuffs such as potato peeling, lawn mowings, etc., which otherwise go to waste. In spite of the shortage of fodder, Saxony alone could boast on December 1st, 1915, of 653,824 rabbits. At a cost of 52 marks a year 150 lb. of meat could be produced. He quoted analyses of rabbit's meat to prove its nutritive value, and calculations by other authorities of the total amount of meat that could be obtained from rabbits if their breeding were taken up as a national custom.

[1] *Deut. med. Woch.*, June 8th, 1916.

HELIOTHERAPY AT ALGIERS.

THE value of sunshine as a therapeutical agent has been recognized in varying degree from the remotest antiquity, but we seem to forget all about it for a century or two and then suddenly once more become alive to its virtues. We are just now on a rising wave, and heliotherapy is being employed on a large scale, wherever available, in the treatment of surgical tuberculosis, impaired vitality, chronic organic debility, and, in another department, to hasten the cicatrization of indolent ulcers and war wounds. During the last few years Professor Curtillet, surgeon to the Civil Hospital at Algiers, has had free recourse to the open-air and sunshine treatment for the inmates of his children's wards. The climate of Algiers permits of this treatment being applied pretty well all the year round, so that on every day the sun shines—and rare are the days when its shining face is not seen at all even in January and February—the temperature is such as to allow of exposure to the sun's rays in the gardens of the hospital. The treatment, as is well known, must be applied very gradually. Beginning, let us say, with a limited application to the legs, we start with five or ten minutes' exposure to the sunshine, and the period and area of exposure are gradually extended, until ultimately several hours daily can be spent in the sunshine. According to Professor Curtillet, the benefit derived from the treatment, which is unquestionable, is in no sense specific in the sense of antituberculous, but is due merely to improvement in respect of general nutrition. In the treatment of wounds and ulcers by this means precautions are taken to protect them from dust and flies. There can be little difference of opinion as to the greater tendency to heal under the influence of fresh air and sunshine, but experience has shown that some caution is necessary, because too sudden or too protracted exposure is apt to determine rather pronounced local reaction, in excess of that likely to prove beneficial.

THE HALF-YEARLY INDEXES FOR 1916.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of January.

THE profession will hear with regret that the candidature of Dr. R. McKenzie Johnston for the parliamentary representation of the Universities of Edinburgh and St. Andrews is not to be persevered in. The candidate preferred by the Conservative Association of the University is the Sheriff of Perthshire, Mr. C. N. Johnston. The result might have been different had it not been that so many members of the profession in Scotland are serving in the Royal Army Medical Corps. In view of the facts that the constituency is so largely medical and that the profession has so few representatives in Parliament we cannot but regret the decision, which will only add one more to the very large number of lawyers in the Houses of Parliament.

Medical Notes in Parliament.

Prorogation.—Parliament was prorogued on December 22nd until Wednesday, February 7th. The King's speech contained the following passage: "The vigorous prosecution of the war must be our single endeavour until we have vindicated the rights so ruthlessly violated by our enemies and established the security of Europe on a sure foundation."

Tuberculosis (in Cattle) Order.—On December 22nd Mr. Rowntree asked whether, as a result of the suspension of the Tuberculosis Order, 1914, and of the tuberculosis test for animals providing milk and food, infected milk could now be sold for human consumption. Sir R. Winfrey (Parliamentary Secretary to the Board of Agriculture), in a written reply, stated that it was incorrect to say that the effect of the withdrawal of the Tuberculosis (in Cattle) Order was to permit the sale of infected milk for human consumption; that was restrained by the Dairies, Cowsheds, and Milkshops Orders and by various local Acts. It was not proposed to bring the Tuberculosis (in Cattle) Order, which was withdrawn soon after the outbreak of war, into operation until after the war.

Experiments on Living Animals.—On December 21st Sir G. Greenwood asked a series of questions as to holders of licences to perform experiments upon living animals, to which the Home Secretary (Sir G. Cave) gave categorical replies. He stated that of the two persons described in the question as alien enemies whose names appeared in the annual returns for 1915, one left the country in April, 1915, and his licence was revoked; the other, who was of Polish birth, was exempted from internment on the recommendation of the Advisory Committee and still held a licence under the Act. Two licences were now held by persons of German origin naturalized in this country. One of them had an A certificate and the other two A certificates and an E. Of the sixteen Japanese subjects whose names appeared in the annual returns, thirteen had given up their licences, having completed their experiments. Of the remaining three, one held no certificate, one held certificate A only, and the third (a staff surgeon in the Japanese navy) held two A certificates, two B certificates, one E, and one EE. The Royal Commission had examined the Home Office practice with regard to the grant of licences to other than British subjects on special conditions and expressed approval of it. No alien enemy held a licence.

War.

British Prisoners of War.—On December 19th Mr. Mount asked a question as to the visits of representatives of the United States Government to camps in Poland and East Prussia where British prisoners of war had been sent on working parties. Mr. Hope, Lord of the Treasury, said he was not sure to what working camps in East Prussia the question referred, but Mr. Jackson, of the United States Embassy at Berlin, visited the British prisoners of war at Libau on October 16th last, and reported in generally favourable terms on their treatment. Steps had been taken to bring back the small number of British prisoners of war working in Poland. In reply to a question by Mr. Lambert, Mr. Hope said that he was afraid it was true that there was very considerable destitution among the prisoners of war at Yozgad, Turkey in Asia. The United States Ambassador at Constantinople had pressed the Porte to remove our prisoners at Yozgad to a more accessible and suitable camp. In written replies, issued on the following day, Mr. Hope stated that the agreement with the German Government as to the repatriation of civilian prisoners of war over 45 years of age was, he hoped, about to be completed, and in anticipation of its completion arrangements were being made for repatriation as early as practicable. The conditions at Ruhleben appeared now to be as favourable as circumstances permitted, but the boilers for heating thirteen stone barracks and a Y.M.C.A. building had not yet been installed, though the camp commander had assured the United States Embassy that he was doing all he could to enable them to be erected promptly. The United States Ambassador had been requested to remind the Austro-Hungarian Government of the proposals made for the exchange of civilian prisoners of war interned in that country.

Volunteer Training Corps.—On December 20th Mr. Rowlands asked whether a scheme for associating a field ambulance service with the volunteers had been prepared by the War Office. Mr. Macpherson (Parliamentary Under Secretary to the War Office) replied that he was not yet in a position to make any statement on the subject.

Disabled Soldiers.—On December 21st Major Sir Edward Coates asked whether, when a wounded soldier in hospital received notice of discharge from the army owing to incapacity as the result of wounds, he was to remain under the control of the War Office until he recovered; and, if so, whether the separation allowance to his dependants was to continue and for what length of time. He also inquired whether the War Office contemplated retaining him under its control until he had learned such a trade or profession as his condition permitted. The Financial Secretary to the War Office (Mr. Forster) said, in reply, that he had nothing to add to the reply to a similar question made by the then Minister for War on November 23rd. Mr. Lloyd George then stated that a scheme had been prepared and had been submitted to the different authorities concerned. He hoped to make a further statement when their remarks had been received.

Army Medical Service: Promotion.—Mr. Lynch, on December 19th, asked whether promotion in the army medical services was determined by seniority or by merit. The Parliamentary Under Secretary to the War Office replied that promotion in the Army Medical Service, as in other branches of the army, was determined by seniority and merit. Mr. Lynch then asked which was preferred in the event of seniority and merit not being associated. Mr. Macpherson replied that they usually were associated.

Pay: R.A.M.C.—Sir C. Kinloch-Cooke asked, on December 22nd, whether many temporary captains of the Royal Army Medical Corps on active service were receiving higher pay than regular captains who were their superior officers, and who in some cases were in command of the units to which such officers were attached. Mr. Forster said that the difference in total emoluments was almost negligible, and after full consideration it was not considered necessary to disturb existing arrangements.

Hospital Units.—On December 22nd Mr. Watt asked whether there were in this country hospital units which had undergone a long period of training and yet were not utilized when there was a demand from France and other fronts; and why volunteers were asked for in the various military hospitals when there were completely trained units quite ready for sending abroad, in view of the fact that such volunteers were got only with the greatest difficulty. Mr. Macpherson said that as all the forces overseas had been supplied with medical units, there was at the moment only occasion to send individuals as reinforcements.

Bacteriologists at Military Hospitals.—In a written reply to Mr. Snowden, on December 21st, Mr. Forster stated that the majority of bacteriologists attached to the various military hospitals at home and abroad were paid or commissioned officers of the Royal Army Medical Corps. It would not be possible to give the total amount paid out without an undue measure of work.

Agglutination Test for Typhoid Fever.—In reply to Mr. Chancellor, Mr. Macpherson said that Professor Dreyer's agglutination test was officially recognized by the Medical Department of the War Office for those bacteriologists who wished to use it. The statistics regarding the number of cases of typhoid fever among the troops were based on the reports of bacteriologists who might or might not use this test.

Newport Military Hospital.—On December 21st Mr. Macpherson published a written reply to a question by Mr. Thomas as to the treatment of wounded by the Newport Section of the 3rd Western General Hospital, both as regards food and lack of attention, which had resulted in complaints. Mr. Macpherson stated that the complaint received was as to the feeding arrangements but not as to lack of attention to the patients. A surprise inspection was made recently, when the food in the hospital generally was found to be sufficient, well cooked, and well served, but somewhat lacking in variety. Steps had been taken to remedy the shortcomings observed.

London Ambulance Column.—Mr. Macpherson said that drivers of the London Ambulance Column fit for general service had been gradually withdrawn, and the process would be completed in the course of the next few weeks. He was unable to say whether women would be employed in their place.

Dental Mechanics.—Mr. Macpherson stated, on December 20th, in reply to Mr. Watt, that a return of dental mechanics serving in combatant corps who were willing to transfer to the Royal Army Medical Corps was called for last summer, and requirements had been fully met by the transfer of men selected from those who volunteered.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about £50, will be made on July 14th, 1917. Essays may be upon any subject in medicine, but must not have been published. They must be received by the secretary of the college on or before May 1st, 1917. Further particulars may be obtained by application to the secretary, Dr. Francis R. Packard, 19, South 22nd Street, Philadelphia, Pa., U.S.A. The prize for 1916 was not awarded.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

CAPTAIN C. K. MCKERROW, R.A.M.C.

Captain Charles Kenneth McKerrow, R.A.M.C., who died of wounds on December 20th, was born in 1883, and was the elder son of the late Dr. McKerrow of Ayr. After receiving his early education at Cargilfield and the Charterhouse, he proceeded to Cambridge, where he graduated M.A., M.B., B.C. in 1908; he also took the diplomas of M.R.C.S., L.R.C.P.Lond. in the same year. He subsequently held the posts of assistant house-surgeon and assistant house-physician at St. George's Hospital, and of extern to the I Frauenklinik in Vienna. He afterwards practised with his father in Ayr for several years. He joined the R.A.M.C. with temporary rank in June, 1915, and went to France with a battalion of the Northumberland Fusiliers two months later, with which he remained till he was fatally wounded. While at Cambridge he was a keen boxer, being middle-weight runner-up for Cambridge one year. He played Association football for his college. In January, 1915, he married Jean, only daughter of the late Mr. James Craik, by whom and by one son he is survived.

CAPTAIN R. F. HUGHES, A.A.M.C.

Captain Roger Frank Hughes, of the Australian Army Medical Corps, died on December 11th, of wounds received the same day. He was the eldest son of the Hon. Sir Thomas Hughes, member of the Legislative Council.

Lieutenant E. Howe, R.A.M.C.

Died on Service.

CAPTAIN L. A. ARNOULD, R.A.M.C.

Captain Loris Arthur Arnould, R.A.M.C., died on December 18th, at Bombay, aged 37. He was the youngest son of A. H. Arnould, D.C.L., of London, and was educated at St. Bartholomew's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1904. After acting as house-surgeon of the Stamford and Rutland Infirmary, he took an appointment as district surgeon under the Great Indian Peninsular Railway, Bombay, which he held until he got a temporary commission in the R.A.M.C. last year.

Killed in Action.

Lieutenant and Quartermaster A. Holloman, R.A.M.C.

Wounded.

Captain D. V. M. Adams, R.A.M.C.(Reserve of Officers).
Captain C. M. Geddie, R.A.M.C. (temporary).
Captain W. D. Reid, R.A.M.C. (temporary).
Captain H. E. Rose, R.A.M.C.(S.R.)
Captain H. R. Smith, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cheetham, Alan Humphrey, Lieutenant Duke of Wellington's Regiment, younger son of Dr. Cheetham, of Guiseley, Yorkshire, county medical officer of the North Riding of Yorkshire, killed December 15th, aged 20. He was educated at Stubbington House, Hampshire, and at Cheltenham College, entered Sandhurst early in 1914, and soon after the outbreak of the war was gazetted to his regiment and went to the front. He was severely wounded at Ypres in April, 1915.

Pechell, George Douglas, Second Lieutenant Indian Army Reserve of Officers, attached Royal Flying Corps, younger son of Lieutenant-Colonel Sir A. A. Pechell, Bt., R.A.M.C.(ret.), Royal Hospital, Chelsea, killed while flying, December 21st.

Vinter, R. B. W., M.C., Second Lieutenant 6th Battalion the Worcestershire Regiment, reported wounded and missing, but now known to have been killed, was the elder son of Captain S. G. Vinter, R.A.M.C., of Torpoint, Cornwall, and was 20 years of age. He was educated at Garfield House, Devonport, and afterwards at Sherborne, where he was awarded a scholarship on passing from the preparatory to the big school. Whilst at Sherborne he won the gold medal for classics, and was the secretary of the School Archaeological Society. In February, 1915, when he obtained a commission, he was sergeant in the Officers' Training Corps and captain of the school. He was a scholar-elect of Keble College, Oxford. He was awarded the Military Cross in April, 1916, for conspicuous gallantry in taking a crater by bombing with half a dozen men, though wounded early in the action. He returned to the front last August.

MEDICAL STUDENTS.

Griffin, James John Wahab, Second Lieutenant 9th Battalion Bedfordshire Regiment, killed in action in November, was the son of Mr. Robert A. Griffin, late of Roscrea, now of St. Catherine's Park, Ruthfarnham, Dublin. He was a third year medical student at Trinity College, Dublin.

Snell, Christopher, Second Lieutenant West Riding Regiment, died on July 14th. He was the second son of Dr. Snell, chairman of the Congregational Union for the coming year. After being educated at Mill Hill School he proceeded to Wadham College, Oxford, in October, 1913, in preparation for a medical career. On the outbreak of the war he enlisted, and received his commission in December, 1914. He went to the front in August, 1915, and was slightly wounded towards the end of the year. While leading a charge on July 5th, 1916, he was severely wounded, and died on July 14th. (For these particulars we are indebted to *Oxford's Sacrifice.*)

HONOURS.

A SUPPLEMENT to the *London Gazette* issued on December 21st contained a further list of officers upon whom the honours of D.S.O. and the Military Cross have been conferred in recognition of gallantry and devotion to duty in the field. The list contains the names of eight medical officers, six of whom receive the Military Cross and two a bar to the Military Cross.

Military Cross.

Temporary Captain Walter Eustace Adam, M.B., M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in dressing and evacuating wounded under heavy fire.

Temporary Captain Henry St. Arnaud Agate, R.A.M.C.

For conspicuous gallantry and devotion to duty. He attended to men who had been buried under intense fire. On another occasion he dressed the wounded of two battalions, working continuously for seventeen hours under fire.

Captain Robert Burgess, R.A.M.C.(T.F.).

For conspicuous gallantry and devotion to duty. He worked at the advanced dressing station continuously for seventy-two hours, exposing himself fearlessly, and, although wounded, refused to be relieved, and remained at duty.

Captain George Garnet Greer, Canadian A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded for two hours in the open under intense fire Later, he worked continuously for forty-eight hours, and by his courage and devotion to duty was a splendid example to his men.

Captain William Hunt, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He extinguished a fire in a bomb store at great personal risk, removing two boxes of burning bombs and undoubtedly saving many lives.

Temporary Lieutenant John Woollaston Wayte, R.A.M.C.

For conspicuous gallantry and devotion to duty. He organized and led stretcher parties under intense fire. On several occasions he rescued wounded men in the open by carrying them on his back. He has previously done fine work.

Bar to Military Cross.

Temporary Captain Duncan David Craig, M.C., M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended the wounded throughout the operations with great courage and skill, frequently passing through enemy barrages and going into the open. He set a splendid example. (The award of the Military Cross was published in *London Gazette* dated June 23rd, 1915.)

Temporary Captain Ivan Clarkson Maclean, M.C., M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded continuously throughout the operations under very heavy fire, displaying great courage and determination. (The award of the Military Cross was published in *London Gazette* dated June 23rd, 1915.)

MESOPOTAMIA.

A Supplement to the *London Gazette* issued on December 22nd contained a list of awards and promotions for services rendered in Mesopotamia. The following are the medical officers mentioned:

To be C.B.

Lieutenant-Colonel Gerard Beatty Irvine, I.M.S.

To be C.M.G.

Colonel Alan Edmondson Tate, A.M.S.

To be C.I.E.

Major William Gillitt, I.M.S.

To be Brevet Colonel.

Lieutenant-Colonel (temporary Colonel) D. J. Collins, M.D., R.A.M.C.

To be Brevet Lieutenant-Colonels.

Major H. J. Crossley, R.A.M.C.
Major J. G. Foster, M.B., R.A.M.C.
Major C. M. Goodbody, D.S.O., I.M.S.
Major J. H. Horton, D.S.O., M.B., I.M.S.

To be Brevet Majors.

Captain F. T. Dowling, M.B., R.A.M.C.
Captain T. J. Mitchell, M.B., R.A.M.C.

Awarded the D.S.O.

Captain William Haywood Hamilton, F.R.C.S., I.M.S.
Captain Robert de Stretton B. Herrick, I.M.S.
Major Robert Kelsall, M.B., I.M.S.
Temporary Captain Allan Noel Minns, M.C., R.A.M.C.
Captain Robert Sweet, M.B., I.M.S.

Awarded the Military Cross.

Temporary Captain Robert Marshall Allan, M.B., R.A.M.C.
Captain Desmond C. V. FitzGerald, I.M.S.
Captain Herbert Leslie Garson, R.A.M.C.(S.R.)
Captain Alexander Glen, M.B., R.A.M.C.(S.R.)
Subassistant Surgeon Gopi-Nath Agarwal, I.S.M.D.
Captain Edward Slade Goss, I.M.S.
Captain James Hall Hislop, M.B., I.M.S.
Assistant Surgeon John Dougald Malcom Lamond, I.S.M.D.
Temporary Lieutenant Walter George Macdonald, M.B., R.A.M.C.
Captain Robert Forrester Douglas MacGregor, M.B., I.M.S.
Captain William Henry O'Riordan, R.A.M.C.
Captain Dewan Hakumat Rai, M.B., I.M.S.
Assistant Surgeon James Michael Rodrigues, I.S.M.D.
Captain Harold Kirby Rowntree, M.B., I.M.S.
Captain Jyoti Lal Sen, M.B., I.M.S.
Temporary Lieutenant Sundar Das Sondhi, M.B., I.M.S.
Temporary Lieutenant Joseph Bulmer Thackeray, R.A.M.C.

The Military Cross has also been awarded to the following temporary Chaplains for assistance rendered to the wounded: J. L. Thomas and G. F. Walters.

NOTES.

A SECOND Red Cross conference has been held in Stockholm, and the *Morning Post* announces that it has proposed to the belligerents the establishment of separate camps for tuberculous prisoners and special treatment of men suffering from scurvy. It also suggested the creation of medical commissions consisting of one neutral surgeon, a medical officer of high standing, and a Red Cross representative from the country to which the commission belongs to receive and examine complaints made by prisoners.

Dr. Ernest W. White, Emeritus Professor of Psychological Medicine, King's College, London, of Betley House, near Shrewsbury, has been appointed honorary consultant in mental diseases in the Western Command, with the temporary honorary rank of Major Royal Army Medical Corps.

Scotland.

THE EFFECT OF THE WAR ON EDINBURGH UNIVERSITY.

IN an address after the recent graduation ceremonial Sir Alfred Ewing, Principal of the University of Edinburgh, said that under normal conditions about two-thirds of the 3,400 students of the university were drawn from Scotland; at present the number was only about a quarter of the normal. The 1,057 male students in the university were composed of medical students of the fourth and fifth years continuing their course, first-year male students still below military age, and a large number of colonial and foreign students. At present there were 221 students from England, Wales, and Ireland, 376 from the colonies and dependencies and India, and 47 from foreign countries. The women students of the university used to constitute about one sixth of the total number; now they constituted over one third. The total number of medical students had recently been swelled by the accession of 238 women, an increase which more than balanced the loss of women students in arts. All universities were hard hit by the war, but Edinburgh more than most, because it drew its income more largely from the fees of students and less from endowments than other universities. In spite of most stringent economies the university was spending something like £10,000 more than it was earning; nevertheless he looked forward to the future without much misgiving, for the generosity of the public had not failed the university in the past and it certainly would not fail it in the future. Though at present some pruning might be necessary and some parts allowed to lie dormant, the potential activities of universities must be kept unimpaired and plans for development and growth to meet the conditions of the new era formed, so that they might be ready to resume their work conscious of their great duty to contribute to the shaping of the future of the race.

RED CROSS WORK IN NORTH EAST SCOTLAND.

The new Red Cross Transport Head Quarters were opened in Holburn Street, Aberdeen, on December 19th, by Sir George Beatson, Chairman of the Council of the Scottish Branch of the British Red Cross Society. The proposed orthopaedic department at the Oldmill Hospital is intended to serve the North-Eastern and Central Eastern Red Cross Districts of Scotland, excepting Perth. It will thus cover the counties of Aberdeen, Banff, Caithness, Elgin, Inverness, Nairn, Orkney, Ross and Cromarty, Shetland, Sutherland, Forfar, Kincardine, and the City of Dundee. At a meeting held in the Town Hall on the same day it was stated that a sum of £3,000 is required, and a first list of subscriptions amounting to nearly £850 was intimated. The appeal is being made by the Red Cross Society, but the department, when complete, will be maintained by the Government. Sir George Beatson said it was a mistake to think that a case ended with the healing of the wound. Mere surgical treatment was not all; but, if combined with physical treatment, in which dry or moist heat, massage, electricity, and other means were brought into play, a great improvement might take place. The military authorities intended to have three orthopaedic centres in Scotland. In Glasgow the Red Cross Society was to maintain the department; but the Edinburgh and Aberdeen centres, when equipped, would be taken over by the military.

Ireland.

WE regret to record the death, on December 23rd, of Dr. James Little, honorary physician to the King in Ireland, Regius Professor of Physic in the University of Dublin, and a representative of the Crown on the General Medical Council. We hope to publish a biographical notice in an early issue.

Another hospital ship arrived at the North Wall, Dublin, last week, bringing 550 invalided men and one officer. Though the frozen condition of the dock premises added to the difficulty of the work, all were quickly transferred by St. John orderlies and conveyed either to the Dublin hospitals or by hospital trains to Belfast and Cork. A large number of the men were suffering from trench feet, attributed to the wetness of the trenches during the recent severe weather.

VACCINATION.

Just before Parliament was prorogued Mr. Byrne asked the Chief Secretary if the majority of public boards in Ireland had protested against compulsory vaccination, and whether steps would be taken to extend the conscientious clause of the Vaccination Act to Ireland. Mr. Duke, in a written reply, stated that he was not aware that there had been any general demand on the part of public boards in Ireland for a change in the law in the direction indicated.

HOSPITAL FOR LIMBLESS SOLDIERS AND SAILORS.

It has been decided to establish an auxiliary hospital for Irish soldiers and sailors who have lost limbs in the war. The Duke of Connaught has given his patronage to the movement, and a committee has been formed. Hitherto such cases have been treated at Queen Mary's Auxiliary Hospital for limbless men at Roehampton, and recently some have been dealt with at the Princess Patricia Hospital at Bray. The committee has been offered a building in the neighbourhood of Bray, which has been approved by the military authorities, but certain structural alterations are necessary, and to carry these out and for its equipment and upkeep an appeal is made for subscriptions from the public.

Correspondence.

THE ASSOCIATION: PAST, PRESENT, AND FUTURE POLICY.

SIR,—The future of the Association is frequently discussed, but it is seldom reviewed in connexion with its past. Early in the present century a feeling of unrest was carefully fostered and developed by an enthusiastic and ever vigilant small band of workers, who argued that the control of the Association had drifted into the hands of the consultants; that although numerically it represented a solid half of the profession, it had reached the stage of decay, and if its life was to be maintained and its progress

assured, it was essential that democratic principles and control by a democratic body should be substituted for the then Annual General Meeting and Council. As a result of astute agitation the present Representative Body was evolved. Now, if the arguments and contentions of these enthusiasts were sound, the effect of these changes should have been at once a large influx of members. As a matter of fact the immediate effect was a decline in membership. The "new broom" swept this aside as a merely temporary halt; the figures of the next ten years suggested that this view was not unsound, but is it now quite so certain to be correct?

An examination of the chart of membership published in the JOURNAL of March 14th, 1914, goes to show that the Association since its foundation in 1832 never stopped going forward until the disaster of the Insurance Act, since which time it has retrograded seriously. It is true that about 1870 the Association was considered to be insolvent, and it was proposed to wind it up. Up to this time the Secretary had always been a medical man; but, with the appointment of a business man to look after the commercial side, and of an energetic and brilliant Editor for the JOURNAL, the Association took on a fresh lease of life, and was gradually lifted into a sound financial position, and took its full part in the advancement of professional ideas. The adverse conditions were so quickly remedied that they had little effect on the annual growth of membership, as the chart shows that this always advanced until 1913. What can be deduced from these striking figures from 1832 to 1913?

The reformers of the early part of this century argued that medico-political interests were absolutely neglected. Yet it is questionable if the larger annual expenditure now incurred by the Medico-Political Committee, for instance, results in greater successes than those achieved by the old Parliamentary Bills Committee; then as to the Organization Committee, it is true that under its ægis the Branches have been divided into Divisions, but has this resulted in any growth of membership beyond that prevailing since 1832, or has it resulted in any increase of the number and interest of the scientific meetings? So far as Branches covering rural areas are concerned, the scientific meetings have suffered, and in consequence the interest of the busy man in local meetings has waned. Turning to the work of the Ethical, Hospitals, and Public Health Committees, however useful these may have been, the profession has not demonstrated its appreciation by flocking to the Association in increasing numbers.

It is obvious that the large increase of expenditure and the feverish activity of committees had not produced the increase of membership claimed by the agitators for the reconstruction, as the growth continued up to the coming of the Insurance Act almost exactly at the rate of the preceding seventy years.

What, then, was the magnet which attracted to the Association a regular annual number of members until the Insurance Act came as a bone of contention? The influences consistently at work up to 1902 were: the Annual Meeting with its scientific addresses and sections, the Branch scientific meetings, the grants and scholarships in aid of scientific research, and a first-class weekly medical journal, all of which are still in existence though overshadowed by the so-called increased activity of the Association in resisting libel actions, in pin-pricking the consultants, in haggling over sixpenny certificates, etc.

Is it possible to organize the medical profession as labour is organized? One secret of the success of labour organization is that there is some common level of wage. With the medical profession this does not and cannot hold. The economic conditions throughout the profession are not identical. Some members of it are solely dependent on their practice for a livelihood, others combine with practice private means in varying degrees. The cost of living varies materially in different parts of the country, and the amount of capital spent on education cannot be left out of account. Another is that the members of a trade union are loyal to one another, a virtue which the Insurance Act proved did not and does not belong to us as a whole, while the unions have very efficient means, which the medical profession does not possess, of ensuring loyalty.

The prospect of a so-called organized profession, instead of inspiring enthusiasm and confidence, has caused alarm, hostility, and mistrust. This, it seems, is not confined to any special class, but radiates throughout the whole profession with damaging effects upon the Association. If figures spread over a long period count for anything, confidence in the Association, and the employment of the other advantages above mentioned, would appear to have been the inspiration up to 1902.

Is it too late for the Association to recognize the inevitable, and revert to the conditions under which it accomplished solid work and success for the advancement of the honour and interests of the medical profession, and to those conditions under which it enjoyed, as proved by the growth of membership, the ever-increasing confidence of all classes of medical practitioners?

I write in this strain because I am alarmed by the spectacle of the Medical Secretary of the Association addressing a meeting at Tunbridge Wells in favour of contract practice on lines little better than the old club system, bolstering up his statements by what seems to me a travesty of the truth regarding the part which the Association took in bringing about the present state of affairs. Has he nothing better to do, and does he do these things with and by the authority of the Council?

I feel, Sir, most strongly that if our Medical Secretary is to employ his time in pro-panel canvassing without a voice being raised against it, the time must soon come when any man who values his freedom and self-respect must consider whether he should continue his membership of a body whose chief activity in recent years on behalf of its members has resulted in a reduction of the hard-earned certification fee.—I am, etc.,

A MEMBER OF THIRTY YEARS' STANDING.

December 7th.

MOBILIZATION OF THE PROFESSION.

SIR,—I should imagine it were an over-estimation to say that in this country the voluntary principle works out to about a three-quarters possible. It is the last quarter which causes all the difficulty. I take it that mobilization means the organization of the profession for national purposes. It is the same with the profession as with the coal trade and the shipping trade—the right thing is not done till it is almost too late to effect any good. Gross injustice and ineffectiveness is the result. The sooner the profession is nationalized the better for all concerned. There never was a better opportunity for bringing about the greatest reform in the medical treatment of the nation. The great difficulty with the Dr. Major Greenwoods of the profession is that it has been educated for generations in selfishness and individualism. The profession preys upon the community for a livelihood. The advancement of the art of healing is not the primary consideration. Getting a livelihood is. We fight with one another for the loaves and fishes. There is too much ground-baiting and cockabundyism about the business. It is a great tribute to the members of the profession that in spite of a bad bringing up, and in spite of all temptation, so many of them are patriotic and unselfish. No wonder that "deliver us not into temptation" is included in the Pater Noster. In common justice to the men who have gone, there should be nationalization, at least for the war. Then afterwards let them all start afresh from the same mark; although after a brief trial I do not believe that either the nation or the profession would be willing to go back to the old order of things. Starting from the basis of panel practice, I believe the change could be easily and quickly brought about.—I am, etc.,

Wigan, Dec. 24th. FERDINAND REES.

SIR,—What is more than a sidelight on the subject of mobilization of the profession appears to be so little commented on in the press, although so fully recognized by the majority of medical officers serving in the army, that I feel a word is called for to allow those holding the reins to form a fair decision before launching drastic legislative measures which must in many cases be attended with unfair hardship to our members.

I do not write without knowledge and without having discussed the subject on many occasions with others situated as I have been. I maintain that the army has, both at home and abroad, as many medical officers as are required to give attention to the sick and wounded and to conduct administrative duties. I admit that certain officers commanding, surgical specialists, bacteriologists, and others are overworked, but that is due to faulty

organization, and existing conditions in this respect would hold were the number of medical officers doubled.

At great pecuniary loss I sold up my practice nearly a year ago and joined the R.A.M.C. as a temporary lieutenant. Since then I have done duty in two base hospitals at home, two base hospitals, two casualty clearing stations, one cavalry field ambulance, and one special hospital in France. My experience has been varied and interesting, but I blush to say that in only one of these eight units have I done as much work as falls to the lot of the average general practitioner, and in only two others have I done as much as a fair morning's work. In the remainder, loafing and making my own pastimes has been my sad lot from morning till night, whilst my wife and family have had to content themselves with living under trying conditions in a boarding house. On introducing myself to my respective commanding officer when detailed to a new unit I have on several occasions been met with some such remarks as "Whatever have they sent you here for?" "You make me now one over strength," "I must try and find you a job," etc. I may add that I am in the prime of life, and since qualifying sixteen years ago have devoted most of my time to surgery.

I know my arguments will be met by others who assert that in any one unit there must be a reserve of officers in case of emergency, but further strong arguments to contradict these can be advanced if necessary.—I am, etc.,

December 26th. F.R.C.S.E.

FOOLS OR PHYSICIANS.

SIR,—Dr. Mercier's letters usually afford a certain amount of intellectual merriment to those not involved in his satire. His sarcasm puts one in much the same frame of mind as when you see an unfortunate individual slipping on an orange peel and falling on his back in the street. In venturing to reply to such a logical critic I must be careful not to trip on any orange peel which he may have strewn in my path; this is perhaps not a very appropriate way to begin the expression of my gratitude for the sublime compliment which he has paid me when he says I have solved "an excruciating problem for all time," but I want to be certain that his compliment is his genuine mental conclusion, from what premisses I care not, before I attempt to publish the testimonial. When he says that "incidentally it has decided a logical problem which has puzzled at least five generations of logicians," it is not absolutely plain whether he refers to my letter or to the correspondence—including his own previous communication—which drew forth my letter. However, the one compliment is so like the other—in fact, one is the complement of the other—that I must also thank him for this one. There are many things which I would like to settle for time and eternity, but the question of fools or physicians is not one of them.

From his phraseology I have some misgivings as to the category in which he places me. Perhaps my intellectual vision is at fault when I say that his language is not so plain that he who runneth may read, let alone interpret. I should be delighted to be linked with Kant, Sir William Hamilton, and the other distinguished men of the first category, who assert that "if a thing be either this or that, it cannot by any possibility be both," but then I should require to have the elementary truth as to whether the thing was either this or that. In the proverbial saying that a man is either a fool or a physician at forty so far as his health is concerned, there is a sharp distinction between the two classes, and no doubt the individual cannot be in both classes at the same time; but before placing him we should require a definition of a fool and of a physician. Personally, I would not attempt to define either class; no doubt Dr. Mercier could give us a very exclusive definition of a fool, but I might hesitate to accept his definition of a physician after the expression of his opinion on the relative merits and positions of physicians and surgeons. Young says, "A fool at forty is a fool indeed," but the proverb does not limit the term "physician" to those legally qualified; in it every man is supposed to be his own physician, but here again we are up against another barrier, as every man who is his own lawyer is supposed to have a fool for his client.

I suppose every man who is on the *Medical Register* could legitimately claim to be a physician, but I am inclined to think that there is no degree or diploma in this or any other country which could make a physician.

I have no wish to hurl a syllogism at the head of any one, certainly not at Dr. Mercier's—at least, not until I feel certain of my premisses. If you start with false premisses, you may arrive at a legitimate but not an accurate conclusion; therefore, until we settle the definition of a fool and of a physician we need not trouble to find which is which and which is the t'other.

Some time ago I offended a gentleman by suggesting that he was not properly treating himself. He reminded me that he had long passed the proverbial age of forty, and was no fool. I retorted that I thought he was neither a fool nor a physician, but he was extremely foolish in his treatment. This man took his *congé* from this life under the care of another physician—I rather hesitate to call myself a physician for fear I should not come within Dr. Mercier's definition. It has been said, with some degree of justice, of three eminent physicians, two of whom had been presidents of the Royal College of Physicians, and all of whom are now deceased, that the first was a great physician and no humbug, the second a great physician and a great humbug, and the third a great humbug and no physician. After this I think it would be safe to say of any one who has attained to eminence in the medical or surgical world that he was not a fool; beyond this I am not at present logically prepared to go.

In Dr. Mercier's second category there is an equal array of talent—and I am now trying to find out to which category I belong—who assert that a man may be both a fool and a physician. We are here confronted with another difficulty, like "publicans and sinners"; the publican gets the premier place, but there is no antithesis, and it does not follow that he is not a sinner; so on the other hand I presume it would be quite possible for a sinner to get preferment to the rank of a publican. We are gradually working round to the excruciating problem that a man may be a fool or a physician, or a fool and a physician, and neither Dr. Mercier nor I have got a fee for enlightening the medical profession on the question of fees, or on the difference between a fool and a physician. The cynic may say he can't see the difference and therefore he won't pay.—I am, etc.,

Liverpool, Dec. 17th. JAMES BARR.

THE DIAGNOSIS OF PHTHISIS.

SIR,—In the JOURNAL for December 9th Dr. Ferdinand Rees, referring to phthisis, says, "The undoubted bad cases always relapse and die under present conditions." He also states, "I have yet to meet the medical man who can honestly say that he has seen an undoubted case of pulmonary phthisis cured."

Dr. Rees surely is well acquainted with the reliable records of many cases of enduring arrest in sanatorium patients? If he ignores these I would like to show him the undoubted case he asks for. I am the case—a medical man who was in a sanatorium fifteen years ago with a lesion in both lung and larynx, slight haemoptysis, and abundant tubercle bacilli in the sputum. Since leaving the sanatorium fourteen years ago I have had no trace of a recurrence. During these years I have lived an active life. As a rule I work twelve hours a day, and include in this work two out-patients' clinics a week; in addition, when I get time, I can ride and play golf.

Surely Dr. Rees will agree that in my case his dictum that "temporary improvement seems to be the limit at present" does not apply. If he wishes to know of other cases I can give him authentic records.

You are very welcome to forward him my card, as I think he will recognize that I am neither a crock nor a slacker.—I am, etc.,

December 20th. AN EX-LUNGER.

SIR,—I was surprised to see the statement of Dr. Rees that he had never seen an undoubted case of phthisis cured; for it sometimes happens that in an early case tubercle bacilli are found, and yet under sanatorium treatment the sputum speedily disappears and the patient is permanently cured. Of course, the diagnosis will, as a rule, be clear even in the absence of sputum.

For purposes of treatment the diagnosis depends upon the presence of symptoms, because their occurrence

indicates the continuance of a destructive disease which, if not terminated, will end in the production of one or more of the forms of chronic incurable disease, or of an acute outbreak, ending in cure or death. We do not desire to wait until the signs are so obvious that a diagnosis may be made by any tiro with a stethoscope. Obsolescent tubercle found so often at autopsies has its counterpart in maladies of minor or major importance occurring during life. Indeed, most practitioners spend a large portion of their lives in treating this disease, under various aliases.

If any one desires to possess confidence in diagnosing pulmonary tuberculosis, he should take a careful history of all previous illnesses and symptoms in the recollection of those patients who are suffering from undoubted pulmonary tuberculosis. Unfortunately, at the present time, instead of excluding other diseases, an attempt is made to exclude tuberculosis, which nevertheless will be found to be a more correct finding in the majority of cases. This is unfortunate, for, of all organic maladies, tuberculosis is the most amenable to treatment if acknowledged at once.—I am, etc.,

EDWARD E. PREST.

Ayrshire Sanatorium, New Cumnock, Dec. 17th.

THE SCIENTIFIC TREATMENT OF PHTHISIS.

SIR,—The note that appeared in the JOURNAL of November 25th on the results of the official treatment of phthisis, together with Dr. F. Rees's letter and Mr. Davies's statement at the annual meeting of the Manchester Consumption Hospital, plainly show that the complete failure of that treatment is beginning to be recognized. It ought not, however, to be assumed that there are no means of effectively dealing with phthisis, for they do in fact exist, and have been successfully employed in its treatment. I make this statement on personal experience of the disease, over forty years ago, and on the results of their application in over 100 cases during the last thirty years.—I am, etc.,

London, W., Dec. 11th. GODFREY W. HAMBLETON.

COMPULSORY LATIN.

SIR,—Dr. Douglas Cow's defence of compulsory Latin is surely a little weak. One had thought that the real case in favour of imparting a knowledge of the classical tongues was that he who possesses such knowledge can enter at will into a world of thought and fancy not greater and better than, but different from, our own; can escape for a moment from the life of to-day: a spiritual adventure difficult to achieve with the aid of translations alone, owing to the associations inseparable from a modern language. This is, perhaps, why we hear of men at the front asking for editions of Homer and Virgil. *Haec studia adolescentiam alunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solatium praebent, delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur, rusticantur.*

The case against compulsory Latin is that only a minute percentage of those under instruction do in fact acquire even so slight a knowledge of the tongue that they can read a classical author with any pleasure to themselves, while even this percentage might not improbably have had sufficient curiosity to acquire the knowledge without compulsion.

To maintain compulsory Latin on the ground (quite conjectural, by the way) that it ensures correct spelling is, I hope, to fight a losing battle. It is desirable that a medical practitioner should spell correctly, just as it is desirable that he should not drop his *h*'s, but if Dr. Cow's choice between a knowledge of the differential calculus and of correct spelling really has to be made, let us choose the calculus. It would indeed be a Utopia in which medical men spelt phonetically but understood the calculus; much bad medical physics and worse medical statistics would remain unpublished.—I am, etc.,

Loughton, Dec. 23rd. M. GREENWOOD, jun.

SIR,—An examiner in pharmacology in the University of Cambridge, in your issue of December 23rd, gives a number of misspelt words which he calls "choice specimens culled from recent examination papers by candidates for the third M.B. examination of this university." He considers they are "in themselves a mute appeal for the inclusion of Latin (and Greek) in the course of preliminary training of medical students"; and "that inquiry would reveal the fact that the candidates who were responsible for these choice specimens had not, in fact, studied Latin and Greek at school." He may or may not be right in this opinion. But, even if he be correct, and even if, as Macaulay says, "in our time incorrect spelling is justly considered proof of sordid ignorance," what I wish to point out is that the devotion of the chief energies of a lifetime to the study of the classics does not ensure a person against the incorrect spelling of words in his own language.

Take, for example, William Mitford, the author of *The History of Greece*—a work which is said to have been unequalled in European literature previous to the publication of Grote's *History of Greece*. A perusal of any one of the ten volumes of Mitford's "Greece" will disclose such spelling as the following:

Alreddy	Campain
Foreiners	Thoroly
Iland (for island)	Spreding
Meerely (for merely)	Fewel (for fuel)
Endevored	Embeziled public money
Sovereins	Knowlege
Steddiness	Indefeisible
Florishing	Pamflet
Colleque	Chusing.

This list might be added to almost indefinitely. Now, William Mitford was the son of a barrister. He received his education at Cheam School, Queen's College, Oxford, and the Middle Temple. He was closely associated with Gibbon the historian, and with French scholars with whom he became intimate in Paris and Avignon. The study of the Greek language and literature was the chief occupation of his life. The misspelling of the words I have given above perhaps may have been partly due to affectation; but it certainly cannot be attributed to the manner of spelling prevalent at the time Mitford wrote. Here then, indeed, was a field "open to the scrutiny and criticism of such people as pharmaceutical chemists."—I am, etc.,

London, W., Dec. 26th. HENRY MORRIS.

MEDICO-MILITARY TOPOGRAPHY OF THE PERSIAN GULF AND MESOPOTAMIA.

SIR,—May I have space to state that in the Army Medical Department Blue Book for 1874 will be found a full reprint of my military topographical report on the Persian Gulf, the Tigris and Euphrates Valleys, Baghdad, and the holy cities of the Shiah Mohammedans, made after my travels there in 1873?

I visited them from India, where I was then stationed, and the report is my promotion thesis for the rank of surgeon-major. The War Office authorities of 1874, in thanking me for my report, arranged for its publication in the official records of the Army Medical Department for the year. The places visited include Muscat, Bandar Abbas, Bushire, Kowet, Bussorah, Ctesiphon, Baghdad, Kerbela, Nejf, and Babylon. The report is based on inquiries made by myself from consuls, medical men, merchants, educated natives, and shipping agencies along the Persian Gulf, and at Bussorah and Baghdad. By permission of the Turkish Viceroy at Baghdad I saw the Turkish troops on parade under arms, and also saw the military hospital and interesting army medical service of the Turkish troops.

Unfortunately, the Army Medical Department reports are rarely met with, and, so far as I am aware, no extracts from or reprint of my report has been issued by the Intelligence Department of the War Office.—I am, etc.,

GEORGE J. H. EVATT, M.D.,
Surgeon-General A.M.S.(ret.).

Junior United Service Club,
St. James's, S.W.,
London, December, 1916.

AT a meeting of the Clinical Congress of Surgeons of North America at Philadelphia in October it was announced that the United States Government had requested that some leading surgeons should be chosen to make a tour of Central and South America with the object of bringing the surgeons of the States into closer touch with those of Latin America. The congress named Drs. Charles H. Mayo of Rochester, Minnesota, Franklin H. Martin and Albert J. Ochsner of Chicago, G. W. Crile of Cleveland, Edward Martin of Philadelphia, and F. F. Simpson of Pittsburgh

Obituary.

WILLIAM CAYLEY, M.D., F.R.C.P.,

CONSULTING PHYSICIAN TO THE MIDDLESEX HOSPITAL.

Recollections of an Old Friend.

WILLIAM CAYLEY was born on December 14th, 1836, one of the six sons of Edward Cayley, a partner in the banking house of Eaton and Cayley at Stamford and elsewhere. He sadly survived all his brothers, real brothers in likeness and love. One, Sir Richard, was Chief Justice of Ceylon; another, Henry, was a surgeon-general in the Indian army.

The family history, as we know, often throws light on the individual case; it does so here. Cayley came of a family of Yorkshire squires and baronets, descended from a knightly follower of William the Conqueror and a sharer of his booty. The free-booting strain we may dismiss from our thoughts, for it was conspicuous by its absence or, indeed, by its reverse in this branch of the family. Under the Stuarts the Cayleys were ardent royalists and cavaliers, under the Hanoverians privy conspirators and plotting Jacobites so long as there was a Pretender to plot for. To this day they are proud of their kinsman, Nowell, and perpetuate his name in their family, who as late as 1772 had the courage to preach and print a Jacobite sermon before a Whig House of Commons, where it was proposed that a copy should be burnt by the common hangman. Dr. Nowell, an Oxford don of the rankest opinions, was a bosom friend of Dr. Johnson, and in their company Boswell religiously and perhaps soberly toasted "Church and King." As in State so in Church We may confidently assume that this high Tory family favoured the Jacobite schism of the nonjuror bishops, and we know that it jealously kept alive through generations of political and religious Protestantism the small secret leaven of high churchism and mediaevalism, which at the touch of Newman's genius burst at last into startling effervescence and transformed the Anglican Church.

To come to later times, the first Lord Houghton, writing of his fellow squires in Yorkshire, notes that the Cayleys and Swinburnes were not as others were; they were abnormal, eccentric, with fantastic manifestations and developments. The Swinburnes developed of their kind and manifested the brilliant poet of our own time. As for the Cayleys, our British Valhalla, the *Dictionary of National Biography*, contains four members of that name and family—no abundant harvest for eight centuries of cultivation—and of these only one is of real distinction, that great mathematical genius (1821–83), Professor Arthur Cayley of Cambridge. But between them all there is a family likeness—all sought retirement from the madding crowd's ignoble strife to studies or pursuits that bring neither fame nor pelf. One, Cornelius (1729–80) was on his way to become an ambassador; he was also a religious teacher, and was told officially he could not be both. He did not hesitate to resign brilliant prospects, and became an itinerant preacher and traveller in many lands. Another was refused a fellowship at Trinity, Cambridge, on account of his political opinions. Yet another, a brother of the professor, devoted his life to verse translations of Greek and Italian poets, and actually essayed with some success the feat of translating Dante's Divine Comedy into English verse that preserved the original ternary rhyme.

With these belongings and possibilities, from a very happy home steeped in such traditions, and of old-fashioned stateliness and decorum, the young Cayley became a pupil of the famous Dr. Kennedy at Shrewsbury school, and became an excellent Latin and Greek scholar, of the literary rather than philological type. On the Severn, too, he became an expert oarsman, and has often pulled round the writer, a younger man, on British and foreign waters. He was strong and well made, but a slight deformity of one foot gave him a halting gait and an early stoop, which somehow became him greatly, and seemed part of his character. His classical scholarship he kept up through life, and to the last wrote occasional *jeux d'esprit*, epigrams in Greek elegiac verse, in the mock heroic style of some of the Greek anthology. It was his taste and readiness that suggested the happy motto from Virgil of the medical school of the Middlesex Hospital, *Mavors succurrere disco*. He had apparently been destined as a boy to go to Oxford, and there to New College, with which his family had some hereditary connexion, possibly as founder's kin, and thence to take Holy Orders. He assured a friend in later years that, had he gone as a youth to Oxford, he would almost certainly have become a Roman Catholic and then inevitably a priest. From this transformation, so he maintained, he was for ever saved (that might not have been his word) by science, for, after leaving school, he was, for some reason of his own or of his friends, entered not at Oxford but at King's College, London, as a medical student. King's, though not as orthodox or Tory as Oxford, was in definite relations with the Church of England, and had been founded by some of her scandalized sons as an antidote to the unsectarian College or University of London. The students wore college gowns and were expected to attend the services of the college chapel. There he was successively house-physician and house-surgeon—he always loved surgery and to tap his own cases in hospital of pleurisy and empyema, till the surgeons claimed them as their own. It is a fact that he diagnosed and tapped an empyema in a favourite cat. He was a climber even then, and his old friends recall how in some additions then being made to the hospital he amused himself and alarmed them by walking along narrow rafters stretched across yawning chasms at giddy heights. There, too, he made close friends, some of whom were later his colleagues at the Middlesex, of whom the distinguished brotherhood of the Livelings alone survives. After taking his degree in due course at the University of London in 1861 he proceeded for a year to Vienna, where the great names of Rokitansky and Billroth made the medical school famous and attractive. On his return he was soon placed, first as pathologist, on the staff of the Middlesex Hospital, where at that time Murchison and De Morgan were prominent. To that hospital he became greatly attached, refusing Murchison's invitation to join him at St. Thomas's, and passed through all grades of the medical staff. The *Medical Directory* describes him as Fellow of King's College, London, consulting physician to the Middlesex Hospital, the Queen's Hospital for Children, and the London Fever Hospital; late examiner in medicine for the University of London, senior censor of the Royal College of Physicians, and lecturer on medicine at the Middlesex Hospital Medical School.

He delivered and published the Croonian Lectures on typhoid fever, wrote the articles "Typhoid Fever" in *Fowler's Dictionary of Medicine* and *Allchin's Manual of Medicine*, and edited the third edition of *Murchison on Continued Fever*. He worked much but wrote little and well. He was naturally indifferent to publicity, and, as naturally, it did not come to him.

His Croonian lectures were devoted to the treatment of typhoid by cold baths, a method of which he was a very early advocate and practitioner. His clinical and systematic lectures on medicine were admirable in matter and style, and satisfied even his colleague, "Jupiter" Thomson, whose clinical lectures were as polished and classical in texture as his numerous contributions to the *Sabrinae Corollae*, that delight and toy of scholars. He was never a learned physician in the sense that Dr. J. F. Payne was and as Dr. Norman Moore is. He never gave up his entire mind to medicine as a physician of to-day is almost forced to do, so vast and various is the subject. After his retirement from practice medicine seldom engaged his attention, and he let it rush past and beyond him. Medicine was a subject of necessity and abounding interest, but literature and botany were his real loves, and to them he remained always constant.

For an estimate of him as a physician it is enough to quote the published words of his colleague, Sir James Kingston Fowler, who, after a wide experience of great physicians in London and at Cambridge, uttered in 1912 this deliberate opinion: "Dr. Cayley I consider to have been—and I have always said so—the greatest physician that it has ever been my lot to meet." That is indeed *laudari a laudato viro*. The hospitals William Cayley served, his old pupils, and others would subscribe to this weighty opinion, and yet he never enjoyed a general reputation or a consulting practice at all proportionate to his merits. The explanation is not far to seek—it was plain to his friends; nay, even to any chance visitor who went round the wards with him. We see him there now, standing by the bedside of a fresh patient—maybe, some

case that had defied the official infallibility of the house-physician to diagnose—listening to the notes already taken, a noticeable figure, very quiet, and with eyes to all seeming tightly closed and yet strangely observant, for, as a witty colleague expressed it, "What Cayley cannot see through his shut eyes is not worth seeing"; a circle of clerks and senior students around, then a sudden animation of look and manner, a most rapid examination of the patient, a few quick questions, a moment's reflection, then very briefly and very clearly an exhaustive diagnosis and treatment. The rapidity of it all was startling, the certainty and accuracy still more so, but he combined in an unusual degree a strong intellect with the rarer faculty or instinct of distinguishing essential from accidental symptoms and arriving quickly at conclusions. Then a deep silence, for he was not a born teacher; he seldom improved the occasion, he was naturally silent, he resembled, as a friend once told him, his favourite Dr. Johnson who like a ghost never spoke without first being spoken to, or as the students put it, Cayley wanted some one to draw him out. There were oftenest several to do so who plied him with questions, and he welcomed them; it was a catechetical lecture reversed, pupils cross-examining their long-suffering teacher, who came out of his shell and shone in a lively, Socratic dialogue, the highest form yet known of teaching and learning. Now, in and round the hospital, this stealthy, keen observation, rapid examination and speedy diagnosis—this parsimony of words and manner, amounting often to brusqueness—were essential parts of the man and of his claims to the love and respect which there he always inspired; but outside it was a very different matter. The dear, good lay public, mostly feminine, like Naaman the Syrian, demands more than an opinion and a prescription from its medical advisers, and especially its consultants. It demands a something—much of the prophet, some of the priest, a bit of the courtier with a spice of Graunie. And why not? Faith—and not on one side only—is an eternal part of humanity and intensely so of our profession. Moreover, that indispensable something may be the vehicle and flavouring, like A. M. P. of higher potencies and virtues. Now, Cayley was kindness and sympathy itself. Natural and straightforward almost to a fault, and none of these parts could he play—to adapt a phrase of Wellington about Peel and himself. Cayley had an inferior bedside manner and no small talk. A most shrewd and successful practitioner was wont to say, "When I want a diagnosis or treatment I call in Cayley before any one, but when I want some one to talk impressively and comfortably to patients and friends, well, then, some one else." The medical and legal, and indeed all professions at all times, have men of undoubted capacity else, who fail to impress patients, clients, and juries. Such men, if they are like Cayley, tactfully or humorously recognize their own limitations, and of course the public's, put up cheerfully with a moderate success, and, above all, generously and without envy applaud and rejoice in the greater success of friends or rivals, who with equal ability and equal loyalty to high ideals, possess and exercise—quite unconsciously as a rule—that power which is the one thing lacking in themselves.

The physician was a shadow of the man. In the first place, he was absolutely natural, simple, and sincere. Not all things to all men, but to all the same, with towards women a chivalrous deference, reserved rather than shy, for he was entirely devoid of self-consciousness. Next, in all his relations with his fellow-men he was unselfish, otherworldly, warm-hearted, and loyal. He never spoke, seldom thought, ill of others; he was appreciative and affectionate, but never gushed. He was never known under any circumstances to be provoked or lose his temper and self-control. Finally, lest a false impression of the man be left, it must be added that he was an excellent man of business on boards and committees, and there, as in the the wards, quick, direct, and practical. Attendance at a committee of his beloved hospital a week before was the immediate occasion of his death from influenza. Death came suddenly and quickly on December 17th, when age was ripe and without decay of mental vigour and enjoyment.

He was an hereditary Tory and Anglican, but quite outside parties and sects—an early Christian of the days when beliefs were fluid and love abounded. Many beliefs and aspirations of natural piety he cherished, for which modern science—full well he knew—had only a smile or even a sneer. He believed in evolution and science, but not when they seemed to him invaders and aggressors. In the good company of Bacon he could believe that the subtlety of Nature far exceeds that of proud man's reason; that logic is a good servant but bad master.

He was a bachelor of simple tastes and pleasures, by nature a solitary and an ascetic, who refused the solace of wine and even of tobacco. He had his books in five languages, his dog and his cat, his garden when he retired to Richmond, and, withal, at home faithful service, outside the society of old friends and the devotion of nephews and nieces. Probably his enjoyment was highest during his annual walking and climbing tours in Switzerland or Tyrol. Sack on back, he would trudge for hours, and that sack was always the heavier for a Virgil or an Odyssey and a handbook of the Alpine flora, often on dark and narrow paths, muttering poetry to himself, like a priest repeating his office. He was a bold and skilful climber over snow and ice, a member of the Alpine Club. He had an intense passion for snow mountains, and pined for them almost extravagantly. In his last hours and wanderings he fancied that he was traversing the snow slopes of the Great St. Bernard Pass, where years ago the writer was with him; and so he died as he had lived—happy. "Blessed are the pure in heart, for they shall see God"; yea, though eyes be closed.

Sit anima mea cum illo.

PHILIP GRIERSON BORROWMAN, M.D.EDIN.,

EDINBURGH.

DR. P. G. BORROWMAN, who died from heart failure following influenza at his residence in Edinburgh on December 16th, was 62 years of age. He was born at Glencairn, Dumfriesshire, where his father, the Rev. Patrick Borrowman, was placed. He obtained his schooling at Ayr Academy and Edinburgh Institution, and then passing into Edinburgh University he graduated M.B., C.M. in 1882. He acted for a few months as assistant at Falkirk, and then settled for a time in Earlston. In 1886 he went to practise in Colombo, Ceylon. He came home in 1890 to rest, as his health had been affected. In December, 1891, he again began active work, following Dr. McCallum at Elie, Fifeshire; there he remained until 1899 when he succeeded Dr. Thom at Crieff. He acted there as honorary medical officer for the Crieff and District Cottage Hospital. In 1908 Dr. Borrowman again changed his sphere of service to Troon on the west coast where he hoped to find some relief from the asthma which always hampered his activities; but he was again disappointed, and he finally went to Edinburgh in 1910, moving in a year or two into Dr. R. S. Aitchison's house when the latter retired from practice. Dr. Borrowman's time was well filled with medical work in Edinburgh, and since the outbreak of the war he was extremely busy doing much work for men absent at the front and acting as medical officer (with the honorary rank of Major) to the Edinburgh Mounted Special Constables.

He took the degree of M.D. in 1902, and he was a member of several medical societies. He contributed several articles to the periodical medical press, including a note on some experiments with Professor Dunbar's hay fever antitoxin serum. He was a staunch Conservative in politics and a devoted member to the Church of Scotland. He leaves a widow and two sons and a daughter; one son, a minister, is with the Y.M.C.A. in France and the other is an officer in the Indian army at present in Mesopotamia.

Dr. Borrowman was a gentleman to the finger tips and in the best sense of the word; he will be greatly missed in a large circle of friends inside the profession and outside of it. The funeral took place on Wednesday, December 20th, to Greyfriars Churchyard, Edinburgh.

ALEXANDER CLEMENT RAYNER, M.D.DURH.,

M.R.C.S.ENG.

DR. A. C. RAYNER, of Fulwood, Preston, who died on November 25th, at the age of 74, had been in practice in Preston for fifty years.

He was a student at Charing Cross Hospital and took the diplomas of M.R.C.S. and L.S.A. in 1864, and graduated

M.D.Durh. in 1882. He devoted himself to his work to a degree remarkable even in a medical practitioner; regularly, day after day, he began at 8 a.m. and rarely finished till 9 p.m.; he never allowed himself to miss a day or part of a day through sickness during the whole of the fifty years in Preston till within two weeks of his death.

His favourite recreations were walking, cycling, and reading. He spent many of his short summer holidays in the Lake District, and at 58 thought nothing of ascending Scawfell Pike by the Piers Ghyll route.

He had a wide knowledge of English literature, and was especially fond of poetry and history. He was a very old member of the British Medical Association and had been president of the local Branch.

He was a man of quiet, unassuming, and reserved manner, but none the less had great determination and strength of mind. He had a large practice and was much respected in his town, especially by the poorer classes, amongst whom he did a great deal of charitable work in his characteristic, unostentatious manner.

THE LATE SIR FREDERIC EVE.—A memorial service for Lieutenant-Colonel Sir Frederic Eve, F.R.C.S., Consulting Surgeon to the Eastern Command and to Princess Henry of Battenberg's hospitals, was conducted by the Rev. Father Roscoe Shedden at All Saints, Margaret Street, on December 20th. Princess Henry of Battenberg was officially represented by Dr. A. J. Rice-Oxley, M.D., Physician in Ordinary to Her Royal Highness. Surgeon-General Sir W. Watson Cheyne, Bt., President of the Royal College of Surgeons, attended with several members of the Council. There were also present Lieutenant-Colonel Yolland and several officers of the Eastern Command, Professor Wright and members of the staff of the London Hospital, and many others.

Dr. CLIFFORD CRAWSHAW PICKLES of Earby, late of the R.A.M.C., died of pneumonia on December 22nd, aged 30. He was the third son of Dr. J. J. Pickles of Leeds, who had six sons, five of whom were members of the medical profession and one a student before the war. He was educated at the Leeds Grammar School and at the Leeds School of Medicine. In 1909 he took the diplomas of M.R.C.S. and L.R.C.P.Lond. and the D.P.H. in 1911. He filled the posts successively of house-surgeon to Leeds General Infirmary, resident medical officer of the Ida Convalescent Home, Horsforth, and medical inspector of school children under the North Riding County Council at Malton. Before the war he held a commission in the 5th Territorial Battalion of the West Yorkshire Regiment, with which he was mobilized when the war began, but was subsequently transferred to the R.A.M.C. as a captain. He served in France from April to July, 1915, when he was sent home on sick leave suffering from shell shock, and was invalided out in October, 1915. He then succeeded to the practice of his brother at Earby. In June last he married Miss Dorothy B. E. Wilkinson, only daughter of Mr. Charles Wilkinson of Boston Spa and Leeds. Dr. Pickles was a member of the British Medical Association and of the West Riding Medical Charitable Society. He had been in very indifferent health since he was invalided out of the army. One of his brothers was on board H.M.S. *Russell* when she sank in the Mediterranean on April 29th, and died in Malta on the following day.

MR. HENRY ARTHUR FOTHERBY, M.R.C.S., L.R.C.P., L.S.A., D.P.H.Camb., died suddenly at his residence in Pinner, Middlesex, on December 17th, aged 58. He studied at Guy's Hospital and University College, gaining the diplomas of L.S.A. in 1880, M.R.C.S. in 1882, and L.R.C.P. in 1884. Before settling in Pinner he had held successively the offices of assistant medical officer to the St. Matthew's (Bethnal Green) and the St. George's (Hanover Square) union infirmaries. Teratologists will remember Mr. Fotherby's instructive "History of a family in which a similar hereditary deformity appeared in five generations," and the drawings representing the arrested development in the feet and hands of three members of the family, published in the first volume of the JOURNAL for 1886, p. 975. He also wrote memoirs on sound and music in their physical and psychical relationship to form, light, and colour, and kindred topics, which appear in the *Annals* of the Psychological Society and other serials.

MR. WILLIAM JENNER BEST, who recently died rather suddenly at the age of 51, was the eldest son of the late Dr. Palemon Best, J.P., of Louth, Lincs. He was educated at the London Hospital, the University of Cambridge and University and King's Colleges, London, and took the diplomas of L.S.A. in 1888, M.R.C.S.Eng. 1889, and the D.P.H. of the English Conjoint Board in 1892. For the past twenty-seven years he had practised in Louth, taking over his father's practice when the latter retired some years ago. He held the offices of honorary surgeon to the Louth Hospital, medical officer of health for Louth, medical officer and public vaccinator for the Grimoldby District of the Louth Union, and certifying factory surgeon. Though rather reserved he was deservedly popular among his patients as well as among his medical colleagues in Louth, evidence of which was conspicuous at the funeral which took place on November 14th.

Dr. THOMAS PURDIE, F.R.S., who was professor of chemistry in St. Andrews University from 1884 until his retirement in 1909, died on December 14th, at the age of 73. He was a successful and enthusiastic teacher, and himself gave £5,000 to build and equip a research laboratory.

Dr. KNUD PONTOPPIDAN, professor of medical jurisprudence in the University of Copenhagen, died recently at the age of 63. He formerly held the chair of nervous and mental diseases, and had been director of the Aarhus Asylum since 1898. He was a pioneer in the modern treatment of the insane. He was the author of lectures on psychiatrical subjects (1891 and 1892); clinical lectures on nervous diseases (1898); an essay on the supremacy of the nervous system over the organic functions of the body (1899); and medico-legal lectures (1907 and 1901).

THE death is announced of Dr. JOHN FARRINGTON on July 19th, on Rotumah, an island annexed to the Fiji group, just after he had taken up his appointment at that station. He was educated at Owens College, Manchester, and took the diplomas of M.R.C.S. and L.R.C.P. in 1899. After holding the appointments of medical officer to the Children's Hospital, Manchester, and house-surgeon to the Pendleton Branch Dispensary of the Salford Royal Hospital, he went, in 1902, to the Fiji Islands, and was for several years district medical officer and stipendiary magistrate in the district of Bua in the island of Vanualevu. He was born in November, 1865, so that had he lived a very few years longer he would have received a well earned pension. Dr. Farrington was a member of the British Medical Association, and was known in Fiji as a man of sterling worth, and a most loyal and capable Government official.

Dr. GÉRARD ENCAUSSE of Paris, who died recently, graduated M.D.Paris in 1894 with a thesis on philosophical anatomy and its divisions. In the following year he published a book on the cutaneous absorption of medicaments. He practised his profession, though in somewhat unorthodox fashion, for many years, but gave himself up more and more to the study of magic and sorcery. He wrote a treatise on the occult sciences, essays on synthetic physiology, the external and psychical treatment of nervous diseases, and occultism and spiritualism, and a number of pamphlets. He founded *L'Initiation* and *Le Voile d'Isis*, organs of esoteric lore. He was better known by his adopted name of "Papus" than by his own. The word, we are told in the *Chronique Médicale* by Dr. Cabanès, who was a fellow student of Encausse, means physician according to Apollonius of Tyana.

DEPUTY SURGEON-GENERAL JOHN MCELWEE, R.N., retired, died at the Royal Naval Hospital, Haslar, on December 9th, aged 55. He graduated M.D. and M.Ch. of the Royal University, Ireland, in 1887; he entered the Navy, and attained the rank of Fleet Surgeon on February 22nd, 1904; he retired with a step of honorary rank in November, 1916. As surgeon of H.M.S. *Widgeon* he landed with the Naval Brigade in the expedition up the Gambia river, on the West Coast of Africa, serving there

from December, 1891, to February, 1892, taking part in the capture of Tambi and Tamatava, and receiving the Ashanti medal with a clasp.

BRIGADE SURGEON HENRY JOHN HUGHES LAWRENCE, R.A.M.C. (retired), died at Quedgeley Lawn, Gloucestershire, on November 23rd, aged 86. He took the diploma of M.R.C.S. in 1852, and became Fellow in 1866. He entered the army as assistant surgeon on February 24th, 1854, spent most of his service in the Grenadier Guards, and retired on June 21st, 1885, with the honorary rank of brigade surgeon. He served in the Crimea in 1854–55, and took part in the siege of Sebastopol, receiving the medal with two clasps and the Turkish medal. Over thirty years later he served in the Sudan, at Suakin, receiving the medal and clasp, with the Khedive's bronze star.

The Services.

EXCHANGE.

CAPTAIN R.A.M.C.(T.), M.O. Battalion R.E., one year in France, desires exchange to Ambulance Train (in England preferred).—Address, No. 4993, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

SECOND B.M.—*Materia Medica and Pharmacology:* H. Burford, G. Cowie, F. B. Dutton, R. B. Hervey-Wyatt, R. W. Lush, K. A. I. Mackenzie, T. Patterson, G. H. Rossdale, H. W. Toms, E. A. Woods. *Pathology:* E. A. Crook, T. Patterson, J. J. Savage, G. K. Stone, J. P. S. Walker. *Forensic Medicine and Public Health:* H. E. Bamber, E. F. Creed, R. B. Hervey-Wyatt, K. A. I. Mackenzie, S. W. F. Underhill, H. StH. Vertue, C. D. Wood. *Medicine, Surgery, and Midwifery:* H. E. Bamber, W. Burridge, E. F. Creed, G. I. Evans, K. A. I. Mackenzie, G. H. Rossdale, S. W. F. Underhill, S. C. Varley, H. StH. Vertue, A. L. Watts, C. D. Wood.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

THIRD M.B.—*Part I, Surgery and Midwifery:* D. J. Batterham, D. C. Beaumont, A. D. Haydon, B. B. Jareja, G. M. Kendall, G. L. Maule, V. C. Pennell, D. W. R. Richardson, F. A. Williamson.

Part II, Medicine, Pathology, and Pharmacology: C. H. Crawshaw, H. W. Featherstone, A. D. Haydon, H. G. G. Jeffreys, G. M. Kendall, C. F. Mayne, A. Orr-Ewing, A. A. Prichard, N. S. Tirard.

M.C.—W. H. C. Romanis.

Dr. Lloyd Jones has been appointed Demonstrator in Medicine.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D.—*Branch IV (Midwifery and Diseases of Women):* F. C. Schuler. *Branch V (State Medicine):* Ethel M. Minett, Laura G. Powell, R. H. Wilshaw.

M.S.—*Branch I (Surgery):* C. J. Marshall (University Medal).

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE SCHOOL OF PHYSIC.

THE following candidates have been approved at the examinations indicated:

FINAL MEDICAL, PART I.—*Medical Jurisprudence and Hygiene, Materia Medica and Therapeutics, Pathology:* *H. L. Parker, *P. B. Moloney, L. Albertyn, S. C. Mitchell, J. M. Hill, E. E. Rollins, W. V. Pellissier, W. Sweetman, P. J. Swanepoel, P. A. Dormer, F. Gill, J. Posner, Rita Henry, G. Marshall, J. G. Bird, T. H. R. McKiernan, †W. A. Shannon, †E. R. Tivy.

PART II.—*M.B.:* J. P. Macnamara, Clotilda B. Bevis, J. G. Bird, T. P. Chapman, E. Parker, M. C. Dippenaar, J. J. Keatley. *B.Ch.:* *Clotilda B. Bevis, *F. J. Smith, W. F. Wicht, P. Rock, A. F. Grimbly, W. Garde-Browne, J. P. Macnamara, E. Parker, G. Marshall, H. S. Campion, J. T. Westby, T. G. Roche. *B.A.O., Midwifery and Gynaecology:* W. P. Lubbe, A. H. Davidson, Meta G. Jackson, M. C. Dippenaar, H. J. Rice, S. A. Clark, J. A. W. Cullen, F. W. P. Sullivan, T. E. Hill, H. Banks, P. J. Swanepoel, A. G. Wright, W. J. Hamilton, W. J. McClintock.

*High marks. †Omitting pathology.

DIPLOMA IN PUBLIC HEALTH, PART II.—G. E. Palmer.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

MR. DODBALLAPUR SIVAPPA PUTTANA, Dodballapur, India, has been admitted a Fellow.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have been approved at the examination held at the end of the fifty-second session:

R. D. Sabnis, Lieutenant-Colonel W. S. Sharpe, R.A.M.C., L. D. Parsons, G. H. Dart, F. Barretto, H. E. Ekanayake.

Medical News.

AT a meeting of the Röntgen Society on Tuesday next, at 8.15 p.m., at the Institution of Electrical Engineers, Victoria Embankment, Mr. C. A. Schunk will give an account of a spectroscopic investigation of some sources of ultra-violet radiation.

HEREDITARY nobility has been conferred on Dr. Wilhelm von Waldeyer, Professor of Anatomy in the University of Berlin, on the occasion of his 80th birthday.

THE *Morning Post* states that the University of Malta has conferred the honorary degree of M.D. upon Dr. A. E. Garrod and Dr. H. H. Tooth (both of St. Bartholomew's Hospital), Mr. William Thorburn of Manchester, and Mr. C. A. Ballance of St. Thomas's Hospital as a mark of its appreciation of the humanitarian work performed by them. All these gentlemen are serving in the Army Medical Service with the temporary rank of colonel.

THE Local Government Board notifies that at the instance of the Insurance Commissions chief administrative and technical officers of approved societies and insurance committees have been added to the list of certified occupations subject to the recommendation of the Insurance Commission in each instance, but the Commission will not, save in wholly exceptional circumstances, recommend any man under thirty years of age found fit for general service or for garrison duty abroad.

THE Professional Classes War Relief Council, of which the Lord Mayor of London is president, seeks to assist the families of professional men and women who are in distress through the war. The three main branches of its work are to help in the education of children, to train youths and girls for suitable careers, and the maintenance of a maternity home for the wives of professional men who are serving their country. It appeals for subscriptions at this season. They should be sent to the treasurer of the Council, 13 and 14, Prince's Gate, S.W. Any gift may be allocated to any one of the special objects mentioned.

AN advanced course of lectures on infant care for nurses, midwives, voluntary health workers, and mothers has been arranged by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy. The lectures will be given on Mondays, beginning on January 8th, at the house of the Royal Society of Medicine, at 3 p.m., and on Thursdays at the same hour at the St. Marylebone General Dispensary, 77, Welbeck Street, W. The earlier lectures will be given by Lady Barrett, M.D., M.S., Mrs. Shepherd, M.B., Mrs. Scharlieb, M.D., Dr. Amand Routh, Dr. Eric Pritchard, and Dr. Frederick Langmead.

AT present the University of Chicago has no medical school of its own, though it has an agreement with the Rush Medical College. We learn from the *Medical Record* that the General Education Board and the Rockefeller Foundation have announced the appropriation of £400,000 for the establishment of a medical department in the university. The university will give a site valued at £100,000, and will raise a further sum of £660,000; in addition the present plant of the Presbyterian Hospital, valued at £600,000, will be placed under the control of the department. The staff for clinical teaching and laboratory work will consist wholly of full-time men. Laboratory buildings and a university hospital with its own laboratories and an out-patient department will be provided. The new school will provide for 300 students, all of whom will be required to have an academic degree before admission. It will also supply facilities for post-graduate work.

ON November 5th Professor Sigalas, Dean of the Medical Faculty of Bordeaux, with other members of the professorial body, received a deputation of the Spanish intellectuals who have recently visited France. In addressing them, Dr. Sigalas referred to the difficulties in the work of the faculty caused by the war. Ninety-five per cent. of the students and many of the professors were with the armies; those who remained behind gave their time to attendance on the wounded and to teaching. In the *Livre d'Or* of the faculty were already inscribed the names of thirty-five dead. Twenty members had received the decoration of the Legion of Honour, thirty the Military Medal, and nearly three hundred the War Cross. Dr. Odón de Buen, Professor of Zoology in the University of Madrid, said the war was waged against the common enemy of all civilized nations. Behind the war zone there were soldiers of peace who carried on their precious work in full intellectual communion with their Spanish brethren. The Universities of Bordeaux and Toulouse were sisters of that of Madrid.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*: telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*: telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

L.R.C.P. asks for particulars of a method for treating baldness by transplanting hairs attributed to Dr. Székely of Budapest.

MUCOUS COLITIS.

PERPLEXED asks for any suggestion in the case of a man aged 60 who suffers from mucous colitis. She has tried treatment at Harrogate without lasting benefit; the bowels move six to ten times daily, mostly mucus and membrane. There is much emaciation, and bullet-shaped scybala can be felt in the sigmoid flexure, caecum, and descending colon. Codeia and belladonna suppositories, bismuth, and opium have been tried. Lavage cannot be tolerated. About two ounces of an organic silver salt may be retained about ten minutes. Castor oil, and saline draught first thing in the morning with entire rest in the recumbent position, have so far proved futile.

LETTERS, NOTES, ETC.

PUERPERAL FEVER.

DR. KENNEDY O'BRIEN (Oughterard, co. Galway) writes: I have noticed that puerperal fever is much commoner in primiparae than in multiparae. The reason for this I believe to be that a good many multiparous women have, either in their first or subsequent pregnancies, suffered from slight attacks of puerperal sepsis, in many cases not severe enough to give rise to comment, but at the same time severe enough to render them more or less immune in their other pregnancies to the toxins produced by organisms causing puerperal fever. If this is so, a method of prophylaxis against puerperal fever would be to immunize, early in pregnancy, all primiparae, if not all multiparae, against the toxins produced by the streptococcal, staphylococcal, and *Bacillus coli* groups. If this were done it ought to lessen the incidence of puerperal fever, and, if an attack should occur, it ought at least to lessen its virulence.

COLLOSOL ARGENTUM.

DR. A. H. BOYS (St. Albans), a note by whom on collosol argentum was published in the JOURNAL on October 28th, p. 586, now writes: I had occasion to deal with an abscess on the back of the hand, due to a bullet which was embedded over the carpus, having entered at the base of the middle finger. The hand was carefully prepared with antiseptics and having injected eucaine, I made an incision over the bullet and got a teaspoonful of pus was squeezed out. I removed the bullet, scraped the abscess cavity, and filled it up with collosol argentum, and put on a sterilized gauze pad and a firm bandage. The man had no pain. The next morning the wound was quite well, not a drop of pus, and the edges of the wound closed. The other abscess was in the groin, a suppurating gland, not venereal. It was treated the same way with similar result.

EARLIEST BRITISH SURGICAL INSTRUMENT FIRMS.

In reply to "Scalpel's" query in the JOURNAL of December 9th it has been pointed out to us that Savigny established his firm a little before the year 1770. He issued in 1798 a remarkable publication entitled, "*A Collection of Engravings representing the Most Modern and Approved Instruments used in the Practice of Surgery with Appropriate Explanation.* By J. H. Savigny, Surgeon's Instrument Maker, London. The Letter Press by T. Lemery." He states in his preface that his work was the first of its kind written in the English language, and he based it on similar foreign publications which had already appeared—namely, Brambilla's atlas in Vienna, and Perret's beautiful *Art du Coutelier* (1772), which includes an instructive volume on surgical instruments, a copy of which is preserved in the museum of the Royal College of Surgeons. A second edition of Savigny's book appeared about twenty years later. Bilstad's lancetary knives were made by Robinson of Oxford Street, not of Oxford. Frederick Weiss set up business in 1781. Pepys began about 1780. The firm has long been extinct. Long, another old firm, lasted till past the middle of the nineteenth century. Robertson was instrument maker to the City of London Lying-in Hospital, and the instruments used by Dr. Conquest as well as those designed by David Davis were made by that firm. Several other names not familiar to surgeons of the present day are now really represented by other firms which have taken over their business.

A SUPPOSED CASE OF ENGLISH MALARIA.

T. B. F. E. writes: The following is believed to be a case of English malaria, and may therefore be of interest in view of the recently suggested possibility of a recurrence of this disease due to imported infection, and especially in view of the interesting account in the JOURNAL of a recrudescence of malaria on the banks of the river Seille, near Nancy. The village where this English case occurred is in the lower valley of the Trent in Lindsey, and stands on a tributary which runs into the river through low-lying peaty soil. Tertian ague was still common in this valley when my grandfather practised early in the nineteenth century, but the latest native cases known were attended by my father about seventy years ago, and occurred in an outlying part of the parish where "Peggy's lantern," otherwise known as Will-o'-the-wisp, was often seen.

The present patient is now 74, has never been abroad, and has lived most of these years in one house, which has a large garden running down to an ancient watercourse known as the "Black Ditch," partly because it receives some amount of sewage, but also because it runs through deep peat. He is a tailor, but for twenty-five years has also been registrar of births and deaths, a post entailing long cycling and walking journeys. About a year ago, under these opposite and somewhat trying duties, his heart began to show signs that it was overtaxed, and increasing morning dyspnoea at length compelled him to resign his post. With rest satisfactory improvement followed, so that he was able to continue indoor work, and occasionally enjoyed sitting in the garden just above the Black Ditch, where swarms of gnats are seen on warm evenings. The little grasscroft beyond the ditch is still known by its ancient name, "Segg Croft," segg being the dialect word for sedge; and, though no sedges have grown there within living memory, abundant specimens can be obtained from the underground peat where the bed of the river once ran.

The illness began about the middle of February, 1916, and was regarded at first as subacute gastric influenza. The temperature was 102° F. on the evening of February 25th, but had dropped to normal the following morning. On the evening of March 2nd a severe rigor occurred, with a temperature of 104° F., followed by profuse sweating; the next morning the temperature was again normal, but the pulse was very depressed. From this time afternoon or evening rigors, with high fever and severe sweats, occurred at intervals of a few days, and from this time, too, the patient was unable to leave his bed, though the periods between the rigors were afebrile. On March 14th I ordered 2½ grains of quinine every four hours; and as this markedly reduced the severity of the rigors the dose was doubled on March 23rd, and given thrice daily. Rigors still occurred, but were very mild, the fever was slight, and attacks due were now and again missed. There was, however, an unusual symptom which appeared with one of the early rigors—jaundice. Each rigor seemed to increase the amount of bile in the urine, which, however, subsided in the intervals; the skin was never more than a light sunflower colour. The liver was not enlarged, and the spleen only doubtfully so. He had had one or two mild attacks of jaundice in former years. Jaundice is rare in English ague, the text-books being silent on this point, but it is common in tropical malarias, so that there appears no reason why it should not sometimes occur in the English variety. He continued taking quinine down to the early part of June. Under the larger doses rigors disappeared rapidly, the jaundice more slowly, and his general health and mental powers markedly improved. After an immunity of nearly four months there was a suspicion of a chill, and on October 2nd he had a slight rigor, followed by sweating and a return of the jaundice; hence quinine has been prescribed once more.

I can offer little suggestion as to the origin of this case beyond that conveyed in the narrative. No case of malaria has been heard of in the district; yet there may possibly have been dormant cases among those returning from campaigns in the tropics. Can the common gnat which swarms in dirty ditches convey this disease?

CORRECTION.

IN the note on an organism present in the blood of patients suffering from "trench nephritis" by Lieutenant R. L. Thornley (BRITISH MEDICAL JOURNAL, December 16th, p. 836) there was a slight but important omission. The last sentence of the first paragraph under the heading "Microscopical and Cultural Characters" should read as follows: They are non-motile, have no capsules, and do not stain by Gram's method.

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SUPPLEMENT

CONTAINING

PROCEEDINGS OF COUNCIL

REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

PROGRAMME OF ANNUAL MEETING

MEDICAL BILLS IN PARLIAMENT

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RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

MEN UNDER 41.

The second Military Service Act came into force in Great Britain on Saturday last, June 24th, and all medical men under 41, in common with those of all other callings, are subject to its compulsory provisions and are liable to be called up by the recruiting authority. If a medical man has enrolled the certificate of enrolment will be accepted by the recruiting authority, who will refrain from further action. The enrolled man will be called upon to accept a commission in the Royal Army Medical Corps by the appropriate Central Professional Committee if and when the needs of the army render it necessary. If a medical man under 41 on June 24th has not enrolled, he is, under Section 1 of the Act, deemed to have been duly enlisted in His Majesty's regular forces for general service with the colours, or in the reserve for the period of the war, and to have been forthwith transferred to the reserve. He may be called upon at any time by the recruiting authorities. He has the right to appeal for exemption to the local tribunal, but that tribunal, under Section 7 of the Act, must refer the case to the appropriate Professional Committee, and is bound by its decision.

MEN OVER 41 AND UNDER 45.

Medical men over 41 on June 24th and under 45 are eligible to apply for commissions in the Royal Army Medical Corps for general service with the army at home or abroad. If enrolled they will be notified by the Central Medical War Committee (429, Strand, W.C.) or the Scottish Medical Service Emergency Committee (Royal College of Physicians, Edinburgh), when their services are required, unless they intimate to one of the committees, or to the Secretary of the War Office (Whitehall, London, S.W.) direct, that they are prepared to accept a commission at once.

MEDICAL MEN FROM 45 TO 55.

In order to meet the needs of the home defence armies and to liberate younger medical officers already holding commissions in the R.A.M.C. but employed at home, medical men between the ages of 45 and 55 are invited to volunteer for commissions in the Royal Army Medical Corps for military service in the United Kingdom. They will only be employed in the United Kingdom, but must undertake to serve with any military unit in any part of the United Kingdom. It will, of course, be understood that the commissions are for whole-time, and that a medical man accepting such commission becomes an officer of the R.A.M.C., liable to all duties which fall to such officer, with the reservation that he will not be required to serve abroad.

IRELAND.

The Military Service Acts do not apply to Ireland, but members of the profession in Ireland under 45 are invited to volunteer for commissions in the R.A.M.C. for general service at home or abroad. Members of the profession in Ireland between 45 and 55 may also volunteer for whole-time commissions in the R.A.M.C. for service with the home armies in the United Kingdom. Communications may be addressed in the first place to the Secretaries of the Irish Medical War Committee, 16, South Frederick Street, Dublin, or application may be made to the Secretary of the War Office, Whitehall, S.W., direct.

MARYLEBONE MEDICAL WAR COMMITTEE.

A meeting of the registered medical practitioners of the borough of St. Marylebone was held by kind permission of the Royal Society of Medicine in the Barnes Hall on June 26th, when forty-eight were present and Mr. Charles Ryall, Chairman of the Provisional Committee, presided. He explained that, owing to the statutory position of the Central Committee, it was advisable to elect a new local committee, with a large representation of general practitioners and without the members of the Central Committees, which had special relations with so many doctors in the borough.

Dr. McCrea moved that the committee number twenty-five. Dr. Camac Wilkinson moved, as an amendment, that it number fifteen, with power to co-opt up to twenty. The amendment was carried, and as the substantive motion.

Candidates were nominated to the number of nineteen. On a motion by Messrs. Wilkinson and Lang, it was agreed that the eight general practitioners nominated should be elected—namely, Messrs. E. A. Boyd, Hartzhorne, W. H. Neale, Irwin Palmer, J. Pollard, Tait Robinson, D. Roxburgh, R. H. Wilbe. On a motion by Sir Ronald Ross and Dr. Gossage, it was agreed that four consultants on the old committee be elected—namely, Messrs. McAdam Eccles, Bishop Harman, R. Lake, W. G. Spencer. On a motion by Drs. Wilkinson and Wilbe, it was agreed that Sir Ronald Ross, Dr. G. Blacker, and Dr. Seymour Taylor be elected.

On a motion by Drs. Gossage and Roxburgh, the committee was authorized to fill any vacancies occurring at any time subject to the approval of the Central Medical War Committee.

Meetings of Branches and Divisions.

NEW SOUTH WALES BRANCH.

The annual meeting of the New South Wales Branch of the British Medical Association was held on March 31st, when Dr. George Armstrong, the retiring President, occupied the chair, and delivered his address. The annual report of the Council showed that the membership of the Branch stood at 974, a gain of 6 members during the year. There were 10 deaths, 10 resignations, 28 had removed out of the area of the Branch, 4 were expelled, and 44 surrendered their membership by non-payment of their subscriptions.

Contract Practice.

In connexion with friendly society lodge practice it was stated that the second year's experience of the approved common form of agreement for use between medical officers and friendly society lodges has still further emphasized the advantage both to the lodges and and their medical officers of uniformity throughout the State in the terms and conditions of this form of contract practice. A very large number of the lodges which had preferred to make arrangements with practitioners who were not members of the Association have during the past year invited members of the Association to give them their services. Two amendments in the working of this contract were approved by the annual meeting as follows:

1. In the event of a member having removed to a distance of more than two miles from the medical officer's residence, and having become entitled under the provisions of Clause 21 hereof to the medical benefit of a lodge of the same or another order or society which meets in another place, the medical officer, on being duly notified in writing to that effect by the secretary, shall forthwith remove such member's name from the list of members to be attended by him, and payment in respect of such member shall be made to the medical officer only up to the end of the month in which such notification has been given.

2. That the Council of the Branch be empowered to use its discretion in regard to the exemption of particular lodges or particular members from the operation of the common form of agreement between medical officer and friendly society lodge, and in regard to sanctioning modifications of the agreement to suit particular places and particular circumstances, provided that no such discretion be exercised without the concurrence of the local association concerned.

Recent Legislation.

Attention was directed to two Acts of Parliament directly affecting the medical profession, passed during the year:

1. *The Public Health (Amendment) Act, 1915, No. 7.*—This Act makes pulmonary tuberculosis a notifiable disease, and requires the medical attendant to examine the sputum and to notify the Board of Health in the event of his having reasonable ground for believing that the sputum contains tubercle bacilli.

2. *The Medical Practitioners (Amendment) Act, 1915.*—This Act excludes from registration practitioners qualified in countries which do not grant the right to practise therein in virtue of registration as a legally qualified medical practitioner in New South Wales. The effect of this provision is to bar all qualifications except those of the United Kingdom and Australia, and possibly New Zealand, although holders of such qualifications may be registered upon their passing the examination prescribed by the University of Sydney.

Specialist Sections.

Regulations governing sections for special branches of medical knowledge were passed at a general meeting of the Branch during the year, so that it is now possible for groups of members specially interested in particular branches of medicine or surgery to be organized as sections under the rules of the Association.

Professional Secrecy.

The council also passed the following resolution:

That the council is of opinion that a medical practitioner should not under any circumstances disclose except under compulsion of law, without the patient's consent, information which he has obtained from that patient in the exercise of his professional duties.

The council also directed that a memorandum should be sent to the members conveying this resolution, together with a statement:

That the council is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose except under compulsion of law, information which he has obtained in the exercise of his professional duties.

Treatment of School Children.

In connexion with the proposal of the Department of Public Instruction to provide the State public schools with medical attendance at the hands of whole-time and part-time salaried medical officers, the following additional resolutions were passed:

That the association is opposed to State interference with the recognized system of medical practice and treatment as being against the best interests of the community.

That any appointments of medical officers prejudicial to the recognized system be declared inimical to the interests of the profession.

That the association approves of the medical inspection, but not treatment, of school children by Government Departmental officers.

Finance.

The Honorary Treasurer, Dr. W. H. Crago, presented the financial statement, and gave some details in reference to the British Medical Association building. During the year the 4½ per cent. mortgage of £15,750 had been reduced by £1,000. The net profit for the year amounted to £392, which, together with the balance brought forward from the previous year, gave a total of £1,723. The assets amounted to close on £31,000, after various sums for depreciation of lift and furniture had been written off. In the revenue account it was shown that rates and taxes and wages were increasing, and that further increases in wages would have to be met in the current year.

Election of Officers.

The result of the election for office-bearers and members of Council was as follows:

President: Dr. Sinclair Gillies.
Vice-President: Dr. Gordon Craig.
Members of Council: Drs. G. H. Abbott, G. Armstrong, Fourness Barrington, E. H. Binney, C. B. Blackburn, A. J. Brady, W. H. Crago, A. Davidson, J. A. Dick, Sydney Jamieson, T. W. Lipscomb, W. F. Litchfield, A. A. Palmer, F. A. Pockley, F. P. Sandes, R. Scot Skirving, D. Thomas, R. H. Todd.

Dr. Clarence Read was appointed Representative of the Branch on the Representative Body of the British Medical Association.

KENT BRANCH.

The third annual meeting of the Kent Branch was held at Maidstone on June 7th, when the chair was taken by Dr. Claude Wilson, President.

In accordance with the recommendation of the Council, the officers of the past year were re-elected for the ensuing year.

Annual Report and Financial Statement.—The annual report and the financial statement were taken as read and adopted.

The auditors were thanked for their services and re-elected.

Agreements with Insurance Committees.—A discussion was opened by Dr. Parr-Dudley as to the policy to be adopted by the Association with regard to the new agreements with Insurance Committees. Dr. Coke outlined the work which was being done by the Kent Local Medical and Panel Committees and the definite policy likely to be suggested. It was considered that the Association was the most suitable body to deal with the Commissioners, but local action should be carried on by the Local Medical and Panel Committees instructing the panel practitioners what course to take.

The members were entertained to tea by Dr. Douglas (Maidstone), vice-president.

FIFE BRANCH.

The annual meeting of the Branch was held in the Station Hotel, Kirkcaldy, on June 9th, when Dr. Macdonald (Cupar) was in the chair.

Election of Officers.—Dr. Douglas (Cupar) having resigned, the office-bearers for the ensuing year are as follows:

President: Dr. Balfour Graham.
Vice-President: Dr. Macdonald.
The present Branch Council being continued in office.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

The forty-sixth annual meeting of the Branch was held at King Edward VII Hospital, Cardiff, on June 8th, when Colonel W. D. Steel, M.D., was in the chair.

Treatment of Dependants.—On the recommendation of the Council the following resolution, proposed by the

PRESIDENT and seconded by Dr. W. B. CRAWFORD TREASURE, was passed unanimously:

That this meeting of the South Wales and Monmouthshire Branch considers that the time has now come when gratuitous treatment of the dependants of soldiers and sailors should forthwith cease, and that the Central Council support such steps as may be necessary to rescind any resolution that may have been originally passed to carry out such gratuitous treatment.

Annual Report and Financial Statement.—The annual report of the Branch Council showed a membership of 29 for 1915. The financial statement for the year showed a balance in hand of £65 11s. 4d.

Election of Officers. — The following officers were elected:

President-elect: Dr. W. E. Thomas.
Honorary Treasurer: Dr. C. Biddle.
Honorary Secretaries.—Major W. J. Greer, F.R.C.S., and Dr. L. Freeman Marks.
Representative of the Branch on the Board of Governors of University College of Wales, Aberystwyth: D. R. Price, M.D.

Induction of President.—Colonel STEEL inducted Dr. W. B. Crawford Treasure in the chair as President for the ensuing year.

Vote of Thanks.—On the motion of Dr. BIDDLE a vote of thanks to Colonel Steel for his valuable services as President during the past year was passed with acclamation.

Presidential Address.—Dr. W. B. CRAWFORD TREASURE delivered his presidential address on some notes on venereal diseases, with special reference to the report of the Royal Commission.

Annual Dinner.—The annual dinner was subsequently held at the Angel Hotel, Cardiff.

MALTA AND MEDITERRANEAN BRANCH.

THE annual meeting of the Branch was held at Valetta on May 27th.

Election of Officers.—The following were elected officers and members of council for the current year:

President: Surgeon Lieutenant-Colonel L. Manché, M.D.
Vice-President: Professor S. Cassar, M.D.
Honorary Secretary and Treasurer: Dr. A. V. Bernard.
Members of Council: Dr. E. H. Ferro, Dr. P. P. Debono, Surgeon-Major R. Randon, Professor T. Zammit, C.M.G., M.D.

WILTSHIRE BRANCH:

TROWBRIDGE DIVISION.

THE annual meeting of the Division was held at the Town Hall, Trowbridge, on June 1st, when Dr. FLEMMING was in the chair.

Election of Officers.—The following officers were elected:

Chairman: Dr. Bird.
Vice-Chairman: Dr. W. T. Briscoe, senior.
Secretary: Dr. Bond.
Representatives on Branch Council: Drs. Rumboll, Adye, and Tubb-Thomas.
Executive Committee.—Drs. Locket, Ferguson, and Adye.

Vote of Thanks.—The thanks of the meeting were expressed to Dr. Flemming for his services as Chairman during the past year. Dr. Bird then took the chair.

Financial Statement.—The SECRETARY read the financial statement, which was approved.

Payments under the Insurance Acts.—A communication from the Medical Secretary on the proposed emergency settlement of panel practitioners' accounts for 1915 was received and approved, and on the motion of Dr. FLEMMING the following resolutions were adopted, and directed to be sent to the Medical Secretary:

1. That the remuneration of National Insurance practitioners should be calculated on the basis of the numbers of insured persons on their lists on the last day of the previous year.
2. That the Council be requested to consider the institution of a pension scheme for National Insurance practitioners.

Annual Report of Central Council.—The annual report of Council was received and approved.

STAFFORDSHIRE BRANCH:

SOUTH STAFFORDSHIRE DIVISION.

THE annual meeting of the Division was held at the Star and Garter Hotel, Wolverhampton, on June 8th, when Dr. J. A. CODD was in the chair.

Election of Officers. — The following officers were elected:

Chairman: Dr. E. H. Coleman.
Vice-Chairman: Dr. J. A. Codd.
Honorary Secretary: Dr. H. C. Mactier.
Representative for Representative Meeting: Dr. H. C. Mactier.
Representatives on Branch Council: Dr. Ridley Bailey, Mr. W. F. Cholmeley, and Dr. J. A. Codd.
Executive Committee: Dr. F. A. Cooke, Dr. T. C. Craig, Dr. E. Deanesly, Dr. T. H. Galbraith, Dr. W. L'E. Mathews, and Dr. J. A. Wolverson. Dr. Malet, President-elect of Staffs Branch, is a member *ex officio*.

The annual finance report of the Division was presented by the HONORARY SECRETARY, who reported a balance in hand from 1915 of £5 10s. 5d.

Expenses of Representative.—The CHAIRMAN reported that the fund for paying the Representative's expenses had covered the cost of the last two Representative meetings, leaving a balance of 4s. only.

Annual Representative Meeting.—The annual report of Council was then considered, and the Representative instructed to support the recommendations of Council, and also the motion of North Staffordshire to increase the number of the Central Medical War Committee by the inclusion of four general practitioners. The Representative was instructed to oppose the resolution of Reigate as to supplying the SUPPLEMENT to members only.

Local Medical War Committee.—The Honorary Secretary was instructed to reply to the questions on the present constitution of the Local Medical War Committee, pointing out that the non-members were very few in number, and all but four were over military age. It was resolved to continue the Executive Committee of the Division as the Local War Committee.

Vote of Thanks.—Dr. COLEMAN then took the chair, and proposed a hearty vote of thanks to Dr. Codd for his able and efficient conduct of business during his year of office. This was carried by acclamation. Dr. CODD returned thanks.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH:

FURNESS DIVISION.

THE annual meeting of the Division was held at the Masonic Hall on June 9th, when Dr. DANIEL was in the chair.

The annual report stated that owing to the war no general meetings were held during the year. One member had resigned and one had joined the Association, which had sustained a sad loss by the death of Dr. Carmichael, an old and valued member.

The present officials were re-elected for another year, and the Kendal Division was asked to reappoint the Representative. The ethical rules approved by the Annual Representative Meeting were adopted without modification.

Reduction of Notification Fees.—A discussion took place upon the reduction of the notification fees. The general feeling of the meeting was against the reduction, and it was considered that the Government had acted in a particularly mean manner in reducing the fees at the present time, when many men were away on active service and others at home were doing work gratuitously for the State. The following resolution was adopted unanimously:

That this meeting deplores the weakness of the Central Association in dealing with the Government in connexion with the reduction of notification fees, especially in the suggestion that notification of measles might be undertaken for a fee of 1s. It fears that this attitude, if persisted in, will lead to resignations especially amongst the members on war service who look to the Association to protect their interests.

Notification of Births.—It was resolved:

That this Division adopt the resolution passed at the last Representative Meeting declining to notify births without a fee.

LANCASHIRE AND CHESHIRE BRANCH:

BLACKBURN DIVISION.

AT the annual meeting of the Blackburn Division on May 31st the following officers were elected:

Chairman: Dr. Greeves.
Vice-Chairman: Dr. Craig (Church).
Secretary and Treasurer: Dr. Shearer.

Representative for Representative Meeting: Dr. Tough (W.R.).
Representatives to Branch Council: Dr. Tough (W.R.), Dr. Prebble.
Executive Committee: Dr. Barr, Dr. Beaton, Dr. Lees, Dr. Keighley.

METROPOLITAN COUNTIES BRANCH:

Camberwell Division.

The annual meeting of the Camberwell Division was held at the Surrey Masonic Hall on June 2nd. Dr. W. T. Partridge presided, and the annual report was read and adopted.

Election of Officers.—The following were elected:

Chairman: Dr. W. T. Partridge.
Vice-Chairman: Dr. H. G. Clitherow.
Representative at Representative Meetings: Dr. F. C. Langford.
Representative on Branch Council: Dr. J. T. Clark.
Honorary Secretary and Treasurer: Dr. A. F. Heald.
Executive Committee: Drs. G. B. Batten, H. G. Cowie, J. Heard, J. H. Clatworthy, C. Cooper Cripps, W. Cooper Keates, W. G. Stone.

Matters referred to Divisions.—The Representative was instructed to support the motions as set forth in the British Medical Journal Supplement of May 6th, 1916.

Reduction of Notification Fees.—The following resolutions were carried:

(*a*) That the Camberwell Division expresses its emphatic disapproval of the action of the deputation from the head office of the Association to the Local Government Board in offering to accept a less fee than 2s. 6d. for the notification of any infectious disease.
(*b*) That the Representative be instructed to press for the restoration of the fee of 2s. 6d. for the notification of infectious diseases.

South Middlesex Division.

The annual general meeting of the South Middlesex Division was held at St. John's Hospital, Twickenham, on June 7th.

Election of Officers.—The following officers were elected for 1916–17:

Chairman: Dr. W. H. Haslett (re-elected).
Vice-Chairman: Dr. C. C. Scott.
Honorary Secretary and Treasurer: Dr. H. M. Cooper.
Representative: Dr. R. L. Langdon-Down.
Deputy Representative: Dr. W. H. Haslett.
Representative on Branch Council: Dr. P. W. L. Camps.
Executive Committee: Dr. E. Burstall, Dr. L. Christian, Dr. M. Coalbank, Dr. F. Dendle, Dr. H. A. Gunther, Dr. P. Langdon-Down, Dr. F. E. Marshall, Dr. G. A. Mavor, Dr. H. H. Murphy, Dr. P. W. Camps, Dr. J. Valérie.

Future Meetings.—In view of the many calls on the time of practitioners due to the war, it was resolved that no regular programme should be drawn up for 1916–17. Due notice will be given in the event of emergency or medico-political meetings being necessary.

SUSSEX BRANCH:

Eastbourne Division.

At the annual general meeting of this Division, held at Eastbourne on June 1st, the following officers, representatives and elected members of the Executive were elected for 1916–17:

Chairman: Dr. R. Howie.
Vice-Chairman: Dr. A. C. Gurney.
Honorary Secretary and Treasurer: Dr. Wm. Muir Smith, J.P.
Representatives on Branch Council: Drs. T. Burfield and M. Milner Moore.
Representative for Representative Meetings: Dr. J. H. Ewart.
Deputy Representative for Representative Meetings: Dr. M. Milner Moore.
Elected on Executive Committee: Drs. A. Deane, A. Harper, T. MacQueen, W. J. C. Merry, A. P. Sherwood.

GLASGOW AND WEST OF SCOTLAND BRANCH:

Glasgow Central Division.

The annual meeting of the Division was held in the Faculty Hall on June 5th, when Mr. J. Grant Andrew was in the chair.

Report and Financial Statement.—The honorary secretary's report and financial statement were submitted and approved.

Election of Officers.—The office-bearers were re-elected.

Annual Representative Meeting.—The matters referred to in the agenda of the Annual Representative Meeting were considered for the guidance of Dr. Adams, who was reappointed to represent the Division.

Association Notices.

BRITISH MEDICAL JOURNAL.

The Half-yearly Indexes for 1916.

The usual half-yearly indexes to the Journal, to the Epitome, and to the Supplement have been prepared and will be printed. They will, however, not be issued with all copies of the Journal. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of July.

ANNUAL REPRESENTATIVE MEETING, 1916.

Date of Meeting.

The Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 28th, 1916, at 10 a.m., and following day(s) as may be required.

Returns of Representatives.

Honorary Secretaries of Divisions who have not yet forwarded to the head office the names and addresses, and dates of election, of the Representatives appointed by their Constituencies for 1916–17, are asked to forward me these particulars by the earliest possible date. Under the By-laws, Representatives must be elected not more than nine months nor less than four weeks before the Annual Representative Meeting, and their names must be notified to the head office *by at latest July 7th.* A Representative can, if necessary, be elected and instructed by one and the same meeting of the Constituency.

Agenda: Further Notices of Motion by Divisions and Branches.

The provisional Agenda of the Annual Representative Meeting, including the Annual Report of Council, was published in the Supplement of May 6th, and certain Notices of Motion by Divisions in the Supplement of June 3rd. The Supplementary Report of the Council will appear in the Supplement of July 8th. There will be included in the final Agenda of the Meeting, as to be issued to the members of the Representative Body on or about July 21st, not only such Notices of Motion as have appeared in the Supplements of May 6th, June 3rd, and July 8th, but also all Notices of Motion received up to Friday, July 14th, found by the Agenda Committee to be in order.

By order,
Alfred Cox,
Medical Secretary.

June 28th, 1916.

ANNUAL GENERAL MEETING.

Notice is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order,
Guy Elliston,
Financial Secretary and Business Manager.

429, Strand, London, W.C.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Birmingham Branch: Central Division.—Dr. H. W. Pooler, Honorary Secretary (98, Sampson Road, Birmingham), gives notice that the annual meeting of the Division will be held on Wednesday, July 19th, at 3.30 p.m., at the Medical Institute, and that the nominations for offices must reach him not later than Monday, July 3rd.

Dorset and West Hants Branch.—Mr. Percy A. Ross (Kensington, Boscombe Spa Road) gives notice that the summer meeting of the Branch will be held at Weymouth on Wednesday, July 19th, at 3 p.m.

Midland Branch.—Dr. Adam Fulton, Acting Honorary Secretary, gives notice that the annual meeting of the Midland Branch will be held at the Royal Infirmary, Derby, on July 6th, at 3 p.m. Business: Annual reports; election of officers; adoption of revised organization rules; discussion on The Dangers of Official Medicine, to be opened by the President, Dr. Cassidi.

Southern Branch.—Mr. James Green, Honorary Secretary (Brandon House, Mile End, Portsmouth), gives notice that the annual meeting of the Branch will be held at the Royal Hampshire County Hospital, Winchester, on Wednesday, July 12th,

at 2.30 p.m., Dr. C. F. Routh (Southsea) in the chair. Agenda: Return of election of officers of the Branch for 1916–17; annual report of Council; balance sheet of Branch; balance sheet of Belgian Doctors' and Pharmacists' Fund; general business. At the conclusion of the business Dr. Routh will vacate the chair in favour of Dr. Bodington (Winchester). On account of the war there will be no luncheon or other social function, except that tea will be served at the end of the meeting by the kindness of Dr. Bodington. The golf competition for the Childe challenge cup will take place at the Royal Winchester Golf Links at 3.30. Tea will be served at the golf-house. Members who intend to be present at the meeting will oblige by notifying the Honorary Secretary.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. A. E. Larking, Honorary Secretary (Buckingham), gives notice that the annual general meeting of the Buckinghamshire Division will be held at the Crown Hotel, Aylesbury, on Friday, June 30th, at 4 p.m. Members wishing to bring subjects forward will please inform the Secretary at once.

SUSSEX BRANCH.—Dr. A. M. Daldy, Honorary Secretary (14, Palmeira Avenue, Hove), gives notice that the annual meeting of the Sussex Branch will be held at the Grand Hotel, Eastbourne, on Wednesday, July 5th, at 2.30 p.m.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. C. Legge gives notice that the annual meeting of the Worcester Division will be held at 2 p.m., and the annual meeting of the Worcestershire and Herefordshire Branch at the Salter's Hall, Droitwich, on Friday, June 30th, at 3 p.m., when the President, Dr. Wilkinson, will deliver an address on The Brine Baths of Droitwich.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

LIVERPOOL.

AT a meeting of the Panel Committee on May 16th it was decided to ask the Insurance Acts Committee of the British Medical Association to approach the Commissioners with a view to fixing a reasonable time limit beyond which Pharmaceutical Committees shall not be able to make representations under Article 40 in relation to prescriptions for 1915.

Letters were read from the Insurance Committee stating (1) that the use of the term "Rep. mist." will only be allowed in those cases in which a locumtenent is acting on behalf of a doctor in a case of emergency temporarily and conditional upon several rules being observed; and (2) that to ensure an early distribution of the surplus funds due to practitioners for 1914 it was proposed to circularize all practitioners on the panel, asking that each practitioner will authorize the Committee to deduct any surcharges which may be sustained as a result of investigation of the prescriptions for 1914 by the Panel Committee from the moneys which may be due or hereafter become due to such practitioner.

COUNTY PALATINE OF CHESTER.

At a meeting of the Local Medical and Panel Committee on June 4th it was decided not to accept the proposed scheme for an emergency settlement for 1915. It was resolved to send a letter to the Finance Committee of the Insurance Committee strongly objecting against (*a*) the delay in the payment of the balances for 1914, and (*b*) the deduction from the payments to doctors who dispense for their insured patients not only of the ordinary reduction of the medical fund payments, but also of a further 25 per cent. of that amount.

It was decided to obtain a legal opinion with reference to a case in which the Insurance Commissioners had decided to withhold £15 of the Exchequer grant, which would otherwise have been payable to the Insurance Committee on account of a certain practitioner's breach of his agreement. The case had come before the Medical Service Subcommittee, which had recommended "that the attention of the respondent be called to the findings and to the necessity of his more strictly adhering to the Medical Certification Rules and to the terms of his agreement," and this recommendation had been adopted by the Insurance Committee.

A list of ten stock mixtures was selected from Form 158/I.C.

YORK.

At a meeting of the Local Medical and Panel Committee on May 31st it was agreed to recommend to the practitioners on the panel that in future the minimum fee for all extra certificates should be one shilling, with the exception that the declaring-off certificates need not be charged for. It was agreed to accept the proposed scheme for an emergency settlement for 1915. A list of ten stock mixtures to be prescribed either by name or number was agreed to. It was decided not to agree to the discontinuance of the use of the term "Rep. mist."

KINGSTON-UPON-HULL.

At a meeting of the Panel Committee on June 2nd it was agreed that cases requiring rest for efficient treatment in diseases due to "own misconduct" should not be debarred from sickness benefit. It was agreed to record on the minutes, and to transmit to the British Medical Association, the heartiest appreciation of, and thanks for, the many valuable services rendered by the Insurance Acts Committee to Panel and Local Medical Committees and to panel practitioners generally.

DURHAM COUNTY.

At a meeting of the Panel Committee on June 8th the proposed emergency settlement of panel practitioners' accounts for 1915 was agreed to. It was decided that when an insured person is suffering from any disease due to his own misconduct, he should not be debarred from sickness benefit if, in the opinion of his medical attendant, he cannot be efficiently treated without enforced rest.

It was agreed that the present representatives of Local Medical and Panel Committees on the Insurance Acts Committee should retain office for 1916–17.

The scheme for the payment of mileage for medical practitioners in respect of the year ended December 31st, 1915, was approved and forwarded to the Insurance Committee. The Chairman and Secretary were authorized to pay the travelling expenses of members of the Committee to June 30th, 1916, and to make quarterly payments to the deputies of practitioners who make arrangements under the county scheme.

WEST RIDING OF YORKSHIRE.

At a meeting of the Local Medical and Panel Committees on April 14th it was decided to communicate with the Chancellor of the Exchequer with reference to the proposed increase of taxation for motor cars. It was agreed to support the suggestion of the British Medical Association that 10 per cent. added profit be allowed to the chemists in respect of emergency dressings, and that prescriptions be written as before for a stock of dressings for use for insured persons.

MANCHESTER.

At a meeting of the Panel Committee on June 1st it was resolved that those cases in which doctors had exceeded the general average cost of prescribing for all four quarters of 1915 be referred back to the subcommittee for reconsideration, with power to surcharge. It was decided to object to the "stamped contribution card" being accepted as evidence of the applicant being an insured person when applying for treatment. The proposed emergency scheme for 1915 was agreed to.

ROCHDALE.

At a meeting of the Medical and Panel Committees on June 1st it was resolved to agree to the emergency settlement for 1915. It was agreed that the present representatives of the Local Medical and Panel Committees on the Insurance Acts Committee should retain office for 1916–17, and it was decided to invite a member of the Insurance Acts Committee of the British Medical Association to address a meeting of the Committees.

DERBYSHIRE.

At a meeting of the Local Medical and Panel Committees on May 31st it was decided to select ten stock mixtures from the list issued by the Commissioners. The proposed emergency settlement for 1915 was accepted. It was decided to protest again against the unfair deduction of 33⅓ per cent. from the net lists of practitioners, and to draw the attention of the Insurance Committee to the fact that the men enlisted are already removed from the lists before the 33⅓ per cent. deduction is made. A capitation fee of 2s. 6d. per hundred patients within the mile area was agreed to for emergency dressings and urgent medicines only.

Hertfordshire.

At a meeting of the Panel Committee on March 1st the following resolution was forwarded for consideration by the appropriate Committee of the British Medical Association:

> That this Committee is of opinion that in the administration of the scheme for supplying gratuitous medical attendance to the dependants of soldiers and sailors serving with the colours there has been great laxity in deciding as to the fact of the dependants being really necessitous, and would suggest that in future the local secretaries of the Committees distributing this relief should be instructed to obtain the written consent of a medical practitioner before issuing the book.

It was decided that local formularies should cease to be recognized, and that the Insurance Committee should be asked to refuse payment to chemists for local formulae prescriptions. It was reported that the Insurance Commissioners had allowed the continued use of "Rep. mist." under the restrictions agreed upon between the Panel and Pharmaceutical Committees in March, 1915, with the additional condition that the patient does not ask for a prescription written out in full.

It was decided to apply for a deduction of half per cent. from the next quarterly payment to practitioners for the expenses of the Committee.

INSURANCE COMMITTEES.

Leicestershire.

The minutes of the March meeting of the Leicestershire Insurance Committee contain communications from the Insurance Commissioners announcing their decision in two cases referred to them by medical practitioners as to the range of medical services. In the first case a panel practitioner inoculated with typhoid vaccine an insured person (a lady's maid) who was on his list, and was about to travel to Egypt with her mistress. The Insurance Committee held that this service came within the terms of the practitioner's agreement, and the practitioner appealed to the Commissioners against this. No question arose as to whether the inoculation is a service which can be undertaken by a general practitioner of ordinary professional competence and skill, the practitioner basing his view that the service did not come within the terms of his agreement on the ground simply that the treatment given was "preventive." The Commissioners carefully guard themselves by saying that "they feel no doubt that some forms of preventive treatment are within the scope of the obligations which a practitioner on the panel undertakes." But in the present case, having regard to all the circumstances, the Commissioners are of opinion that the particular service rendered to the insured person was not one which the doctor was required by the terms of his agreement to perform. The Commissioners suggest that they intend, when a more substantial body of actual cases has accumulated, to set out some general classification of hypothetical cases as falling within or without the terms of the medical agreement.

In the second case the Commissioners decided against the practitioner. It was one in which the panel doctor was called to see a patient on his list who was suffering from eclampsia. A consultation was held, and the consultant recommended that the practitioner should bring on premature labour. As the patient had not reached the twenty-eighth week of pregnancy the case did not come within the definition of "confinement" made by the Commissioners, and the Insurance Committee decided that the practitioner was not entitled to any remuneration. The Local Medical Committee disagreed with this, expressing the opinion that the operation was a serious one which could not be undertaken by a general practitioner of ordinary professional competence or skill, but the practitioner concerned distinctly told the Commissioners that he disagreed with that opinion, though he held that he ought not to be required to do such an operation under his agreement. The Commissioners decided that "in the particular circumstances of the case the service was one which the practitioner was required by the terms of his agreement with the Committee to perform."

The Medical Service Committee reported that the Commissioners proposed to withhold the sums of £6 and £4 10s. in respect of the failure of two practitioners to furnish in time the proper records of treatment for the year 1914. As the practitioners had now complied with the regulations the Committee recommended that the Commissioners should be urged to refrain from inflicting the penalties on this occasion.

The final settlement for 1914 showed that the gross medical benefit credit for that year amounted to £32,570 out of which the practitioners' fund was credited with £24,313. To this fund was also to be added £1,879 from the sanatorium benefit fund and £73 from the drug fund making a total of £26,266 in the practitioners' fund.

SCOTLAND.

Medical Certification.

The Scottish Commissioners have drawn up three circulars addressed respectively to panel practitioners, insurance committees, and approved societies, setting forth the duties of each with regard to medical certificates. The circular addressed particularly to panel practitioners, after drawing attention to the rules of certification which are printed on the covers of the books of certificate forms, alludes to some points which are of special importance, though apparently often neglected, such as the following:

The necessity of avoiding ante-dating or post-dating of certificates. In the case of first certificates this is of importance specially when a patient does not go to the doctor on the first day that he stops away from work. As the certificate must be dated for the day when the doctor first sees the patient, the latter may thus miss some sickness pay. Nevertheless the doctor must rigidly observe the rule, though he may add a short explanatory note at the foot of the certificate, and if the society is then satisfied that the patient was genuinely unable to work before the date when he obtained the certificate, sickness benefit may, at the option of the society, be paid for that period. Intermediate certificates are to bear the actual date of examination regardless of the pay-days of societies, and for final certificates no heed is to be paid to the pay-weeks of the patient's employment. For example, if a patient is able to resume work on a Friday, he must be signed off for that day and not granted the Friday and Saturday simply to round off the week.

Rule 7 is to have special attention—that is, the doctor must instruct the patient, not merely verbally, but by making a note on the appropriate line of the certificate, to return for examination on the day when he may reasonably expect him to be fit to resume work. If the patient fails to come on that day, or if he resumes work before that day without a declaring-off certificate, the doctor is to refuse to give a final certificate and must leave the patient to be dealt with by his society. Doctors are also requested to notify the insurance committees, or in exceptional cases the Commissioners, of instances in which representatives of approved societies use pressure which may lead to any breach of these rules.

As a final certificate is needed in all cases where sickness benefit has been paid, and as patients often neglect to ask for one, it is suggested that the doctors should give each patient a leaflet, which can be obtained from the Commissioners, calling attention to this.

With regard to diseases which may be the result of misconduct, doctors are not to hesitate to state on the certificate the specific name of the disease—for example, alcoholic gastritis, as "misconduct is a moral, not a medical question," and the certificate is given to the patient, who may use it or not as he likes.

Incapacity due to accident should be sufficiently indicated to give the society a basis for inquiry, and such words as "perhaps due to employment" may be added where cases might come under the Workmen's Compensation Act.

It is further suggested that doctors should gladly accept any information given by societies which may bear on the case without interfering with the doctor's province—for example, information given by sick visitors, which may show that a patient is acting in such a way as to prove that he is not really unable to work. Doctors should also be willing to reply to reasonable inquiries by medical referees, while referees on their part should give timely information to the doctors as to the place and date at which it may be proposed that the referee should examine a case.

The circular to approved societies in a way amplifies that sent to the doctors by laying stress on the action that representatives of societies should take with regard to certificates. It condemns the action of certain society officials who have attempted to get the doctors to ante-date or post-date certificates for the convenience of the societies. Proof of such attempts is often very difficult to obtain, but the Commissioners strongly urge societies to discountenance all such breaches of the rules. Societies are reminded that to demand weekly certificates in cases of chronic and incurable diseases was not the spirit of the arrangement urged when the present certification system was introduced and may cause a serious and needless hardship to the doctor, and they are further told that doctors cannot be compelled to give any information

regarding cases apart from their certificates, and secretaries and other representatives of societies should avoid needless inquiries from doctors. The Commissioners have often asked why so few of the complaints made by societies have been brought before Insurance Committees, and the reply commonly given has been that the societies could not rely on the committees taking proper action. The Commissioners express surprise at this, seeing that every committee contains a majority of society representatives.

The circular to Insurance Committees lays stress on the importance of committees taking firm action in all cases in which there is breach of the certification rules, and no such cases should be left to be dealt with by the committee clerk without proper report to the committee. As the parliamentary grant of 2s. 6d. per insured person for medical benefit depends on the proper carrying out of the rules, the Commissioners request that all certification complaints received by committees should be intimated to the Commission, which has power to make deductions from the grant corresponding in amount to the nature of the offence, and committees have then power to recover from the practitioner any expense or loss which they or the insured person may suffer in consequence of the practitioner's breach of his agreement. In flagrant cases committees are reminded that a mere deduction of grant may not be sufficient, and representations may be made to the Commission as to the fitness of the practitioner to remain on the panel. Accompanying the circulars committees receive forms on which they are requested to give particulars as to irregular certification and the action taken by the committees during the year ending June, 1916.

MEDICAL BENEFIT AFTER CONFINEMENT.

AT a meeting of the Salford Insurance Committee a question of importance to panel practitioners came up in the minutes of the Medical Benefit Subcommittee, with regard to the meaning to be attached to the words "medical benefit shall not include any right to medical treatment or attendance in respect of a confinement," which occur in S. 8 of the Insurance Act, 1911, and are in substance repeated in the agreement signed by panel practitioners. The question originally arose in the case of a woman who was an insured person and had been attended at her confinement by a midwife and subsequently developed phlegmasia alba dolens arising directly out of the confinement. A panel practitioner was then called in and he asked the Insurance Committee whether he was entitled to charge the patient ordinary private fees. The point came before the Medical Benefit Subcommittee, which decided to refer the question to the Commissioners together with a further case in which an insured person had expressed a desire to be vaccinated by his panel doctor in preference to the public vaccinator. The reply of the Commissioners was that—

The question whether any treatment rendered to an insured person by a doctor on the panel after her confinement is or is not "treatment in respect of a confinement" within the meaning of Cl. 2 (1) of the agreement between the Insurance Committee and the doctor is not a question merely of time but one which requires to be considered in the light of all the relevant circumstances of the case. The decision of cases of this nature rests in the first instance with the Committee, but Cl. 14 of the agreement enables a doctor to refer the matter to the Commissioners if he is dissatisfied with the ruling of the Committee. In the absence of a formal reference it is not open to the Commissioners to express an opinion on the facts of any individual case. The remarks made above apply also to any question as to whether vaccination is included in the term "medical attendance and treatment."

On receipt of this letter the Medical Benefit Subcommittee decided to ask the Local Medical Committee for its observations on the question, and the following letter was received later from the Secretary of the Local Medical Committee:

The Salford Local Medical Committee are of opinion that the legal interpretation of the words "in respect of a confinement" in the agreement between the Salford Insurance Committee and the practitioners on the Salford list disqualifies from medical benefit all cases of disease or disablement which are directly or indirectly due to a confinement, and this without any time limit, for the following reasons, namely: (*a*) In the *New Oxford Dictionary* the words "to have respect to" are defined as "to have relation to" or "connexion with." (*b*) The words are used in S. 8 (6) of the original Act of 1911, and are there by direct implication defined as "connected directly or indirectly with" a confinement.

The committee are further of the opinion that this interpretation, if generally acted on, would be a hardship to the majority of insured mothers, and not in accordance with the established custom of the medical profession.

The committee therefore suggest that, pending amendment of the Act or a decision of the law courts, the words should be construed as withdrawing from medical benefit cases of disease or disablement arising directly or indirectly out of a confinement for a period of one calendar month, any dispute arising as to individual cases to be referred to the Medical and Insurance Committees for settlement. Such an arrangement between the two committees would, in the opinion of the Medical Committee, be generally acquiesced in and would prevent hardship to insured persons and injustice to practitioners.

That in the opinion of the Salford Local Medical Committee vaccination or revaccination does not come within the scope of medical benefit.

After consideration of this letter, the Medical Benefit Subcommittee resolved that it be received, and the thanks of the committee given to the Medical Committee for their consideration and expression of opinion. This was confirmed by the Insurance Committee, and it was evidently considered that the suggestion of the Medical Committee was a very fair one, as exactly corresponding with the provisions of the Act with regard to sickness benefit of women during the month after confinement. The practitioner concerned was quite satisfied with this arrangement, and has no intention of appealing against it to the Commissioners.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified by the Admiralty: Deputy Surgeon-General G. Broatch, M.D., to Haslar Hospital, vice Mansfield. Temporary Surgeons C. G. Ainsworth to the *Victory*, additional, for Haslar Hospital; J. F. M. Payne to the *Vivid*, additional, for Plymouth Hospital; R. K. Ford to the *Pembroke*, additional, for Chatham Hospital; W. J. Jago to the *Minerva*; C. R. T. Thomson, M.B., to the *Wildfire*, additional; J. Souter, M.B., to the *Topaze*, vice Rushworth; A. N. Rushworth to the *Pembroke*, additional.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers E. A. Sparks to the *Lightfoot*; D. C. Clark to the *Lysander*; G. H. Fitzgerald to the *Goshawk*. To be Surgeon Probationers: P. McMurray, A. H. Shelswell, J. R. Hughes, J. S. Lewis, E. Pigott, S. H. Waddy.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Major R. A. Farrar, M.D., relinquishes his commission.

Temporary Captains relinquish their temporary commissions: G. Blacker, M.D., F.R.C.S., N. K. Wilson, M.B., D. O'C. Finigan.

The surname of temporary Captain John R. Dickson, M.B., is as now described, and not as in the *London Gazette* of May 24th.

The surname of temporary Captain Irael Allaun is as now described, and not as in the *London Gazette* of June 6th.

The surname of temporary honorary Captain H. Bowring is as now described, and not as in the *London Gazette* of June 9th.

J. W. Struthers, M.B., F.R.C.S.E., to be temporary Captain.

Temporary Lieutenants to be temporary Captains: H. Catling, A. Griffiths, M.B., F.R.C.S.E., A. Duncan, F. B. Chavasse, P. J. Murphy, J. J. Field, M.B., F. M. Walker, M.B., J. J. Middleton, M.B., F. J. Livingstone, M.B., J. N. Humphrey, M.B., G. A. Varian, M.B., H. B. Graham, M.B., A. B. Bateman, W. Ross, M.B., F.R.C.S.E., A. D. Clanchy, J. T. Armstrong, J. S. Webster, M.B., A. P. Bowdler, M.B., A. W. Cochrane, M. D. MacKenzie, M.B., T. McCririck, M.D., W. F. Blewitt, J. Loudon, M.B., J. A. MacLaren, M.D., J. W. Hutton, A. R. Green, M.B., F. J. Wheeler, H. J. MacK. Adams, M.B., A. B. Brock, M.B., T. S. Rippon, N. Tattersall, M.D., R. P. Haddon, M.B., H. E. H. Tracy, M. A. Power, M.B., W. O'Brien, M.B., H. F. Willington, H. D. Welply, M.B., R. J. Allsopp, M.B., R. A. H. Atkinson, M.B., H. R. Smith, M.B., S. S. Ball, M.B., D. T. Fraser, M.B., W. R. Hodge, M.D., A. A. Moon, M.B., A. McK. Bell, M.B., F. W. Overholt, M.D., C. L. T. Arthur, M.D., W. L. Pedlow, M.D., R. Scott, M.B., L. G. Tait, M.B., G. K. Allan, M.B., J. A. Mortimer, M.D., N. A. A. Hughes, P. C. Garrett, L. W. Evans, M.B., R. N. Porter, D. W. Torrance, M.D., R. I. Douglas, M.B., J. B. Scott, M.B., C. A. Briscoe, M.B., F. W. Campbell, A. L. Krough, M.B., H. McKenzie, M.B., M. S. Esler, F. G. Gibbs, G. S. A. Bishop, M.B., E. W. Anderton, M.B., J. O'D. Egan, F. A. Kerr, M.B., G. A. Pringle, M.D., B. Langran, R. P. Garrow, M.D., P. G. Tuohy, M.B., J. R. Rygate, F. G. Collins, A. B. Aitken, M.B., F.R.C.S., H. Saunders, B. Hogan, R. Rutherford, M.B., R. D. Bridger, T. G. Stevens, F.R.C.S., J. G. Garson, M.D., D. Tenison, D. C. Thomas, J. J. Gibb, M.B., W. Robinson, M.B., H. R. Evans, M.D., H. McM. Donaldson, M.B., A. Vella, M.D., G. Y. Richardson, M.B., F. J. Dixon, M.B., J. Wright, M.B., F. G. H. Cooke, A. Stevenson, M.D., J. A. Wilson, M.B., H. C. M. McManus, M.B., L. H. Bryson, M.D., H. H. Tanner, M.B., J. Young, M.B., D. Mackinnon, M.B., W. K. MacDonald, M.B., G. E. Davidson, M.B., J. C. Bramwell, M.B., C. W. Bond, C. S. Gideon, J. C. McWalter, M.D., O. Bruce, W. L. Hay, J. L. A. Grout, A. Trower, E. N. Russell, M.B., A. C. Sturdy, F.R.C.S., T. G. S. Hodson, M.D., A. Murdoch, W. Enraght, J. G. Scott, A. Halidie, M.B., F.R.C.S., H. M. Rainsford, J. L. Pearce, M.B., A. Cochrane, M.B., P. W. Moore, M.B., R. Lewis, H. G. Willis, M.B., T. Heywood, C. V. Cornish, F.R.C.S., G. F. Lang, M.D., J. R. Howitt, M.B., O. de Muth, M.D., H. F. H. Eberts, M.D., A. D. Sharp, M.D., H. C. Wert, M.D., F. S. Walcott, M.D., B. F. Macnaughton, M.D., I. D. Ramsay, M.D., J. Russell, M.D., W. W. Patton, M.D., W. F. MacDonald, M.D., F. J. Brodie, M.D., F.R.C.S.E., G. W. Whitman, M.D., H. S. Moore, M.D., A. R. Thomson, M.D., J. G. F. Heal, M.D., H. M. Godfrey, M.D., N. MacDonald, M.D., R. E. Johnston, M.B., J. H. Cuthbert, M.B., M. Cohen, M.D., H. L. Burton, M.B., J. R. Davies, W. B. Walmsley, M.B., L. N. Lee, M.D., E. Duke, M.D., H. W. Smartt, A. Wylie, M.B., L. E. Napier, C. E. Harrison, J. L. B. Dixon, M.D., G. B. Hillman, E. L. Jenkins, M.B., J. W. Darling, M.B., C. H. Evers, E. D. Smith, M.B., W. Parker, M.B., J. Mills, M.B., J. E. Long, M.D., T. G. King, V.

Gray-Maitland, C. S. Bowker, H. H. Dummere, E. F. Clowes, A. C. Greenwood, W. M. M. Jackson, M.D., J. Thomarson, M.D., W. J. D. Smyth, H. W. Sykes, M.D., J. C. Lavertine, F.R.C.S.I., F. N. B. Smartt, M.B., F. W. Matheson, M.B.

Lieute ants of the Canadian A.M.C. to be temporary Lieutenants: H. S. McSorley, M.D., G. H. Clement, M.B., G. B. Archer, M.B., B. W. Mosher, M.D., P. Nase, M.D., G. O. Hutchinson, M.D., E. E. Bryans, M.D., T. J. Waddell, M.D., J. N. Lyons, M.D., S. Rodin, M.D., G. B. Ferguson, M.D., W. A. Murray, M.D., E. Fidlar, M.B., E. L. Steele, M.D., C. S. Tennant, M.B., I. Vandandaigue, M.D.

Temporary honorary Lieutenants to be temporary Lieutenants: L. ap I. Davies, V. R. Hirsch, T. Anwyl-Davies, A. R. C. Doorley, M.B., R. M. de Mowbray, F.R.C.S., E. L. K. Sargent, M.B., G. N. Brandon, W. G. Marsden, M.B.

The name of temporary Lieutenant Arthur Sunderland is as now described, and not as in the *London Gazette* of May 25th.

Temporary Lieutenant C. A. Purnell, M.B., relinquishes his commission on account of ill health.

The surname of Lieutenant Robert W. Tennent is as now described, and not as in the *London Gazette* of June 14th.

To be temporary Lieutenants: A. A. Halliday, M.B., A. W. McGregor, C. Harris, T. B Shoobbred, M.B., H. G. A. Haynes, J. F. Walsh, A. Wood, W. G. Johnstone, B. C. Haller, S. N. Babington, M. J. Ahern, C. J. Todd, A. Finlay, M.D., H. A. Colwell, M.B., J. C. McMillan, M.B., L. Blake, M.B., H. J. Davidson, M.B., W. H. Harvey, M.D., E. Connell, H. H. O'Heffernan, H. L. Skelton, V. L. Connolly, M.B., G. H. Alabaster, M.B., T. E. Dobbs, W. Steadman, E V. Beaumont, H. F. Wilson, M.B., A. E. Gravelle, A. P. Gibbons, M.B., A. J. M. Crichton, M.B., A. J. Bennee, M.B., W. P. H. Lightbody, J. C. Macaulay, M.B., J. T. Lloyd, M.B., J. A. Paterson, M.B., H. D. Gasteen, E. S. Molyneux, J. B. McMorland, M.B., F. J. McCarthy, M.B., G. W. Guthrie, M.B., G. E. Chissell, C. W. Macpherson, M.B., F. R. Fraser, M.B., H. M. Gillespie, M.B., A. E. Francis, T. G. Elsworth, M.D., H. R. Hurter, M.D., J. MacInnes, M.B., R. F. Williams, M.B., J. H. Paterson, M.B., J. Barrett, S. R. Hunter, M.D., H. W. Gush, M.B., A. E. Wynne, M.D., F.R.C.S.I., C. E. Bartlett, J. L. Smith, M.B., R J. Morgan, A. Gaston, D. C. Crole, M.B., G. de H. Dawson, J. Whiteside, M.B., J. W. Watthews, M.B., A. J. Hawes, M.B., G. H. Sinclair, M.B., B. Robertson, M.B., A. Smith, R. J. Willson, M.B., W. Sowerby, M.D., R. MacK. Morison, M.B., J. A. Gregory, J. R. M. Mackenzie, M.B., R. W. Davies, M.B., W. Fletcher, M.D., J. McD. Matheson, M.B., A. H. B. Pearce, A. Wright, M.B., E W. Toulmin, W. B. Hendry, S. H. Scott, J. McPolin, M.B., D. Walker, M.B., J. A. Noble, M.B., H. J. Bensted, J. Byrne, H. B. Jones, M.B., L. G. Scudamore, P. J. Lydon, M.B., V. E. Sorapure, M.B., F.R.C.S.E., R. M. McMinn, M.B., L. E. Price, J. P. Good, M.D., A. McD. Nevin, M.B., W. McKee, M.B., J. A. Williams, M.D., H. C. Nickson, M.B., L. M. Rosten, M.B., H. E. White, M.B., A. Dangerfield, M.B., F.R.C.S., H. W. Hues, W. Niccol, M.B., J. R. Heath, F. S. Machin, B. Wood-White, M.B., A. A. Lees, H. P. Motteram, M.D., J. H. Watson, M.B., F.R.C.S., C. G. Teal, M.B., H. H. Tipping, B. J. Courtney, M.D., D. Fisher, M.B., C. S. Glegg, M.B., R. L. S. Nuthall, H. M. Sturrock, M. Graves.

To be temporary honorary Lieutenants: W. M. Crombie, H. H. Castle, H. J. H. Symons, G. T. Symons, W. T. Warwick, A. R. Fuller, W. Farquharson, T. Jackson.

The notifications in the *London Gazette* of May 25th regarding the undermentioned are cancelled: G. N. Brandon, A. R. C. Doorley, M.B., R. M. de Mowbray, F.R.C.S., E. L. K. Sargent, M.B., W. G. Marsden, M.B.

INDIAN MEDICAL SERVICE.

Lieutenant Colonel E. H. Wright has been appointed Civil Surgeon, Coorg.

Major C. F. Marr, M.B., has been confirmed as a Medical Storekeeper to Government with effect from January 15th.

Lieutenant-Colonel W. Vost, M.B., held charge of the current duties of the office of Residency Surgeon, Hyderabad, in addition to his military duties, from March 15th to 22nd.

Lieutenant-Colonel H. J. Walton, M.D., F.R.C.S., has been appointed to hold charge temporarily of the current duties of the office of Residency Surgeon, Hyderabad, in addition to his military duties, with effect from March 23rd.

The following have been appointed permanently as Lieutenants, March 13th, 1916: C. H. Heppenstall, R. R. Htoon Oo Tha, W. P. Hogg, J. Ince, J. G. J. Green, A. S. Fry.

Lieutenant-Colonel J. N. MacLeod, C.I.E., M.B., F.R.C.S.E., has been permitted to retire from the service, with effect from March 8th.

Major N. E. H. Scott, an Agency Surgeon of the second class, has been granted privilege leave for three months, combined with furlough for four months, with effect from March 22nd, 1916.

Major T. E. Watson has been placed on special duty under the orders of the Political Resident in the Persian Gulf, with effect from March 22nd, 1916.

Officers reappointed honorary Surgeons on His Excellency the Viceroy's personal staff, with effect from April 5th, 1916: Brevet-Colonel H. F. Cleveland, Major E. A. C. Mathews, M.B., Lieutenant-Colonel T. A. Granger, M.B.

Officers appointed honorary Surgeons on His Excellency the Viceroy's personal staff with effect from May 8th, 1916: Lieutenant-Colonels R. Bird, M.V.O., C.I.E., M.D., F.R.C.S., E. V. Hugo, M.D., F.R.C.S., and W. Molesworth, C.I.E., M.B.

Colonel J. Smyth, M.D., has been retained in the service for one year with effect from June 7th, 1916, or for the period of the war, whichever is less, and will be borne supernumerary in his rank and grade.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ACTON EDUCATION COMMITTEE.—Dentist; £1 1s. per attendance.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary, £280 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon. Salary, £200 to £300 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—(1) Resident Medical Officer. (2) House-Surgeon. Salary, £300 and £200 per annum respectively.

BOLTON INFIRMARY AND DISPENSARY.—Third House-Surgeon. Salary, £180 per annum.

BRISTOL ROYAL INFIRMARY.—House-Surgeons and House-Physicians. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

CHESHIRE COUNTY ASYLUM, Parkside.—Locumtenent Assistant Medical Officer. Salary, 6 guineas a week.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.

ESSEX COUNTY COUNCIL, Chelmsford.—Temporary Assistant Tuberculosis Officer. Salary, £350 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Senior House-Surgeon. Salary, £150 per annum.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £100 per annum.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary, £150 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Assistant Resident Medical Officer. (2) Surgical Registrar. Honorarium, £120 and 40 guineas per annum respectively.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

MIDDLETON-IN-WHARFEDALE SANATORIUM, near Ilkley.—Assistant Medical Officer. Salary, £350 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

OXFORD EYE HOSPITAL.—House-Surgeon.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £150 per annum.

PORTSMOUTH PARISH.—First Assistant Medical Officer for the Workhouse Infirmary, etc. Salary, £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary, £60 per annum, rising to £80 on appointment as Senior.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CARRUTHERS, N. S., M.R.C.S., L.R.C.P., District Medical Officer of the Blofield Union.

WHITAKER, J. H., M.D., R.U.I., Medical Superintendent of the Eastern Fever Hospital of the Metropolitan Asylums Board.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BREWERTON.—On the 25th June, at 36, Portland Court, W., the wife of Elmore Brewerton, of 84, Wimpole Street, of a daughter.

RIGGALL.—On the 25th June, at "Woodcut," Maidstone Road, Chatham, the wife of Surgeon Robert M. Riggall, Royal Navy (H.M.S. *Dwarf*), of a daughter (Mary Hermione Anne).

DEATH.

BUXTON.—On June 26th, at Fazeley, Tamworth, Thomas Buxton L.R.C.P. and L.M., M.R.C.S., in his 60th year.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JUNE.
30 Fri.	London: Central Medical War Committee, 2.0 p.m. Buckinghamshire Division, Annual Meeting, Aylesbury, 4 p.m. Worcestershire and Herefordshire Branch, Annual Meeting, Droitwich, 3 p.m.; Worcester Division, Annual Meeting, 2 p.m.
	JULY.
5 Wed.	London: Central Medical War Committee, 2 p.m.
	Sussex Branch, Annual Meeting, Eastbourne, 2.30 p.m.
6 Thur.	Midland Branch, Annual Meeting, Derby, 3 p.m.
7 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
12 Wed.	Southern Branch, Annual Meeting, Winchester, 2.30 p.m.
19 Wed.	Dorset and West Hants Branch, Summer Meeting, Weymouth, 3 p.m.
	Central Division, Birmingham Branch, Medical Institute, 3.30 p.m.
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m., and following days as may be required.
29 Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 8TH, 1916.

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SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

Matters referred to Divisions.

British Medical Association.

SUPPLEMENTARY REPORT OF COUNCIL, 1915-16.

(The Sections numbered (B), (C), etc., of the Supplementary Report are the continuations, respectively, of the similarly lettered sections of the Annual Report, published in the Supplement of May 6th, 1916. The paragraphs of the Supplementary Report are numbered consecutively to those of the Annual Report.)

(B) Finance.

A RETROSPECT OF THE FINANCES OF THE ASSOCIATION 1906-1915.

162. The Council presents a Report which has been prepared by the Treasurer and Financial Secretary and Business Manager, reviewing the finances of the Association for a period of 10 years. The Report was published in the Supplement, of April 29th, 1916, page 73.

THE TREASURERSHIP.

163. The Council submits the names of Dr. G. E. Haslip, London, and Dr. R. Langdon-Down, London, as suitable for the office of Treasurer to the Association, *vice* Dr Edwin Rayner, who completes his third term of office, and does not seek re-election.

(C) Central Medical War Committee.

STATUS OF COMMITTEE.

164. The introduction of the two Military Service Acts which render every male citizen, whether married or single, who is under the age of 41, liable to Military Service, made it necessary that the status of the Central Medical War Committee, the Scottish Medical Service Emergency Committee, and the Committee of Reference, should be clearly defined in relation to those Acts. Experience of the first Military Service Act, which dealt only with single men, revealed a risk of leakage of medical men who by applying to local tribunals might receive exemption and thereby seriously interfere with the professional committees in their attempt to distribute the calls of the Army for medical officers in an equitable manner. The Committee therefore informed the authorities of its opinion that in the new circumstances brought about by universal compulsion for military service, any professional committee entrusted by the Government with the duty of selecting medical men who can best be spared, with due regard to the needs of the civil population, for commissions in the Royal Navy and the R.A.M.C., must be constituted the sole tribunal under the Act for the medical profession, since it is only by means of such a professional body that arrangements can be made for carrying on the necessary work of any medical men who are selected to serve. The Committee further went on to say that in its opinion the most suitable arrangement for carrying out these duties would be to continue the co-operation of the existing professional committees with the military authorities.

165. This view was accepted by the Army Council, with the result that the following clause was inserted in the Military Service Act, 1916 (Session 2):—

Regulations made under the Second Schedule to the principal Act shall provide for the establishment of pro-

fessional committees to deal with claims for exemption made by duly qualified medical practitioners; and any application made by such a medical practitioner on any ground, other than that of conscientious objection, for a certificate of exemption shall be referred by the tribunal to whom it is made to such a committee in accordance with those regulations; and the recommendation of the committee on the application shall be binding on any tribunal constituted under the principal Act.

166. The regulations referred to in this clause were published in the medical journals of June 10th, 1916, and the Central Medical War Committee, the Scottish Medical Service Emergency Committee, and the Committee of Reference, were approved by the Army Council on June 15th as the Professional Committees under the Act.

167. In intimating its approval the Army Council made the following stipulations: "(a) that a new member be substituted as soon as possible for Colonel Galloway, who being abroad with His Majesty's Forces, cannot be an effective member of the Committee, and (b) that at least three new members (inclusive of the foregoing), with experience in provincial industrial practice, be placed on the Committee at the earliest possible date (one of them being a practitioner in Wales)." The Committee thereupon invited Dr. H. Langley Browne of West Bromwich, and Dr. Adam Fulton of Nottingham, to accept seats on the Committee, and the invitation has been accepted. The third vacancy has not yet been filled. It is hoped that, in view of the recognition which has thus so recently been given to the Committee, the Representative Meeting will reappoint the Committee as it is constituted at the time of the Meeting.

168. As already explained in the communication addressed by the Director-General to all practitioners of military age, which was published in the medical journals of June 17th, the case of every doctor who comes under the provisions of the Military Service Acts must now be decided by one of the three professional committees. Already the Central Medical War Committee has had referred to it by Local Tribunals certain claims for exemption which are being dealt with under the regulations.

Position and Responsibilities of Local Medical War Committees.

169. Under the terms of the regulations, the Central Professional Committee may, with the approval of the Army Council, appoint or recognise such local professional committees as it may think necessary for the purposes of the regulations. Those existing Local Medical War Committees have already been recognised concerning which the Central Medical War Committee was satisfied that their mode of appointment secured their being representative of all the practitioners in the area. In a few instances where there was any doubt on this point steps are being taken to regularise the position.

170. In suggesting to the Army Council the continuance and extension under the Military Service Acts of the relations which already existed between itself and the War Office the Committee felt justified in assuming that the Local Medical War Committees would recognise and be prepared to carry out the essential and most important work which will devolve upon them to an even greater extent than before. The Central Medical War Committee wishes to express its great indebtedness to the Local Committees, and its confidence that it may rely upon their cordial co-operation. By no other means than by the Local Committees could the interests of those who have met the demands of the Army Medical Department have been protected, and it is obvious that this duty will be more insistent and more difficult of performance as time goes on.

Effect of the New Position on the Enrolment Scheme.

171. At the initiation of the Enrolment Scheme the Committee announced that it would only be put into operation if and when a substantial majority of those eligible for enrolment actually enrolled. Subsequently it was decided that this majority should be 75 per cent. Though the necessary percentage was within measurable distance of being obtained before the introduction of the 2nd Military Service Bill, that date found the Committee still short of the requisite number by a few hundreds. The requisite percentage has now been obtained. The enrolled men and the unenrolled men who come under the Military Service Act (2) will be considered, so far as selections for Commissions in the R.A.M.C. are concerned, as constituting one group. But the enrolled men retain all the advantages of their voluntary enlistment in enhanced pay, short term service and early promotion, as has been fully explained in the letter and circular issued by Sir Alfred Keogh to medical men of military age which was printed in the medical journals of June 17th.

Openings for Service for Men over Military Service Acts Age.

172. Medical men between 41 and 45 years of age have, as is known, had the option of enrolling, and as pointed out by the Director-General, their assistance is essential if the numbers required by the R.A.M.C. are to be obtained without an almost unbearable strain on the men under 41. Further offers of service from such men are urgently desired.

173. The Army Medical Department has also announced that it is prepared to find employment in home service for a number of men between 45 and 55, and to give commissions to such as are accepted. It is plain that the employment of these men will free for service abroad men of military age whom the authorities are now compelled to keep at home, and the Committee trusts that many suitable applications will be received by it at an early date. Offers from men between 45 and 55 cannot be accepted where this course would entail the retention in their areas of younger men for the needs of the civil community.

(D) Organisation.

Representation of Home Divisions in Representative Body, 1916-17.

(Continuation of para. 67 (a) of Annual Report, p. 93.)

174. The Council has settled the list of Constituencies in the Representative Body, 1916-17. The grouping adopted is the same as that for 1915-16 (Supplement, July 3rd, 1915, p. 9.)

Grouping of Home Constituencies for Election of 12 Members of Council.

(a) *Council*, 1916-17.

175. Pursuant to the authority conferred on the Council by Min. 63 of the A.R.M. 1915, the Council has grouped the Home Constituencies for election of 12 members of Council, 1916-17, under By-law 46 (c) in the same way as for 1915-16, except that, in accordance with a suggestion by the Metropolitan Counties Branch, the Constituencies comprised in that Branch have been grouped as follows for election of 2 members of Council:—

Inner Group:

City, Kensington, Marylebone, St. Pancras and Islington, Tower Hamlets, Westminster.

Outer Group:

Camberwell, Chelsea, Ealing, Finchley and Hendon, Greenwich and Deptford, Hampstead, Harrow, E. Herts, W. Herts, Lambeth, Lewisham, N. Middlesex, S. Middlesex, S.W. Essex, Stratford, Wandsworth, Willesden, Woolwich.

(b) *Council*, 1917-18.

176. The Council recommends:

Recommendation C.—That, as in the case of the 1916-17 grouping, the grouping of Constituencies for election of 12 members of Council, 1917-18, be left to the Council.

Reports of Divisions and Branches for 1916.

(a) *Reports of Home Divisions.*

(Continuation of para. 76 of Annual Report of Council, p. 93.)

177. Of the 212 Home Divisions, 154 have up to June 19th reported for 1915.

(b) *Reports of Home Branches.*

(Continuation of para. 77 of Annual Report, p. 93.)

178. Up to the same date 35 of the 41 Home Branches have reported.

(c) *Reports of Oversea Divisions and Branches.*

(Continuation of para. 78 of Annual Report, p. 93.)

179. Reports have been received from 14 of the 43 Oversea Branches, and from 2 of the 17 Oversea Divisions not themselves Branches.

GRANTS TO HOME BRANCHES.

(Continuation of para. 79 of Annual Report, p. 93.)

180. In all, up to the present the Council has awarded grants, varying from 6d. to 4s. per member, to 29 of the 41 Home Branches. In addition to an ordinary grant, a supplementary grant has been made to the Leinster Branch, the organisation of which had been temporarily in abeyance owing to the long illness of the late Prof. A. H. White, Branch Secretary.

QUESTION OF A STANDING LONDON COMMITTEE.

181. The A.R.M., 1915, referred (Min. 67-8) to the Metropolitan Counties Branch a proposal made at that Meeting for appointment of a Standing London Committee of the Association on the same lines as the Irish and Scottish Committees. The Branch Council has expressed the opinion that the proposal should not be adopted, inasmuch as (1) such a Committee would be no more than a Branch Council under another name, (2) the powers of such a Committee would be no more than those already possessed by the Branch Council, (3) no adequate steps have been taken to test the full scope of the existing powers of the Branch Council, and (4) in any event the present time is not favourable for alteration of the local organisation of the Association. With this opinion the Council concurs.

The Council recommends:

Recommendation D.—That no further action be taken with reference to Mins. 67-8 of the A.R.M., 1915, as to a possible Standing Committee of the Association for London.

MEMBERSHIP.

(Continuation of para. 73 (a) of Annual Report, p. 93.)

182. The Council has received a report as to membership for the period Jan. 1st to May 31st, 1916. During that period 411 new members joined, and the Association lost by arrears (358), resignation (323), death (131), and expulsion (1), 813, a net decrease of 402. On May 31st, 1916, the total membership of the Association was 20,710, as compared with 21,654 at the same date last year.

DIVISION AND BRANCH AREAS.

(Continuation of para. 73 of Annual Report, p. 93.)

183. The Carlow and Kilkenny Divisions of the South-Eastern of Ireland Branch have been amalgamated to form one (Carlow and Kilkenny) Division.

(F) Science.

QUESTION OF STATE RECOGNITION OF SCIENTIFIC WORK.

184. Arising out of the question of the recognition by the State of the services of Sir Ronald Ross, K.C.B., F.R.S., for his work in connection with malarial fever, the Council has had under consideration the general question of the more adequate recognition of scientific work by the State.

The Council recommends:

Recommendation.—That the Representative Body appoint a small *ad hoc* Committee to confer and act with the Science and State Committee of the British Science Guild in the matter of the inadequate recognition and recompense by the Government of medical workers in the field of science, and to report to the Council.

(G) Medical Ethics.

EXPULSION.

185. The Council regrets to report that it has been necessary to remove from membership of the Association a Member who (a) in breach of his contract with an Insurance Committee did not supply drugs or appliances to insured persons to whom he had agreed to supply them, and with knowledge of his omission received the payment from that Committee as if he had duly fulfilled his contract, (b) habitually allowed insured persons to be attended at his surgery by an unqualified person, and authorised that person to prescribe medicines and sign certificates in his (the member's) name in cases where he (the member) had not himself seen the patient.

PROTECTION OF MEMBERS AGAINST ACTIONS FOR LIBEL ARISING OUT OF ETHICAL PROCEEDINGS.

186. The Council has had under consideration the possible danger of actions arising for libel in connection with Ethical proceedings, and has directed the attention of Honorary Secretaries of all Divisions and Branches in the United Kingdom to the Rule approved by the A.R.M., 1915, which governs this matter, and which renders it necessary for *every* letter in connection with an Ethical enquiry to be submitted to and approved by the Head Office before being made use of locally.

RULES.

(Continuation of para. 92 of Annual Report, p. 94.)

187. Up to the present the Council has approved the adoption of the Revised Rules governing procedure in Ethical matters, as approved by the A.R.M., 1915, by 123 out of the 212 Home Divisions, and by 25 out of the 41 Home Branches. Thus there are still 89 Home Divisions and 16 Home Branches not in a position to deal with Ethical matters.

(H) Medico-Political.

REPORT OF ROYAL COMMISSION ON VENEREAL DISEASES.

(Continuation of paras. 111-12 of Annual Report, p. 96.)

188. In view of the public and professional interests involved, the detailed consideration of the Report and Recommendations of the Royal Commission on Venereal Diseases was referred by the Council to the Medico-Political, Public Health and Hospitals Committees jointly, and the Council submits a separate Report on the subject. In dealing with the matter the Committees had before them, through the courtesy of the President of the Local Government Board, drafts of a circular letter, of Regulations under the Public Health Acts, and of a memorandum by the Medical Officer of the Board on the organisation of medical measures against Venereal Diseases, proposed to be sent by the Board to the County and County Borough Councils.

In thanking Mr. Long for his kindness in acceding to the request of the Association to be allowed to see the drafts, it was pointed out to the Board that it was considered essential, if the new scheme for dealing with Venereal Diseases is to receive the hearty co-operation of the profession, that the local medical profession shall be asked to nominate representatives to serve upon any Committee having control of the arrangements under the local scheme.

On the initiative of the National Council for Combating Venereal Diseases, upon the Executive of which the Chairman of Representative Meetings now represents the Association, conferences are to be held throughout the country under the auspices of the local authorities for the discussion of the local schemes for dealing with the diseases. The Council urges upon the Divisions the great importance of the local medical profession being represented at all such conferences.

The Council recommends:

Recommendation F.—That the Representative Body approve the Report on the Recommendations of the Royal Commission on Venereal Diseases submitted by the Council. (For the Report *see* Appendix I., p. 14.)

MATERNITY AND CHILD WELFARE.

Payment of Medical Practitioners for Work in connection with Schemes.

(Continuation of para. 96 of Annual Report, p. 95.)

189. The Council has carefully considered Mins. 125-8 of the A.R.M., 1915, in connection with the question of Maternity and Child Welfare schemes, and submits a separate Report dealing with the question referred by the Representative Body to the Council, viz., that of the remuneration of medical practitioners for work in connection with such schemes.

The Council recommends:

Recommendation G.—That the Representative Body approve the Report submitted by the Council on the remuneration of medical practitioners in connection with Maternity and Child Welfare schemes. (For the Report, *see* Appendix II., p. 16.)

Recommendation H.—That no advertisement be published in the *Journal* for a whole-time Medical Officer for a Maternity and Child Welfare Centre where a less

salary than £350 per annum, exclusive of travelling expenses, clerical assistance, stationery and postage, etc., is offered.

Recommendation I.—That no advertisement be published in the *Journal* for a part-time Medical Officer for a Maternity and Child Welfare Centre where the salary is less than at the rate of 10s. for an attendance of one hour.

Attitude of Local Government Board in respect of Schemes.

190. In view of difficulties arising in one or two districts where the local medical profession had suggested to the local Town Council that Maternity and Child Welfare Centres about to be established should be staffed by the local medical profession rather than by whole-time medical officers as suggested by the local Council, a deputation from the Association waited upon Dr. Newsholme, Chief Medical Officer of the Board. The deputation gathered that the Board made no hard and fast rule as to whether such centres should be staffed by members of the local profession or by whole-time salaried officers, but that each case would be considered on its merits, and that the Board would be quite prepared to sanction schemes based on the principles of the Association's policy if they were considered to promise efficiency, and provided that no such scheme should admit of the possibility of a patient being seen by different medical officers on successive attendances of the patient at the Centre.

Fees for Notification of Infectious Diseases.

(Continuation of paras. 107-9 of Annual Report, p. 96.)

191. The Council recommends:

[Recommendation J.]—That the Representative Body express its great regret and indignation at the action of the Government in reducing at the present juncture the fees to medical practitioners for notification of infectious diseases, and represent, on behalf of the medical profession, that the reduction must be considered as a temporary measure, and as one of the medical profession's contributions to the national need.

Central Emergency Fund.

192. On January 1st, 1916, the Fund had a credit balance of £943. 9s. 4d. Since January 1st up to June 8th inclusive, subscriptions of £68. 0s. 10d. have been received, and £2. 18s. 6d. deposit interest. A grant of £100 has been made from the Fund to a Division on behalf of one of its members.

Training and Certification of Masseurs and Masseuses.

193. A conference has been held with representatives of the Incorporated Society of Trained Masseuses, and this body was urged (i.) that establishments for the teaching by medical practitioners of pupil masseurs and masseuses who desire the certificate of the Society, should only be inspected by medical members of the Society, and (ii.) that there should be medical representation on the Council or other Executive Body of the Society. The matter is still under consideration.

Suggested Licence Duty on Petrol instead of the Proposed Increased Tax on Motor-Cars.

(Continuation of para. 103 of Annual Report, p. 95.)

194. Subsequent to the reply received from the Chancellor of the Exchequer, already reported to the Representative Body, that medical practitioners were to be entitled to a rebate of half the new tax on motor-cars, a reply was given by him to a question in the House of Commons that there was no intention on the part of the Government to remit the whole of the tax on doctors' cars, on the ground that they were used for professional purposes which were of national importance. On publication in the *Journal* of this reply, a considerable number of complaints were received from medical practitioners against any increase of taxation of cars used for professional purposes only. It was announced on June 21st that the proposed new tax on motor-cars would be withdrawn, and that an extra licence duty would be imposed of 6d. per gallon on petrol, with a reduction of one half that amount in the case of doctors and veterinary surgeons, and total exemption for trade cars. The Council has decided to take no further action in view of this recognition of the special position of the medical practitioner.

Proposed Discontinuance of Reports of Certifying Factory Surgeons.

(Continuation of para. 110 of Annual Report, p. 96.)

195. A joint deputation of members of the Medico-Political Committee and of the Certifying Factory Surgeons' Association waited upon the Home Secretary on May 5th. The representations of the deputation to the Home Secretary were to the same effect as the views stated in para. 110 of the Annual Report of the Council. The deputation was, however, unable to make any impression upon the Home Secretary as to the need for the retention of the reports of Certifying Factory Surgeons on accidents. In view of the unsatisfactory result of the deputation, both the Certifying Factory Surgeons' Association and the British Medical Association have communicated with a number of Members of Parliament drawing their attention to the proposal of the Government, and asking for their support in resisting the proposal.

Sir Philip Magnus promised to watch on behalf of the Association any Bill dealing with the subject that might be introduced.

In clause 8 of the Police, etc. (Miscellaneous Provisions) Bill, which was read a first time on June 1st, 1916, the Government seeks to give effect to the proposal of the Government Retrenchment Committee that reports of Certifying Surgeons on accidents be abolished.

Sir Henry Craik has put down a notice which will secure a proper consideration of this clause when it comes before the House, and a further communication has been sent to a number of Members of Parliament asking for their co-operation in resisting the clause.

School Medical Officers and Members of Teaching Staffs.

(Continuation of para. 93 of Annual Report, p. 94.)

196. An arrangement has been arrived at between the Medico-Political Committee and the National Union of Teachers, whereby the services of the Association and the Union may be used for clearing up misunderstandings arising between members of the school medical and teaching staffs in any area. Recently this arrangement was put to its first test with extremely satisfactory results, greatly appreciated both by the teachers and the doctor concerned.

Private Bills in Parliament affecting the Profession.

(Continuation of paras. 116-8 of Annual Report, p. 97.)

197. As a result of the communication to the General Medical Council referred to in para. 117 of the Annual Report of the Council, the President of the General Medical Council is, it is understood, consulting the Government authorities as to the advisability of that Council obtaining private Bills affecting the medical profession for consideration before they are passed into law.

Manufacture of Drugs and Chemicals hitherto Imported from Germany.

(Continuation of para. 115 of Annual Report, p. 97.)

198. In para. 115 of its Annual Report the Council reported that it had asked the Government to consider the desirability of assisting British manufacturing chemists to produce those necessary drugs and chemicals of the preparation of which Germany before the War had a monopoly, and that it was also bringing the matter before the Board of Trade, Local Government Board, National Health Insurance Commission, Pharmaceutical Society of Great Britain, and Society of Chemical Industry. The Board of Trade, the Local Government Board and the Pharmaceutical Society sent formal acknowledgements only. The Insurance Commissioners replied (a) that they had been charged by the Government with the duty of maintaining under close observation during the course of the War the conditions affecting the supply of chemical and other products of importance directly or indirectly used in medicine, and of advising from time to time upon the action necessary to obtain or conserve adequate supplies of such products, and (b) that if the Association had in mind any particular drugs to which importance was attached, and which were not obtainable in sufficient quantities for purposes for which they were considered necessary, they would be glad to have details

in order that they might consider what further action was possible. The attention of the Commissioners is being drawn to the case of certain drugs accordingly. The Society of Chemical Industry replied that they cordially agreed with the action which the Association was taking, and would be pleased to give any assistance in their power.

PROPOSED BILL FOR THE REGISTRATION OF NURSES.

(Continuation of paras. 105-6 of Annual Report, p. 96.)

199. In view of the recent establishment of a College of Nursing, conferences have taken place between representatives of that Body and of the Central Committee for the State Registration of Nurses in order to ascertain whether a Bill can be agreed upon which will secure the efficient and proper registration of Nurses. It is hoped that by the time of the Representative Meeting it will be possible to report more fully on the progress that has been made.

The Council recommends:—

[Recommendation K.]—That the Representative Body take into consideration the possibility of establishing by means of the proposed Bill now under consideration by the College of Nursing and the Central Committee for the State Registration of Nurses, the general principles desired by the Association in respect of the State Registration of Nurses, and whether the Association would be justified in supporting the Bill.

UNDER CONSIDERATION.

200. (i.) Suggested uniform forms for notification of infectious diseases by practitioners, forwarded by the Local Government Board for comment by the Association.

(ii.) A communication from the Central Control Board (Liquor Traffic) as to a draft Regulation which that Board has under consideration regarding the sale of medicated wines.

(I) National Health Insurance.

REMOVAL OF NAMES OF INSURED PERSONS FROM DOCTORS' LISTS.

201. In view of complaints that notwithstanding the instructions of the Commissioners it is still the practice of some Insurance Committees to remove the names of insured persons from doctors' lists upon merely receiving notification of change of address, instead of waiting until a notification has been received that the insured person in question has been accepted by another practitioner, the attention of the Commissioners has been drawn to the matter. The Commissioners replied that if the Association would supply instances of the practice referred to they would at once inquire into them. Application has been made to the Panel Committees for details of cases, and the information received will be conveyed to the Commissioners.

DELAY IN DOCTORS BEING NOTIFIED THAT PERSONS ON THEIR LISTS HAVE CEASED TO BE INSURED.

202. Representations have been made to the Commissioners that many complaints are still being received by the Association as to delay in notifying practitioners that persons on their lists have ceased to be insured, with the result that practitioners may continue to treat people for whom they have ceased to be credited with payment. The Commissioners have replied that the delay is largely due to the difficulty of Approved Societies as regards obtaining information which would enable them to inform Insurance Committees that the person had ceased to be insured. The Commissioners also state that they have always urged upon Societies, by means of circulars and in individual cases, the necessity for prompt notification of Insurance Committees, and that they will continue to use their utmost endeavours in that direction.

PUBLICATION OF INFORMATION AS TO INSURANCE WORK OF ASSOCIATION.

203. In order to keep the members of the Association better informed of current action by the Association, arrangements have been made for the publication, weekly so far as possible, of information of the kind, not only as to Insurance questions but as to all subjects affecting the profession. These notes have been commenced under the title "Current Notes."

VENEREAL DISEASES.

204. In view of the publication of the Report of the Royal Commission on Venereal Diseases, and the action being taken by the Local Government Board and the National Council for Combating Venereal Diseases to put the Recommendations of the Commission into effect, the Council has again considered the position of insured persons incapacitated from work by venereal disease and who are at present refused Sickness Benefit because they are suffering from a disease caused by "their own misconduct." The Council in July, 1915, drew the attention of the Commissioners to a resolution (which the Council fully endorsed) passed by the 1915 Conference of Representatives of Local Medical and Panel Committees to the effect that such persons should not be refused Sickness Benefit. The Chairman of the National Health Insurance Joint Committee at that time stated that the expression of opinion had been duly noted.

The Council has again expressed the opinion, which it has caused to be published in the *Journal* and circulated to all Local Medical and Panel Committees, that where an insured person is suffering from any venereal disease which would cause the patient to be refused Sickness Benefit under the Insurance Acts because the disease was due to his own misconduct, he should not be debarred from Sickness Benefit if in the opinion of his medical attendant he cannot be efficiently treated without enforced rest. The Council has asked Local Medical and Panel Committees to do what they can to persuade the representatives of Approved Societies that the true interests of the societies and of the Community lie in curing venereal disease as quickly as possible, and that the deprivation of Sickness Benefit compels many sufferers to keep at work when they should be in bed.

Recommendation D.—That the National Health Insurance Commission be informed that in the opinion of the Association no insured person should, because he is suffering from venereal disease, be refused Sickness Benefit if in the opinion of his medical attendant he cannot be efficiently treated without enforced rest.

PAYMENTS TO PANEL PRACTITIONERS: PROPOSED EMERGENCY SETTLEMENT OF 1915 ACCOUNTS.

(Continuation of paras. 143-5 of Annual Report, p. 99.)

205. In paragraph 145 of its Annual Report the Council intimated that the question had arisen as to whether the same delay would take place as regards the settlement of the 1915 accounts as took place with respect to the 1914 accounts. At an interview with the Commissioners on April 18th, the latter stated that so far as they knew there was no possibility, if the procedure laid down in the Regulations was to be followed, of the settlement for 1915 taking less time than that for 1914, that is to say, the payment would not be made at the earliest before the beginning of 1917. After long discussion, a scheme (*see* Supplement of May 27th, p. 119) was suggested by the Commissioners which would allow of a settlement being brought about in about eight weeks after the Panel Committees had expressed their willingness to accept the plan. This scheme the Association promised to submit to the Panel Committees for their approval or rejection, and it was accordingly issued to Local Medical and Panel Committees on May 22nd, 1916, with a statement that the Insurance Acts Committee was satisfied that it was a fair attempt to deal with the demand of panel practitioners for an earlier settlement, and in fact the only means of securing such a settlement, pending the revision of the whole arrangements promised after the War. In view of the replies received from the Committees the Commissioners were informed that having taken the best means open to it of ascertaining the opinions of panel doctors throughout the country, the Association was satisfied that the plan was fair and suitable, and was desired by the great majority of those concerned.

NOMINEES OF LOCAL MEDICAL AND PANEL COMMITTEES ON INSURANCE ACTS COMMITTEE.

206. In view of the appointment of an Insurance Acts Committee for 1916-17 by the Representative Body in July, and the fact that no Conference of representatives of Local Medical and Panel Committees will take place before then at which nominations could be made for the six representatives of those Committees for co-option to that Committee, the Local Medical and Panel Committees were asked whether they approved of the present representatives continuing in office until the end of next Session. The replies being practically

unanimous in favour of this course, the Insurance Acts Committee for 1916-17 will be recommended to reappoint the present nominees, namely, Dr. P. V. Fry (West Riding, Yorks), Dr. T. Campbell (Lancashire), Dr. T. Ridley Bailey (Staffs), Mr. H. B. Brackenbury (Middlesex), Mr. P. Napier Jones (Berks), and Dr. J. R. Drever (Glasgow).

Stock Mixtures.

Agreed List.

(Continuation of paras. 137-9 of Annual Report, p. 99.)

207. It was intimated in para. 139 of the Annual Report of the Council that negotiations with the Commissioners and the Pharmaceutical Society were in progress as to the compilation of a list of formulæ for liquid preparations from which Panel Committees might select not more than ten for which a reduced dispensing fee would be paid. The Commissioners have now issued the list of mixtures agreed upon by the Association and the Society, or adjudged by the Commissioners to be capable of being stocked in bulk without deterioration.

Travelling Expenses of Members of Panel Committees.

(Continuation of para. 148 of Annual Report, p. 100.)

208. The Council reported in para. 148 of its Annual Report that it had urged upon the Commissioners that Panel Committees should be allowed, if they so desired, to make use of the statutory allotment from the Medical Benefit Fund for the payment of travelling expenses of their members. The Commissioners have replied that the proposal is one which they are advised would require legislation, but that they have noted it for consideration in connection with any suitable occasion which may arise (Supplement, June 3rd, p. 130). The Council has also noted the point for consideration when questions of the amendment of the Acts or Regulations arise.

Frivolous and Vexatious Complaints.

209. The Council has obtained the opinion of the solicitor in connection with the annoyance caused to practitioners by third parties bringing frivolous or vexatious complaints against them before Insurance Committees. The solicitor's opinion is to the effect that as the Regulations now stand no steps can effectively be taken legally to prevent complaints made by third parties being entertained by an Insurance Committee, but he suggests that Insurance Committees should satisfy themselves that the person making the complaint had the authority of the insured person and was acting *bona fide* in the patient's interests, before referring the complaint to the Medical Service Sub-Committee. Meantime the Commissioners, in a recently issued circular to Insurance Committees, had suggested to these bodies the course of action now advised by the solicitor. The general question has been noted for consideration in connection with amendment of the Regulations.

Time Limit for Bringing Complaints against Doctors.

210. The Council has also noted for consideration in connection with amendment of the Regulations the suggestion that Insurance Committees should have no power to investigate complaints against doctors when the acts complained of have taken place more than twelve months previously.

Under Consideration.

(i.) Question concerning the fining of Insurance practitioners.

(ii.) Alleged growing practice of Commissioners consulting Panel Committee through Insurance Committee instead of direct.

(iii.) Urging upon Commissioners their adoption of a uniform prescription book.

(iv.) Various questions as to payment of Insurance practitioners.

(v.) Question of action in support of panel system as opposed to further developments in the direction of a whole-time State service.

(vi.) Question of Central Insurance Defence Fund and proposed fund for assisting practitioners who have served in Army or Navy.

(vii.) Questions in connection with temporary residents.

J. A. MACDONALD,
Chairman of Council.

July 4th, 1916.

APPENDIX I.

REPORT OF COUNCIL ON RECOMMENDATIONS OF ROYAL COMMISSION ON VENEREAL DISEASES.

(See para. 188 of Supplementary Report of Council.)

1. The Council has already (Annual Report, para. 111) expressed its general approval of the Report of the Royal Commission on Venereal Diseases and is glad to report that the Chairman of Representative Meetings has been appointed a member of the Executive Committee of the National Council for Combating Venereal Diseases which is taking such an active part in pressing on the Government and the public the need for energetic work on the lines of the Report of the Commission.

2. The Council now presents a series of Recommendations for the consideration of the Divisions and Representative Body. These recommendations are based on the Report of the Royal Commission, being indeed in many cases in the actual words of that Report. It is the intention of the Council to press on the Local Government Board and on local authorities the policy embodied in these recommendations after they receive the endorsement of the Representative Body.

Confidential Registration and Certification of the Cause of Death.

Recommendation A.—That arrangements should be made for the confidential registration or certification of the causes of death, the proposals of the Registrar General being commended for consideration. *(Recommendation 1 of Royal Commission.)*

3. The Royal Commission has thus given its approval to a policy which was enunciated by the Association in 1910 in its evidence submitted to the Departmental Committee on Coroners' Law.

Uniform Records of Sickness in Institutions.

Recommendation B.—That the Local Government Board should devise a uniform system of records of sickness in Hospitals and Poor Law Establishments with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment. *(Recommendation 3 of Royal Commission.)* The cost of these should be borne by the Local Government Board.

Facilities for Diagnosis of Venereal Diseases.

Recommendation C.—That extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. To whatever body the organisation of this service is entrusted such service should include the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general.

In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at Universities and Hospitals.

4. The recommendation of the Royal Commission on this point is that the organisation of local services shall be entrusted to County Councils and County Borough Councils. The A.R.M., 1914, when considering the question of the future developments of the Insurance Acts expressed the opinion that in any future developments of the medical service under those Acts, the clinical arrangements should not be placed under the Public Health Authority, but either (i.) under a new Clinical Authority, composed of representatives of the Insurance, Public Health and Education Local Authorities, with representatives of the Local Medical and Panel Committees and of the local Hospitals, or (ii.) under the Insurance Committee, strengthened for this purpose by the addition of representatives of the above-named bodies.

Treatment of Venereal Diseases.

Recommendation D.—That measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the

facilities for treatment which are afforded. That every registered medical practitioner should be in a position to insure his patients access to institutional treatment when he considers that course desirable.

5. The first sentence of this Recommendation is Recommendation 7 of the Royal Commission. The Council notes with pleasure that the L.G.B. in the memoranda proposed to be issued on this subject has recognised the right of the practitioner to secure the treatment in hospital of any patients suffering from these diseases and believed to be proper subjects for hospital treatment.

Representation of Medical Profession on Committees for Dealing with Local Schemes.

Recommendation E.—That it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession shall be asked to nominate representatives who shall be entitled to serve upon any Committee having control of any such arrangements.

6. In view of the expressed desire of the Royal Commission to secure the hearty co-operation of the medical profession in local schemes for the diagnosis and treatment of venereal diseases, the Council considers that it is essential that members of the profession, duly nominated by the local profession should be placed on any bodies set up to administer such schemes.

7. The Council is strongly of opinion that the Divisions should take steps to insure that the local profession shall be well represented at the local conferences which it is understood are shortly to be called in every area to discuss the inauguration of local schemes, and trusts that previous to the holding of such conferences, united action on behalf of the local profession will be secured by the Divisions.

Hospital Treatment of Venereal Diseases.

Recommendation F.—That institutional treatment should, as far as possible, be provided at general hospitals and clinics, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals and the local medical profession in their areas with a view to making arrangements for treatment.

Recommendation G.—That a voluntary institution providing a clinic or beds for the treatment of cases of venereal disease should be carried on in accordance with the following principles:—

(a) that the organisation may run concurrently with that of the institution.

(b) that the accounts should be kept so as to show the approximate aggregate cost of the treatment of such patients, including the cost of medical attendance and treatment.

(c) that special medical officers selected as far as possible from amongst the local practitioners should be appointed to carry on the work of the venereal wards or clinics, and should work under the supervision of the honorary staff;

(d) that the services of all members of the medical staff concerned with the special treatment of such patients shall be paid for by the State and local authority.

Recommendation H.—That from all payments received by the Governing Body of a voluntary medical institution from the State and local authority in respect of the venereal medical service, a proportion to be agreed upon between the Governing Body and the Honorary Medical Staff should be placed to a Special Fund which shall belong to the Honorary Medical Staff.

Recommendation I.—That the Honorary Medical Staffs may find the following suggestions valuable in connection with the disposal of the moneys in the Special Fund, and accordingly the Association suggests to the Hospital Staffs concerned that one or more of the following methods of distribution of any moneys in the Special Fund may be found suitable:—

(a) to the members of Honorary Medical Staffs for their own personal disposal;

(b) for the assistance of members of the medical staff in connection with research work;

(c) for the purchase of instruments, books, etc., for the use of the medical staff or for lending to other members of the profession;

(d) for the initiation or development of post-graduate teaching in the institution;

(e) the institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases, (*e.g.* widows and children of former colleagues);

(f) grants to any recognised medical benevolent fund or institution; or

(g) otherwise as the majority of the medical staff may decide.

8. In the above recommendations G, H, and I, the Council submits as suitable in this connection recommendations which were adopted by the Representative Body at Aberdeen regarding treatment in hospitals of tuberculosis and maternity cases.

Continuity of Treatment in Hospital and Afterwards.

Recommendation J.—That when a patient is discharged from an institution it is imperative for the continuity of treatment, that a report as to his treatment during his attendance at the institution, which he can present to any medical practitioner whom he may afterwards consult should be at the disposal of the patient, but kept in the institution.

Free Treatment at Institutions.

Recommendation K.—That treatment at any institution included in a local authority's scheme should be free to all. There should be no refusal to treat a patient who is unwilling to go to his own doctor. (*Rec. 10 of Royal Commission.*)

9. The Council recognises this to be a new departure of a most important kind. The policy of the Association in connection with treatment at hospitals has always been that persons who are able to pay for their own treatment should not be treated at charitable institutions except in emergency, but should be referred to a private practitioner. In endorsing the recommendation of the Royal Commission the Council recognises the exceptional nature of venereal diseases; the reluctance of persons affected by them to go to their private medical attendant; the risk that they may go to unqualified persons for treatment with disastrous results to themselves and to others; and the importance to the community of adopting all possible measures for inducing sufferers from venereal disease to seek early and adequate treatment. On these grounds the Council is of opinion that the recommendation of the Royal Commission should be accepted and approved by the Association.

Evening Clinics at Hospitals.

Recommendation L.—That special arrangements, such as evening clinics, should be made for the treatment of outpatients at hours convenient to the working classes. (*Rec. 12 of Royal Commission.*)

10. The adoption by hospitals of the procedure suggested in the above recommendation will, of course, mean a considerable alteration of hospital arrangements. But considering that this work will be undertaken by a paid staff whose salaries will be met out of public funds, the Council is of opinion that the necessary re-arrangements should be made in order to meet the needs of the working classes.

Free Supply of Salvarsan, etc.

Recommendation M.—That Salvarsan and other expensive treatment should be supplied gratuitously to all doctors for the treatment of their patients.

11. The issue of Salvarsan or its substitutes was, however, recommended by the Royal Commission to be subject to proper safeguards, and this has been interpreted by the L.G.B. to mean the issue to medical practitioners authorised by the Medical Officer of the Clinic, such authorisation being limited to practitioners who are known to have experience in their administration. With this recommendation the Council agrees.

12. The Council feels strongly that any provision made by the State for the institutional treatment of venereal diseases should not exclude the provision of better facilities for treatment by private practitioners if patients so desire, hence the recommendation of free Salvarsan, etc., and free laboratory facilities for the purpose of diagnosis.

Warning to Patients.

Recommendation N.—That the obligation should be impressed upon all doctors who treat syphilis and gonorrhœa in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the Report, and should be provided at the public expense. (*Rec. 14 of Royal Commission*).

Professional Secrecy and Recommendation 25 of Royal Commission on Venereal Diseases.

Recommendation O.—That, in the opinion of the R.B., no amendment of the law to provide that a communication such as is contemplated in para. (25) of the Report of the Royal Commission on Venereal Diseases shall be privileged is called for unless and until the duty of making such communications is imposed on medical practitioners as a statutory obligation.

13. The Council has considered the following Recommendation 25 of the Royal Commission :—

> 25. The law should be amended to provide that a communication made *bona fide* by a medical practitioner to a parent, guardian or any other person directly interested in the welfare of a woman, or man, with the object of preventing or delaying a marriage of a person who is in an infectious condition from venereal disease, shall be a privileged communication (para. 205 of Report of Commission).

14. In view of the following principles approved by the A.R.M., 1915, viz. :

> (a) that a medical practitioner should not under any circumstances disclose voluntarily, without the patient's consent, information which he has obtained from that patient in the exercise of his professional duties,
>
> (b) that the Association is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose voluntarily information which he has obtained in the exercise of his professional duties,

the Council feels very strongly that a medical practitioner is not at liberty, except with the consent of the patient, to make any such communication as is contemplated in Recommendation 25 of the Royal Commission and submits the above Recommendation O.

Access of Profession to Institutions.

Recommendation P.—That medical students and practitioners should have reasonable access, for educational purposes, to the treatment of venereal diseases at any institution dealing with these diseases as part of a local authority's scheme (*Rec. 15 of Royal Commission*) whether they be clinics, wards, laboratories or other place subsidised by State funds.

Detention of Poor Law Patients suffering from Venereal Diseases.

Recommendation Q.—That the provisions of section 22 of the Poor Law Amendment Act, 1867, should be available to secure the detention, where necessary, of Poor Law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation. (*Recommendation 18 of Royal Commission*).

Prohibition of Advertisements of Remedies for Venereal Diseases.

Recommendation R.—That the Government be urged to put into force the Recommendations of the Select Committee on Patent Medicines regarding the prohibition of all advertisements of remedies for venereal diseases (*Rec. 24 of Royal Commission*), in view of the statement by the Royal Commission on Venereal Diseases that it had no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that in its opinion the continued existence of unqualified practice constituted one of the principal hindrances to the eradication of those diseases (*para. 190 of Report of Commission*).

15. Recommendation R endorses the policy of the Association which was submitted to and approved by the Select Committee on Patent Medicines.

Declaration by Persons about to Marry.

Recommendation S.—That the principle be approved that all persons about to be married should present among other particulars required to be declared by them a declaration of freedom from contagious or infectious disease.

16. Persons about to marry must make a declaration of certain particulars to the civil authorities. The Council considers that the addition of a declaration of freedom from infectious or contagious disease (with the same penalty as regards a false declaration as applies to the other particulars) would have an excellent effect in bringing home to those about to marry the serious responsibility incurred in taking this step if there be any doubt as to freedom from venereal disease.

Duty of Medical Profession as Educators of Public.

Recommendation T.—That the Representative Body express its complete agreement with the Recommendations of the Royal Commission urging the necessity for the better education of the general public on the grievous effects caused by venereal infections to personal life and happiness and on the grave injury done by such infections to the national welfare; and pledge the Association to an increasing exercise of the educative influence that can be exerted through the confidential relations that exist between the members of the profession and the community.

APPENDIX II.

REPORT OF COUNCIL ON REMUNERATION OF MEDICAL PRACTITIONERS IN CONNECTION WITH MATERNITY AND CHILD WELFARE SCHEMES.

(See paragraph 189 of Supplementary Report of Council.)

1. The Special Report submitted to the A.R.M., 1915, on Maternity and Child Welfare Schemes was intended to demonstrate to public authorities that the work could be done better and more economically by general practitioners than by whole-time officers. Whilst approving of that section of the Report, the Representative Body came to no decision on the question of remuneration, but left it to the Council to decide the amount of remuneration that should be required and the matter of the fixation of minimum fees. The Council was also instructed to take into consideration the following amendment proposed by Lieut. Fothergill :—

> That the engagement of a doctor be placed so far as possible on the same terms and conditions as in the case of the treatment of school children scheme.

2. In December, 1915, the Report as approved by the Representative Body, was circulated to Local Authorities and to Divisions and Branches of the Association for their information, the latter being informed that the Medico-Political Committee was reconsidering the financial question, and would be glad to have the views of any Division or Branch thereon.

3. The recommendations submitted to the Representative Body on the question of remuneration were purposely based on a low scale, because it was recognised that any scheme to be acceptable to a public authority must compare favourably with the cost of employing a whole-time officer. It was felt that even a low rate of payment was better than the serious loss to be anticipated if the clinical attendance on the majority of children under 5 years of age were to be diverted into the hands of whole-time officers. In making its recommendations the Council had borne in mind the analogous case of

the treatment of school children, and in connection with treatment at Maternity Centres the rate of payment suggested closely approximated to that accepted by the Association as appropriate for School Centres. The question of remuneration under Child Welfare Schemes is, however, complicated by the fact that Local Authorities may give not only treatment for specified diseases at Centres but also treatment for any and every disease of children either at a Centre, in the patient's own home, or elsewhere, and to women during pregnancy at or after confinement.

4. The Council has carefully reconsidered the question and **recommends** the adoption of the following minimum rates of remuneration :—

Attendance at a Centre.

For at least one hour, if necessary, 7s. 6d. ; for this fee the practitioner would see not more than six cases ; for every two cases seen beyond this number an additional fee of 2s. 6d. to be paid, an odd case being reckoned as two. Both practitioners and patients would be expected to attend punctually at the time appointed and if on occasion there should not be sufficient cases to occupy the whole time, the practitioner would not be expected to wait till the end of the time.

or

For each complete hour 10s., not more than eight cases being seen in the hour, and help being given by a nurse as set out in the Scheme.

Attendance at Home.

A capitation fee of 14s. per person (mother or child) assigned for treatment by the local Authority.

The money thus assigned could be distributed in either of the following ways :

(i.) by direct capitation payment for each patient on each doctor's list.

(ii.) by payment per attendance out of a pool, bills being discounted if necessary.

5. A basis of payment for home treatment is difficult to arrive at so long as the amount of attendance required is an unknown quantity. The method and rate of this payment should be regarded as tentative and experimental, but it might well be tried in a suitable case for a short period. The amount is arrived at from the following considerations :—It is found that among insured persons at least 50% apply to their doctors for treatment each year, i.e., if a capitation were to be calculated on the basis of payment per patient, and not per person liable to become a patient, the rate would have to be about double what it is under the Insurance Acts. The giving of home treatment is however not likely to be adopted immediately by any Local Authority.

6. If objection be taken by practitioners to the above scheme on the ground that the payment is inadequate it may be pointed out (i.) that the scheme to be acceptable must compare favourably financially with the employment of a whole-time officer ; (ii.) that if this and similar work gets into the hands of institutions or whole-time officers the private practitioner will get no remuneration at all and will lose many fees which he now earns; (iii.) that the scheme must be regarded as a method of combating the tendency to divert clinical work into the hands of whole-time officers, and thus as a means of maintaining and improving the status, professional capacity and efficiency of the private practitioner ; and (iv.) the remuneration is practically the same as that provided for under the Association's Scheme for School Centres where £50 per annum is paid for one attendance of about 2½ hours a week for the school year, namely, 40 weeks.

7. The Council desires to impress upon the Representative Body and the profession generally the real importance of this question, upon the proper handling of which by the profession depend considerable and far reaching effects in the future. The Council in the Report approved by the A.R.M., 1915, indicated the general principles upon which it considered schemes should be based, and it is therefore unnecessary at the present time to recapitulate the arguments then advanced. Up to the present the Council is aware of only one more detailed scheme having been drawn up by a Division upon the lines suggested by the Association, and a copy of this is appended hereto for the information and guidance of other Divisions in approaching local authorities who contemplate the establishment of any such service. (*See* Sub-Appendix.)

SUB-APPENDIX.

SCHEME FOR GIVING ADVICE AND TREATMENT SUBMITTED TO THE TOWN COUNCIL BY THE MEDICAL PRACTITIONERS OF HORNSEY.

I. The work of general supervision including responsibility for records and statistics, and the following up of cases to see that adequate treatment is by some means obtained would be done by the Medical Officer of Health assisted by one or more nurses or health visitors. The Medical Officer of Health would be responsible for reporting to the Committee as to the regularity and punctuality of practitioners in attending to their duties and as to the general efficiency of their work under the Scheme, but he would not interfere with the actual treatment prescribed by the practitioner in individual cases.

II. Attendance at such Centres as may be established for the purpose of giving advice and deciding if further treatment is necessary, and of giving treatment to such cases (if any) as the Town Council may decide upon would be arranged for by the appointment for the purpose of all local practitioners who were prepared to undertake it. If the number of practitioners willing to undertake the work is in excess of the requirements, the practitioners themselves should arrange the order in which the required number should be employed, provided that no practitioner should be engaged for a less period than six consecutive months, and that if wishing to relinquish the work at any other time than the end of the period for which he was appointed he should be expected to give not less than three months' notice of his intention.

III. Such practitioners would be required to attend at the Centre for a certain time (say one or two hours) on certain days at fixed intervals. The work at the Centre would be regarded as the first duty of the practitioners at the time appointed. The general nature of their work would be the examination of expectant mothers, or of infants and young children, and giving advice with regard to them, together with the keeping of such records, and giving such treatment as might be required by the Town Council.

IV. In order to allow of sufficient time to ensure efficient work, not more than eight cases an hour should be seen, a nurse or health visitor being in attendance, and doing all such routine work (e.g., measuring, weighing, entering records, &c.), as can be properly carried out by a lay person.

V. All persons referred to, or coming to, the Centre would be allowed, as far as possible, to choose whichever practitioner on the list they preferred. If the person coming to the Centre does not exercise her choice, or if the exigencies of the service do not permit of an unrestricted choice, it would be the duty of the Medical Officer of Health to direct the time at which, and the practitioner before whom, the patient should attend.

VI. Attendance at confinements would not be included in this Scheme, and any appliances or medicines required would be supplied at the cost either of the patient or the Town Council.

VII. The remuneration of the practitioners for attendance at the Centre would be :—

For at least one hour, if necessary, 7s. 6d. For this fee the practitioners would see any number of cases not exceeding six.

For every two cases seen beyond this number, an additional fee of 2s. 6d. would be paid, an odd case being reckoned as two.

VIII. Both practitioners and patients would be expected to attend punctually at the time appointed, and if on occasion there should not be sufficient cases to occupy the whole time, the practitioner would not be expected to wait till the end of the time.

Association Intelligence.

PROCEEDINGS OF COUNCIL.

There was a meeting of the Council on June 28th, the proceedings commencing at 11 in the morning finished shortly before 8 o'clock in the evening.

Present:

Dr. J. A. Macdonald, LL.D., Taunton, Chairman of Council in the Chair.
Dr. W. Ainslie Hollis, Hove, Past President.
Mr. E. B. Turner, London, Chairman of Representative Meetings.
Dr. Edwin Rayner, Stockport, Treasurer.

Dr. John Adams, Glasgow
Lieut.-Colonel Sir James Barr, M.D., LL.D., Liverpool
Dr. M. G. Biggs, London
Lieut.-Colonel R. A. Bolam, Newcastle-on-Tyne
Mr. H. B. Brackenbury, London
Major Russell Coombe, Netley
Dr. J. Singleton Darling, Lurgan
Mr. Edward J. Domville, Exeter
Dr. David Ewart, Chichester (New Zealand Branch)
Major A. C. Farquharson, Retford
Lieut. E. Rowland Fothergill, Seaford
Dr. Adam Fulton, Old Basford
Mr. T. W. H. Garstang, Altrincham
Dr. J. Giusani, Cork
Dr. Thomas A. Goodfellow, Manchester
Dr. John Gordon, Aberdeen
Mr. James Green, Portsmouth
Dr. Major Greenwood, London
Dr. J. R. Hamilton, Hawick
Mr. N. Bishop Harman, London
Dr. G. E. Haslip, London
Lieut.-Colonel W. T. Hayward, London (Australasian Grouped Branches)
Mr. R. J. Johnstone, Belfast
Major Albert Lucas, Birmingham
Fleet Surgeon F. H. Lumley, R.N., Greenock (Royal Navy Medical Service)
Dr. H. C. Mactier, Wolverhampton
Captain J. E. Moorhouse, Stirling
Major George Parker, Bristol
Dr. F. J. Smith, London
Dr. W. Johnson Smyth, Bournemouth
Mr. T. Jenner Verrall, LL.D., Bath
Dr. D. Walshe, Graigue
Dr. Claude Wilson, Tunbridge Wells
Dr. O. R. M. Wood, Woolpit.

Apologies for Absence.

Letters of apology for non-attendance were read from Surgeon-General P. H. Benson, I.M.S., Dr. H. J. Campbell, Major T. Duncan Greenlees, Colonel R. I. D. Hackett, A.M.S., and Colonel J. Munro Moir.

Mentioned in Dispatches.

The Chairman reported that Lieutenant-Colonel Guy Stephen, R.A.M.C., Sub-Editor of the British Medical Journal, had been mentioned in the Dispatches of General Sir Douglas Haig, the Commander-in-Chief of the British Forces in France, for gallant and distinguished conduct in the field.

Captain F. C. Larkin.

The Chairman reported that he had been unable to persuade Captain F. C. Larkin, representative of the Lancashire and Cheshire Branch, to withdraw his resignation tendered at the April meeting of the Council.

Wittenberg Camp.

A communication from the Association of Public Vaccinators of England and Wales inquiring if the British Medical Association proposed to promote any memorial to the memory of those doctors who rendered such noble service to the prisoners at the Wittenberg Camp, in which case the Council of the Association of Public Vaccinators would do everything to promote the success of such memorial amongst its members, was referred to a Committee consisting of the officers of the Association for consideration and report.

Abstention from Alcoholic Drink during the War.

A resolution passed by the annual meeting of the South Carnarvonshire and Merioneth Division, appealing to the Council of the Association to make some pronouncement as to the abstention from alcohol as a beverage during the war, was considered, and the proposal to submit some such declaration to the Representative Body was lost.

Patriotic Fund.

In the opinion of the Council it is to be anticipated that, owing to the exceptional conditions of many medical practitioners now taking temporary service in the Naval Medical Service and the R.A.M.C., cases of serious temporary financial embarrassment will arise and will need to be dealt with if the sacrifices made by these men are not to cause permanent loss of status and livelihood, and that such embarrassments may best be met by the formation of a loan fund from which loans can be made in suitable circumstances on terms that cannot be obtained under ordinary financial arrangements. The Council hopes to arrange an interview with the D.G.A.M.S., to ascertain his views as to the best means of carrying out such a loan fund. The Chairmen of the Council, the Representative Body, the Central Medical War Committee, and the Central Medical War Executive Subcommittee, together with Mr. Bishop Harman and Dr. Alfred Cox, were appointed to meet the Director-General if he so desires.

Accounts.

The accounts of the period ending June 3rd, 1916, amounting to £10,438 19s. 2d., were approved, and the Treasurer empowered to pay those remaining unpaid.

The Treasurership.

The Council agreed to submit to the Representative Body the names of Dr. G. E. Haslip (London) and Dr. R. Langdon-Down (London), as suitable for the office of Treasurer, Dr. Rayner having intimated that he would not consider a further term of office.

The Treasurer.

On the motion of the Chairman of Council, seconded by the Chairman of the Representative Body, and supported by Dr. Jenner Verrall, it was unanimously resolved that the Council tender to Dr. Rayner a cordial vote of thanks for his skilful and effective management of the finances of the Association during a critical period, and for his unswerving devotion to its interests during his nine years of office as its treasurer.

Candidates for Election to the Association.

The five candidates whose names appeared on the notice convening the meeting were duly elected members of the British Medical Association.

Election of Council, Session 1916–17.

The Chairman reported the election of the 1916–17 Council (the full return was published in the Supplement of June 24th, p. 153).

Supplementary Report of Council.

The Supplementary Report of the Council, in which is embodied many of the matters considered, was approved, and is published in this issue of the Supplement.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1916.

Date of Meeting.

The Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 28th, 1916, at 10 a.m., and following day(s) as may be required.

Agenda: Further Notices of Motion by Divisions and Branches.

The provisional Agenda of the Annual Representative Meeting, including the Annual Report of Council, was published in the Supplement of May 6th, and certain Notices of Motion by Divisions in the Supplement of June 3rd. The Supplementary Report of the Council is published at p. 9 of this Supplement. There will be included in the final Agenda of the Meeting, as to be issued to the members of the Representative Body on or about July 21st, not only such Notices of Motion as have appeared in the Supplements of May 6th, June 3rd, and July 8th, but also all Notices of Motion received up to Friday, July 14th, found by the Agenda Committee to be in order.

By order,
Alfred Cox,
Medical Secretary.

July 5th, 1916.

ANNUAL GENERAL MEETING.

Notice is hereby given by the Council that the Annual General Meeting of the British Medical Association will

be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order.

GUY ELLISTON,
Financial Secretary and Business Manager.

429, Strand, London, W.C.

ELECTION OF MEMBERS OF COUNCIL BY GROUPED REPRESENTATIVES.

NOTICE is hereby given that Nominations for Candidates for election of Members of Council by grouped Representatives for the year 1916–17 will be received by the Medical Secretary up to the end of the first hour of the proceedings of the Annual Representative Meeting on Friday, July 28th, 1916. Each nomination must be on the prescribed form, copies of which will be forwarded by the Medical Secretary on application.

Separate forms have been prepared: I. For Nomination by a Division (through its Representative); and II. For Nomination by a Representative of a Constituency included in the Group, and those applying are requested to state for which purpose the form is desired.

The voting papers will be issued at the Representative Meeting to each Representative or Deputy Representative of a Constituency in the United Kingdom in attendance at the Meeting.

By order of the Council,

ALFRED COX,
Medical Secretary.

SUGGESTED CHANGES OF BOUNDARIES.

PROPOSED ADJUSTMENT OF AREAS OF THE MORPETH AND NORTH NORTHUMBERLAND DIVISIONS.

NOTICE is hereby given to all concerned of a proposal made by the North Northumberland Division for adjustment of the areas of the Morpeth and North Northumberland Divisions of the North of England Branch by transfer of the U.D. of Rothbury and the R.D. of Rothbury from the area of the former to the area of the latter. Written notice of the proposal has been given to the Morpeth Division and North of England Branch, and the matter will be determined in due course by or on behalf of the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, W.C., not later than August 8th, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH: CENTRAL DIVISION.—Dr. H. W. Pooler, Honorary Secretary (98, Sampson Road, Birmingham), gives notice that the annual meeting of the Division will be held on Wednesday, July 19th, at 3.30 p.m., at the Medical Institute, and that the nominations for offices must reach him not later than Monday, July 3rd.

DORSET AND WEST HANTS BRANCH.—Mr. Percy A. Ross (Kensington, Boscombe Spa Road) gives notice that the summer meeting of the Branch will be held at Weymouth on Wednesday, July 19th, at 3 p.m.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the Selkirkshire Panel Committee having applied to the British Medical Association for a member of the Insurance Acts Committee to lecture on "The National Insurance Acts, their present position and possible developments in the near future," Dr. J. Adams of Glasgow has kindly consented to give an address in the Railway Hotel, Newtown St. Boswells, at 3.45 p.m. on Tuesday, July 11th. Members of all panel committees within the Division are invited to be present and to take part in any discussion that may ensue. Dr. W. Barrie, Chairman South-Eastern Counties Division, will preside.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. Arthur E. Larking, Honorary Secretary (Stoneleigh House, Buckingham), gives notice that there will be a meeting of the Division at the Red Lion Hotel, High Wycombe, on Tuesday, July 18th; 1.30 p.m., lunch (ladies can be invited); 2.15 p.m., business meeting. Attention will be drawn to the extraordinary ideas of the medical correspondent of the *Times* as shown in various letters, especially those with regard to compulsion of all medical men and the formation of a State Medical Service; 3 p.m., Mr. James Berry will give an address (with lantern slides) on Red Cross work in Serbia. As the seating accommodation is only about seventy, members are asked to apply for tickets as soon as possible, and they will be allotted on July 14th. Ladies may be invited as well as medical friends.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary (Brandon House, Mile End, Portsmouth), gives notice that the annual meeting of the Branch will be held at the Royal Hampshire County Hospital, Winchester, on Wednesday, July 12th, at 2.30 p.m., Dr. C. F. Routh (Southsea) in the chair. Agenda: Return of election of officers of the Branch for 1916–17; annual report of Council; balance sheet of Branch; balance sheet of Belgian Doctors' and Pharmacists' Fund; general business. At the conclusion of the business Dr. Routh will vacate the chair in favour of Dr. Bodington (Winchester). On account of the war there will be no luncheon or other social function, except that tea will be served at the end of the meeting by the kindness of Dr. Bodington. The golf competition for the Childe challenge cup will take place at the Royal Winchester Golf Links at 3.30. Tea will be served at the golf-house. Members who intend to be present at the meeting will oblige by notifying the Honorary Secretary.

SURREY BRANCH.—Mr. Cecil P. Lankester, Honorary Secretary (1, Rectory Place, Guildford), gives notice that the annual meeting of the Surrey Branch will be held at the Central Office, 429, Strand, on Wednesday, July 26th, at 3.15 p.m. There will be no social function.

Meetings of Branches and Divisions.

KENT BRANCH:
BROMLEY DIVISION.

THE annual general meeting of the Bromley Division, to which all medical practitioners in the area were invited, was held, by kind invitation of Dr. Price, at 13, High Street, Bromley, on June 16th. The officers were re-elected, and the revised ethical rules were adopted. The members of the Local War Committee were re-elected with power to co-opt other members, the Divisional chairman and secretaries to be included as *ex officio* members.

The representative was instructed to support the agenda for the Annual Representative Meeting contained in the SUPPLEMENTS of May 6th and 27th, and to exercise his own discretion on any other matters which might be dealt with.

It was resolved to support Dr. Claude Wilson's nomination as direct representative on the General Medical Council.

Medical Attendance on Dependants.—An urgent resolution was passed asking the Annual Representative Meeting to consider as an urgent matter the question of the attendance of the medical profession on the dependants of soldiers and sailors, and expressing the opinion that the present gratuitous attendances should cease. It was also resolved:

> That until September 30th the medical men in the Bromley Division shall continue to treat the dependants of soldiers and sailors as hitherto, having confidence in the discretion of the Committee of the Soldiers' and Sailors' Families Association as to the suitability of such cases, and pending any action of the British Medical Association.

LANCASHIRE AND CHESHIRE BRANCH:
BURY DIVISION.

A MEETING of the Bury Division was held on June 28th, when the following officers were appointed for the ensuing year:

Chairman: Dr. Young (Whitefield).
Vice-Chairman: Dr. Strathy.
Representative to Representative Meetings and Branch Council: Dr. I. W. Johnson.
Deputy Representative: Dr. Smith (Radcliffe).
Honorary Secretary: Dr. Braithwaite.
Executive: Drs. Crompton (Ramsbottom), Stewart (Haslingden), A. P. Nuttall, and Dewar.
Local Honorary Secretaries: Radcliffe, Dr. Smith; Ramsbottom, Dr. Lawrie; Haslingden, Dr. J. A. Harrison; Rawtenstall, Dr. E. L. Compston (on the completion of his election to membership of British Medical Association).

Ethical Rules.—The new ethical rules, a copy of which had been sent to every member, were unanimously adopted.

Annual Representative Meeting.—The Representative was instructed, as the business of the forthcoming meeting was non controversial and largely formal, to vote in accordance with what he believed to be the feeling and opinions of the members of the Division.

Financial Statement.—The financial statement for the year ending June 30th showed a small debit balance.

METROPOLITAN COUNTIES BRANCH.

THE sixty-fourth annual general meeting of the Branch was held on June 27th, at 429, Strand, W.C., when Dr. MAJOR GREENWOOD, President, was in the chair.

Grouping of the Divisions of the Branch for Election of Two Members on the Council by the Representative Body.—Mr. Bishop Harman, as a matter of urgency, moved the following resolution in order to submit the opinion of the Branch to the meeting of the Central Council to be held the next day.

That this meeting of the Metropolitan Counties Branch desires to submit to the Central Council its criticism of the Recommendation K of the Central Organization Committee (Council Agenda, page 15) on the grouping of the Divisions in the Branch for the purpose of electing two members of Council at the Representative Meeting, and to offer as an alternative suggestion a grouping based on the historical development of the Metropolitan Counties area: Group 1 for Inner London, comprising the Divisions of Tower Hamlets, City, St. Pancras and Islington, Marylebone, Westminster and Kensington: Group 2 for Outer London to comprise the rest of the Divisions. It is submitted that on such a grouping both the historical and professional differences of the Divisions will be better recognized and an equal division of the electorate obtained.

The resolution was carried unanimously.

Election of Officers.—The following officers were elected:

President: Surgeon-Colonel Atwood Thorne, V.D., R.A.M.C.(T.).
President-elect: Dr. C. O. Hawthorne.
Vice-Presidents: Drs. H. B. Brackenbury, R. E. Crosse, Leslie Durno, T. H. Parkes Peers.
Honorary Treasurer: Mr. H. Betham Robinson, M.S., F.R.C.S.
Honorary Secretaries: Mr. Bishop Harman, Dr. Wilfred Kingdon.

Vote of Thanks.—Dr. Cecil W. Cunnington, in moving a vote of thanks to Dr. R. E. Crosse for his services as one of the Honorary Secretaries of the Branch, stated that Dr. Crosse had been engaged in most active work on behalf of the Council for the past four years, and as one who had worked very intimately with Dr. Crosse, expressed the highest opinion of his energy and devotion to the Association. Dr. Parkes Peers seconded the vote of thanks, which was carried by acclamation.

Annual Reports.—The annual report of Council for the year 1915–16, together with the financial statement for the year ending December 31st, 1915, was approved and adopted. The annual report of the representatives on the Council was submitted and in accordance with the rules of the Branch received.

Ethical Rules.—The revised rules governing procedure in ethical matters were submitted for consideration. Dr. F. J. Smith criticized them adversely and desired his objection to be recorded. Dr. Biggs, Chairman of the Central Ethical Committee, pointed out that, unless the rules were adopted, the Branch could not deal with any ethical case or have any notice regarding an appointment inserted in the Journal. Dr. Haslip agreed with Dr. Smith and considered that the rules could not be so acceptable to the whole profession as Dr. Biggs would have them believe. The Chairman, having put the adoption of the rules to the meeting, declared them carried with three dissentients.

Induction of President.—Dr. Major Greenwood, in introducing his successor, after thanking the members of the Council and the officers of the Branch for their help during his year of office, said that he was glad that the president's chair would be occupied by a representative of the army. Surgeon-Colonel Atwood Thorne then took the chair and delivered an address, "Medical Administration of Modern Armies."

Votes of thanks were accorded to Colonel Atwood Thorne for his address and to Dr. Major Greenwood for the work he had done during the year of his presidency.

NORTHERN COUNTIES OF SCOTLAND BRANCH:
Banff, Elgin, and Nairn Division.

The annual meeting of the Division was held at Gray's Hospital, Elgin, on June 17th, when Dr. Ironside (Fochabers) presided.

The financial statement was read and adopted.

Election of Officers.—The following were elected officers for the ensuing year:

Chairman.—Dr. Ironside (Fochabers).
Vice-Chairman.—Dr. Alexander (Elgin).
Honorary Secretary and Treasurer.—Dr. J. A. Stephen (Elgin).
Interim Secretary and Treasurer.—Dr. T. A. Sellar (Aberlour).
Representative in Representative Meeting.—Dr. Alexander.
Deputy Representative.—Dr. Brodie Cruickshank (Nairn).
Representatives on Branch Council.—Dr. Johns and Dr. Benton.
Executive Committee.—Drs. Adam (Forres), Alexander, Campbell, Fergusson, senr., Taylor (Keith), Geo. Wilson.
Ethical Committee.—Drs. Fergusson, senr., Alexander, Campbell, Brander, and Taylor (Elgin).

Free Attendance on Soldiers' Dependants.—The following resolution was adopted:

That in view of the generous allowance by the Government to soldiers' dependants it was unanimously agreed to discontinue free attendance on them.

NORTH OF ENGLAND BRANCH:
Newcastle-upon-Tyne Division.

The thirteenth annual meeting of the Newcastle-upon-Tyne Division was held on June 16th, when Dr. James Hudson, the Chairman, was in the chair.

Treatment of Dependants.—The Chairman commented upon the success which attended the working of the scheme for the gratuitous treatment of soldiers and sailors in Newcastle. Over 2,900 different dependants had been treated since the commencement of the scheme, and by having a wage limit and monthly meetings of the committee the scheme had been a success.

Grants to Branches.—On the motion of Dr. A. Campbell it was resolved:

That the necessary steps be taken to amend By-law 23 so that the treasurer may be empowered to allow out of the funds of the Association to the treasurer of each Branch a sum not exceeding 5s. for each member of that Branch.

Annual Representative Meeting.—The Representatives were instructed in the various recommendations for the Division. It was decided not to oppose the treatment of children coming under the Necessitous Children's Meal Act, and to support the recommendation for the payment of referees under the Insurance Act. On the question of notification fees the Division resolved to support the resolution coming before the Representative Meeting.

SOUTH-EASTERN OF IRELAND BRANCH.

A meeting of the Branch was held at Clonmel on June 7th, when Dr. R. R. O'Brien was in the chair.

Hospital Abuse.—On the motion of Dr. Laffan (Cashel) the following resolutions were passed:

1. That the Central Authorities of the Association be and are hereby urged to take into consideration the serious injury done to the profession by undercutting within its ranks with a view of devising a remedy for same.
2. That we condemn the bestowal of gratuitous services by members of our calling whether in hospitals, in lecture rooms for first-aid services, etc.
3. That we call on the same Association and the Irish medical public to attempt some action to prevent the universal stampede of well-to-do patients to Dublin, which has already pauperized and now threatens with destruction the whole provincial profession, and for which we sorrowfully admit provincials themselves are responsible by their own readiness to hurry off their patients to Dublin.
4. That the best method of giving effect to the above resolutions be considered at the next meeting of the Branch.

Fees for Medical Referees.—It was resolved unanimously that the fee for acting as medical referee in disputed cases under the Insurance Act should be not less than one guinea.

Doctors Joining the R.A.M.C.—The following resolution was unanimously passed:

That this meeting is of opinion that where medical men join the R.A.M.C. arrangements can be made between the Association and the Local Government Board, or the guardians of the district, for the discharge of their public duties while serving their country.

SOUTH MIDLAND BRANCH:
Buckinghamshire Division.

The annual meeting of the Buckinghamshire Division was held at Aylesbury on June 30th, when Dr. Dunbar Dickson was in the chair. The annual report and balance sheet were passed.

Election of Officers.—The following officers were elected:

Chairman: Dr. Dunbar Dickson.
Vice-Chairman: Dr. Bradbrook.
Secretary and Treasurer: Dr. Larking.
Assistant Secretary: Dr. Henderson.
Representative: Dr. Bradbrook.
Deputy Representative: Dr. Kennish.
Committee: Drs. S. Bailey, Bell, Fraser, Henderson, Long and Rose.
Branch Council Representatives: Drs. Baker, Kennish, and E. O. Turner.

Annual Representative Meeting.—On the consideration of the Report of the Central Council it was resolved:

That this Division views the increased salaries of certain officers of the Association with concern, and would welcome an explanation.

It was decided to press very strongly at the Representative Meeting the following resolution, adopted by the Division in March last:

That this meeting asks the British Medical Association to bring before the notice of the Government the advisability of guaranteeing protection to any firm that is willing to lay down plant to manufacture drugs and chemicals that were made in Germany before the war.

The Representative was instructed to support any protest against the reduction of notification fees.

Vote of Congratulation.—It was unanimously resolved to send a letter to Dr. Leslie Reynolds congratulating him on his promotion to the rank of lieutenant-colonel (combatant) Oxford and Bucks Light Infantry.

Northamptonshire Division.

The annual meeting of the Division was held in the library of the Northampton General Hospital on June 20th, when Dr. Linnell was in the chair.

Election of Officers.—The following officers were elected for 1916–17:

Chairman: Colonel W. H. Bull, K.H.S., F.R.C.S.Edin.
Vice-Chairman, Honorary Secretary, and Honorary Treasurer: Major P. N. B. Odgers.
Acting Honorary Secretary and Honorary Treasurer: Dr. S. E. Baxter.
Representative for Representative Meetings: Dr. L. W. Dryland.
Deputy Representative for Representative Meetings: Dr. J. P. Roughton.
Representatives on Branch Council: Major J. Arthur, M.B., Dr. H. Hollis, Major W. M. Robson.
Executive Committee: Drs. W. E. Audland, H. Cropley, A. A. Hope, A. Linnell.

Resignation of Honorary Secretary.—The resignation of the offices of honorary secretary and honorary treasurer by Dr. P. S. Hichens was accepted with deep regret. Dr. Hichens had filled the offices for the past ten years, his energy and untiring devotion in promoting the welfare of the Division was feelingly acknowledged, and a most cordial vote of thanks for his services was carried unanimously.

Annual Representative Meeting.—The agenda for the Annual Representative Meeting were considered, and the Representative was instructed to support Motions 15, 17, 18, 20, 21, 22, and was given a free hand in all other questions.

War Emergency Committee.—Dr. Cooke, the Honorary Secretary of the Committee, reported that the Committee had held ten meetings; fifty-three practitioners from the area of the Division were serving or had served in the army or navy since the beginning of the war. Lieutenant Edward Daniel Parsons, R.A.M.C., had died on active service, and his name was inscribed on the roll of honour. Honours for distinguished service had been bestowed on three residents in the county—Captain J. M. Gillespie, Military Cross, Captain T. L. Ingram, D.S.O., M.C., Captain A. C. Keep, M.C.

SOUTH WALES AND MONMOUTHSHIRE BRANCH:

Cardiff Division.

The annual meeting of the Cardiff Division was held on June 15th, when Dr. P. T. O'Donnell was in the chair. A vote of condolence with the relatives of the late Dr. A. L. Thornley was passed.

Election of Officers.—The following officers were elected:

Chairman: Dr. Mackenzie.
Vice-Chairman: Dr. Prichard.
Secretary: Dr. D. C. Evans.
Assistant Secretary: Dr. R. Walker.
Branch Councillors: Drs. O'Donnell, Fitzgerald, F. W. S. Davies, Shaw Lyttle, Brierley, Treasure, McCrea, and Mackenzie.
Ordinary Members of Executive Committee: Drs. H. G. Cook, T. Wallace, R. Prichard, and E. R. Bowen.
Branch Contract Practice Committee: Drs. Jno. Powell, Mackenzie, and Shaw Lyttle.
Representatives: Dr. W. B. C. Treasure and Dr. E. E. Brierley.
Assessor on the Maternity Department of the Queen's Nurses Institute: Dr. Erie Evans.

Report of Central Council.—The report of the Council was referred to a subcommittee, consisting of the Chairman, Vice-Chairman, Representatives, and Secretaries, for consideration and report to a meeting of the Division at an early date.

Annual Report.—The annual report of the Executive Committee was read and adopted, and it was resolved to circulate the model ethical rules to the members with a view to their adoption at the next meeting.

Reduction of Notification Fees.—It was resolved that very strong representation be made protesting against the reduction of fees for the notification of infectious diseases, and requesting the Government to rescind the resolution of the House of Commons.

Supply of Diphtheria Antitoxin.—It was resolved to instruct the Representatives to move at the Annual Representative Meeting that all sanitary authorities supply diphtheria antitoxin free.

Medical Attendance on Dependants.—It was resolved to rescind the previous resolution to give free attendance to the dependants of soldiers and sailors, and the Secretary was instructed to write to the Soldiers' and Sailors' Families Association to that effect, and also to the Secretaries of neighbouring Divisions.

SOUTH-WESTERN BRANCH.

The seventy-seventh annual meeting of the Branch was held at the rooms of the Plymouth Medical Society on June 21st.

Annual Report.—The Acting Secretary read the annual report of the Branch Council, which stated that the only activity in the area of the Branch had been in connexion with the arrangements for co-ordinating the medical requirements of the civil population with those of the naval and military forces of the Crown. Three meetings of the Branch Council had been held in the year. Thanks were accorded to Dr. Woollcombe for his services to the Branch during the two years of his presidency and regret at his illness. The Treasurer's report showed a balance in hand on December 31st, 1915, of £58 3s. 5d., subject to certain small outstanding accounts. On the motion of the Chairman the report—which included the additions to Rule 8, of which the necessary notice required had been given—was unanimously adopted.

Vote of Thanks.—The President-elect, Mr. J. M. Ackland, having succeeded to the chair, Mr. Jaques proposed and Mr. Roper seconded a sincere vote of thanks to the retiring President, which was carried unanimously.

Re-election of Honorary Secretary and Treasurer.—Mr. Roper proposed and Dr. Wagner seconded the re-election of the Honorary Secretary and Treasurer, which was also carried unanimously.

This concluded the business of the meeting.

STAFFORDSHIRE BRANCH:

Mid-Staffordshire Division.

The annual meeting of the Mid-Staffordshire Division was held at Lichfield on June 27th.

Election of Officers.—The following officers were elected for the year 1916–17:

Chairman: Dr. F. M. Rowland (Lichfield).
Vice-Chairman: Dr. A. E. Hodder (Stafford).
Honorary Secretary: Dr. T. D. S. Shaw (Lichfield).
Representative for Annual Representative Meeting: Dr. Clendinnen (Cannock).
Representatives on Branch Council: Drs. W. Lowe, G. Reid, E. C. Stack.
Executive and Ethical Committee: Drs. Gettings, Harvey, Chapman, and Thompson.

Annual Representative Meeting.—The Representative was instructed to support the recommendations of the Council except that with regard to fees for medical referees under the Insurance Act, as to which he was to adhere to the original resolution of a minimum fee of 10s. 6d. He was also to support the amendment of North Staffordshire, Reigate, and Edinburgh and Leith.

Pay of Territorial Medical Officers.—A member in the R.A.M.C.(T.) having written complaining of the unfair relative position of territorial officers in R.A.M.C. with regard to pay, the Representative was instructed to support any action for improvement of conditions.

FIFE BRANCH.

Dr. G. C. Anderson (Methil), Honorary Secretary of the Fife Branch, desires it to be stated that at the annual meeting of the Branch on June 9th the ethical rules as recommended by the Representative Meeting were adopted.

INSURANCE.

INSURANCE ACTS COMMITTEE.

A meeting of the Insurance Acts Committee was held at the offices of the Association on June 15th, when Dr. J. A. Macdonald, LL.D., was in the chair.

Proposed Emergency Settlement.—The replies from the insurance areas regarding the proposed emergency settlement of 1915 accounts were considered, and it was resolved:

> That the Insurance Commissioners be informed that the Committee having taken, in their judgement, the best means open to them to ascertain the opinion of panel doctors throughout the country, are satisfied that the proposed emergency settlement is fair and suitable, and is desired by the great majority of those concerned.

Temporary Residents.—The Chairman promised a deputation from the Surrey Panel Committee that the Insurance Acts Committee would go thoroughly into the question of the working of the case value system, and consider the propriety of calling the attention of practitioners to the necessity of keeping accurate record cards so as to ensure that only genuine temporary residents were treated under the scheme.

Time Limits.—The Committee decided that in the event of any future amendment of regulations the desirability of fixing a time limit beyond which complaints could not be brought against practitioners should be considered. It was also decided, in response to a request from the Liverpool Panel Committee, to address a communication to the Insurance Commissioners with a view to fixing a reasonable time limit beyond which the Pharmaceutical Committee would not be able to make representations under Article 40 in relation to prescriptions for 1915.

INSURANCE COMMITTEES.

London.

At the meeting of the London Insurance Committee on June 29th a report on stock mixtures from the Panel Committee was unanimously referred back. It was urged that the Insurance Committee had not been consulted on the question whether there should be any stock mixtures.

Mr. Kingsley Wood raised the question of the medical lists and the sufficiency of doctors to give adequate treatment to insured persons. Mr. James Skinner said that until the passing of the second Military Service Act the difficulty had been met fairly well but the matter was now becoming very serious. There were, he said, great inequalities between different areas, Hampstead, for example, having one practitioner to 724 insured persons, and Shoreditch one to above 5,000. He was informed that notices respecting military service had been sent to 178 London doctors, of whom 93 were panel practitioners. Representations had been made to the Insurance Commissioners that in 31 of these cases the doctor should not be taken for military service, or should be allowed to remain in civil practice until a later date. The Chairman of the Committee, Mr. James Howarth, urged upon non-panel practitioners the great necessity of coming forward, in view of the exigencies of the moment, to offer their services in panel practice.

The Committee also had before it a complaint alleging that a patient was without medicine for three days because the prescription was absolutely illegible.

LOCAL MEDICAL AND PANEL COMMITTEES.

County of London.

It was announced at the meeting of the London Panel Committee on June 20th that the Committee had been recognized by the Commissioners as the Local Medical Committee for the time being. The officers of the two committees will be identical. The election of a new Panel Committee has been postponed for twelve months.

The action of the Government in reducing the notification fees from 2s. 6d. to 1s. was the subject of a strong protest, and the opinion was expressed that more strenuous representations should have been made to the Government on this matter. There were numerous incidental expenses connected with the diagnosis and correspondence with the local authority prior to the removal of the case.

The Committee concurred in the procedure proposed to be adopted by the Insurance Commissioners in regard to the emergency settlement of practitioners' accounts for the medical year 1915.

Oxford.

At a meeting of the Local Medical and Panel Committee on June 1st it was decided to accept the proposed emergency settlement of the balance due for 1915, rather than wait till 1917 for payment. Great dissatisfaction was expressed with the settlement for 1914, but it was decided to take no action until after the war. A selection of ten stock mixtures was made from Circular 158/I.C.

INSURANCE NOTES.

Venereal Disease and Sickness Benefit.

The following resolution was, we are informed by Dr. Otto May, joint honorary secretary of the National Council for Combating Venereal Disease, unanimously adopted at the annual conference of Industrial Assurance Approved Societies on June 30th:

> That the Conference of Industrial Assurance Approved Societies, having regard to the view expressed in the report of the Royal Commission on Venereal Diseases, and by the National Council for Combating Venereal Disease, to the effect that the enforcement of the "Misconduct Rule" in the case of such diseases tends to discourage those suffering from them from seeking early and adequate medical treatment, is of opinion that it is contrary to the true interests of approved societies to withhold benefit in the case of those suffering from venereal diseases, and recommends to the societies constituting this conference that they should take the necessary measures to enable them to pay benefit in such cases.

The London Panel Committee.

The London Panel Committee *Gazette*, which is circulated only to practitioners on the panel in the county, gives in its issue for June some important replies to questions which have been asked at meetings of the Committee, from which it appears that on January 1st the index register of the London Insurance Committee contained the names of 1,727,203 insured persons, which includes the names of those who may have joined the army or navy, but in respect of whom the Insurance Committee had not received notification until after the end of the quarter during which the enlistment took place. On April 1st the number on the register was 1,608,045, which takes into account names of persons in respect of whom the Committee received notification of enlistment up to March 31st. On the other hand, the medical register only contained the names of 1,577,712 on January 1st, and 1,551,515 on April 1st. The total names removed from doctors' lists during the last quarter was 81,555, while 55,358 names were added.

It is pointed out that, in accordance with the Insurance (Payments to Insurance Committees) Regulations, 1914, the Commissioners may from time to time advance from the general medical benefit fund to each Insurance Committee such sums for medical benefit as may be required, so, however, that the sum so advanced shall not exceed the proper proportion of the sums which the Commissioners may estimate to be due to that Committee. In reply to the question how it happens that the Surrey Insurance Committee could disburse to panel practitioners at the rate of 1s. 5d. per insured person for the first quarter of 1916, while the London Insurance Committee only paid 1s. 3d., it is stated that the rate of the quarterly payment in advance to panel practitioners in respect to capitation fees credited to them must depend on the ratio between the medical register and the index register. Where the proportion of insured persons on doctors' lists is high, the rate of advance must necessarily be smaller than in those areas in which there is a larger proportion of persons who are not included in doctors' lists, and it is said to be a well known fact that in rural areas there are a very large number of insured persons who have not chosen doctors.

Speaking of the position of panel practitioners under the Military Service Act, the committee points out how it is to the interest of all practitioners who have not already done so, to enrol with the Central Medical War Committee as soon as possible.

It is also announced that the committee has appointed a special subcommittee to consider the report and recommendations of the Royal Commission on Venereal Diseases, and the relation thereto of panel practitioners.

The committee announces with deep regret the death of Dr. R. K. Macgregor of the R.A.M.C., who was killed accidentally while on active service at the front.

Answers.

Payments for Medical Benefit of Persons over 70.

D.—The fact that insurance patients over the age of 70 entitled to medical benefit have no longer to pay the ordinary weekly insurance contribution in no way lessens the responsibility of their approved society to pay on their behalf the proper amount into the medical benefit fund out of which the doctors are paid. This amount is credited by the Commissioners to the Insurance Committee exactly in the same way as for persons below the age of 70. In the case of the aged and disabled members of societies who were entitled to medical attendance provided by their society before the Insurance Act came into operation but who by reason of age or disablement

could not become insured persons under the Act, the Insurance Committee of the area has to see that they can get medical attendance from some panel doctor "on the same terms as to remuneration as those arranged with respect to insured persons," but the payment of the doctors in these cases is not necessarily made through the Insurance Committee; it may be made either by direct arrangement between the doctor attending and the patient's society or frequently by some general arrangement between the society and the Panel Committee of the area, and it is the business of the doctor himself or the Panel Committee to see that the doctor receives his legal due for these special persons.

Sick Visitors.

M.—Approved societies have power under the Act and regulations, and under their rules, which have all to be sanctioned by the Commissioners, to send sick visitors to visit any member of the society who is in receipt of sickness benefit. The only limitations are that female members must only be visited by female sick visitors, and that there shall be no interference with what is strictly the province of the medical attendant. It is the doctor's duty to give a certificate, if desired, when he considers a patient is incapable of work, but the certificate by itself does not entitle the patient to sickness pay, and the society is entitled by means of sick visitors to satisfy itself that the patient does not do anything which is at variance with the doctor's expressed opinion that the patient is incapable of work.

CORRESPONDENCE.

How is the Insurance System Working?

DR. W. J. ERNELY SUMPTER (Sheringham) writes: Dr. T. J. Fletcher's communication on the working of the Insurance Act (SUPPLEMENT, June 3rd, p. 130) will, I hope, elicit further correspondence and discussion. I should like to ask if the wage limit, fixed (under protest from the profession), I believe, at £150 per annum, is being enforced, and the position watched by the Association? Some employees are now receiving in wages up to £20 per week. Are these men still panel patients? Miners' wages have been increased by about 100 per cent. Is it not time that the receivers of such bonuses should be called upon in their turn to pay one? This is certainly not the time to ask the attention of Parliament, and it is not the time either for the exploitation of medical men. The authorities responsible for working the Insurance Act are surely cognisant of the altered conditions, and are they taking steps to adjust matters? The Hearts of Oak Benefit Society, in its annual report, states that "a variation of the present contributions and benefits may be required by this and other benefit societies." This, in my opinion, must certainly be the case, if medical men are expected to continue an adequate service. Further "spoon-feeding" by the Government can scarcely be required, and it is the beneficiaries who must make higher contributions. The working man of to-day requires, when ill, the advantages that modern medicine can offer, and it is simply impossible to provide them at anything like the price that prevailed fifty years ago, and has been allowed to continue with small variation up to the present time. Prompt action is called for, or it can safely be predicted that a number of doctors must decline to renew their contracts for another year.

Payments under Insurance Act for Year 1914.

DR. S. M. MACKENZIE (Dorking) writes: The figures given by Dr. Hope Robson (SUPPLEMENT, June 24th, p. 154), as furnished by the Commissioners to the Southampton Panel Committee, are of great interest and show that the question of inflation should be carefully watched by the Insurance Acts Committee and Panel Committees. Seeing that the gross Medical Benefit Fund was £4,239,137 6s. 4d., and allowing for the year 1914 being eleven days short for Insurance Act purposes, it would appear that the Commissioners allotted the fund on a basis that there were 10,350,656 insured persons in 1914. In the annual report of the Commissioners for 1913–14 it was estimated (App. X and XVI) that the number of insured persons was 10,864,500, but the figures are complicated by the enlistments in the last five months of 1914. The Index Register, however, shows that 11,864,641 were on the lists of Insurance Committees, giving an inflation of 1,513,985, or, as Dr. Hope Robson points out, over one-sixth of the Commissioners' figure. So large an error points to a considerable defect in administration in some direction.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons R. L. Dickinson to the *Vivid*, additional, for disposal; S. T. Reid to the Plymouth Division Royal Marines. Staff Surgeon J. R. A. Clark-Hall to the *Victory*, additional, for disposal. Surgeons J. S. Elliot, M.B., to the *Victory*, additional, for disposal. Temporary Surgeons W. A. Pocock, M.B., J. A. Moncrieff, M.B., and T. W. Drummond to the *Victory*; F. W. Lawson to the Hospital Ship *Soudan*; A. C. Roxburgh and L. A. Martin to the *Victory*, additional, for disposal; R. E. Cameron to Portland Hospital; C. D. Hanan to the *Benbow*; J. E. Ross to the *Wildfire*, additional, for Sheerness Barracks and Yard.

Royal Naval Volunteer Reserve.

Surgeon Probationers N. B. Gadsby to the *Owl*; E. M. Fraser to the *Contest*; D. L. M. Tod to the *Christopher*; A. H. Shelswell to the *Achates*.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Sir J. K. Fowler, K.C.V.O. (R.A.M.C.T.F.), to be temporary Colonel.

Royal Army Medical Corps.

Lieutenant-Colonel J. S. Green is retained on the active list under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary.

Temporary Major E. H. Starling, M.D., F.R.S., to be temporary Lieutenant-Colonel.

Surgeon-Major W. S. Henderson, K.E. Horse, relinquishes the rank of temporary Lieutenant-Colonel on reposting (substituted for notification in the *London Gazette* of February 25th).

Majors relinquish the rank of temporary Lieutenant-Colonel on reposting: R. Storrs, J. W. Jennings, D.S.O.(ret.), D. Ahern, M. C. Beatty, M.B., (Temp.) E. L. Gowland, M.B.

E. D. Hancock to be temporary Major whilst employed at the Guildford War Hospital.

The following are granted temporary rank whilst commanding field ambulances (substituted for notifications in the *London Gazette* of April 5th, 18th, and 20th and May 1st):—*As Lieutenant-Colonel*: Major M. F. Grant, M.D. *As Majors*: Captains T. T. H. Robinson, M.B., J. W. Lane, M.D., and A. D. Fraser, M.B.

K. W. Monsarrat, M.B., F.R.C.S. (Captain R.A.M.C.T.F.), to be temporary Major whilst employed with No. 37 General Hospital.

Temporary Lieutenant G. H. Alabaster, M.B., to be temporary Captain.

Temporary Captain J. Craig, M.D., relinquishes his commission on account of ill health.

To be temporary Lieutenants: D. F. Kennard, D. Campbell (from 2nd Light Infantry Reserve of Officers).

The christian names of Lieutenant Adrian Sergeant McNeil are as now described, and not as in the *London Gazette* of June 11th.

To be temporary honorary Lieutenants whilst serving with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital: C. E. Drennan, E. Aylward, S. Wicks, Temporary Lieutenant R. Marshall, M.D.

Temporary Lieutenants relinquishing their commissions: D. P. Gaussen, M.D., G. H. V. Appleby, M.D., F. H. Wheeler, M.D., W. J. V. Curtain, D. J. Cannon, M.B., R. H. Ashwin, M.D., E. Bayley, M.D., F.R.C.S., J. E. Hodson, R. Broom, M.D., E. H. B. Fox, W. A. G. Cluffe, M.B., J. E. Hewlett, M.B., J. McAvoy, M.D., F. Riley, M.D., F.R.C.S., D. Taylor, M.B., A. Macmillan, F. G. Beatty, M.B., K. Gillies, M.B., M. MacLean, M.B., A. J. Wilson, F.R.C.S., A. R. Sieveking, W. A. Milne, M.B., G. V. Worthington, M.B., J. Anderson, M.B., N. F. Rowstron, M.B., W. L. Clements, M.B., J. M. Chambers, S. L. Corry, M.B., A. E. Blackburn, M.D., F. Anderson, M.B., J. S. R. Weir, R. C. de Lacey, M.B., R. D. Mothersole, M.D., F.R.C.S., J. St. L. Kirwan, M.B., W. H. Warwick, M.B., A. L. Walters, D. Allan, A. G. Shera, M.B., J. L. Gregory, M.B., H. R. Rigby, J. F. Alexander, M.D., J. G. FitzGerald, F.R.C.S.E., R. Brookes, A. L. Pentland-Smith, A. H. Macklin, M.B., V. H. McWilliams, M.B., F. J. Colling, M.B., W. L. Robertson, M.B., L. J. Pellew, M.B., S. K. McKee, M.B., Le B. B. Wilmot, M.D., R. W. McQuay, M.D., J. S. Chisholm, M.D., J. H. Fisher, M.B., E. Lachopelle, M.B., O. Van Luven, M.B., D. E. Scott, M.D., E. J. de Beaupre, M.B., S. A. Overend, M.D., C. M. Keillor, M.D., H. K. Groff, M.D., R. B. Martin, K. L. Mackinnon, M.B., W. W. Turner (on account of ill health).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Major H. G. Smeeth, M.D., to be temporary Lieutenant-Colonel whilst commanding a field ambulance (substituted for the notification in the *London Gazette* of April 18th).

Lieutenants to be Captains: R. L. Impey, M.B., T. E. B. Beatty, T. F. Corkill, M.B.

OVERSEAS CONTINGENTS.

Canadian Army Medical Corps.

Major J. A. Dickson (Canadian Militia) to be temporary Major. Captains (Canadian Militia) to be temporary Captains: E. A. Robertson, A. F. Foss, T. G. Brodie. To be temporary Captains: T. Coleman, W. F. Coy, J. G. MacNeill, W. H. McMillan (from Canadian A.S.C.), J. H. Slayter, M. G. Brown, C. L. Blight, W. G. Blair, A. E. Blackett, R. A. Dowd, J. S. Fitzsimmons, E. R. Graham, S. E. Holmes, N. MacL. Harris, F. D. Sinclair, E. Gardner, B. C. Reynolds, L. R. Shier, C. C. Schlichter, Sergeant-Major H. B. van Wyck. Lieutenants J. J. Thomson, M.B., and A. J. Lomas, M.B. (Canadian Militia), to be temporary Captains.

TERRITORIAL FORCE.

Army Medical Service.

The following announcement is substituted for that which appeared in the *London Gazette* of May 3rd: Major W. E. Miles, F.R.C.S., from London Field Ambulance, to be Deputy Assistant Director of Medical Services, 1st London Division.

Royal Army Medical Corps.

London Casualty Clearing Station.—Captains W. H. Lloyd and W. F. B. Bensted-Smith from general hospitals, to be Captains.

London Field Ambulance.—Lieutenant-Colonel J. A. Masters, M.D., relinquishes his temporary rank on alteration in posting. Major W. E. Miles, F.R.C.S., is seconded. Captain J. E. Sandilands, M.D., relinquishes his commission on account of ill health. Captains from general hospitals to be Captains: M. W. K. Birt, L. Milton, C. E. Petley, W. J. T. Kimber, L. B. Clarke, L. L. Preston, M.B., A. F. Comyn, M.B., A. B. P. Smith.

London Mounted Brigade Field Ambulance.—Captain W. P. Thomas, M.D., to be Major.

London Sanitary Company.—Lieutenants to be Captains: M. S. Briggs, H. S. Tebbitt.

Home Counties Field Ambulance.—H. England to be Lieutenant.

Wessex Field Ambulance.—Lieutenants to be Captains: T. J. Costello, M.B., F. J. M. Kennedy.

Welsh Field Ambulance.—Captain E. L. Anderson, M.B., to be temporary Major. Lieutenants to be Captains: W. Sankey, M.B., R. Willan, M.B.

South Midland Field Ambulance.—Major F. J. Warwick is restored to the establishment. Second Lieutenant G. C. Williams, from Unattached List (T.F.), to be Lieutenant.

North Midland Casualty Clearing Station.—Captain E. H. Brunt to be Major.

North Midland Field Ambulance.—Lieutenants to be Captains: F. C. Pridham, F.R.C.S., J. Howard, D. A. Wilson, M.B.

North Midland Mounted Brigade Field Ambulance.—Lieutenant J. M. Mitchell, M.B., to be Captain.

East Anglian Casualty Clearing Station.—Lieutenant (temporary Captain) F. W. Lewis to be Captain.

East Anglian Field Ambulance.—Lieutenants to be Captains: M. A. Cholmeley, J. Humphrey, M.B.

Southern General Hospital.—Major R. H. Lucy, M.B., F.R.C.S., relinquishes his commission on account of ill health.

West Riding Field Ambulance.—A. M. Davie, late Captain Highland Field Ambulance, to be Captain.

East Lancashire Field Ambulance.—Major R. C. Rodgers is seconded for duty with a war hospital.

West Lancashire Field Ambulance.—Major J. Wood to be temporary Lieutenant-Colonel whilst commanding a field ambulance. Lieutenant A. V. Glendenning, M.B., to be Captain.

Western General Hospital.—Captain K. W. Monsarrat, M.B., is seconded whilst holding a commission as temporary Major R.A.M.C.

Highland Field Ambulance.—A. G. Reid, M.B., to be Lieutenant.

Sanitary Service.—R. A. Farrar, M.D., late temporary Major R.A.M.C., to be Major (temporary), whose services will be available on mobilization.

Attached to Units other than Medical Units.—Captain H. F. Comyn, M.B., relinquishes his commission on account of ill health. Surgeon-Captain W. T. Rowe, M.D., from South Nottinghamshire Hussars Yeomanry, to be Captain. Captains W. K. Churchouse, D. N. Hardcastle, J. D. L. Currie, H. A. Philpot, M.D., from general hospitals, to be Captains. Captain J. M. Kirkness, M.B., is restored to the establishment. Lieutenant B. G. Ewing, M.B., to be Captain.

Supernumerary for Service with the O.T.C.—G. F. Blacker to be Captain for service with the Medical Unit of the London University Contingent, Senior Division, O.T.C.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICE.

Colonel D. Harrisson, F.R.C.S.E., from Assistant Director of Medical Services, West Lancs (Reserve) Division, to be Colonel.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BEDFORD COUNTY HOSPITAL.—(1) House-Surgeon. (2) Assistant House-Surgeon.

BETHNAL GREEN PARISH.—Medical Superintendent of the Infirmary, etc. Salary and emoluments approximately £763 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon. Salary, £200 to £300 per annum.

BIRMINGHAM UNIVERSITY.—Lecturer in Physiology. Stipend, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary, £180 per annum.

BRISTOL ROYAL INFIRMARY.—House-Surgeons and House-Physicians. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—House-Surgeon. Salary, £200 per annum.

DERBY COUNTY ASYLUM, Mickleover.—Locumtenent. Salary, £6 6s. per week.

DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £100 per annum.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary, £150 per annum.

LIVERPOOL PARISH.—Lady Resident Assistant Medical Officer at the Brownlow Hill Institution. Salary, £300 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Assistant Resident Medical Officer; (2) Surgical Registrar. Honorariums, £120 and 40 guineas per annum respectively.

LONDON THROAT HOSPITAL, Great Portland Street, W.—House-Surgeon. Salary, £50 per annum.

LORD MAYOR TRELOAR CRIPPLES' HOSPITAL, Alton.—Assistant Resident Medical Officer.

MANCHESTER CORPORATION.—Medical Officer (whole-time) for consultation and infant clinics at child-welfare centres. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MIDDLETON IN WHARFEDALE SANATORIUM, near Ilkley.—Assistant Medical Officer. Salary, £250 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Fitzroy Square, W.—Female Clinical Assistant in Out-patient Department.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

OXFORD EYE HOSPITAL.—House-Surgeon.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

PRESTWICH: COUNTY ASYLUM.—Locumtenent. Salary, £7 7s. per week.

READING: ROYAL BERKSHIRE HOSPITAL.—House-Physician. Salary, £150 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

STOCKTON HALL ASYLUM, Kirkleatham.—Locumtenent. Salary, £7 7s. per week.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £100 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Dufftown (Banff), Girvan (Ayr), King's Lynn (Norfolk), Longton (Lancs.), Rothwell (Northampton), Swansea (Glamorgan), Tibshelf (Derby).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BARRETT, Ada, M.B.Vict.Manch., Temporary Assistant School Medical Officer for Cheshire.

COOPE, G. M., M.R.C.S., L.R.C.P., Assistant Medical Officer of the Withington Institution of the Manchester Union.

GROSE, J. S., L.R.C.P., M.R.C.S., District and Workhouse Medical Officer of the Bideford Union.

HASLEWOOD, C., M.B., District Medical Officer of the Ashbourne Union.

HEDDEN, R., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Honiton District, co. Devon.

HILL, Colonel P. E., A.M.S.T.(ret.), Medical Officer in Charge of the German Prisoners' Working Camp, Crickhowell.

HILLYER, W. H., M.D.Durh., Certifying Factory Surgeon for the East Grinstead District, co. Sussex.

HUXLEY, Miss Frances M., M.D., B.Sc.Vict., Pathologist and Registrar to Queen Charlotte's Lying-in Hospital, Marylebone Road, N.W.

LAWRENCE, E. W., M.B., Ch.B.Edin., Medical Officer of the Workhouse and Cottage Homes of the Bridgend and Cowbridge Union.

MCCLURE, S., M.D.Belf., District Medical Officer of the Neath Union.

NEWBIGGING, T. D., M.B., C.M.Glas., Certifying Factory Surgeon for the Leadhills and Wanlockhead District, cos. Lanark and Dumfries.

PEARSON, E., F.R.C.S.Edin., District Medical Officer of the Barnstaple Union.

WOODFIELD, T. H., M.D.Lond., Medical Superintendent of the Downs Sanatorium of the Metropolitan Asylums Board.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BURNET.—At Beechknowe, Crieff, Perthshire, on the 1st inst., the wife of Morton Burnet, M.D.Edin., a daughter.

MARRACK.—On the 23rd June, at Roseville, Bigwood Road, Golder's Green, the wife of Captain John R. Marrack, R.A.M.C., a son.

MARRIAGE.

GOFFE—POWELL.—On Saturday, July 1st, at King's Weigh House Church, London, W., by the father of the bride, Ernest George Goffe, M.D., B.S.Lond., Senior Assistant Medical Officer, North-Eastern Hospital, Tottenham, son of the late John Beecham Goffe, Esq., J.P., of Port Marie, Jamaica, to Edna Mary Powell, M.B., B.S.Lond., eldest daughter of the Rev. Edward Pearce Powell, M.A., of Sutton, Surrey.

DEATHS.

ENGLAND.—On the 29th June, at "Eastfields," Newport, Mon., after a short illness, Arthur Charles England, M.B., late of Nottingham, aged 32 years.

TATE.—On 5th July, at No. 1, Queen Anne Street, Cavendish Square, W., Walter W. H. Tate, M.D., F.R.C.P. Funeral service at St. Andrew's, Well Street, on Saturday, 8th inst., at 2.15 p.m.

DIARY FOR THE WEEK.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF SURGERY, 5 p.m.—Cinematograph Demonstration by Dr. F. H. Albee (New York) of his methods and technique of bone surgery.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—Annual General Meeting, West London Hospital, at 5 p.m.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JULY.
7	Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
11	Tues.	Edinburgh Branch, South-Eastern Counties Division, Newtown St. Boswells, 3.45 p.m.
12	Wed.	London: Central Medical War Committee, 12 noon. Southern Branch, Annual Meeting, Winchester, 2.30 p.m.
15	Sat.	London: Science Committee, 10.30 a.m.
18	Tues.	London: Annual Representative Meeting Agenda Committee, 2.30 p.m. Buckinghamshire Division, High Wycombe; Lunch, 1.30 p.m.; Business Meeting, 2.15 p.m.; Address by Mr. James Berry, 3 p.m.
19	Wed.	Dorset and West Hants Branch, Summer Meeting, Weymouth, 3 p.m. Central Division, Birmingham Branch, Medical Institute, 3.30 p.m.
26	Wed.	Surrey Branch, Annual Meeting, 429, Strand, W.C., 3.15 p.m.
28	Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m., and following days as may be required.
29	Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 15TH, 1916.

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Meetings of Branches and Divisions.

EDINBURGH BRANCH.

THE annual meeting of the Edinburgh Branch was held in the Hall of the Royal College of Surgeons on June 21st. The report of the Branch Council and the Treasurer's financial statement were approved.

Election of Officers.—The following office-bearers were elected for 1916–17:

President: Dr. James Ritchie.
President-elect: Dr. William Blair.
Vice-Presidents: Drs. McKenzie Johnston and Dr. W. R. Martine.
Honorary Treasurer: Dr. R. A. Lundie.
Honorary Secretaries: Drs. John Stevens and John Eason.

It was intimated that Dr. John Stevens had been elected as member of the Council of the Association for 1916–17 for the Edinburgh and Fife Branches.

Queen Mary Nursing Home.—Dr. LAMOND LACKIE was elected to fill the annual vacancy on the Board of Management of the Queen Mary Nursing Home.

Recruiting for Medical Officers.—Reference was made to the proceedings of the Scottish Committee and of the Scottish Medical Service Emergency Committee, and to the splendid response which had been made and was continuing to be made from the area of the Edinburgh Branch and from the whole of Scotland to the call for officers for the R.A.M.C.

Votes of Thanks.—Votes of thanks were adopted to the retiring President, Professor F. M. Caird, to Dr. J. R. Hamilton expressing high appreciation of his services to the Branch and to the Association, particularly for the onerous and important services during his six years' tenure of the office of member of the Council of the Association for the Edinburgh and Fife Branches, and to the Royal College of Surgeons for its hospitality in granting the use of their Hall for the meeting. The meeting closed with a vote of thanks to the President, Dr. James Ritchie.

METROPOLITAN COUNTIES BRANCH:
WEST HERTS DIVISION.

THE following are the officers elected for 1916–17:

Chairman: F. C. Fisher, F.R.C.S.
Vice-Chairman and Representative on Branch Council: Dr. F. Claude Evill.
Representative for Representative Meeting and Acting Honorary Secretary: Dr. C. Herbert Hall.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH:
KENDAL DIVISION.

THE annual meeting of the Kendal Division was held in the Public Library, Kendal, on July 4th, when the officers for 1915–16 were re elected as follows:

Chairman: Dr. G. A. Johnston (Ambleside).
Vice-Chairman: Dr. Sowden (Kirkby Stephen).
Secretary and Treasurer: Dr. David Riddell (Kendal).

SUSSEX BRANCH:
EASTBOURNE DIVISION.

AT the annual general meeting of the Eastbourne Division, held at Eastbourne on June 1st, the following officers were elected for the year 1916–17:

Chairman: Dr. R. Howie.
Vice-Chairman: Dr. A. C. Gurney.
Honorary Secretary and Treasurer: Dr. Wm. Muir Smith, J.P.
Representatives on Branch Council: Drs. T. Burfield and M. Milner Moore.
Representative for Representative Meeting: Dr. J. H. Ewart.
Deputy Representative for Representative Meeting: Dr. M. Milner Moore.
Elected on Executive Committee: Drs. A. Deane, A. Harper, T. MacQueen, W. J. C. Merry, and A. P. Sherwood.

LEINSTER BRANCH:
EAST LEINSTER DIVISION.

THE annual meeting of the Division was held in the Irish offices of the British Medical Association, 16, South Frederick Street, Dublin, on June 26th, when Dr. R. L. HEARD, Chairman of the Division, was in the chair.

Election of Officers.—The following officers were elected:

Chairman: Dr. R. L. Heard (Monkstown).
Vice-Chairman: Dr. Furlong.
Honorary Secretary and Treasurer: Dr. R. Peacocke (Blackrock).
Representative for Representative Meeting: Dr. R. Peacocke.
Executive Committee: Drs. R. L. Heard, Furlong, Peacocke, Dampier-Bennett, Dawson, Good, Groves, Hatch, Lieutenant-Colonel Johnson, R.A.M.C.
Representatives on Branch Council: Drs. Dampier-Bennett, Good, Furlong, Lieutenant-Colonel Johnson, R.A.M.C., Dr. R. Peacocke.

MUNSTER BRANCH.

THE annual general meeting of the Branch was held at Cork on June 24th, when Dr. WILLIAM DONOVAN (Queenstown), President, was in the chair.

The financial statement was approved.

Election of Officers. — The following officers were appointed for 1916–17:

President: Dr. D. J. O'Connor.
Vice-President: Dr. J. Dundon.
Retiring President: Dr. William Donovan.
Honorary Secretary and Treasurer: Dr. Philip G. Lee, 10, Patrick's Hill, Cork.
Representative on Central Council: Dr. J. Giusani, Cork.
Representative to Irish Committee: Professor H. Corby, Patrick's Place, Cork.
Representative for Representative Meeting: Dr. Philip G. Lee.
Council: Drs. H. R. Townsend, Lucy Smith, O. Macarthy, P. T. O'Sullivan, J. T. O'Connor, E. Murphy, R. R. Leader (Millstreet), Professor W. Ashley Cummins, A. S. Nance (Bantry), R. Foot (Monkstown), J. Devane (Limerick), Humphry O'Sullivan (Crookstown).
Ethical Committee of Branch: Drs. D. J. O'Connor, William Donovan, Philip G. Lee.

ULSTER BRANCH:
PORTADOWN AND WEST DOWN DIVISION.

THE summer meeting of the Portadown and West Down Division of the Ulster Branch was held at Portadown on June 30th. Dr. PEDLOW in the chair.

Election of Officers. — The following officers were elected:

Chairman: Dr. Hampton Gray.
Vice-Chairman: Dr. Elliott (Rostrevor), and Dr. Mann (Dungannon).
Secretary, Treasurer, and Representative: Dr. J. Singleton Darling.
Deputy Representative: Dr. W. J. Dawson (Newtown Hamilton).
Members of Branch Council: Drs. Agnew, Marshall, J.P., Taylor.
Executive and Ethical Committee: Drs. C. Deane, S. Fergus, R. C. S. P. Flood, W. E. Hadden, J. B. Johnson, Wm. Kerr, T. B. Pedlow, with the office-bearers.

Spread of Disease by Carriers.—Dr. Marshall read a paper on the spread of disease by carriers, which gave rise to a discussion of much interest. The Chairman contributed an account of the results of inoculation for typhoid in the armies and much information as to carriers in this disease. All members present took part.

Chronic Infective Endocarditis.—Dr. W. Calwell (Belfast) gave notes of a case of chronic infective endocarditis, and of another case running a somewhat similar course, and discussed the general question of obscure blood infections. He was warmly thanked for his instructive paper.

Pathological Specimens.—Dr. Darling showed some pathological specimens.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1916.

DATE OF MEETING.

THE Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 28th, 1916, at 10 a.m., and following day(s) as may be required.

AGENDA: FURTHER NOTICES OF MOTION BY DIVISIONS AND BRANCHES.

The provisional Agenda of the Annual Representative Meeting, including the Annual Report of Council, was published in the SUPPLEMENT of May 6th, and certain Notices of Motion by Divisions in the SUPPLEMENT of June 3rd. The Supplementary Report of Council was published in the SUPPLEMENT of July 8th. There will be included in the final Agenda of the Meeting, as to be issued to the members of the Representative Body on or about July 21st, not only such Notices of Motion as have appeared in the SUPPLEMENTS of May 6th, June 3rd, and July 8th, but also all Notices of Motion received up to Friday, July 14th, found by the Agenda Committee to be in order.

By order,
ALFRED COX,
Medical Secretary.

July 12th, 1916.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.

429, Strand, London, W.C.

SUGGESTED CHANGES OF BOUNDARIES.

DIVISIONS OF METROPOLITAN COUNTIES BRANCH.

NOTICE is hereby given to all concerned of the following proposals made by the Metropolitan Counties Branch Council:

1. Incorporation of Islington Borough in City Division.
2. Incorporation of St. Pancras Borough in Hampstead Division.
3. Incorporation of area of existing Willesden Division (namely, Willesden Urban District) in Harrow Division.
4. Incorporation of area of existing Ealing Division (namely, Municipal Borough of Ealing, Urban Districts of Hayes, Greenford, Southall Norwood, Hanwell, Acton, Chiswick, and Brentford) in South Middlesex Division.
5. Incorporation of area of existing Lewisham Division (namely, Lewisham Borough) in Greenwich and Deptford Division.

Written notice of the proposals has been given to the existing Divisions concerned which have honorary secretaries, and the matter will be determined in due course by the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, W.C., not later than August 15th, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH: CENTRAL DIVISION.—Dr. H. W. Pooler, Honorary Secretary (98, Sampson Road, Birmingham), gives notice that the annual meeting of the Division will be held on Wednesday, July 19th, at 3.30 p.m., at the Medical Institute.

DORSET AND WEST HANTS BRANCH.—Mr. Percy A. Ross (Kensington, Boscombe Spa Road, Boscombe) gives notice that the summer meeting of the Branch will be held at Weymouth on Wednesday, July 19th, at 3 p.m.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. Arthur E. Larking, Honorary Secretary (Stoneleigh House, Buckingham), gives notice that there will be a meeting of the Division at the Red Lion Hotel, High Wycombe, on Tuesday, July 18th; 1.30 p.m., lunch (ladies can be invited); 2.15 p.m., business meeting. Attention will be drawn to the extraordinary ideas of the medical correspondent of the *Times* as shown in various letters, especially those with regard to compulsion of all medical men and the formation of a State Medical Service; 3 p.m., Mr. James Berry will give an address (with lantern slides) on Red Cross work in Serbia.

SURREY BRANCH.—Mr. Cecil P. Lankester, Honorary Secretary (1, Rectory Place, Guildford), gives notice that the annual meeting of the Surrey Branch will be held at the Central Office, 429, Strand, on Wednesday, July 26th, at 3.15 p.m. There will be no social function.

INSURANCE.

INSURANCE NOTES.

THE PANEL MEDICO-POLITICAL UNION.

Annual Meeting:

THE annual general meeting of the Panel Medico-Political Union was held at the Connaught Rooms on June 7th, when Dr. W. Coode Adams, who was re-elected President, took the chair, and delivered an address, in the course of which he said that the work of the council could be classified under four heads. Its propagandist work had required much time and money, but as a result the membership had been increased, and some new branches had been formed. The work of the central office in London had been much extended, the desire being not so much that the branches should be a source of strength to the union, but that the union should be a source of strength to the branches. The constitution of the union enabled it to deal without loss of time with numerous questions affecting the profession which came up in Parliament and elsewhere, and with the constant stream of regulations and memoranda from the Commissioners. The constructive work of the union had been important, as it had offered practical suggestions with a view to improving the working of the Act.

The annual report, presented by the secretary, Dr. A. Welply, stated that protests had been made against the reduction in the amount of advance payments to panel practitioners and against the "serious effort made by the Commissioners to interfere with the capitation fee" in the way of making the chemists' accounts a first charge on the medical benefit fund. The steps taken to expedite the final settlement for 1914 were related, and it was stated that, in order to avoid delay in the settlement for 1915, acceptance of an emergency settlement was recommended. Protest had also been made against what the report designated the "flagrant breach of faith" on the part of the Commissioners in introducing new regulations about the use of the term "Rep. mist." and the writing and signing of certificates. The council expressed itself against the validity of the penalties inflicted by the Commissioners for alleged breaches of the conditions of the Treasury grant, and was supported by the opinion of Mr. Gore Booth, K.C. Though a determined effort had been made to bring about the keeping of accurate registers by Insurance Committees, there was still much room for complaint. No effort had been spared to remove any misunderstandings with the approved societies, as "it is the aim of the union to make the panel system a success." It was claimed, too, that the union had been able to make an arrangement with approved societies whereby monthly certificates in chronic cases would be accepted. Pressure was being used to obtain an increase on the Advisory Committee in the number of practitioners actually engaged in panel practice. At present, of the 159 persons on the Joint Advisory Committee, only 33, the report stated, represent the medical profession, and of those only 8 are engaged in panel practice. During the year two new branches of the union had been formed, at Bristol and Doncaster, and propagandist meetings had been held and district organizers appointed in various places. The report concluded with an appeal for better medical organization. The balance sheet showed a substantial balance at the bank.

After the report had been adopted, a motion from Glasgow was considered, "That the name of the union be changed to the Panel Medical Practitioners' Union." An amendment was proposed to leave out the word "Panel," but after long discussion both motion and amendment were defeated and the name of the union remains unchanged. A motion from the Doncaster branch that it should be made better known that non-panel practitioners are eligible as members of the union was withdrawn as unnecessary according to the rules. A resolution from the Bristol branch in favour of forming a defence fund was referred to the council for consideration and report. A resolution urging on the council to test the legality of the penalties imposed by the Commissioners for alleged breaches of the conditions of the parliamentary grant was proposed by Dr. H. J. Cardale and carried *nemine contradicente*. A resolution was also carried condemning the British Medical Association "as guilty of a grave dereliction of duty in attempting to differentiate between the fees payable for measles and other notifiable diseases, thus by compromise confusing a straight issue, with the result that the notification fee is reduced from 2s. 6d. to 1s." A vote of thanks to the chairman concluded the meeting.

LOCAL MEDICAL AND PANEL COMMITTEES.

Bucks.

At a meeting of the Local Medical and Panel Committee on April 28th it was agreed to order emergency dressings separately for each case, but that the present arrangement of paying 1s. per bottle for medicines in emergency cases be adhered to.

The answer of the Commissioners to the letter of protest sent by the Committee against the deduction of 30 per cent. this year was regarded as very unsatisfactory. It was agreed to support the Essex Committee in pointing out to the Commissioners the extra expense of drugs, petrol, etc., at the present time.

East Suffolk.

At a meeting of the Panel Committee on May 9th a letter was read from the Commissioners stating that they could hold out no hope of any extra payment in respect of increased expenses. It was decided to ask the Commissioners upon what basis the rate of reduction for the inflated lists was arrived at, and to inform them that, in in the opinion of the Panel Committee, a deduction of from 12 per cent. to 13 per cent. was excessive.

It was resolved to apply for a grant of the full amount from the Special Mileage Fund for 1915, and to approve a scheme similar to that for 1914.

Renfrew County.

At a meeting of the Panel Committee on April 26th it was reported that the list of emergency drugs and appliances as amended by the Panel Committee had been approved by the Insurance Committee and by the Scottish Insurance Commissioners. It was agreed to ask the Insurance Committee to join in the efforts being made by some Insurance Committees to obtain the exemption of practitioners from the increased taxes on motor cars and petrol. The suggestion of the Insurance Committee to issue along with each blank medical card a small slip with a simple instruction printed in bold type advising the insured person to take the medical card at once to the panel doctor whom he desired to select, was approved.

County of Lanark.

At a meeting of the Local Medical and Panel Committees on April 12th, it was agreed that the Chancellor of the Exchequer, the Minister of Munitions, and the local members of Parliament be asked to arrange that the motor cars of medical practitioners should be taxed either at a commercial rate, or at most at a rate not higher than the present, and that medical men in performance of their work would be entitled to get an adequate supply of petrol at the old rates.

At a meeting on June 7th it was agreed to approve the proposed emergency settlement for 1915. It was decided to issue a synopsis of the summaries of the prescriptions of doctors on the panel for 1915 to every doctor, with a view to those with high prescription rates conforming to the average, the names of the doctors being replaced by numbers, each doctor being informed of his number. The suggestion that doctors' lists in respect of 1914–15 should be adjusted at June 30th, and that any subsequent notices of enlistment should only have effect as from January 1st last, was approved.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Fleet Surgeons T. C. Meikle, M.B., A. G. Andrews, and E. H. H. de Courtmacsherry, M.B., have been placed on the retired list; Fleet Surgeons E. Cox, M.B., to the *Vanguard*; A. R. H. Skey to the *Victory*, additional; R. Miller, M.B., to the *Princess Royal*; J. St. J. Murphy to the *Victory*, additional, for disposal; Staff Surgeon H. A. Kelland-Knight to the *Falmouth*; Surgeon E. Cameron, M.B., to the *Assistance*; Temporary Surgeons F. G. Lloyd to the *Victory*; D. S. MacKnight to the *Vivid*; H. C. Broadhurst to the *Victory*, additional, for Haslar Hospital; W. F. Eberil to the *Excellent*.

Royal Naval Volunteer Reserve.

Surgeon Probationer A. H. Henry to the *Midge*. To be Surgeon Probationers: E. E. Llewellyn, G. E. Morgan, G. W. Theobald, A. G. Ord, S. C. Woodhouse, F. Young, J. S. Moore, W. A. W. Parkes, C. J. Slim, J. H. Sheldon, D. F. McGregor, R. E. Hopton, E. H. Pouder, B. W. Thompson.

ARMY MEDICAL SERVICE.

Royal Army Medical Corps.

The undermentioned relinquish their temporary rank: Major (temporary Lieutenant-Colonel) R. B. Hole, M.B.; Captain (temporary Major) J. W. Lane, M.D.

Temporary Captains relinquish their commissions: M. L. G. Hallwright, M.D., O. Eaton, A. Burton, M.D., F.R.C.S., W. D. Chambers, E. P. Dickin, M.D.

Temporary Captain F. W. Mackenzie, M.B., ret. pay R.A.M.C., relinquishes his commission on account of ill health.

Temporary Lieutenant and temporary honorary Major T. W. Buckley, M.D., to be temporary Major.

To be temporary Captains: Temporary Captain W. McCready, M.B., F.R.C.S.I., from Irish Rifles; A. H. James.

Granted temporary honorary rank whilst serving with the British Red Cross Hospital, Netley:—As Captain: Temporary honorary Lieutenant A. Wills. As Lieutenant: C. H. L. Harper, M.B.

The notification in the *London Gazette* of June 14th, 1916, regarding temporary Lieutenant J. H. White, M.D., is cancelled.

Temporary Lieutenants to be temporary Captains: E. H. Roberts, M.B., J. R. MacNeill, M.B., A. W. Harvey, H. St. A. Agate, G. M. Adam, M.B., W. A. Alexander, F. W. A. Ponsford, M.B., C. H. Lloyd, M.B., S. E. Humphreys, M.B., W. K. Bigger, H. E. P. Yorke, W. G. E. Allen, R. Farrant, F.R.C.S., W. Reid, M.B., S. Churchill, M.B., J. G. Willmore, W. C. Gowdey, M.D., F. W. Diamond, M.D., S. C. W. Morris, M.D., T. J. Costello, M.D., J. R. White, M.B., W. J. Patterson M.B., J. L. Pearce, M.B., O. J. W. Adamson, G. B. McCaul, M.D., S. Greenwood, L. L. Fyfe, M.B., P. B. Belanger, M.D., C. D. Kean, M.D., F. R. Kirkham, M.B., P. S. Hopkins, T. A. Hindmarsh, M.B., T. F. Keenan, M.B., A. A. Wilson, M.D., I. E. Bruneau, R. T. Grant, W. F. Law, M.D., F.R.C.S.I., F. G. O'Donohoe, F. J. Allen, M.B., J. MacRae, A. F. Ross, M.B., A. A. O'Connor, P. P. J. Stewart, M.B., F.R.C.S.E., E. C. Bowden, T. C. Findlater, M.B., J. H. Davis, M.B., W. S. Hall, M.B., D. B. I. Hallett, M.B., D. J. Lewis, G. F. May, M.D., F. J. Rawlinson, F.R.C.S., H. O. Smith, M.B., J. R. K. Thomson, W. F. Hare, M.B., E. J. Griffiths, M.B., H. C. Beasley, H. H. Kendrick, D. J. McLeish, M.D., H. M. C. Green, M.B., E. H. Black, M.B., C. R. Wills, M.B., J. W. Coulter, M.B., D. B. MacLean, M.B., C. F. Knight, M.B., L. Zealand, M.D., A. F. Menzies, M.D., H. B. Lawson, M.D., H. Smurthwaite, M.D., W. Watkins, S. R. Gleed, A. B. Jones, M.B., J. M. Keegan, M.B., F.R.C.S., H. B. Walker, M.B., T. E. Cottu, C. H. Corbett, M.D., H. U. Leenbruggen, S. Hodgson, M.B., J. E. Paterson, M.B., A. St. J. Bateman, H. F. T. Chambers, W. W. Linington, F.R.C.S., G. V. T. McMichael, M.B., C. Banks, M.B., J. D. Ryan, A. G. Christian, M.B., A. O'Flaherty, V. B. Kyle, M.B., J. A. V. Mathews, B. B. F. McKail, M.B., T. A. O'Brien, M.B., A. A. W. Petrie, M.D., F.R.C.S.E., E. J. Selby, W. R. Logan, M.D., A. Grant, M.B., T. Chalmers, M.B., J. W. Edington, M.D., A. Gillespie, M.D., W. O. Travis, M.D., C. E. Dolling, M.B., E. A. Wilson, M.D., C. A. Meaden, A. E. Hutton, J. Appleyard, M.B., J. Lamont, J. N. Donnellan, M.B., C. E. Droop, M.B., A. C. Bryson, M.B., R. Nicoll, M.B., J. A. A. Orelebar, M.B., E. S. Holloway, M.B., J. T. Grant, M.B., O. C. G. Shields, M.B., W. H. Parsons, M.D., M. C. Burke, M.B., G. H. Roberts, M.B., D. B. Crerar, M.B., G. L. Thornton, G. H. Brown, M.D., W. G. L. Wambeck, J. McC. Lang, M.B., G. S. Coghlan, J. B. Boyd, M.B., N. E. MacDougall, M.D., O. E. Finch, M.B., W. Scott, M.D., H. G. Hobson, R. Vincent, M.D., A. M. Roome, T. F. Craig, M.B., T. Bell, M.D., T. L. Davies, H. E. Rawlence, M.B., F.R.C.S.E., H. H. Serpell, A. Campbell, M.B., D. G. Wishart, M.B., R. L. Hutton, M.B., A. G. Anderson, M.D., D. R. Jones, F. V. Hanratty, R. W. L. Wallace, M.D., A. C. Rowswell, M.B., W. S. Thacker, M.D., F.R.C.S.E., J. J. H. Ferguson, M.B., J. D. Hart, M.B., W. Fell, M.D., T. C. Reeves, F. G. W. Deane, F.R.C.S.E., C. G. Galpin, M.B., R. Bruce-Low, N. Dunn, M.B., G. M. Gregoire, M.D., H. P. Gaston, R. Stirling, M.B., A. L. Thornley, M.B., R. P. Williams, M.D., T. E. Ferguson, I. W. Magill, M.B., H. H. Taylor, M.B., G. Fleming, M.B., C. G. MacKay, M.B., J. N. F. Fergusson, M.B., C. Price-Jones, M.B., C. P. Symonds, G. Pollock, M.D., F. T. Rees, F. D. Johnson, J. M. Anderson, M.D., R. D. Clayton, T. J. Lydon, M.B., R. A. Facey, M. J. Houghton, R. S. Armour, M.B., W. Templeman, M.D., W. S. O. Waring, M.B., C. B. Kidd, M.D., P. M. MacLachlan, M.D., H. B. Lawson, M.D., A. Hipwell, H. V. Walsh, M.B., G. K. Thompson, M.B., D. B. Pascall, M.B., F. I. MacKinnon, M.B., J. C. McKerrow, M.D., T. P. Seymour, E. K. Gawn, M.D., D. Gillespie, M.D., J. W. Pettinger, M.B., H. M. Macgill, M.D., W. S. Finch, R. J. Harris, H. F. Holmden, M.B., F.R.C.S.E., C. G. Monro, M.B., H. G. Dresing, J. H. K. Sykes, C. K. McKerrow, M.B., J. T. Myles, M.D., F.R.C.S.I., J. L. Arnold, V. E. Badcock, M.D., W. H. Scott, H. H. Sloane, E. R. Fothergill, M.D., J. B. T. Keswick, M.B., L. Game, W. T. Williamson, W. MacLeod, M.B., A. Mathieson, M.B., W. S. B. Hay, M.B., D. Fletcher, D. A. Donald, M.B., T. L. Fleming, M.B., C. B. Wainwright, M.B., T. W. Buckley, M.D., R. A. H. Fulton, M.B., C. N. Corbett, M.D., C. C. Worster-Drought, M.B., H. T. Lippiatt, M.D., S. J. Staples, M.B., A. Drouin, M.D., M. Douglas, M.D., J. H. White, M.D.

Temporary Lieutenants relinquish their commissions: J. Forbes, M.B., R. McL. Wishart, W. W. Wood, M.B., J. Maxwell, M.B., T. H. D. Storms, L. E. Belcourt, M.D., M. R. Helliwell, M.B., J. J. Brown, M.B., F.R.C.S.E., C. A. H. Gee, M.B., W. G. Southey, M.B., C. J. Tisdall, M.B., L. Valentine, M.B., A. M. A. James, J. H. Rowe, M.B., J. Laird,

M.B., G. E. Beggs, J. W. Jackson, M.B., S. R. Johnston, M.D., J. J. Thomson, M.B., W. P. MacKasey, M.D., G. L. Kennedy, M.B., W. J. MacNab, M.B., J. Pearson, M.B., D. K. Parkes, M.B., W. R. Taylor, P. P. Wright, M.B., B. E. Lang, M.D., G. W. Deeping, M.B., E. M. Rooke, E. L. Hickey, M.D., R. H. Williams, C. S. Thomson, M.D., R. H. Mercer, M.B., W. R. Morris, M.B., L. O. Weinman, G. W. Dryland, W. Bates, W. Doyle, M.B., E. Ryan, C. S. Woodd, A. J. Lomas, M.D., O. S. Wraith, M.D., F.R.C.S., D. C. Laird, M.B., B. H. Greensill, A. J. V. McDonnell, J. C. Walker, C. H. Sills, A. Bryans, E. R. R. Cheesman, H. G. Kilner, M.B., H. S. C. Darbyshire, R. Nairn, F.R.C.S., A. J. Turner, M.B., F. Copeland, R. V. G. Monckton, M.D., R. Bennie, M.B., T. R. Earle-Davis, M.B., J. D. MacKay, M.B., F. J. Sadler, M.D., J. G. McLeod, M.B., M. J. Vigneux, M.D., E. V. Sullivan, M.D., W. E. Campbell, M.D., G. S. Williams, M.D., P. Gorrie, M.D.

To be temporary Lieutenants: D. V. O'Malley, M.B., K. S. Macky, M.B., T. B. A. Haggard, A. Morrison, F. E. Dowling, J. L. Gordon, M.D., W. J. P. Lillis, S. Verdon-Roe, M.B., J. E. Finlay, M.B., G. Dougan, M.D., A. F. Fraser, M.B., I. W. Dickson, M.B., E. F. Hoare, M.D., G. A. Campbell, L. Bensted, F. C. Morgan, A. E. Hunter, M.D., C. W. Budden, M.D., F. Kinnear, M.B., J. F. C. O'Donohoe, M.B., H. E. T. Dawes, M.B., A. W. Brodribb, M.B., T. H. Martin, M.B., M. J. Loughrey, J. H. Fryer, M.B., P. A. Dykes, J. Graham, M.D., H. Whitwell, J. Lindsay, M.B., W. D. Hopkins, D. McCormack, F. H. Cooke, C. J. B. Pasley, A. Dewar, D. P. Blair, M.B., A. R. M. Brenan, M.D., J. Clark, M.B., R. E. Marwick, M.B., G. P. G. Beckett, M.D., C. F. Davey, M.B., J. St. A. Hubbard, A. P. Robertson, M.B., J. P. Mathie, J. A. B. Hammond, M.B., D. D. Pinnock, M.B., F.R.C.S., T. S. Law, M.B., E. G. H. Weir, M.D., J. B. Donaldson, G. D. Watkins, J. D. Doherty, M.D., J. M. Lazenby, M.B., R. R. Law, M.D., H. R. Mayo, M.B., C. W. Brown, M.B.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel F. Kelly, M.D., Highland Field Ambulance, to be Assistant Director of Medical Services, a Mounted Division, with the temporary rank of Colonel.

Captain W. T. Howe, M.D., from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services, a Mounted Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Captain (temporary Lieutenant-Colonel) G. L. L. Lawson relinquishes his temporary rank on ceasing to command a field ambulance. Captain H. P. Aske, from a London General Hospital, to be Captain.

London General Hospital.—Captain F. H. Humphris, M.D., is restored to the establishment.

Home Counties Division Sanitary Section.—Lieutenant F. T. H. Wood, M.B., to be Captain.

Home Counties Field Ambulance.—S. K. McKee, M.B., late temporary Lieutenant R.A.M.C., to be Lieutenant.

Wessex Field Ambulance.—Captain P. R. Bolus, M.B., from Attached to Units other than Medical Units, to be Captain.

South-Western Mounted Brigade Field Ambulance.—Lieutenant J. W. A. Cooper to be Captain.

Welsh Casualty Clearing Station.—Lieutenant A. W. Clarke to be Captain.

South Midland Casualty Clearing Station.—Lieutenant G. H. Kirby to be Captain.

South Midland Mounted Brigade Field Ambulance.—Lieutenant S. P. Johnson, M.B., to be Captain.

North Midland Field Ambulance.—Captain W. B. Williams, M.B., relinquishes his commission.

Eastern Mounted Brigade Field Ambulance.—Major W. Archibald, M.D., to be temporary Lieutenant-Colonel whilst in command of a field ambulance.

East Anglian Division.—Sir T. Clifford Allbutt, K.C.B., late Lieutenant-Colonel, Eastern General Hospital, is appointed to be honorary Colonel of the R.A.M.C., East Anglian Division.

East Lancashire Field Ambulance.—Major A. Callam, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance (substitute for announcement in the *London Gazette* of December 18th, 1914); Captain H. W. Pritchard to be Major (substituted for announcement in the *London Gazette* of September 19th, 1914); Captain M. Moritz, M.B., from Western General Hospital, to be Captain.

West Lancashire Field Ambulance.—Major W. Macdonald, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Northumbrian Field Ambulance.—A. E. Raine, M.B., to be Lieutenant.

Highland Mounted Brigade Field Ambulance.—G. W. Deeping, M.B., late temporary Lieutenant R.A.M.C., to be Lieutenant.

Attached to Units other than Medical Units.—To be Captains: Captain R. P. Ryan, F.R.C.S.I., from a Wessex Field Ambulance; Captain H. G. Dodd, M.B., from a Northern General Hospital. To be Lieutenants: Temporary Lieutenant C. A. E. I. Brownlee, M.B., from Royal Regiment of Artillery, T. Higson. The appointment of James Y. Moore as Lieutenant, announced in the *London Gazette* of September 29th, 1914, is cancelled.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BEDFORD COUNTY HOSPITAL.—House Surgeon.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon. Salary, £200 to £250 per annum.

BIRMINGHAM UNIVERSITY.—Lecturer in Physiology. Stipend, £300 per annum.

BRIGHTON ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—House Surgeons and House-Physicians. Salary, £125 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £100 per annum.

BURY INFIRMARY.—Junior House Surgeon. Salary, £150 per annum.

CROYDON ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £250 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL: WEST DERBY UNION INFIRMARY.—Temporary Assistant Resident Medical Officer. Salary, £300 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Assistant Resident Medical Officer; (2) Surgical Registrar. Honorarium, £120 and 40 guineas per annum respectively.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

NEWCASTLE-UPON-TYNE EYE INFIRMARY.—Non-resident House-Surgeon. Salary, £120 per annum.

OXFORDSHIRE COUNTY COUNCIL.—Tuberculosis Officer. Salary, £500 per annum.

PRESTWICK: COUNTY ASYLUM.—Locumtenent. Salary, £7 7s. per week.

READING: ROYAL BERKSHIRE HOSPITAL.—House-Physician. Salary, £250 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, ETC., City Road, E.C.—House-Surgeon. Salary, £150 per annum.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ALDERSON, G. P., M.B., Ch.B.Vict., District Medical Officer of the Bolton Union.

COOK, W. W., M.R.C.S., L.R.C.P., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 2, and to be attached more particularly to West Hartlepool County Court during the absence of Dr. A. E. Blackburn on military duty.

DONALD, C. W., M.D.Edin., Honorary Physician to the Cumberland Infirmary, vice J. B. Bird, M.D.Edin., deceased.

O'BRIEN, H. J., L.R.C.P. and S.I., Medical Officer of the Children's Receiving Home of the Poplar Parish.

PITT, W. O., M.B., B.C., District Medical Officer of the West Ham Union.

SCARBOROUGH, Miss Hilda, M.B., B.S.Lond., Assistant Resident Medical Officer, Queen Charlotte's Lying-in Hospital, Marylebone Road, N.W.

WEEKS, C. F., L.R.C.P. and S.Edin., Assistant Medical Officer of the Workhouse of the Toxteth Park Township.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physician: Ernest O. A. Singer (final-year student), to Professor Sir T. R. Fraser. Resident Surgeon: Ronald N. MacKenzie (fourth-year student), to Mr. Scot Skirving. Clinical Assistant: Stanley E. Crawford, M.D.Penn. Univ., U.S.A., to Dr. Norman Walker.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

BRUSHFIELD.—On July 10th, at Budleigh, Halifax, the wife of A. N. Brushfield, M.R.C.S., of a son.

MARRIAGE.

DEVANE-KEOGH.—June 28th, at the Pro-Cathedral, Dublin, by the Rev. R. S. Devane, C.C., John Francis Devane, M.D., F.R.C.S., D.P.H., of Limerick, to Vera, daughter of Mr. and Mrs. Andrew J. Keogh, 6, Rutland Square, Dublin.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY.—5 p.m., Cases.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF SURGERY, 5 p.m.—Paper: Major Mackenzie—The Treatment of Convalescent Soldiers by Physical Means, illustrated by lantern slides.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JULY.
15	Sat.	London: Science Committee, 10.30 a.m.
18	Tues.	London: Annual Representative Meeting Agenda Committee, 2.30 p.m. Buckinghamshire Division, High Wycombe: Lunch, 1.30 p.m.; Business Meeting, 2.15 p.m.; Address by Mr. James Berry, 3 p.m.
19	Wed.	Dorset and West Hants Branch, Summer Meeting, Weymouth, 3 p.m. Central Division, Birmingham Branch, Medical Institute, 3.30 p.m.
26	Wed.	Surrey Branch, Annual Meeting, 429, Strand, W.C., 3.15 p.m.
28	Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m., and following days as may be required.
29	Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 22ND, 1916.

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PROTECTION OF PRACTICES OF MEDICAL MEN ON ACTIVE SERVICE.

IN January, 1915, the Scottish Medical Service Emergency Committee put out a statement dealing with the carrying on of practices of medical men on active service, and later in the year the Central Medical War Committee for England and Wales issued a circular, in part founded on the Scottish suggestions (SUPPLEMENT, August 21st and September 18th, 1915). It was pointed out that the men going on active service had a right to expect that their interests would be protected by those who remained at home, and it was suggested that where a locumtenent could not be provided the work should be done by a division of the money earned by the practice of the absentee on the following lines:

A. Town practices: An equal division of the proceeds between the absentee and his deputy or deputies.
B. Combined town and country practices: Probably three-eighths to the absentee and five-eighths to the deputy, the latter paying the expenses.
C. Country practices where travelling expenses are important: One-quarter to absentee, three-quarters to the deputy.

It is probable that the great majority of the arrangements made throughout the country are on the lines suggested in this circular (W. 3).

There has, however, been a demand from some quarters that the arrangements between absentees and deputies should be put on a more definite footing, and that the Central Medical War Committee should endorse and circulate a model scheme with a formal legal agreement. The Committee has carefully considered this suggestion with the help of various schemes that have been submitted to it and has come to the conclusion that it is not possible to embody in one or even two or three detailed schemes a plan that would be likely to meet with acceptance in every area. It is believed, however, that the publication of a few typical schemes that have met with approval in various parts of the country might prove useful to Local Medical War Committees.

GENERAL PRINCIPLES.

Before giving detailed schemes the Central Medical War Committee would draw attention to a few general principles which it considers to be of great importance:

(*a*) No scheme will be satisfactory which has not behind it (i) the goodwill of the men who are to work it, (ii) the confidence of the men who are going on active service, (iii) the strong moral support of the Local Medical War Committee. This presupposes that the scheme has been fully discussed at a meeting of the whole local profession.

(*b*) It is preferable that there should be a legal agreement between the absentee and his deputy or deputies, though it is recognized that this may be impracticable in some cases.

(*c*) The Local Medical War Committee should in such an agreement be vested with the power of dealing with any disputes that may arise between the absentee and his deputies, the decision of the Committee to be binding; the Committee should also have the power of appointing another deputy in case of need.

(*d*) Any such agreement should contain provision whereby the absentee is indemnified against all acts of negligence committed by the deputy.

(*e*) The scheme and agreement should in all cases bind the deputies to refuse to act as the medical attendant of the patients they have attended for the absentees until a specified time (one or two years) after the absentee's return.

AGREEMENT DRAWN UP IN HOLLAND (LINCS.) AREA.

This is the first agreement of a legally binding nature brought to the notice of the Central Medical War Committee, and it embodies the suggestions made in W.3 with the addition (Clause 3) of a clause to protect the interests of a practitioner who dies on service.

Memorandum of Agreement made the thirtieth day of October One Thousand Nine Hundred and Fifteen *between* the several persons mentioned in the First Schedule hereto, being medical men practising in or near the Holland Division of the County of Lincoln and not holding temporary commissions in the Royal Army Medical Corps (hereinafter called the practitioners at home) of the one part, and the several persons mentioned in the Second Schedule hereto being medical men now or recently practising in the said Holland Division who have obtained or are about to obtain temporary commissions in the Royal Army Medical Corps (hereinafter called the practitioners on service) of the other part. *Whereas* the parties hereto are desirous that arrangements should be made for carrying on the work of the practitioners on service and for the remuneration of the practitioners at home who carry on the work of the practitioners on service in their absence, *Now* it is hereby mutually agreed and declared by the practitioners at home jointly and severally with the practitioners on service, and each of them as follows, namely:

1. Each of the practitioners at home hereby promises and agrees with each of the practitioners on service that if any persons who are ordinarily patients of any of the practitioners on service shall consult him during the absence of such practitioner on service the practitioner at home will not attend such patients, or arrange for their being attended, except on the terms hereinafter mentioned, and further, that he will refuse to act as the medical attendant of such persons on his own behalf from the date of the return of the practitioner on service until at least twelve calendar months have elapsed, and will in every way do all in his power to safeguard the interests of the practitioner on service in such patients, and to induce them to return to him when he resumes practice.

2. The fees actually received by any practitioner at home from the patients of any practitioner on service shall be divided between the person receiving the same and the

practitioner on service to whom such patients belong in the following proportions:

(*a*) Where the practice is a mixed town and country practice three-eighths shall belong to the practitioner on service and five-eighths to the practitioner at home doing the work and paying all expenses.

(*b*) Where the practice is a country practice one-fourth shall belong to the practitioner on service and three-fourths to the practitioner at home doing the work and paying all expenses.

(*c*) Where the professional service is rendered in respect of an appointment held by a practitioner on service, including panel work, one-half shall belong to the practitioner on service and one-half to the practitioner at home doing the work and paying the expenses.

(*d*) In the case of confinements the whole fee shall go to the practitioner at home doing the work and paying the expenses.

3. In the event of the death of a practitioner on service his practice shall be carried on for one year after that date or until his representatives give notice to one or more of the practitioners at home that they have disposed of his practice, whichever shall first happen, and in the meantime the representatives of the deceased practitioner shall be entitled to receive, and shall be paid, the same remuneration as the deceased practitioner would have been entitled to if he had during such time continued to be a practitioner on service.

4. Nothing in these presents shall be held to compel any practitioner at home to treat any patient or patients of any practitioner on service.

5. During the continuance of this agreement no practitioner at home shall engage a locumtenent or qualified assistant in his practice for a period exceeding fourteen consecutive days until such locumtenent or assistant shall have signed this agreement or a similar agreement embodying the terms comprised herein.

6. If any person mentioned in the First Schedule hereto shall hereafter during the continuance of this agreement obtain a temporary commission in the Royal Army Medical Corps, or in any other branch of the Army or Royal Naval Medical Service, his practice shall, during his absence, be carried on by the remaining practitioners at home on the terms above set forth, and this agreement shall be construed in all respects as though such person had originally been a person mentioned in the Second Schedule hereto, and if any person mentioned in the Second Schedule shall not be called upon to leave his practice he shall be deemed to be a practitioner at home, and he shall have the same rights and be under the same obligations as though he had been originally a party mentioned in the First Schedule hereto.

Scheme of Dr T. Campbell of Wigan.

This scheme has met with a good deal of support in Lancashire. It embodies certain novel views as regards remuneration, and its fundamental difference from the Holland scheme is that it regards it as essential that the absentee should in all cases appoint a deputy or deputies, who shall be responsible for the whole of the practice. There are points in this scheme that may commend it particularly to Local Medical War Committees in industrial areas. Certain verbal amendments have been made in the original scheme on the advice of the Solicitor of the Association.

*Scheme for the Care of the Practices of Medical Men on Whole-time Military Service.**

1. Any medical man deciding to take up a commission or being called up for ordinary military service (hereinafter referred to as the absentee) to at once give notice to the Committee referred to in paragraph 18 hereof, and such notice shall signify whether the absentee has made arrangements with a medical practitioner or practitioners (hereinafter called the deputy) to carry on his practice in his absence and, if arrangements have been so made, the name or names or address or addresses of such practitioner or practitioners.

2. If at the date of the said notice the absentee has not made arrangements with a deputy, he should as soon as he has so done forward to the said Committee the name and address of the deputy.

3. If the absentee fails to appoint a deputy, then the said Committee, on the request of the absentee or of his wife or other authorized representative, can make an appointment. The authorized representative of the absentee shall be given power of attorney to act on his behalf.

4. The remuneration of the deputy to be agreed as by the absentee, but in case no arrangement as to remuneration is made, or in case of an appointment by the said Committee, the remuneration to be on the following scale—namely:

£1 1s. per week for every £100 gross receipts of the practice during the twelve months ending December 31st immediately preceding the deputy's appointment, with a maximum weekly remuneration of £12 12s. and a minimum of £3 3s.

The said remuneration to be readjusted every six calendar months in accordance with the scale fixed by this paragraph on the gross receipts for the twelve months preceding the date of readjustment.

Any fees payable by the army authorities to the absentee for any appointment held by him shall not be included in the gross receipts of the practice during the preceding twelve months unless the work of such appointment be taken over and carried out by the deputy.

5. The deputy to defray out of his remuneration all the working costs and expenses of the absentee's practice except the rent, rates, and taxes of the absentee's main and branch surgeries.

6. The deputy to keep each day a strict account of his visits, consultations, dressings, operations, and medicines, with the names and addresses of the patients on whom attendance is made, by entering same up in absentee's day book, differentiating between private patients and panel patients (if necessary) and to leave such day book open to inspection of the absentee's wife or other representative, who must enter same into ledger at least once a week.

7. The record cards of panel patients to be accurately kept by the deputy.

8. The deputy to keep an accurate account of all moneys received by him on account of the absentee's practice, and to hand such moneys to the absentee's wife or his other representative on the first of each calendar month. Any clerical work connected with the absentee's practice other than that necessitated by paragraphs 6, 7, and 8 hereof to be done by the absentee's wife or other representative at the absentee's expense.

9. Cards to be exhibited in the surgeries (main and branch) of both deputy and absentee clearly stating that the absentee is away on active service and that the deputy is attending to absentee's practice, and requesting the patient to inform the deputy that he is a patient of the absentee.

10. As far as conveniently possible, the patients of the absentee to be seen at the surgeries of the latter, and the deputy to hold a surgery daily at the absentee's main surgery.

11. The absentee before leaving his practice to make out a list of his private patients, with their addresses, and to submit such list to the deputy, and such list, unless questioned within fourteen days by the latter, to be final evidence that the patients whose names appear on that list are the private patients of the absentee. A copy of such list to be forwarded by the absentee to the said Committee.

12. Proper and accurate accounts of the absentee's practice to be sent out by the absentee's wife or other representative in the name of the absentee with a request that cheques be drawn in favour of the absentee.

13. All accounts of the gross receipts of the absentee's practice to be kept by the absentee's wife or other representative, and to be open to the inspection of the deputy or his representative on request at any reasonable hour of the day.

14. The absentee should be indemnified against all claims, demands, or actions arising out of the negligence or wrongful act or default of the deputy. (It is deemed advisable that absentee and deputy be members of a protection society and insured against damages.)

15. Subject to the provisions of the next clause the deputy to give six calendar months' notice of his intention to resign to the absentee's wife or other representative, and also to the said Committee, whereupon, in the absence of an appointment being made by the absentee or his wife or other representative, of a fresh deputy, the said Committee to make an appointment.

16. In case the absentee die or be killed, or return home but incapable of attending to his practice, the deputy to continue to attend to the absentee's practice for at least a period of twelve months after the date of such death, or of such return home, as the case may be, or until the absentee's practice is disposed of by sale, the deputy during this period to continue to receive remuneration as provided in paragraph 4. The deputy to give every facility and information to an intending purchaser.

17. The deputy shall not attend or otherwise professionally advise or treat any of the patients on the list referred to in paragraph 11 hereof for a period of one year after the deputy has ceased to carry on, or otherwise to be associated with, the practice of the absentee.

18. A committee to be formed by the practitioners of the district (or, if thought advisable, the Local Medical War Committee), and to have relegated to it by the agreement entered into by the absentee and deputy such powers as will permit it to deal with all disputes of whatsoever nature arising between the absentee and the deputy in regard to any question affecting the absentee's practice or the carrying on of the same by the deputy, and the decision of such committees to be binding on both parties.

In Case of Death on Active Service.

The Harrow Local Medical War Committee makes the following suggestions:

(*a*) In a single-handed practice, the practice to be carried on as far as possible for twelve months and the entire net proceeds during that period paid to the estate unless other arrangements made by the executive.

(*b*) In a partnership practice, colleagues either to refuse attendance on patients of deceased doctor for twelve months, or during that time hand over entire proceeds from patients who belonged to the partnership.

* A legal agreement embodying this scheme has been drafted and copies can be obtained on application to Dr. T. Campbell, Secretary, Lancashire Panel Committee, Prudential Buildings, Library Street, Wigan.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

AT the monthly meeting of the Committee, held in the Royal College of Physicians, Edinburgh, on July 15th, the Convener reported that it was expected that the July contingent joining the R.A.M.C. would be about one hundred.

The *Register* had been carefully gone over, and of the medical men in Scotland who, having qualified in 1896 or subsequently, were possibly under the age of 41, only 69 had failed to register their names as willing to accept a commission if called upon to do so. Their names had been transmitted to the military authorities.

The Executive Committee had authorized the issue of the first call under the new system, and arrangements were made for hearing those who desired to put forward reasons for postponement. Sheriff Fleming outlined the method of procedure to be followed, and referred to the very special responsibilities which had been placed on the medical profession.

The President of the Royal College of Surgeons presented the list of the suggested staff of an Edinburgh hospital for service abroad. Its formal approval completes the Scottish hospital contingent, the Glasgow and Aberdeen hospitals having been approved at previous meetings.

IRISH MEDICAL COMMITTEE.

A MEETING of the Irish Medical Committee was held in the Royal College of Surgeons, Dublin, on Tuesday, July 11th. Mr. R. J. JOHNSTONE was in the chair, and the following members were present: Drs. R. M. Blake, T. B. Costello, J. S. Darling, T. A. Davidson, W. Delany, J. F. Fagan, D. Gray, S. F. Gawn, H. Kidd (Carlow), J. C. King, J. M. S. Kenny, T. G. McGrath, W. A. Morton, W. W. Murphy, B. C. Powell, J. Power, R. J. Rowlette, M. Shinkwin, E. C. Thompson, D. Walshe, H. T. Warnock. Dr. T. Hennessy (Medical Secretary) and Mr. C. H. Gick (Secretary) were also in attendance.

The deputation appointed had met the Insurance Commissioners on the same day and discussed the different schemes for the distribution of the grant for certification. The following members of the deputation attended: Drs. R. J. Johnstone, J. S. Darling, J. Power, R. M. Blake, R. J. Rowlette, W. W. Murphy, M. R. J. Hayes, and T. Hennessy (Medical Secretary) and Mr. C. H. Gick (Secretary).

Schemes for Distribution of Grant for Certification.

The Chairman, Mr. R. J. JOHNSTONE, explained that the chief business for the Committee was to consider the report of the deputation which had met the Commissioners in the forenoon as regards the allocation of the grant for the certification of sickness benefits under the Insurance Act. He gave a detailed account of the different schemes, with their advantages and disadvantages, as they affected the profession, the insured, the approved societies, and the Treasury. There were six schemes for distributing the grant submitted to the deputation for consideration—namely:

(1) Amount payable on basis of number of certificates only.
(2) Amount payable on basis of number of cases only.
(3) Amount payable on basis of 50 per cent. of total available, divided on basis of number of cases *plus* 50 per cent. of total divided on basis of number of certificates.
(4) Amount payable on basis of number of certificates less excess over average number of certificates for area.
(5) As in scheme (1) with 50 per cent. extra allowance for first certificates and final certificates and 100 per cent. for certificates M.C. 3, M.C. 5, and M.C. 6.
(6) A combination of (4) and (5).

The Chairman stated he was of opinion that the extra remuneration provided for under (5) was only equitable in the cases of the certificates mentioned, as first and final certificates meant more detailed examinations on the part of the doctor, and the certificates M.C. 3, M.C. 5, and M.C. 6 meant extra work in forwarding them to the Commission and Insurance Committees with possible subsequent correspondence.

The Commissioners stated that as 75 per cent. of the doctors had failed to write in the blocks of certificates the dispensary district in which insured persons resided they could only prepare the scheme for distribution for counties, county boroughs, and urban districts with 10,000 and upwards.

The Committee, including the Poor Law medical officers' representatives, decided, as a temporary measure, to accept for the distribution of the grant scheme (6) which is a combination of (4) and (5) until the Commissioners have sufficient data to apply the scheme to dispensary districts in rural areas in accordance with the terms of the agreement signed by the doctors in these districts.

The Insurance Commissioners informed the deputation that they expected they would be in a position to pay the doctors for the quarter ending March 31st last within a fortnight from the date of the interview.

Poor Law Subcommittee.

A meeting of the Poor Law Subcommittee held on the same day was attended by the following members: Dr. J. S. DARLING (in the chair), Drs. R. Marley Blake, S. F. Gawn, T. G. McGrath, W. W. Murphy, J. O'Connor, B. C. Powell, J. Power, M. Shinkwin. Dr. T. Hennessy and Mr. C. H. Gick, secretaries, were also in attendance. The following resolution was passed:

That the Poor Law Subcommittee of the Irish Medical Committee be called together at the first convenient time to consider future legislation and questions in connexion with the Poor Law.

British Medical Association.

CURRENT NOTES.

CERTIFYING SURGEONS' REPORTS ON ACCIDENTS.

A LETTER has been addressed to members of the House of Lords by the British Medical Association asking that the proposal contained in the Police, etc. (Miscellaneous Provisions) Bill, passed in the House of Commons on July 6th, abolishing reports of certifying surgeons on accidents, save in certain exceptional circumstances, should be rejected. The text of the clause was published in the JOURNAL last week (p. 87). The letter points out that, pending adequate consideration of the subject, it appears to the Association to be unwarrantable to deprive the factory workers of the safeguard which the investigations and reports of the certifying surgeons provided for by the Factory and Workshop Act of 1901 undoubtedly gives. The report of the certifying surgeon is a safeguard to the worker; even in normal times the staff of the factory inspector would be quite insufficient to investigate all the accidents reported, and the staff is now much depleted. At present the factory surgeon visits the factory in all cases, interviews the injured person, and reports to the inspector, who only investigates the more serious accidents. The abolition of the surgeon's report will leave the inspector dependent entirely on the employer's report, and the injured person's version will no longer be available.

WELFARE SCHEMES AND THE PRIVATE PRACTITIONER.

A recent issue of the *Medical Officer* (June 24th) contains a long letter from Dr. H. B. Brackenbury, Chairman of the Maternity and Child Welfare Subcommittee of the British Medical Association, on the subject of private practitioners and infant welfare schemes, in reply to a leading article which that journal published reflecting rather severely on the infant welfare scheme submitted by the Hornsey medical profession to the council of that borough. Dr. Brackenbury points out that the scheme was based on that of the British Medical Association, and was formulated by a subcommittee which has upon it members nominated by the Society of Medical Officers of Health and others, men and women, who are not general practitioners. The letter is a powerful defence of the policy the Association has adopted in regard to this matter—namely, that no one can advise the mother with regard to her own health or that of her child better than the experienced general practitioner, and that a scheme which is financially sound and which ensures the co-operation of the local general practitioners should at any rate receive the earnest and sympathetic consideration of any local authority which is proposing to inaugurate a maternity and child welfare scheme.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1916.

Date of Meeting.

The Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 28th, 1916, at 10 a.m., and following day(s) as may be required.

ANNUAL GENERAL MEETING.

Notice is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order.

Guy Elliston,
Financial Secretary and Business Manager.

429, Strand, London, W.C.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Metropolitan Counties Branch: City Division.—Dr. John Jos. McNaboe, Honorary Secretary, gives notice that a meeting of the City Division will be held on Tuesday, July 25th, at the Metropolitan Hospital, Kingsland Road, at 9.30 p.m. precisely, when important matters will be considered.

Surrey Branch.—Mr. Cecil P. Lankester, Honorary Secretary (1, Rectory Place, Guildford), gives notice that the annual meeting of the Surrey Branch will be held at the Central Office, 429, Strand, on Wednesday, July 26th, at 3.15 p.m. There will be no social function.

Meetings of Branches and Divisions.

METROPOLITAN COUNTIES BRANCH:

East Hertfordshire Division.

The annual meeting of the East Hertfordshire Division was held at the offices of the Association, 429, Strand, W.C., on June 21st, when the following officers were elected for 1916–17:

Chairman: Dr. Windsor (Royston).
Vice-Chairman: Dr. Shelly (Hertford).
Honorary Secretary and Treasurer: Dr. Ledward (Letchworth).
Representative on Branch Council: Dr. Sturge (Hoddesdon).
Representative for Representative Meetings: Dr. Gilbertson (Hitchin).
Deputy Representative for Representative Meetings: Dr. Ledward (Letchworth).
Ordinary Members of Executive Committee: Drs. Addison (Hoddesdon), Fell (Buntingford), Boyd (Ware), Lawson Smith (Hertford), Brittain (Hatfield), de Vine (Walkern).

NORTHERN COUNTIES OF SCOTLAND BRANCH:

Ross and Cromarty Division.

The annual meeting of the Division was held in the Ross Memorial Hospital, Dingwall, on July 5th.

Reduction of Notification Fees.—The Secretary read a communication from the Medical Secretary of the Association upon the subject of the reduction of fees for the notification of infectious diseases, in reply to the resolution of the Division passed at their meeting of June 2nd:

> The Division approved the action of the Medico-Political Committee of the Association, expressed regret at their failure, and hoped strong action would be taken at the end of the war to have this grievance of the profession remedied. The feeling of the Division was that if the Association were formed into a trade union they would possess more power in preventing such abuses of their rights.

Annual Reports.—The annual reports of the Secretary were read and approved.

Election of Officers.—The following office-bearers were elected for the coming year:

Chairman: Dr. John Cameron (Kingarth, Fortrose).
Vice-Chairman: Dr. J. P. Smith (Dingwall).
Honorary Secretary: Dr. E. K. Mackenzie (Tain).
Representative for Representative Meeting: Dr. J. Munro Moir (Inverness).
Representative on Branch Council: Dr. J. P. Smith (Dingwall).
Executive Committee: Dr. Broadfoot (Dingwall), Dr. Ross (Tain), Dr. Knox (Gairloch), Dr. Somerville (Invergordon), Dr. Smith (Dingwall), Dr. Johnstone (Cromarty).

NORTH WALES BRANCH.

The annual meeting of the North Wales Branch was held at Bangor University on June 27th.

Election of Officers.—The following officers were re-elected:

President: Dr. Drinkwater (Wrexham).
President-elect: Dr. H. Jones Roberts.
Secretaries: Dr. H. Jones Roberts (Pen-y-groes) and Dr. J. R. Prytherch (Llangefni).

The representatives of the Branch on the court of governors of Bangor and Aberystwith College were re-elected, as were also the members of the council.

Ethical Rules.—The ethical rules were adopted.

Proposed National Medical School for Wales.—Afterwards a well-attended meeting was held of the profession in North Wales to hear an address by Professor Sir William Osler on the "Proposed National Medical School for Wales." He was supported by Mr. Lynn Thomas (Cardiff), Mr. Thelwall Thomas (Liverpool), and others.

Both members and non-members afterwards partook of tea which had been arranged in the college dining-room.

SOUTHERN BRANCH.

The annual meeting of the Branch was held on July 12th at the Royal Hampshire County Hospital, Winchester. In the absence of the President (Dr. Routh) on military duties, Dr. W. Morton Harman, the Senior Past-President, was elected to the chair.

Ethical Rules.—It was reported that the revised ethical rules became operative on November 29th, 1915.

Annual Report.—The annual report and financial statement, together with the balance sheet of the Belgian Doctors' and Pharmacists' Fund, were unanimously adopted.

Election of Officers.—The officers of the Branch nominated by the Council were elected, no other nominations having been received. A vote of congratulation to Mr. Lockhart Stephens of Emsworth on the occasion of his being made a Deputy Lieutenant for the county for his zealous services to the British Red Cross Society, and a vote of appreciation of the services of Dr. G. Benington Wood to the Isle of Wight Division and to the Branch, and of regret at his having resigned his connexion with the Association, were unanimously passed by the meeting.

Induction of President.—The incoming President, Dr. A. E. Bodington, then took the chair, and, after thanking the members, proposed a vote of thanks to the retiring President, Dr. Routh, which was carried with acclamation.

German Camps.—On the motion of Dr. Harman, seconded by Mr. R. D. H. Gwillim, the following resolution was unanimously adopted:

> That this meeting desires to place on record its abhorrence, indignation, and grief at the shocking, barbarous, and inhuman treatment by the Germans (and especially by the members of the German medical profession in charge of the camps at Ruhleben and Wittenberg) of their prisoners, particularly those of British nationality, not only by systematic starvation and brutal punishments, but also by neglect of treatment during illness, a horrible instance of which occurred during the epidemic of typhus fever in Wittenberg camp.

Tea.—The President entertained the members to tea, during which a collection was made amounting to £3, which the Treasurer was instructed to send to Epsom College, the votes accruing to be distributed by the President and Secretary.

Owing to the state of the weather the golf competition for the Childe Challenge Cup was postponed.

SOUTH MIDLAND BRANCH:

Buckinghamshire Division.

A meeting of the Buckinghamshire Division was held at High Wycombe on July 18th.

State Medical Service.—The following resolution was carried unanimously:

> That this Division urges the Representative Meeting to at once state the strong objection of the majority of the profession to any form of compulsion for medical men over military age, as suggested by the medical correspondent of the *Times* in the editions of June 12th, 13th, and 16th of this year, and also to the formation of a so-called State Medical Service as advocated in the same editions. They wish to state that they strongly object to the views advocated by the medical correspondent of the *Times*, which

they consider are not the views of the profession as a whole.

Red Cross Work in Serbia.—A very interesting address was given to about seventy members and their friends by Mr. JAMES BERRY on "Red Cross Work in Serbia"; afterwards members and their friends were entertained to tea by the medical profession of High Wycombe, and hearty votes of thanks were passed to Mr. Berry and to the hosts.

SUSSEX BRANCH.

THE annual meeting of the Sussex Branch was held at Eastbourne on July 5th. The outgoing President introduced the President for the year, Dr. MUIR SMITH, who took the chair, and the meeting passed a hearty vote of thanks to Dr. E. Hobhouse for his services as President during the past year.

Election of Officers.—The following officers were elected:

Vice-Presidents: Dr. E. Hobhouse and Dr. E. W. Skinner, J.P.
Honorary Secretary and Treasurer: Dr. A. M. Daldy.

Annual Report.—The annual report presented to the meeting stated that during the year five meetings had been held with an average attendance of ten. A conference of representatives summoned by the Branch Council had considered the question of the treatment of elementary school children, and though it had been considered inadvisable to take any definite action during the war, the following resolution had been adopted:

> In the opinion of this Branch Council in any scheme for the treatment of elementary school children suffering from enlarged tonsils or adenoids, a rota should be arranged by each Division for its area of medical men willing and competent to operate and administer anaesthetics, and that these should act in annual rotation.

Visit to Convalescent Camp.—The members subsequently visited the Military Convalescent Hospital at Summerdown, the various departments of which were inspected by kind permission of the commanding officer, Lieutenant-Colonel J. W. Bostock, R.A.M.C., who explained the arrangements and methods of treatment to the visitors.

Tea.—The members were entertained at tea in Devonshire Park by the mayor, Dr. O'Brien Harding.

WILTSHIRE BRANCH:

SALISBURY DIVISION.

THE annual general meeting of the Salisbury Division was held on July 5th, when Dr. J. E. GORDON was in the chair.

Annual Report and Financial Statement.—The annual report and financial statement were read, and it was decided to make a donation of £1 1s. to the Salisbury Infirmary for the use of the room.

Ethical Rules.—On the motion of Dr. WILLCOX, seconded by Dr. GORDON, it was unanimously decided to adopt the ethical rules recommended by the Representative Body.

Election of Officers.—The officers were re-elected.

Annual Representative Meeting.—The CHAIRMAN then gave a summary of the matters referred to the Division, and the Secretary was instructed to inform Dr. Flemming, the Representative, that the Division supported the recommendations of the Council.

Local Medical War Committee.—Directly after the meeting a general meeting of practitioners in the Division was held. Dr. J. E. GORDON, who presided, said that the meeting had been called to discuss the personnel of the Local Medical War Committee. Dr. Gordon gave, in response to a question by Dr. WARD, a summary of the duties of the Committee from the SUPPLEMENT of the BRITISH MEDICAL JOURNAL. On the motion of Dr. WILLCOX, seconded by Dr. STRATON, the Executive Committee of the Division of the British Medical Association was unanimously elected *en bloc* as the Local Medical War Committee.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

REPORT OF CANADIAN COMMITTEE ON PENSIONS.

THE report of the Special Committee on Pensions was submitted to the Canadian Parliament on May 18th. It is confined to the question of pensions for men who enlisted with the Canadian Expeditionary Force, the active militia and the permanent force of Canada not being considered. It recommends that a board of three shall be appointed for a period of ten years. The report recommends also that there shall be no appeal from the decision of this Board; that a pension shall not be assigned, commuted, or anticipated; and that no distinction shall be made as to the rate of pension paid to married or unmarried men, since an unmarried man has the right to marry. In the opinion of the Commission, the difference in the old scale of pensions between the amounts paid to the lower ranks and the sums allotted to those above the rank of lieutenant was too great; they therefore recommended that pensions given the former should be substantially increased—that is, a private who formally would receive 264 dols. a year, if totally disabled, should be paid 480 dols. whether single or married; if married, with three children, under the former scale he would have received 576 dols., under the new scale he would get 696 dols. The pension given to a lieutenant under the new arrangement would be 720 dols. instead of 480 dols.; and, if he had children, 936 dols. instead of 918 dols. The increased rates recommended in the report entail an expenditure of 7,184,181 dols. for an army of 100,000 in the field for one year, as compared with 5,481,500 dols. under the former scale.

No definite conclusion was reached as to whether men who had enlisted in Canada for service with any of the Allied forces, or who had gone as reservists to the British Isles, should be included in the pensions list, although, having regard to the cost of living in Canada, it was considered necessary that something should be done to supplement the amounts received by such men or by their widows. It is suggested that men suffering from a condition aggravated by active service should be entitled to pensions, and that no distinction should be made between disability the result of injury sustained in the presence of the enemy and that sustained during ordinary drill subsequent to enlistment. Other recommendations made in the report are that an additional grant of 250 dols. be made to men who are totally helpless; that allowances for children (6 dols. a month for each child) shall be continued until the boys are 16 and the girls 17 years of age; that children of disabled soldiers who are widowers shall each receive 12 dols. a month; and that soldiers' widows shall be paid 80 per cent. of the pension to which the soldier would have been entitled.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

CROYDON.

AT a meeting of the Panel Committee on July 17th the resolutions adopted by the Stockport Panel Committee with reference to the settlement for 1914 were approved.

BERKS COUNTY.

At a meeting of the Panel Committee on June 9th it was decided to agree to the proposed emergency settlement for 1915, and that the present representatives of the Local Medical and Panel Committees on the Insurance Acts Committee should retain office for 1916–17.

GLOUCESTERSHIRE.

At a meeting of the Local Medical and Panel Committee on June 1st it was agreed to accept the proposed scheme for a settlement for 1915, with a proviso that an undertaking should be given that if a deficiency be found to exist in the medical pool for the subsequent year or years, deduction would not be made from the doctors' payment without exact proof being submitted, after full inquiry, to the Panel Committee of the deficiency and its cause. It was decided to ask the Commissioners for a higher rate of

payment for attendance on panel patients owing to the increased cost of drugs, travelling, etc.

BIRMINGHAM.

At a meeting of the Panel Committee on June 6th it was reported that the Commissioners could hold out no hope of any sum in the way of a war bonus being made available for panel practitioners in respect of increased expenses. It was decided to agree to the proposed emergency settlement of panel practitioners' accounts for 1915, and that the present co-opted representatives to the Insurance Acts Committee should retain office for 1916–17. The annual report and statement of accounts were presented and approved.

At a meeting of the Panel Committee on July 4th it was reported that the Commissioners agreed to the present Committee continuing in office until July 15th, 1917, and reserved the right to extend the time for a further period not exceeding twelve months after the termination of the war. It was decided not to agree to a proposal that the keeping of record cards during the war should be discontinued. The existing officers and honorary auditors were re-elected.

EAST SUFFOLK.

At a meeting of the Panel Committee on June 8th it was decided to ask the Clerk of the Insurance Committee what practice he adopted when insured persons removed out of the area of the doctor who had been treating them and his general method of dealing with any change of address. A list of ten stock mixtures was selected from the list issued by the Commissioners.

It was agreed to accept the proposed emergency settlement of practitioners' accounts for 1915, and that the present representatives of Local Medical and Panel Committees on the Insurance Acts Committee should retain office for 1916–17.

It was decided that when an insured person is suffering from any disease due to his own misconduct he should not be debarred from sickness benefit if, in the opinion of his medical attendant, he cannot be efficiently treated without enforced rest.

NORTHAMPTONSHIRE.

At a meeting of the Panel Committee on June 8th the secretary was instructed to write to the local military authorities with reference to the compulsory enlistment of doctors' chauffeurs, and to point out the hardship and embarrassment which would be caused. Ten stock mixtures were selected for use in the area.

STAFFORDSHIRE.

At a meeting of the Local Medical and Panel Committee on June 6th the proposed emergency settlement for 1915 was approved. It was agreed that when an insured person is suffering from a disease due to his own misconduct, he should not be debarred from sickness benefit if, in the opinion of his medical attendant, he cannot be efficiently treated without enforced rest. It was resolved that the representatives of the Local Medical and Panel Committees on the Insurance Acts Committee should retain office until the next conference.

WARWICKSHIRE.

At a meeting of the Panel Committee on June 2nd it was decided to agree to the proposed emergency settlement for 1915, and that the representatives of Local Medical and Panel Committees on the Insurance Acts Committee should continue in office for 1916–17. It was decided to inform the Insurance Committee that the name of an insured person should not be removed from a doctor's list on notice of change until another doctor had been chosen. It was resolved that sickness benefit should not be withheld in disease due to "own misconduct," if, in the opinion of the medical attendant, enforced rest was necessary for the patient's cure.

LIVERPOOL.

At a meeting of the Panel Committee on June 6th it was resolved that when an insured person is suffering from a disease which would cause him to be refused sickness benefit because his disease was due to his own misconduct he should not be debarred from sickness benefit, if in the opinion of his medical attendant he cannot be efficiently treated while following his occupation.

At a meeting of the panel practitioners of Liverpool on June 9th Dr. Campbell, representative of Lancashire on the Insurance Acts Committee of the British Medical Association, was present by special invitation of the Panel Committee.

The report of the Panel Committee for the past year was adopted, and the meeting expressed its deep gratitude to the Insurance Acts Committee of the British Medical Association for the enormous amount of work it had done for panel practitioners. It was decided to agree to the proposed emergency settlement of panel practitioners' accounts for 1915.

WEST RIDING OF YORKSHIRE.

At a meeting of the Local Medical and Panel Committees on June 2nd a letter was read from the Clerk to the West Riding Insurance Committee stating that the Insurance Committee had decided that the removal of a Meibomian cyst from the eyelid was within the range of medical benefit, and that the Commissioners, to whom the matter had been reported in accordance with the regulations, did not propose to refer the question to referees.

It was agreed to accept the proposed emergency settlement of practitioners' accounts for the medical year 1915 and that the representatives of Local Medical and Panel Committees on the Insurance Acts Committee should continue in office for 1916–17.

MONMOUTHSHIRE.

At a meeting of the Local Medical and Panel Committees on May 30th it was resolved that no transfers of insured persons shall take place from or to doctors who have accepted commissions in the R.A.M.C. or R.N. medical service or to their partners until the end of the war. It was decided to write to the Welsh Commissioners and to the Insurance Committee to the effect that the deduction of 30 per cent. from the quarterly payments was not justifiable, as the Panel Committee had every reason to believe that the number of insured persons at present in the area was larger than before the war. It was also decided to ask the Welsh Commissioners for the reason of the delay in the settlement for 1914.

RENFREW COUNTY.

At a meeting of the Panel Committee on May 12th it was reported that the Insurance Committee was now issuing with each blank medical card a printed slip bearing the brief instruction "Important—Take your medical card at once to the panel doctor whom you wish to select."

It was decided to agree to the proposed emergency settlement for 1915, and it was reported that the provisional credit for 1915 had now been received, and that it showed a considerable balance still available for division among practitioners. The present representatives of Local Medical and Panel Committees on the Insurance Acts Committee of the British Medical Association were requested to retain office for 1916–17.

CORRESPONDENCE.

DEDUCTIONS FROM PANEL LISTS.

DR. D. ROBERTS (Swadlincote) writes: So at last we know where we are. The Commissioners are figureheads only, the approved societies being the administrators of the Act (vide paragraph 202, Council's report, SUPPLEMENT, July 8th, page 15). The Commissioners "have always urged upon societies . . . the necessity for prompt notification . . . and they will continue. . . ." All this implies the possibility of "prompt notification," and admits refusal of compliance. This is neither the tone, manner, or method that is used towards medical delinquents. In the *Handbook for the Use of Approved Societies* is the following paragraph or rule:

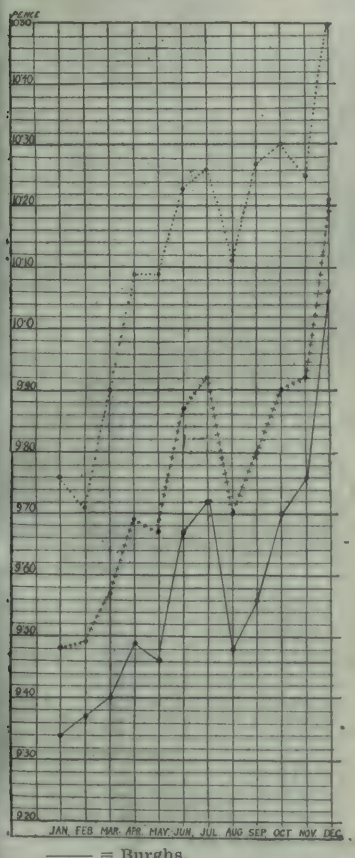
> 85. Societies are required under the rules [these rules have been approved by the Commissioners] to give notice at once to the Commission of expulsions and withdrawals. Such notification must be given on the proper form not more than a week after the date of termination of membership. . . .

All that is required is to enforce this rule.

INSURANCE NOTES.

COST OF PRESCRIPTIONS IN SCOTLAND IN 1915.

THE accompanying chart, prepared by the Drugs Accounts Committee of the Insurance Commission for Scotland, shows the average monthly cost during 1915 per prescription (1) for the burghs, (2) for the counties, and (3) for the burghs and counties combined. The mean cost per prescription form throughout the whole of Scotland during 1915 was 9.74 pence.



——— = Burghs.
..... = Counties.
+++ = Counties and Burghs.

STOCK MIXTURES FOR INSURANCE PRESCRIBING.

ALL Panel Committees and Insurance Committees will by this time have received the list of mixtures agreed by the British Medical Association and the Pharmaceutical Society of Great Britain or adjudged by the Insurance Commissioners to be capable of being stocked in bulk without deterioration, and it is noticeable that a considerable number of Panel Committees have not only selected from this list the ten stock mixtures to which the reduced dispensing fee of 2.3d. may be applied, but for the convenience of practitioners in prescribing have drawn up formularies often of considerable extent. The formulary adopted by the Bradford Panel Committee contains, for example, a long list of formulae for gargles, drops, liniments, lotions, ointments, and mixtures; the formulae for the mixtures alone number forty-seven and include all the more commonly used drugs. Of course, it is not suggested that anything like all of these can be made up as stock mixtures to be kept in bulk. Preceding the formulae is a glossary of trade-mark names with their equivalent chemical and therapeutic names which should be used in prescribing for the sake of economy.

In view of the practically universal use of certain stock mixtures which have been proved to keep without deterioration for any reasonable length of time, it is curious to note how persistently the Pharmaceutical Society uses every opportunity to decry their use. The *Pharmaceutical Journal* for May 27th published a letter, signed by the secretary and registrar of the Pharmaceutical Society, addressed to the National Association of Insurance Committees, which attempts to prejudice Insurance Committees against any use of stock mixtures. The two main objections put forward are, first, that they tend to hasty prescribing by doctors, and secondly, that they are liable when kept to chemical changes. The first of these objections is really an indictment against the whole body of medical practitioners and against every hospital in the kingdom, and it is at once condemned by its sweeping character. The second statement that stock mixtures are liable to chemical changes contains just such a modicum of truth that Insurance Committees need to be warned of it. If the secretary of the Pharmaceutical Society had stated that all preparations of drugs are liable to chemical changes on keeping he would have been just as near the full truth. The truth is that some simple drugs and some stock mixtures are liable to chemical changes on keeping, but this is by no means true of all. The secretary is in fact bound to admit that "it may be possible to prepare mixtures which do not deteriorate." He is further compelled to give away his case when he admits that the official *British Pharmacopoeia* contains some stock mixtures, and the assertion that, because the General Medical Council included some stock mixtures it therefore meant to imply that no others should be used, is more amusing than convincing.

INSURANCE PRESCRIBING AT DUNDEE.

The Dundee Panel Committee has circulated to panel practitioners of its area a tabular abstract of the reports of the Drug Checking Bureau for the year 1915, showing the cost of each practitioner's prescribing during the year. The total panel list for the area is 55,331, and the total cost to the drug fund was about £4,991. The report shows an average cost per form of 10.07d., each person receiving on an average 2.15 prescriptions, the average cost per insured person being a fraction over 1s. 9½d. The practitioners, who are denoted by numbers, are arranged in the order of the average costliness of their prescriptions, and this is seen to range from 14.62d. per form to 5.82d., and the Committee notes that if each practitioner had required drugs as costly as the first on the list the total cost would have been £7,251 instead of £4,991, and with an average frequency of 2.15 forms per insured person on panel lists the cost per insured person for the year would have been about 2s. 7d.—that is, 7d. more than the drug fund provides. In one case the table shows that a practitioner gave as many as 5.12 prescriptions to each person on his list, while another only gave 1.02 prescriptions. The Committee states that a practitioner whose practice is unreasonably costly draws on not only his own floating 6d. but on that of the economical prescribers, and the Committee is not in the possession of any evidence to show that costly prescribing is accompanied by any increase in therapeutic efficiency. It gives notice that in future it purposes to call for justification in every case in which either individual prescribing or general practice suggests extravagance.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons R. St. G. S. Bond, M.B., to Plymouth Hospital; J. St. T. Murphy to the *Commonwealth*. Staff Surgeon J. E. Johnston, M.B., to the *Pembroke*. Surgeons F. J. D. Twigg, M.B., to Ascension Island; R. J. Barlee to Malta Hospital; G. B. Cockrem to the *Tamar*; J. P. Shorten to the *Victory*. Temporary Surgeons A. Evans to the *Vivid* additional for Plymouth Hospital; J. H. Newmarch, M.B., to the *Sapphire*; A. H. Harkness to the *Vivid* for R.N. Barracks; C. H. Gimlette to the *Europa*; A. E. Saunderson to the *Victory* for R.N. Barracks; T. D. Power, M.B., to R.M. Infirmary, Deal; C. C. Chance, M.B., to the *Zealandia*; P. B. Kelley, D.S.O., to Osborne, additional for R.N. College, Osborne; C. F. Schuler, M.B., to the *Pembroke* for Chatham Hospital; T. R. F. Kirby to Haslar Hospital; H. Whyte to the *Donegal*; R. J. Monahan to the *Venerable*; F. C. Endean to the *Dido*; G. J. C. Smyth to the *Blenheim*. To be temporary Surgeons; Surgeon Probationers T. R. F. Kirby, J. A. D. Skinner, and R. O. Townend of the R.N.V.R.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon T. L. Ellis to the *Victory* additional for R.N. Dépôt, Crystal Palace. Surgeon Probationers: O. Gray to the *Cockatrice*; G. D. F. McFadden to the *Archer*.

ARMY MEDICAL SERVICE.

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services: R. J. W. Mawhinney, D. J. Collins, M.D.

ROYAL ARMY MEDICAL CORPS.

Temporary Captains relinquish their commissions: J. H. V. Scott, M.B., C. C. Cragg, M.D.

Temporary Captain A. G. Watson, from East Lancashire Rifles, to be temporary Captain.

Temporary Lieutenants to be temporary Captains: J. Bowes, M.D., D. F. Kennard.

Temporary honorary Lieutenant H. A. Whyte-Venables to be temporary Lieutenant.

The notification in the *London Gazette* of May 29th regarding temporary Lieutenant J. Bowes, M.D., is cancelled.

Temporary Lieutenant E. H. Flanigan, M.B., relinquishes his commission of account of ill health.

Temporary honorary Lieutenant H. J. Wallace, having ceased to be employed with the British Red Cross Hospital, Netley, relinquishes his commission.

Temporary Lieutenant B. J. Nolan relinquishes his commission on account of ill health.

Temporary honorary Lieutenant H. L. Hughes relinquishes his commission on account of ill health.

Temporary honorary Lieutenants to be temporary Lieutenants: A. W. Adams, W. L. Thomas

P. D. Magowan to be temporary Lieutenant whilst employed at the Lord Derby War Hospital.

Lieutenants, Canadian A.M.C., to be temporary Lieutenants: M. J. Wilson, M.B., J. A. Dickson, M.B., A. R. Lindsay, M.B., C. J. McN. Willoughby, M.B., J. H. Sharpe, M.B., A. R. Macdonald, M.B., A. C. Norwich, M.B., S. G. Graham, M.B., G. W. Renton, M.D., P. A. Sarjeant, M.B., A. J. Ireland, M.D., L. R. Hill, W. S. Foote, R. J. Snider, M.B., G. W. Armstrong, W. E. Hodgkins, M.B., H. S. Burns, M.B., P. B. Brown, G. M. Cameron, J. A. Stanley, M.B., R. R. Robson, M.B., G. Scullard, M.B., W. B. Rutherford, M.B., P. W. M. Curry, M.B., O. McP. Warner, M.D., G. E. Charters, M.D.

To be temporary Lieutenants: W. W. Wood, M.B., D. H. Collingham, L. P. Anderson, A. W. Ritchie, M.B., R. H. Lee, M.D., A. E. B. Sim, M.B., A. P. F. Gammack, M.B., C. L. Hawkins, M.B., R. L. Sinclair, M.B., B. Haigh, D. H. Hutchinson, M.D., R. Dunston, M. R. V. Ford, R. C. Alexander, M.B., F.R.C.S.E., A. G. McKenna, R. N. Thomson,

M.B., C. B. Goulden, M.D., F.R.C.S., S. Samuel, M.B., A. J. Stanley, M.B., A. E. Carver, M.D., W. S. I. Robertson, M.B., T. Barbour, M.B., S. A. Bull, M.D., A. S. Carter, C. C. Holman, M.B., F.R.C.S., J. E. Ainsley.

R. Carle to be temporary honorary Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain G. K. Aubrey is placed temporarily on retired pay on account of ill health.

Captain H. Nield, M.D., relinquishes his commission on account of ill health.

Lieutenant G. T. Gimlette, M.B., to be Captain.

Lieutenant A. C. Cassells, M.B., late R.A.M.C.(S.R.), relinquishes his commission on account of ill health.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonels advanced to the higher position of their rank under Article 8 of the Royal Warrant of May 28th, 1913: Lieutenant-Colonel Sir J. R. Roberts, Kt., C.I.E., M.B., F.R.C.S., I.M.S., December 31st, 1915; Lieutenant-Colonel F. W. Gee, M.B., I.M.S., March 14th, 1916; Lieutenant-Colonel H. E. Drake-Brockman, F.R.C.S.E., I.M.S., April 1st, 1916; Lieutenant-Colonel W. B. Lane, I.M.S., April 1st, 1916.

Colonel A. O. Evans, Inspector-General of Civil Hospitals, Burma, has been granted combined leave for eight months, with effect from May 23rd, 1916.

Colonel P. C. H. Strickland, Officiating Assistant Director of Medical Services, 3rd (Lahore) Divisional Area, has been appointed to officiate as Inspector-General of Civil Hospitals, Burma, during the absence on leave of Colonel A. O. Evans.

Lieutenant-Colonel C. R. Pearce, M.B., Director of the Pasteur Institute, Rangoon, has been appointed permanently to the Bacteriological Department, with effect from June 25th, 1914.

Colonel D. St. J. D. Grant, M.B., is retained in the service for one year, with effect from March 14th, 1916, or for the period of the war, whichever is less, and will be borne supernumerary in his rank and grade.

Lieutenant-Colonel R. J. Macnamara, M.D., has been promoted to the rank of Colonel, vice Colonel D. St. J. D. Grant, M.B., retained as supernumerary, with effect from March 14th, 1916.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

J. D. Brousseau to be temporary Lieutenant-Colonel.

Majors to be temporary Lieutenant-Colonels: G. Bourgeois, E. A. Le Bel, F. H. L. de Martigny.

Captain R. Mayrand to be temporary Major.

H. J. Theriault to be temporary Captain.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Sanitary Company.—Lieutenants to be Captains: J. Davidson, H. Duguid, M.B., W. S. H. Campbell, M.B., W. A. F. Balfour-Browne, R. A. Askins, M.D.

Southern General Hospital.—Captain L. G. Parsons is seconded.

Welsh Border Mounted Brigade Field Ambulance.—C. Jephcott, M.B., to be Lieutenant.

Welsh Casualty Clearing Station.—Captain (temporary Major) E. J. T. Cory, M.D., to be Major.

Eastern General Hospital.—Captain W. Tyson, M.D., is restored to the establishment.

South Midland Field Ambulance.—Lieutenant F. A. J. Mayes to be Captain.

South Midland Mounted Brigade Field Ambulance.—Major A. W. Moore, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Western General Hospital.—The following are seconded for duty with a general hospital: Major A. H. Burgess, M.B., F.R.C.S., Captains P. R. Wrigley, F.R.C.S., and D. E. Core, M.D.

West Lancashire Casualty Clearing Station.—Lieutenant E. M. De Jong to be Captain.

West Lancashire Division Sanitary Section.—Lieutenant A. Reid to be Captain.

West Lancashire Field Ambulance.—Captain H. E. S. Richards, M.D., from Attached to Units other than Medical Units, to be Captain; Lieutenant A. H. Pinder to be Captain.

Lowland Field Ambulance.—Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: A. W. Anderson, M.D., W. Bryce, M.D. Captain E. S. Forde, Scottish Borderers, to be Major, temporary (substituted for announcement published in the *London Gazette* of August 10th, 1915). Lieutenant W. Goldie, M.B., to be Captain.

Highland Field Ambulance.—Lieutenant G. Torrance, M.B., to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BEDFORD COUNTY HOSPITAL.—House-Surgeon.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon. Salary, £100 to £120 per annum.

BIRMINGHAM UNIVERSITY.—Lecturer in Physiology. Stipend, £300 per annum.

BRIGHTON ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Surgeons and House-Physicians. Salary, £120 per annum. (2) House-Surgeon to Throat, Nose and Ear Department.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CHARING CROSS HOSPITAL, W.C.—Resident Medical Officer. Salary, £400 per annum.

CROYDON ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £250 per annum.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £100 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon. Salary, £150 per annum.

LIVERPOOL STANLEY HOSPITAL.—House-Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Salary, 120 guineas a year.

LORD MAYOR TRELOAR CRIPPLES' HOSPITAL, Alton.—Assistant Resident Medical Officer.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Temporary Assistant Administrator of Anaesthetics.

ST. PANCRAS UNION.—Junior Assistant Medical Superintendent for the South Infirmary and Junior Assistant Medical Officer of the House. Salary, £200 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—Honorary Casualty Out-patient Surgeons.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £160 per annum.

SOUTHAMPTON BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (lady). Salary, £100 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon. Salary, £200 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BARROW, G. A., M.R.C.S., L.R.C.P., Anaesthetist to the Manchester Royal Eye Hospital.

CONSTABLE, Evelyn A., M.B., B.S.Durh., Surgical Registrar to London Temperance Hospital, Hampstead Road, N.W.

DORNFORD, A. C., M.R.C.S., Certifying Factory Surgeon for the Faringdon District, co. Berks.

HACKETT, J. A. W., M.B., Ch.B.Edin., Certifying Factory Surgeon for the Gainsborough District, co. Lincoln.

LLOYD, J. T., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Tregaron District, co. Cardigan.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

ADAMS.—At Lygon House, Cale Green, Stockport, on July 11th, the wife of Eustace H. Adams, M.R.C.S., L.R.C.P., of a daughter.

DEATHS.

BELL.—Accidentally drowned on the 11th July, while on active service abroad, Edward Augustine Bell, M.B., B.S.Lond., Temp. Capt. R.A.M.C., son of Mrs. William Bell and the late William Bell, M.R.C.S., J.P. of New Brighton.

WALKER.—On the 19th of July, at 33, Westgate, Peterborough, Thomas James Walker, J.P., M.D., F.R.C.S., V.D., in his 81st year, after two months' illness. Funeral at St. John's Church, Peterborough, on Monday, the 24th inst., at 2.30 p.m.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JULY.
25	Tues.	London: Central Medical War Committee, 2 p.m. City Division, Metropolitan Hospital, Kingsland Road, N. 9.30 p.m.
26	Wed.	Surrey Branch, Annual Meeting, 429, Strand, W.C., 3.15 p.m.
28	Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m., and following days as may be required.
29	Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 29TH, 1916.

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MEDICAL INSPECTION OF SCHOOL CHILDREN IN LIVERPOOL.

IN his report for 1915 Dr. E. W. Hope, M.O.H. Liverpool, states that the average number of children attending elementary schools in 1915 was 137,375. The medical officers saw at routine inspection 36,572 children (16,022 entrants, 7,115 intermediates, and 13,435 leavers). In addition, there were 8,101 special cases showing various defects to which the attention of the medical inspectors was drawn by the teachers and nurses. Increased bath accommodation has been provided for in the north end of city, and 3,653 children were voluntary cleansed at this the centre. The work of the whole-time nurses shows that the number of children seen with minor ailments was 4,328, and that of these 1,744 were treated. The examinations for cleanliness numbered 218,696. The number of children found verminous, dirty, or otherwise neglected was 44,131. The number of cases of communicable diseases discovered was 510. The number of school cases of infectious diseases reported during the year 1915 was as follows: Measles, 1,772; whooping-cough, 2,020; and scarlet fever, 1,684. These numbers show a marked diminution compared with those of 1914. The treatment of defective vision is now, it is stated, quite satisfactory. In 1915, 5,068 children were treated, as compared with 3,564 in 1914; 1,148 children were treated at the school clinic, and 3,920 in the consulting rooms of medical men. A scheme for "following up" at the homes of the children came into operation during the past year. School attendance officers visited the cases referred by the school medical officers, and saw that the measures advised in cases of defective vision, *x*-ray treatment of ringworm, and dental troubles were carried out. Female health visitors were also instrumental in referring children to certain school care committees—for example, the Invalid Children's Association. One noticeable feature in the report is the diminution by half of the number of barefooted children, 1.3 per cent. It would appear that the boys of the intermediate period are worst off in this respect. The proportion of children with sound foot-gear was 45 per cent. In spite of the war, and the depletion of the various staffs, the report shows that the city authorities are earnestly attending to the well-being of the children.

British Medical Association.

IRISH COMMITTEE.

AT a meeting of the Irish Committee of the British Medical Association held on July 11th, 1916, at the Irish Offices, 16, South Frederick Street, Dublin, the following resolutions were passed:

1. That the Irish Committee approves of the efforts made by the Local Government Board to have locumtenents, nominated by Poor Law medical officers joining the R.A.M.C., appointed by boards of guardians so long as the interests of the sick poor are safeguarded.
2. That as the majority of unions in Ireland have adopted graded scales of salaries for their medical officers the Irish Medical Secretary of the British Medical Association be requested to write to the Local Government Board urging that they should at once take the necessary steps to have all unions in Ireland brought into uniformity on the matter.
3. That the Irish Medical Secretary write to the Local Government Board urging on them the necessity of appointing the substitutes nominated by the doctor going on leave in all cases where satisfactory arrangements have been made for the treatment of the sick, as it frequently happens where boards of guardians refuse to appoint the substitutes nominated by the Poor Law medical officers that such doctors are compelled, in the interests of their private practice, to forego their much-needed annual holidays towards the expense of which the Treasury makes a special grant.

Meetings of Branches and Divisions.

SURREY BRANCH:

CROYDON DIVISION.

THE annual meeting of the Division was held at the Croydon General Hospital on July 20th, when Mr. CRESSY was in the chair.

Election of Officers. — The following officers were elected:

Chairman: A. Z. S. Cressy.
Vice-Chairman: J. A. Howard.
Honorary Secretary: E. H. Willock.
Assistant Secretary: C. G. C. Scudamore.
Representative for Representative Meeting: E. H. Willock.
Deputy Representative: W. Gripper or G. G. Genge.

Representatives on Branch Council: C. G. C. Scudamore and J. A. Howard.

Executive Committee: E. G. C. Daniel, C. O. Fowler, G. G. Genge, W. Gripper, F. Nicholls, A. A. H. Partridge, J. J. Redfern, E. N. Reichardt, J. S. Richards, S. S. Simmons, G. Wale, J. Wayle, R. J. Willson, and C. Wray.

Association Notices.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order.

GUY ELLISTON,
Financial Secretary and Business Manager.

429, Strand, London, W.C.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

London.

AT the meeting of the joint Local Medical and Panel Committees for the county of London on July 18th Drs. H. J. Cardale, J. A. Angus, and Lauriston Shaw were re-elected chairman, vice-chairman, and treasurer respectively. It was announced that the special section appointed to consider the position of panel practitioners in connexion with the Military Service Acts had had access to a list of practitioners who had received warning that their names were included among those of a specified number of doctors from whom selections would be made for commissions in the R.A.M.C. on August 7th; and that, having regard to the difficulties of providing treatment for insured persons in certain densely populated areas, it had been decided to apply for exemption in thirty-six cases. Letters were read from the British Medical Association and the Local Government Board with regard to the protest which the committee had made at the previous meeting concerning the reduction of notification fees. The letter from the Local Government Board urged the familiarity of the medical profession with the work of notifying infectious diseases, the number of additional diseases made notifiable since the fees were originally fixed, and the slightness of the labour involved in filling up the notification forms. A recommendation was carried urging the insertion of a clause in the Local Government (Emergency Provisions) Act, 1916, making it impossible for an action at law to be entered against a practitioner in consequence of an error in diagnosis in connexion with the notification of infectious diseases.

The Royal Commission on Venereal Diseases.—A very long report was submitted by the special subcommittee which had been appointed under the chairmanship of Dr. Lauriston Shaw to consider the recommendations of the Royal Commission on Venereal Diseases. With regard to facilities for diagnosis by laboratory methods, the subcommittee urged that it should not generally be necessary for the patient to attend at any institution, but that the apparatus and full instructions for collecting specimens should be forwarded to private practitioners upon application to a medical officer of health or to a recognized laboratory. It was also urged that the Local Government Board should refuse to sanction local schemes for dealing with the disease unless some organized body, representative of the profession in the area, had been consulted. Concurrence was expressed with the view that institutional treatment should as far as possible be provided at general hospitals, and it was urged that if the head of the department was to be a specialist, his special branch should be genito-urinary diseases or gynaecology, and that any increase in the number of so-called "venereal specialists" was to be deprecated. The hope was expressed that professional principles would be safeguarded in connexion with the recommendation that there should be no refusal to treat a patient (in an institution) who was unwilling to go to his own doctor; the subcommittee thought that every inducement should be used to persuade a patient to put himself under the general care of his private practitioner. The setting up of evening clinics at general hospitals was regarded with some anxiety, and, finally, the opinion was expressed that the Commission had been carried away to a certain extent by the enthusiasm of some of its members and witnesses for salvarsan. The Local Government Board and the Insurance Commissioners are to be asked to receive a deputation, when these views will be explained and amplified.

Surrey.

At a meeting of the Panel Committee on June 9th it was agreed to accept the proposed emergency settlement of practitioners' accounts for 1915, and that the present representatives of the Local Medical and Panel Committees on the Insurance Acts Committee should continue in office. The medical representatives on the Insurance Committee were instructed to support the payment of sickness benefit in cases in which the disease is due to "own misconduct."

A subcommittee was appointed to discuss with the Clerk of the Insurance Committee some simpler method for the distribution of the special mileage fund. It was decided to inform practitioners in the next circular that prescriptions should only be marked "urgent" when they were really so, and not simply for the convenience of the chemist or insured person.

Southampton.

At a meeting of the Panel Committee on July 7th it was agreed to accept the final settlement for 1914, although considerable dissatisfaction with the statement was expressed. It was decided to support the Stockport Panel Committee by sending to the Commissioners a request for (1) the establishment of a central clearing house for the purpose of securing a correct register, as promised at the conference between the British Medical Association and the Commissioners in January, 1915; (2) the insertion in next year's agreement with practitioners of a date for the final settlement in lieu of the present most unsatisfactory clause, "as soon as may be"; (3) the inclusion in such agreement of a clause guaranteeing a flat rate per insured person to the practitioner as distinguished from the present system of paying him a share of the central pool.

East Suffolk.

At a meeting of the Panel Committee on July 11th it was decided to approve a leaflet prepared by Dr. Baron giving the ten stock mixtures recently selected by the Panel Committee, together with an explanatory note. It was resolved to invite Dr. Richmond, a member of the Insurance Acts Committee, to deliver an address at Ipswich on August 10th, and that members of the Ipswich Panel and West Suffolk Panel be given the option of attending.

Holland (Lincolnshire).

At a meeting of the Panel Committee on July 21st it was agreed to ask the Secretary of the Insurance Committee to have the list of mixtures adopted by the Panel Committee printed with their formulae and circulated to the doctors and chemists on the panel. The mileage scheme for 1916 was adopted.

Renfrew County.

At a meeting of the Panel Committee on June 21st it was agreed to support the proposal of the Insurance Committee that no retrospective adjustments for enlistments be made after June 30th, 1916, on practitioners' totals for the years 1914 and 1915, but that retrospective adjustment would continue to be made as from January 1st, 1916.

CORRESPONDENCE.

The Association and the Panel.

DR. J. M. BRENNAN (Honorary Secretary Stockport Panel Committee) writes: Is the Association any use to the panel practitioner? This is a leading question, and I am in a position to answer that there are thousands of medical men in the country to-day who, without any hesitation, will say that they are of opinion that the British Medical Association is of no service whatever to the panel practitioners of the country. Thousands of others are wavering

in their faith, and it will be a good thing for the Representative Meeting if it recognizes facts as they are. A fool's paradise is at best a perilous place in which to live. There is a strong suspicion amongst a great number of the members of the Association that the panel is a side-show in the Association programme, whilst to us it is *the* important thing in our lives. We have had our practices—built up by years of toil and anxiety—converted into contract work under the National Insurance Act, and we look with much misgiving to our future now that we are in the sere and yellow of our careers.

We receive from time to time from our Association long documents marked M.2 or M.22, and I take a sample:

M.2 (1915-16). Report of Deputation of Insurance Act Committee, June 16th, 1915 (page 2).

Correction of Registers of Committees.

Minute 40.—That the Conference urges upon the National Health Insurance Commissioners the advisability [why not *necessity?*] of taking *immediate* steps to revise and correct the Registers of Insurance Committees and to adopt such modification of the Regulations as will secure that in the future such registers will continuously be a correct index of the number of insured persons entitled to Medical Benefit in each insurance area, and so secure an accurate factor for estimating and obtaining a true and equitable credit for each area from the Central Medical Fund.

As we were invited by Mr. Lloyd George to accept the capitation basis as the most simple and desirable, this is a question of simple honesty and straight dealing on the part of the Commissioners. If the registers are not correct, then we are liable to be defrauded of money due to us. What is the answer of the Commissioners? I quote again M.2:

In reply, the Commissioners referred to the intention (!) expressed by them on the occasion of a previous conference with representatives of the British Medical Association on the 22nd of December last. The Commissioners had not in any respect abandoned their intention announced on that occasion of taking action to secure greater accuracy in the index register, but shortage of staff and increased pressure of work due to the exceptional war conditions had led to unavoidable delay in initiating the action contemplated.

Good intentions! To which the panel practitioner replies: "I have heard of a place paved with good intentions, but it will not supply me with the means of paying my increased income tax, nor will it recoup me for my quixotic folly in attending free the wives and dependants of soldiers who are getting more money now than they did before the war; nor will it recoup me for my outlay of health and strength in carrying on the work of my colleagues at the front." Does "shortage of staff and increased pressure of work due to war conditions" mean that Cabinet Ministers and members of Parliament are not receiving their salaries?

And what is our Association doing in this matter? The Commissioners have now openly abandoned their "intentions." They say they are absolutely unable by any human means to tell how many seven shillings are due to any area! In Stockport the index register has 7,000 more names than we are paid for. But shortage of staff and war conditions are no excuse for the non-payment of one's liabilities. What, I ask, is our Association doing to secure that the Commissioners carry out their "intentions" as expressed in M.2 (1915-6)? I attended a meeting to instruct the Representative of this Division as to his action at the Representative Meeting. I strongly urged a drastic action on the part of the Association, and I was informed that there was an item on the agenda of the meeting to the effect that "evidence would be collected of the working of the Insurance Act," and I suppose reported upon in the Representative Meeting of 1917. Is the British Medical Association any use to the panel practitioner?

*** Dr. Brennan does not seem to be well acquainted with the work of the Association, nor with the steps it has taken and is taking to urge on the Commissioners the more prompt payment of the sums due to panel practitioners.

How the Insurance System is Working.

Dr. Alex. Fraser (Manchester), in the course of a letter on this subject, writes: I am pleased to see the letter of Dr. J. T. Fletcher on the degrading effect which the operation of the Insurance Act has had upon the profession, but I cannot agree with him that much good can result from a protest at the present time when so many panel practitioners are away on active service, and those of us at home are doing our best to conserve their practices. In simple justice to them we must "carry on" until the termination of the war.

However, the bad effect of the Act upon the profession is undoubted. It has put it back fifty years. It is a marvel to me that those who supervise the education of our students are so blind to the future interests of their pupils. Why put them to the expense of such a comprehensive and scientific education, most of which is more than useless to future panel practitioners?

In the area in which I practise the payment per attendance system is in force, but I cannot gather that it is any better or any worse than the *per capita* system. In the matter of treatment of patients, practitioners in this area, under the scorpion whip of being surcharged for prescribing, not necessarily extravagantly but at a price above a certain selected and varying figure, coupled with disagreeable interviews with the Panel Committee, and acting on the advice of the latter, rarely venture to prescribe beyond the limit of the dozen stock mixtures published under the aegis of the Committee. The offending practitioners are advised by the Committee before whom they appear for the crime of attempting to treat their insured patients as they do their private patients that, *inter alia*, their insured patients cannot and must not be treated like their private patients. Going into detail, the Committee advises them that where, for example, it is necessary to prescribe two separate ointments to be rubbed up together, on the grounds of economy to order two separate lots and tell the patient to rub them together on a plate with a dinner knife. They are reminded that tabloids and made-up powders are more expensive than powder in bulk, and thus phenacetin or aceto-salicylic acid should be ordered in quantity, and the patient ordered to take what lies on a sixpence or a shilling, or any other convenient coin. A few coppers, it is stated, are thus saved on each prescription by thus taking the dispensing from the chemists and placing it in the less skilful hands of the patient. I was peremptorily told at one of my interviews with our Drug Committee that I must not use tr. camph. co. or even the aqueous tincture for insured patients; liq. morph. hyd. must take its place.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Staff Surgeons J. S. Austin, M.B., to the *Victory*, additional, for disposal; C. H. L. Petch, to the *Vivid*, additional, for disposal; G. L. Buckeridge to the *Topaze*. Surgeons G. D. G. Fergusson to the *Victory*, additional, for disposal; L. A. Monerieff to the *Halcyon*; F. C. Alton to the *Cormorant*, additional, for Gibraltar Hospital and Dockyard. Temporary Surgeons C. E. S. Harris to the *Ganges*, for Shotley Sick Quarters; W. E. Wade to the *Fearless*; A. L. P. Gould to the *Vivid*, additional, for Plymouth Hospital; R. S. Overton to the *Impregnable*; G. E. Heath to the *Albemarle*; H. T. Rossiter to the *Actaeon*; R. P. Lansford-Jones to the *Duke of Edinburgh*; W. B. Cunningham to the *Devonshire*; R. S. Lawson, M.B, to the *Pembroke*, additional, for Chatham Hospital; R. S. Carey, to the *Vernon*, additional; J. H. Lloyd to the *Southampton*; D. S. MacKnight, M.B., to the *Ajax*; N. F. Hogg to the *Erin*; G. H. Latham to the *Victory*, additional; T. J. Nicholl to the *Royal Sovereign*; G. N. Stathers, M.B., to the *New Zealand*; R. Tennent, M.B., F. C. E. Hill, M.B., J. L. Owen, M.B., E. C. de M. Morgan, W. G. Watson, and A. H. Price, to the *Victory*, additional, for Haslar Hospital; H. A. Hewat, M.B., to the *Euryalus*, additional, for R.N. Dépôt, Bombay; A. W. North to the *Euryalus*; W. G. Clark, M.B., and I. H. Lloyd to the *Vernon*; H. Danvers to the *Achilles*; S. S. Beare to the *Attentive*; R. N. McKinstry, M.B., to the *Marlborough*; F. A Williamson to the hospital ship *Agadir*; H. S. Ollerhead to the *Warspite*; W. Whitefield to the *Victory*; J. A. Fairer to the *Conqueror*. To be temporary Surgeons: J. L. Owen, M.B., R. G. Elwell, and Surgeon Probationer A. H. Price (R.N.V.R.).

Royal Naval Volunteer Reserve.

Surgeon G. R. Mill to the *Patrol*; Surgeon-Probationers G. L Cutts to the *Laertes*; D. G. P. Bell to the *Victory*, additional; N. T. Williamson to the *Stag*.

ARMY MEDICAL SERVICE.

Colonel A. E. Tate is retained on the active list and to be supernumerary.

Major F. F. Burghard, C.B., R.A.M.C.(T.F.) to be temporary Colonel.

Temporary Lieutenant-Colonel T. C. English, M.B., F.R.C.S., to be temporary Colonel.

Royal Army Medical Corps.

Temporary Major C. T. Parsons, M.D., relinquishes his commission on ceasing to be employed with the Fulham War Hospital.

To be temporary Majors: Captain H. J. Stiles, R.A.M.C.(T.F.), temporary Captain G. B. Price, M.D., Major T. M. Carter, M.D. (T.F.Res.), Captain P. Hamill, M.D., R.A.M.C.(T.F.), Captain C. A. Pannett, M.B., R.A.M.C.(T.F.).

Temporary Captain G. A. Borthwick, M.B., relinquishes his commission on account of ill health.

Temporary Captain W. Ormsby relinquishes his commission.

Temporary Lieutenant M. J. Gallagher, M.B., to be temporary Captain (substituted for announcement in the *London Gazette* of June 9th, 1916).

Temporary Lieutenants to be temporary Captains: J. A. West, A. S. Anderson, M.B., C. M. Geddie, M.B., E. D. Wellburn, C. K. Sylvester, G. H. Davy, M.B., J. Chassels, M.B., W. M. Badenoch, M.B., S. S. King, M.D., T. J. Phillips, M.B., A. S. Gillett, C. Averill, M.B., H. C. Mulholland, M.B., D. C. McArdle, M.B., R. J. H. Cox, M.B., J. McGrath, M.B., R. L. Crabb, M.D., F. L. Apperly, F. Murphy, S. H. Pitcairn, E. N. B. Starkie, M.D., J. F. C. Haslam, M.B., A. G. W. Thomson, M.B., W. J. Robertson, M.B., R. Clark, M.B., W. G. Fee, P. J. Barry, J. W. O'Brien, M.B., J. P. Duncan, M.B., W. G. Shand, M.B., H. H. Warren, M.B., A. G. Graham, I. Ogilvie, M.B., N. F. Norman, W. H. Wishart, M.B., H. Gray, A. Ramsay, M.B., W. S. Pratt, M.D., J. E. A. Underwood, I. R. McLeod, D. S. Page, W. A. Thompson, G. B. N. Flanagan, H. C. Gibson, M.B., J. H. Paterson, M.B., B. Lyons, M.B., V. F. Stock, M.B., A. Graydon, W. R. Kemp, C. R. Whittaker, F.R.C.S.E., G. W. Christie, M.B., D. Jeaffreson, C. Gordon, M.B., R. H. McGillycuddy, T. J. Golding, E. L. Davey, A. B. Laidlaw, G. B. Elliott, J. C. Muir, M.D., B. L. Livingstone-Learmouth, M.B., T. McCosh, M.B., J. D. Nicolas, D. Meek, M.B., H. H. Hulbert, J. P. Shaw, E. H. Freeland, F.R.C.S., C. M. Dickinson, J. E. Pellow, M.B., R. Craven, M.B., D. Duncan, M.B., A. King, M.D., W. Clow, M.B., E. C. Arnold, M.B., F.R.C.S., T. F. S. Fulton, M.B., E. N. Coutts, M.B., D. J. G. Johnston, M.B., H. Rogers-Tillstone, M.D.

To be temporary Captains: R. de V. King, late Lieutenant R.A.M.C., V. van Langenberg, M.B., C. Y. Flewitt, M.B., late Surgeon-Captain.

Temporary Lieutenants relinquishes their commissions; D. Craig, M.D., L. De C. MacIntosh, J. D. Adamson, M.D., L. A. C. Panton, M.B., A. D. Crawford, M.B., J. E. Healey, M.B., F. W. Garrad, M.D., M. C. Roberts, M.D., R. R. Paul, M.D.

Temporary Lieutenant G. Cooper is dismissed the service by sentence of a general court-martial.

Temporary Lieutenant F. P. Kennedy relinquishes his commission.

Temporary Lieutenants relinquish their commission on account of ill health: W. E. Huff-Hewitt, M.B., G. P. Sheehan.

To be temporary Lieutenants: E. Kennington, D. T. C. Frew, M.B., F. K. Kerr, M.B., W. T. Currie, M.B., S. G. Scott, M.B., R. T. Jupp, M.B., F.R.C.S., W. Elwood, M.B., W. S. Booth, M.B., A. J. Neilan, J. N. McTurk, M.D., A. L. White, F.R.C.S.E., F. J. McCarthy, G. D. Compston, E. Trotter, M.B., F.R.C.S.E., R. C. Allen, V. Lloyd-Evans, M.B., F.R.C.S., A. R. Wight, M.B., W. L. Millar, M.B., F. H. Pickin, A. Clelland, M.B., A. J. Caird, M.B., R. N. Phease, M.B., J. D. Macfie, M.B., H. M. Cade, R. T. G. Aickin, M.D., J. B. Mason, A. R. O. Milton, B. T. Parsons-Smith, M.D., J. M. Kelly, M.D., A. Grant, M.B., A. H. Turner, M.B., W. Balgarnie, M.B., F.R.C.S., D. R. Adams, M.D., H. G. Smith, M.B., A. E. Whitehead, P. J. Rooney, A. V. Dill, M.B., W. M. Jeffreys, M.B.

To be temporary honorary Lieutenants: W. A. Hotson, P. L. Hope (whilst serving with No. 6 British Red Cross Hospital), F. W. Goyder, M.B., F.R.C.S. (whilst serving with the St. John Ambulance Brigade Hospital), C. C. Goodall (whilst serving with the British Red Cross Hospital).

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Lieutenants (temporary Captains) G. Scott, M.B., and J. E. Sandilands, M.D., to be Captains.

North Midland Casualty Clearing Station.—Lieutenant J. A. Young, M.B., to be Captain.

South Wales Mounted Brigade Field Ambulance.—Lieutenant J. O. Cuthbertson, M.B., to be Captain.

Northumbrian Field Ambulance.—To be Lieutenants: R. W. Nevin, M.D., J. R. Mitchell, M.D.

Scottish General Hospital.—Captain H. J. Stiles, M.B., F.R.C.S., is seconded whilst holding a temporary commission in the R.A.M.C.

Highland Mounted Brigade Field Ambulance.—T. L. Ashforth to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenant F. W. White to be Captain. H. W. Beedham, M.B., to be Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant W. Williams, M.B., to be Captain.

Cadet J. N. L. Blaney, M.B., University of London O.T.C., to be Lieutenant.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Captains H. G. Young, W. J. McLean, and R. F. Donnefather, of the Canadian Militia, to be Captains. Lieutenant R. P. Bordon (Canadian Militia) to be temporary Captain. G. E. Charters to be temporary Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BEDFORD COUNTY HOSPITAL.—House-Surgeon.

BIRKENHEAD UNION INFIRMARY.—Female Resident Assistant Medical Officer. Salary, £175 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Three Assistant Surgeons.

BIRMINGHAM EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary for whole time, £300 per annum, part time pro rata.

BIRMINGHAM UNIVERSITY.—Lecturer in Physiology. Stipend, £120 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £50 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Surgeons and House-Physicians. Salary, £140 per annum. (2) House-Surgeon to Throat, Nose, and Ear Department.

BRITISH NORTH BORNEO COMPANY.—Medical Officer for group of estates. Salary, £700 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

HÔPITAL ET DISPENSAIRE FRANCAIS, Shaftesbury Avenue, W.C.—Laryngologist.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon. Salary, £150 per annum.

LIVERPOOL PARISH.—Lady Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

LIVERPOOL STANLEY HOSPITAL.—House-Surgeon.

L.C.C. DENTAL TREATMENT CENTRE, Holloway. — Dentist. Salary, £200 per annum.

LONDON LOCK HOSPITAL, Dean Street, W. — Anaesthetist. Honorarium, £21 per annum.

MANCHESTER CORPORATION. — Temporary Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum, rising to £350.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) Temporary Assistant Physician. (2) Temporary Assistant Surgeon. Honorarium, £25 per annum for (1) and (2).

QUEEN MARY'S HOSPITAL FOR CHILDREN, Carshalton. — Temporary Assistant Medical Officers. Salary, £7 7s. per week.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—Honorary Casualty Outpatient Surgeons.

SHEFFIELD CITY.—Assistant Medical Officer to the Tuberculosis Dispensary. Salary, £350 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £160 per annum.

SOUTHAMPTON BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (lady). Salary, £100 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL. — House-Surgeon. Salary, £250 per annum.

WOOLWICH: BROOK WAR HOSPITAL.—Resident Medical Officers.

CERTIFYING FACTORY SURGEONS. — The Chief Inspector of Factories announces the following vacant appointments: Cliff (Warwick), Clonmel (Tipperary), Grangemouth (Stirling), Millom (Cumberland), Uffculm (Devon).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ALDREN, B. C. R., M.B., Ch.B.Edin., Certifying Factory Surgeon for the Birmingham (North) District, co. Warwick.

BENNION, J. M., M.D., District Medical Officer of the Bromley Union.

CALEY, T. A., M.D.Brux., M.R.C.S., L.R.C.P., District Medical Officer of the Doncaster Union.

MASTERMAN, E. W. G., M.D., F.R.C.S., D.P.H., Medical Superintendent (for the duration of the war) of St. Giles Infirmary, Camberwell.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGES.

CANE—PERKINS.—On the 24th July, 1916, at St. John's, Meads, Eastbourne, by the Rev. John Salwey, Vicar, Maurice Hereward Cane, temporary Captain R.A.M.C., youngest son of the late Leonard Cane, M.D., and Mrs. Cane, of Eastbourne, formerly of Peterborough, to Marjorie Amy, second daughter of H. I. Perkins, I.S.O., F.R.G.S., F.G.S., Surveyor-General British Honduras, and Mrs. Perkins, of Wimbledon Park.

CROWE—KILLINGLEY.—On July 22nd (by special licence), at the Church of the Martyrs, Leicester, by the Rev. Andrew Raby, M.A., J. T. Crowe, L.S.A., L.M.S.S.A.Lond., Tuberculosis Medical Officer for Leicestershire, to Elsie, only daughter of Mr. and Mrs. J. T. Killingley, Thorpleigh, Upperton Road, Leicester.

PHILLIPS—JENKINS.—On July 18th, at Gwaencegurwen, by the Rev. R. J. Roderick, George Stanley Phillips, Captain R.A.M.C., only son of Mr. and Mrs. Phillips, Carmarthen, to Grace Jenkins, youngest daughter of Mr. Samuel Jenkins, J.P., and Mrs. Jenkins, Cwmgorse, Gwaencegurwen.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JULY.
29 Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.
	AUGUST.
4 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
9 Wed.	London: Central Medical War Committee.

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TO THE
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EIGHTY-FOURTH ANNUAL MEETING
OF THE
British Medical Association.

LONDON, 1916.

ANNUAL REPRESENTATIVE MEETING.

Mr. E. B. TURNER, F.R.C.S. (Chairman of Representative Meetings), in the Chair.

THE proceedings of the Annual Representative Meeting began on Friday, July 28th, 1916, at the Connaught Rooms, Great Queen Street, London, at 10 a.m.

The return of the election of Representatives of Constituencies for the year 1916–17 was received, approved, and entered on the minutes. Notices of appointment of substitutes for Representatives were also received. Intimation was made of letters of apology for absence. There were present 148. The Standing Orders of the last Representative Meeting and the report of the Agenda Committee, dealing with the order of business, were adopted.

RESOLUTION OF SYMPATHY.

The CHAIRMAN referred to the loss Dr. Ratcliff-Gaylard had sustained by the death of his son at the front within the last few days, and a resolution of sympathy was directed to be sent to Dr. Ratcliff-Gaylard.

DEATHS ON ACTIVE SERVICE.

It was agreed, on the motion of the CHAIRMAN, to place on record the deep regret of the Representative Body at the deaths of Lieutenant-Colonel J. H. Dauber and Captain A. T. Campbell, former members, on active service.

THE LATE SIR VICTOR HORSLEY.

Dr. MACDONALD (Chairman of Council) moved:

That the Representative Body place on record its deep regret at the death on active service of Colonel Sir Victor Horsley, F.R.S., who took a leading part in the reconstitution of the Association and the formation of the Representative Body, was first Chairman of Representative Meetings, and was for many years a most distinguished and devoted worker for the medical profession and for the British Medical Association; and that a letter of condolence be sent to Lady Horsley.

Dr. Macdonald said he did not suppose there were many present who really had experience of the amount of work which Sir Victor Horsley did for the British Medical Association. He believed that Dr. Cox and himself (the speaker) were the only two who were present at the conference at Manchester which originated the reconstitution of the Association. Those who remembered the Association before that day would recall that it did very little for the general practitioner. There was little interest taken in it except in the locality in which the Annual Meeting was held. At the conference in Manchester it was proposed to reconstitute the Association, and Sir Victor Horsley was the moving spirit on that occasion. He was the moving spirit in the Reorganization Committee by which the present democratic constitution of the Association was drawn up, and to which the Representative Body owed its existence. Those of them who had experience of the work done by the British Medical Association since the time it was reconstituted would recognize that its work had been for the advantage, not only of the medical profession, but to the world at large. It was very difficult for him to express what he felt regarding Sir Victor Horsley. Like many others, he was opposed to him in some respects; it was impossible that in a man with the strong views and individuality of Sir Victor Horsley it could be otherwise,

but he always respected him in everything he did because he was so whole-hearted and thorough in all his views. It was the high sense of duty which the Association knew him to possess that impelled him to go out and take his part in the great war now going on. At first Sir Victor took a very subordinate part. It seemed difficult indeed to imagine Sir Victor as a medical transport officer. Such an appointment looked a waste of material, but it was altogether characteristic of the man that he should do what he considered to be his duty, no matter how humble the part. When the desperate state of matters in Mesopotamia developed he went out there, and it was there he met his end. It was with melancholy feelings he moved the resolution, although he regarded it as an honour to be called upon to do so.

Dr. Jenner Verrall, in seconding, said that in any meeting of the citizens of the empire it would be fitting that the great work in various ways, scientific and other, Sir Victor did should be recognized. No body of citizens would recognize that more willingly and more readily than the medical profession, and no portion of the medical profession would be more ready to do it than the members of the British Medical Association. It was, perhaps, specially fitting that this motion of regret and condolence should be moved by Dr. Macdonald and seconded by himself, inasmuch as they had both passed the chair of which Sir Victor Horsley was the first occupant. His great powers of mind and body were always at the service of the Association. 'No cause was too great, no cause too small, to appeal to him. But perhaps with him there was no great or small. If ever a man obeyed the injunction to do with his might that which his hand found to do, Sir Victor Horsley was that man. It was possible—he thought it was true—that his strenuous statement of his case increased the opposition, which was sometimes considerable, to his views. It was possible that a greater readiness to compromise might have helped to achieve his ends more quickly, but the material of the man, and the fine mould in which it was cast, was recognized. He saw calmly and clearly before him, and it was eminently characteristic of him that, in these great days of stress, nothing would content him but that he should put his services whole-heartedly at the disposal of the country, and that in the very worst climate in which British troops were operating. He seconded the resolution.

The Chairman said that he had known Sir Victor Horsley probably longer than any one present, and had been associated with him professionally for many years. Twenty years ago the fight to get the Royal Commission on Venereal Diseases began, and it was seen that a man was required of forceful nature who would give time, trouble, and energy, who would collect, collate, and put forward the mass of medical information that was needed to convince the public. Sir Victor Horsley was described to him (the Chairman) by a great mutual friend —George J. Romanes, the biologist—years ago as a man who had in him of the spirit of the old Crusader. Sir Victor threw himself into the campaign, spoke at meetings, spoke and helped to wear down the opposition. Whatever good came from the Commission's work, the whole nation would owe to Sir Victor Horsley an enormous debt of gratitude for what he did. That he was a man of strong and vigorous opinions, which he held tenaciously, and that he surrendered or compromised nothing, they all knew, but those who differed from him always recognized the sincerity of his views. If he were to attempt to crystallize into an epitaph what he thought of Sir Victor Horsley, he could not do it better than in the words in which John Hay immortalized Jim Bludso the pilot who saved his boat at the sacrifice of his own life:

> He seen his duty, a dead-sure thing—
> And went for it thar and then.

The resolution was passed by the delegates standing.

ELECTION OF PRESIDENT.

Sir T. Clifford Allbutt, K.C.B., LL.D., was elected President of the Association for 1916–17.

On the motion of Dr. W. J. Young (Cambridge and Huntingdon) it was agreed to send a message of congratulation to Sir Clifford Allbutt on the attainment of his 80th birthday.

Sir Clifford Allbutt attended the meeting on the following day and met with an enthusiastic reception. It was, he said, with great regret that he had found himself unable, owing to urgent duties in Cambridge, to be present on the previous day. At Cambridge every nerve and muscle were being strained to fit men to take commissions in the army.

ANNUAL AND SUPPLEMENTARY REPORTS OF COUNCIL.

On the motion of Dr. Macdonald (Chairman of Council) the Annual and Supplementary Reports of Council for 1915-16 were received.

THE FINANCIAL STATEMENT.

The Treasurer presented the financial part of the Report of Council (Supplement, May 6th, 1916, p. 80, and July 8th, 1916, p. 9).

Dr. D. A. Sheahan (Portsmouth) said that it seemed that the Association had saved £12,000 last year, but that no similar saving appeared in the estimate for this year although the subscription had been raised to £2 2s.

The Treasurer said that in estimating figures for the current year it should be remembered that many members were now abroad, and they paid a subscription of only £1 5s. The expenses of the Association might be expected to increase materially, and he instanced the great rise in the price of paper—a serious item. It was necessary to forecast this, but he hoped that the estimate for the current year would prove to be satisfactory when the balance sheet for 1916 came to be presented.

Major D. F. Todd (Sunderland) said that he gathered from the estimate that this year the Association was going to spend £12,000 in addition to the normal expenditure. This he considered bad finance, and he questioned whether the Association would be in a better position next year than now in view of the possibility of a diminution in membership. He urged the Finance Committee to consider the expenditure very carefully and see if it could not be curtailed in many ways. He hoped that the Association would not be allowed to go back to the position in which it had had an adverse balance.

Dr. D. A. Sheahan asked what the Council had voted or spent or sanctioned to be spent in connexion with the War Committee, and if that expenditure was legal according to the Memorandum of Association.

Dr. Macdonald said the members were not to go away with the impression that the Finance Committee was not doing its duty in keeping down the expenditure. The expenses of all committees had been cut down. He referred to the increase in the cost of paper, which had caused great anxiety to the Treasurer and Mr. Elliston and said that though it might be difficult to keep down the expenditure of the Association, the Finance Committee and all the officers of the Association were doing their best to attain that end.

Answering Lieutenant A. Lewis Husband (Sheffield and Rotherham) the Treasurer said that the War Office had contributed nothing to the expenses of the Central Medical War Committee. He added that while he had been Treasurer the estimates had been very conservative, and at the end of the year the balance was found on the right side. Major Todd was discussing the estimated figures for 1916 the time to discuss 1916 would be when the balance sheet was presented. The balance sheet for the year 1915 showed that the expenditure had been reduced by £6,000 and that the expenditure in 1914 when compared with 1913 was less by £10,000. Thus in these two years the expenditure had been reduced by a total of £16,000. The members could rest assured that although the expenditure might increase the Association would not be dragged down in the future. It had never been dragged down in the past. He added, in reply to Dr. Sheahan, that by the end of last year approximately £900 had been spent directly on war work.

The Solicitor, answering on the legal aspect of the question, said that first of all the meeting had to look to the question of the legality of the appointment of the Committee, and it was necessary to go back to the circumstances under which the Committee was appointed. He maintained that the work done by the Central Medical War Committee fulfilled the permissive terms of sub-paragraph (1) of paragraph 3 of the Memorandum of Association—namely, to promote and maintain "the honour and interests of the medical profession"—and pointed out

that the enabling provisions of subparagraph (8) were to be claimed in aid of the position. He did not think it required any stretch of imagination, nor did it call for subtlety of argument, to bring the work of this Committee within the purview and words of the Memorandum. What greater honour could they bring upon themselves than that which resulted from the work they were doing in connexion with the Committee? That honour was not confined to themselves, but extended to the world at large. He felt that he was in a position to convince any court of law that by the appointment of this Committee the Association was maintaining the honour and interests of the profession within the meaning and interpretation of the Memorandum. Speaking with an amount of certainty, he had no doubt whatever the court would share his views; and, even if there had been a doubt, he was assured in his own mind that the demeanour of the court would be rather to strain matters in the direction in which the Association had gone than seek to retard them from doing the work they had undertaken. On the question of expenditure, he had not, of course, the details before him, nor was he going to in any way criticize these at all. It appeared to him, however, that the Committee having been duly appointed, the expenses incidental to the work of such Committee, which had been properly incurred within the scope of its instructions, must fall upon, and be borne by, the Association. It might be that extravagance had crept in—he was not suggesting that at all, and was merely stating a hypothetical case—and if there had been extravagance it could be challenged, but the bona-fide expenses of the Committee would become the properly legitimized expenses of this Association.

Dr. Major Greenwood (City) said that in certain areas the Divisions were not in working order, and asked whether in such cases the War Committee was to take the funds of the Association.

The Solicitor felt it would be better if a concrete case were put before him, and Dr. Major Greenwood instanced the case of the St. Pancras Division, which was practically defunct. The City and Hampstead Divisions had arranged to take over parts of it. In St. Pancras there had been an interregnum, during which there had been no Division and no Local Committee. Mr. Bishop Harman said that the local War Committee to which Dr. Major Greenwood was alluding had received no money from the Association whatever.

The Chairman ruled out of order at this stage of the proceedings a resolution directing an application to be made to the Treasury for a grant to meet the expenses of the Central Medical War Committee.

Dr. Wishart Kerr (Glasgow Eastern) expressed his surprise that the expenditure of the War Committee had been cavilled at. He could speak for his colleagues in Glasgow and the West of Scotland when he said that they considered it one of the finest pieces of work the British Medical Association had as yet done. (Applause.)

The Treasurer moved:

> That the Representative Body place on record its high appreciation of the valuable services rendered by the whole of the officials and staff, and that they be thanked for the able way they have worked on behalf of the Association, and congratulated on the careful manner in which they have conserved during very critical times the financial interests of members of the Association.

There was no association in the United Kingdom better served by its staff and officials, from the highest to the lowest, than the British Medical Association. Since he had been Treasurer of the Association the Association had spent upwards of £600,000, and if the books were examined an error amounting to even half a farthing for every £1,000 that had been expended would not be found. The same scrupulous attention was equally shown in respect of all the other activities of the Association.

The Chairman of Council endorsed what the Treasurer had said regarding the officials. The Association had a most loyal staff.

The resolution was carried, and the remainder of the Annual Report of Council under heading "Finance," together with the Supplementary Report under the same heading, was adopted unanimously.

TREASURER'S RESIGNATION.

The Treasurer, Dr. Edwin Rayner, who was received with applause, said it would be discourteous were he to depart from the meeting without having expressed his obligations to all the preceding Representative Meetings for their very generous consideration. This was the first occasion on which a treasurer had held office for nine years. Once the office was held for six years. On other occasions it had only been held for three years. The statement which had been prepared (Supplement, April 29th, 1916, p. 73) showing the ups and downs of the Association during the last nine years made very interesting reading. The main sources of the Association's income were subscriptions, advertisements, sales of Journal, interest on investments, and rents. The expenses of the Association were closely watched. During his term of office the total receipts of the Association had been over £600,000, and the expenditure had been under £600,000. The war and the Insurance Act had interfered very seriously with the Association. The Association's old buildings had not been found suitable for the work; they were demolished and a new building erected. The contract for those buildings amounted to £45,000. It might have been said perhaps that the Association was doing a foolish thing, but in reality it was doing a very wise thing. Money was got from the bank on reasonable terms, and he had to thank the bank for those terms. The building cost £47,000. From the old building the Association derived a rent of £476 and from the new building the rental was £2,350. Therefore the building stood as the property of the Association and rent free. The Association derived 4½ per cent. from its expenditure on the new building. After submitting further figures, showing the finances from year to year since 1906, the Treasurer observed that in 1915 the subscription of two guineas came into force, and the income then amounted to £74,000, while the expenditure was £59,000. That was altogether a great year for the Association, because the overdraft at the bank dropped from £49,500 in 1912 to £31,500. In the succeeding year the income again exceeded expenditure, while the bank overdraft was further reduced. The position of matters to-day was that if the Association should happen to be wound up to-morrow it would have a sum of practically £121,000 to the good. He hoped that when the Representatives went home to their respective Divisions they would make that gratifying fact known. He would ask them specially to bring it to the notice of the medical men of the district who were not members of the Association. There were far too many medical men who were quite willing to receive all the benefits that accrued from the existence of the Association without contributing a single penny towards it. Dr. Rayner then made reference to the industrial and national troubles which had temporarily interfered with the work of the Association during his period of office. In this connexion he referred to the loyalty, at the time of the printers' strike, of many of the older members of the printing staff attached to the Journal. These men, he said, were not anxious to strike and they did what they could to facilitate the printing arrangements of the Journal during the period of the strike. He was glad to think that he was leaving the finances of the Association in such a position that his successor would be saved the anxious times that had fallen personally to him. He must thank all connected with the Association—the Council and the staff—for the very great kindness he had all along experienced at their hands. It would be a pleasure to him to know that he had been returned to the Council, because, after all, he did not want to break off entirely his relations with them. Finally he would remark that he was extremely grateful to all for the kindness and consideration he had received at their hands during the years he had been Treasurer of the Association.

The Chairman moved that the Representative Meeting pass an extremely hearty vote of thanks to Dr. Rayner on his retirement for his services as Treasurer of the Association during the past nine years. He was certain that the meeting would not let the Treasurer part from them without according him such a vote. The Council had already done so. It had acknowledged his services, not only as Treasurer, but as the autocrat of the Finance Committee, who sat with the weight of a sledge-hammer upon any proposition for spending money which could be avoided. They felt that in giving that vote of thanks they were giving it not only to the Treasurer but to the genial and kindly Dr. Rayner.

Dr. Macdonald, in support, said he did so because, with the exception of Mr. Elliston, he knew Dr. Rayner's work better than any one else in the room. Dr. Rayner had allowed nothing to stand in the way of action in the interests of the Association—not even his own health, which at one time was in a precarious state. His work in connexion with the Association had been of the greatest advantage to it during a period of great stress and difficulty. Dr. Rayner, who was a man of affairs, never lost heart when the financial position was causing great anxiety. He was leaving the finances of the Association in a satisfactory condition, and any vote of thanks he might take from that meeting had been more than earned by the services he had rendered.

The resolution was put to the meeting, and carried by acclamation, the Representatives rising and giving three cheers for Dr. Rayner.

Dr. Rayner, in acknowledging the compliment, referred to the great services rendered to the Association by the Financial Secretary, Mr. Elliston, who, he said, was a most valuable servant, and had been a great friend to him.

THE ASSOCIATION AND THE WAR.

[Sir Robert Morant and Mr. J. Smith Whitaker (Insurance Commission) and Professor Harvey Littlejohn (Scottish Medical Service Emergency Committee) attended during the proceedings on this subject, and afterwards withdrew.]

Report of Central Medical War Committee.

Dr. T. Jenner Verrall, Chairman of the Central Medical War Committee, in presenting the report of the Committee's work during the year, said that from the outset the Committee had recognized that the business committed to it was not easy, for no task could be easy when, as in this instance, there was the military element on one side and the civilian on the other. The Central Committee was thoroughly cognizant of and deeply appreciated the work the local committees had done. The enrolment scheme had suffered from the fact that it was on a voluntary basis. The absence of compulsion was a difficulty in the earlier stages, the shadow of approaching compulsion was a difficulty in the later stages. The special difficulty of the London district with its large number of men attached to hospitals had been met by the appointment of a special committee, known as the Committee of Reference. He took the opportunity of expressing his appreciation of the good relations which had existed between the various Government departments and themselves, particularly the Local Government Board and the Insurance Commissioners. After the Military Service Act became operative it was apparent that the work would become impossible if a man could obtain exemption from a local tribunal direct, but it was subsequently arranged that all such cases should be referred automatically to the Central Medical War Committee. The Military Service Act was passed on May 24th. The Committee was recognized as the Central Professional Committee on June 15th, and the first call was made nine days later. The whole of the work of the final organization and registration, and of the appeal was done in that time, and it was only possible because of the help which the Insurance Commissioners had given, though the staff of the Association had worked like Trojans. A recent difficulty was that the War Office had, under stress of circumstances, temporarily at any rate, interfered with the return of men whose term of twelve months' service under their original contract had expired. The Central Medical War Committee had taken up the matter with the War Office very thoroughly at the first moment when the idea had been mooted of any such alteration being made in the terms of R.A.M.C. service, and had addressed a strong communication to Sir Alfred Keogh. Dr. Verrall added that he was quite prepared to go fully into the question should the meeting desire it, but he understood that Sir Alfred Keogh desired that a message be conveyed to the meeting on the subject, which would, perhaps, so clear up the question as to render it needless to expend any more of the time of the meeting on the subject. (At a subsequent stage of the proceedings Sir Robert Morant delivered Sir Alfred Keogh's message on the subject, p. 45).

Mr. Nay Scott (Plymouth) said that in his district there were men of military age who were still being retained in the military hospitals and at the same time carrying on their own work. Until such men took the Imperial Service obligation, others would not volunteer.

Dr. Verrall said that it was understood that the War Office had taken a census of the whole of these institutions, which would eventually be placed at the disposal of the Committee, and a very large number had taken the Imperial Service obligation.

In reply to Dr. Mackeith (Southampton), Dr. Verrall said that the Committee had no jurisdiction over whole-time men, but was trying to get the Government departments to spare as many of these officials as possible. In reply to Dr. Major Greenwood (City), he said that some men had undoubtedly secured exemption from the ordinary tribunal, but that was no longer possible. The Insurance Commissioners and other Government departments had no disposition to bind men who could be released, and generally they were perfectly willing to fall in with the Committee's views. In reply to questions as to whole-time officers employed by corporations, he explained that the Committee had put and would continue to put upon them the utmost possible pressure.

Dr. W. H. I. Sellers (Preston) complained that from his district more men had been taken from the borough district than the country.

Dr. Verrall replied that the recent call had been made under urgent conditions, and the men were taken from the places where they could be most readily dealt with. Where there was a contract, the Local Government Board and the Insurance Commission had a right to prevent men from taking other work if it interfered with their contract.

In reply to Major R. Wallace Henry (Leicester and Rutland), who suggested that some cases of exemptions granted by local tribunals should be reviewed, Dr. Verrall said that there were technical and departmental difficulties in the way. It was for the War Office to decide the matter, and, having decided it, the Association must act upon it.

Dr. Haslip moved

> That the meeting protests against the retention of single men by the Government and other public bodies when pressure was being made upon married men with responsibility to leave their practice.

Dr. Major Greenwood seconded.

Sir Robert Morant said that so far as he understood the proposition, it turned on the domestic and personal circumstances of the doctor. So far as the Government department which he represented was concerned, it had to look at the work for the community for which it was responsible. There was no desire to retain single men in preference to married men. The duty of the department was to secure that the work of the community was done. It had not to go into the question of single or married.

Dr. Kingdon (Kensington) proposed to amend the motion by substituting "medical men of military age" for "single men." This was accepted by Dr. Haslip.

Sir James Barr (Council) said that with the Insurance Committee his Division had had no difficulty, but the Local Government Board, or rather the board of guardians which had control, were holding back young men whose places could very well be filled. The guardians were holding up no fewer than six or seven of military age. The Local Government Board should see that the guardians did their duty.

Sir Robert Morant said that apparently the meeting did not now mean that all unmarried men should be taken before any married man was taken.

On the suggestion of the Chairman, Dr. Haslip and Dr. Kingdon altered the motion to read as follows:

> That this meeting protests against the retention of medical men of military age by the Government or local authorities while pressure is being brought to bear upon practitioners in private practice with greater domestic responsibilities.

The meeting did not approve of the alteration.

Mr. W. F. Dearden (Manchester) moved in substitution of former motions and amendments:

> That this meeting protests against the large number of exemptions granted by Government departments to medical men of military age while others having greater responsibilities and liabilities are being pressed to take service.

Dr. Verrall thought the use of the word "exemption" unfortunate, since it was a technical term applied by local tribunals.

Dr. C. O. HAWTHORNE (Marylebone) said that if either of the proposals before the meeting were accepted it would amount to no more than a mere empty protest, for which, at each of the Government departments concerned, there would doubtless be provided suitable receptacles.

In reply to Surg. Lieut.-Col. D. CURRIE (West Dorset), the CHAIRMAN said that any Government department had the absolute right to star and exempt from military service any man under contract with it if it felt that the necessities of the case compelled it to do so.

Mr. DEARDEN'S amendment was carried by a large majority, and became the substantive motion.

Dr. HAWTHORNE proposed a further amendment, and the motion was finally adopted in the following form:

> That this meeting protests against the neglect by the Government departments and local authorities of the recommendations of the local profession relative to the summoning of medical men to take commissions in the services.

Dr. J. STEVENS (Edinburgh and Leith) asked if any information could be given relative to the number of members of the profession in England who had taken commissions in the R.A.M.C.

Dr. VERRALL said that if the motive of the question was to ascertain how much better or worse England had done than Scotland, he was afraid he could not answer it from the information in his possession. It could no doubt be obtained.

Duration of Service of Temporary Officers.

Sir ROBERT MORANT said that one point of criticism relative to the work of the Committee had been that it had not protested adequately or taken sufficient steps to prevent what was understood to have been done by the War Office in drawing back from the understanding which it had entered into with the medical profession. Sir Alfred Keogh had learnt within the last few days that considerable misapprehension was prevalent amongst the profession on the point, and he had thought it desirable that the exact position should be made clear to those attending the Representative Meeting. Accordingly, Sir Alfred had prepared a statement which would make plain what the precise position was on this point. It was as follows:

July 29th, 1916.

Dear Dr. Verrall,

From certain things that have come to my knowledge, I think that a considerable amount of misunderstanding must be prevalent in regard to the temporary order recently issued concerning the privilege accorded to doctors early in this war of resigning their commissions after twelve months' service.

All that has been done in this connexion is that a communication was sent a few weeks ago to certain commands instructing them that, for the present, any doctors (under 41 years of age) whose twelve months' term was shortly expiring, and who desired to resign at the end of it, were to be informed that the date of resigning must, in the present serious stress, be postponed for a time until the number of doctors available for taking R.A.M.C. commissions should have been increased to a figure more nearly meeting our very grave requirements.

The step was taken, I need hardly say, with the very greatest reluctance, but it was imperative by reason of our knowledge of the very heavy needs of the forces, as now visible to every one, in the recent and present military developments at the Somme; and it was due to those heavily increased needs, taken in conjunction with the unfortunately inadequate number of doctors forthcoming for commissions in the R.A.M.C. during the important months of April, May, and June.

And, lastly, it was a strictly temporary order, to be rescinded the moment the number of doctors produced by your Committee becomes sufficient to justify this.

In particular, it should be noted that the step thus taken affected, and affects, not the whole profession who enrol (as has been alleged) but only a very small number of doctors. I should tell you, by the way, that the vast majority (over 90 per cent. I believe) of the doctors who have taken commissions in the Royal Army Medical Corps since the privilege of twelve months' service was accorded, have exercised their option in the direction of staying on in the service, and not resigning at the end of their year.

And the order affects only those of the men holding commissions at the time it was issued whose year happened to be shortly expiring, and who were not proposing to stay on. Furthermore, it was restricted to such of that limited number as came within the compulsory provisions of the Military Service Acts, the passing of which has, of course, fundamentally altered the position of all the men under 41 as compared with what it was when they were given their Royal Army Medical Corps commissions in July, 1915.

Thus you see the number of doctors affected (and this only temporarily) is extremely small. In particular, it must be noted (in view of the misapprehensions so widely circulated) that doctors who have taken commissions at any time during this year or the latter part of last year are in no way affected by the order. All these men have come in with their option of resigning unaltered; and, if the number of doctors forthcoming in future is sufficient for our needs, there is no reason to suppose that the option in their cases will ever be altered or need to be withdrawn.

There is, therefore, no such "breach of faith" towards the whole profession (and in particular towards the 260 men recently called to commissions) as has been alleged in certain quarters. There has been simply a strictly temporary administrative step taken, in relation to a very limited number of medical men (each of them liable now to compulsory service), under compelling military necessities of the first importance for this country, a temporary change which will be rescinded the moment the overmastering needs of the situation have been adequately provided for—in fact, I hope, in a very few weeks' time—a step, therefore, in which, when it is properly understood, the whole profession and the public and Parliament will, I am certain, concur; so much so that, I am sure, had we failed to take it, in the circumstances we should have been considered guilty of a grave dereliction of public duty; and the profession, had it failed to respond, of a lack of public spirit of which I, for one, do not believe it to be capable.

I write you this letter because I thought it would be well if you would take the opportunity, of your annual meeting this week, to make this whole matter clear and to dissipate the prevailing misapprehensions on the subject.

I am, yours very truly,
ALFRED KEOGH.

Professor HARVEY LITTLEJOHN (Edinburgh) said he appreciated very much the opportunity which had been given him to come to the meeting and express what was only due—a word of thanks to the British Medical Association for what it had done for the War Committee in Scotland. It was with the full approval of the Scottish Committee that he acknowledged most gratefully the help which had come to them from the resources of the British Medical Association. These resources covered money, organization, and valuable assistance generally. Scotland could not otherwise have done her share in the work.

Reappointment of Committee.

The CHAIRMAN of the Central Medical War Committee moved that the Central Medical War Committee be reappointed for 1916–17 with the same personnel as for 1915–16. He explained that the personnel of the Committee could not be quite the same as in 1915–16 because the Chairmen of the Council and the Representative Meeting, as well as a new Treasurer, fell to be elected later on. Dealing with an amendment by the City Division, that the Committee should consist, as regards one-third, of general practitioners, Dr. Verrall indicated that hitherto the suggestion had, in point of fact, been more than carried out because of the present Committee of twenty-five no less than ten were general practitioners.

Major A. C. FARQUHARSON (Bishop Auckland and Durham) asked if it was not necessary that the meeting should authorize in some way the acceptance by the Central Medical War Committee of the functions of the Professional Committee; and Captain FOTHERGILL (Brighton) suggested that the Professional Committee, being recognized by the Army Council, could hold office despite all that the Association could do in the future.

Dr. MACDONALD (Chairman of Council) considered that the two bodies were legally separate and distinct. The purpose of the Central Medical War Committee was to raise medical men for the army, and the sole purpose of the Professional Committee was to decide whether men should be exempt or not.

Dr. VERRALL pointed out that the Central War Medical Committee was identical with the Professional Committee.

When the Committee was so recognized, it was informed that any variation of the Committee in the future would require the approval of the Army Council, but it would be necessary only to ask the Army Council to make an alteration that proved necessary. If the Committee had not taken upon itself something in excess of its instructions, the ground would have been cut from under its feet.

An amendment by North Staffordshire suggesting that the Committee should be increased by the addition of four representatives of general practitioners from provincial industrial areas, two of whom should preferably be of military age, was withdrawn, as was an amendment by the City Division that the Committee should consist, as regards one-third, of general practitioners.

The Chairman read a letter from the Panel Medico-Political Union containing a resolution stating that the Union was dissatisfied with the constitution of the Central Medical War Committee, as not being sufficiently representative of medical men in general practice.

On being put to the meeting, the motion by the Chairman of the Central Medical War Committee was carried.

Expenses of Committee.

On the motion to adopt the remainder of the annual Report of Council on this subject, Dr. M. G. Biggs moved as a rider:

> That the expenses of the Association in connexion with the recruiting of medical men be reimbursed by the Government.

An enormous amount of work had been done by the Central Medical War Committee and Local Committees, and the Division felt that it was not right that the finances of the Association should bear the whole of the expense.

Dr. Greenwood seconded.

Dr. Verrall said that however glad the Association might be to get back money, he did not believe that the work of the Committee could be continued unless it retained that independence which the power of the purse gave. The Committee was able to maintain an independent position partly and very largely because it was devoting itself to certain propaganda and paying the cost.

The amendment was lost on a division.

The Chairman said that the members had done the right thing, because when the war was over it would be found that the Association had done almost more to help the country than any other similar body.

Proposed Loan Fund.

Dr. Hawthorne expressed regret that the Committee had not felt itself in a position to take action regarding the establishment of a fund to meet the position of medical practitioners who had suffered loss through having given their services to the country. He felt that in such a matter the medical profession should have stood together, so that losses made by individuals owing to patriotic motives should be met. He suggested that a subscription of £1 or £2 from each member of the Association should be given.

Mr. Bishop Harman (Marylebone) said that the Committee had considered the question very carefully and had found that it must work in harmony with other voluntary associations and with the army. Just as the Committee had got its scheme in order the army authorities produced another and the Committee found there was little demand for a benevolent fund. What was wanted was a fund to give loans to men in temporary difficulties; it was quite possible that such a scheme would come into operation by July of next year.

The motion approving the report of the Central Medical War Committee was then passed.

Medical Work at V.A.D. Hospitals.

Dr. W. B. Crawford Treasure (Cardiff) moved a rider to the paragraph of the Report of Council on this subject, declaring it to be desirable that medical practitioners working at voluntary aid detachment hospitals should receive remuneration for their services. Treatment of the wounded was not charity. There was no charity in dealing with the Government.

In reply to Dr. J. Walker (Liverpool) the Chairman said that if the rider was carried it would be his duty to place it before the proper committee.

Lieutenant A. Lewis Husband (Sheffield and Rotherham) thought it was futile to pass resolutions if they could not be enforced.

Dr. Jenner Verrall said that the V.A.D. work was purely voluntary.

The Chairman of Council appealed to the meeting not to pass this rider and so deprive the older members of the profession of the privilege of doing something, and of doing it gratuitously, and Dr. Crawford Treasure withdrew the rider.

Royal Pledge as to Alcohol.

Mr. E. Lewys-Lloyd (South Carnarvon and Merioneth) moved the following rider by the South Carnarvon and Merioneth Division:

> That the British Medical Association hereby declares that in its opinion nothing but good would accrue to the health of individuals and to the public health, and to the national efficiency, if the Royal pledge were followed and if all persons abstained from using wines, spirits, and beer, and alcohol in any form as a mere beverage during the period of the war.

Dr. Davies (South-West Wales) moved as an amendment:

> That, in view of the deleterious influence of alcoholic drink upon the efficiency of those directly or indirectly engaged in the war, this Representative Meeting of the British Medical Association pledges itself to support the Government in any further steps it may deem necessary for its effective control.

At this critical time in the history of the country something should go forth from the Association in support of any steps the Government took in its efforts to combat the curse of drink. Lieutenant A. Lewis Husband (Sheffield and Rotherham) seconded. Dr. D. A. Sheahan (Portsmouth) objected both to the rider and amendment, on the ground that the matter had become acutely political; and on the motion of Dr. I. W. Johnson (Bury) a motion to proceed to the next business was carried.

The Profession after the War.

Captain Fothergill (Brighton) proposed the following rider:

> That a special committee be formed, with powers as stated in By-laws 71 to 74:
>
> To consider what steps should be taken to organize public opinion, as also the medical profession, for the advancement of medical and allied sciences, and to maintain the honour and interests of the profession in view of the obligations and other consequences likely to result from the war; to take action, and to report to the Council and Representative Body.
>
> In the event of such a committee being appointed, that it make a report to the next Annual Representative Meeting on the policy of teaching the principles of hygiene, elementary physiology, and homecraft to elementary school children at the age of puberty as the best means to be adopted for the success of proposals for child welfare, notification of pregnancy, and similar schemes.

The medical profession could not expect to live in a water-tight compartment but must take part in imperial matters.

Dr. Major Greenwood suggested that the matters referred to could be competently looked after by the Standing Committees of the Association.

Dr. Crawford Treasure (Cardiff) expressed the opinion that sufficient reasons had not been given for the establishment of such a special committee.

Mr. C. E. S. Flemming (Salisbury, Swindon, and Trowbridge) thought that it would be well to have a committee, working in co-operation with the Council, to consider the whole question of the future conduct of medical services in the country. Other societies and associations were considering their pet schemes at this juncture, such as the State medical service scheme, and unless the British Medical Association had something definite in its mind, it might be caught napping, as it had been before.

Mr. W. Bradbrook (Buckinghamshire) also thought the Association ought to fortify itself by appointing a watching committee.

Dr. Macdonald supported the proposal, and

Dr. Oldham (Lancaster) said that it was for the doctors themselves to lay down the lines on which they desired to be organized. If they did not lay down proper lines for their work they would be told by regulations what had to be done.

The motion was passed, and it was referred to the Council to consider what steps be taken.

Mr. Bradbrook (Buckinghamshire) moved the following rider:

That the Representative Body state the strong objection of the majority of the profession to any form of compulsory service for medical men over military age as suggested by the *Times* medical correspondent in the issues of June 12th, 13th, and 16th of this year, and also to the formation of a so-called State Medical Service as advocated in the same issues. The Representative Body strongly objects to the views advocated by the medical correspondent of the *Times*, which it considers are not those of the profession.

The contents of the three communications were, he said, prefaced by the remark that the relations of the State and the medical men must undergo a change when the war was over. There would be then, as there had been in the past, a plethora of medical men. It was in the interests of the public that there should be some competition, and that the general practitioner should be left undisturbed.

Major J. Greer (Council) asked if the Association would not establish a bad precedent in passing resolutions on every fantastic article which appeared in the newspapers.

After some further discussion, a motion to proceed with the next business was carried.

On the motion of Dr. Verrall, the Supplementary Report of the Council under heading Central Medical War Committee was approved.

MEDICO-POLITICAL COMMITTEE.

Medical Inspection and Treatment of School Children.

On the motion of the Chairman of the Committee (Mr. T. W. H. Garstang), the memorandum on the policy of the Association with regard to the medical inspection and treatment of school children, published in the Supplement of May 8th, 1915, pp. 227–9, was approved.

Pension and Gratuity Certificates.

On the motion of Mr. Garstang, Recommendation B was approved in the following form:

That in connexion with the giving of certificates by medical practitioners as to the degree of capacity to earn their own livelihood of dependants of deceased soldiers or sailors for the purpose of establishing their claim to pension or gratuity, it is desirable (i) that there should be a uniform standard of estimating disability to earn; (ii) that the work of certification should be done by a board of local practitioners, and should be paid for.

On the motion of Mr. Garstang the following recommendation was adopted:

That it be urged upon the Government that the above proposal would be conducive to public economy and efficiency.

Notification of Pregnancy.

Mr. Garstang moved the following recommendation:

That while it is desirable to encourage prospective mothers to make early arrangements for being properly cared for during the time of pregnancy as well as at the actual time of delivery, the Association is not at present prepared to support notification of pregnancy to a public authority.

Dr. W. Gripper (Croydon) said his Division desired that the words, "is strenuously opposed to the notification of pregnancy," be substituted for the concluding words of the recommendation (after "Association").

Mr. Garstang observed that the amendment was opposed to the spirit of the recommendation, the whole contention of which was to leave the question open for further action at a future date without pledging the Association one way or the other.

Dr. A. A. Mackeith (Southampton) thought that the Association should indicate that it objected to the compulsory notification of pregnancy, and hoped that whether the resolution or the amendment were accepted, words to that effect would be introduced. They were quite willing and anxious that the mothers should notify their condition if they liked, but they strenuously objected to notification by the profession being forced on the profession.

Dr. C. O. Hawthorne (London) agreed that the meeting ought not to pass any resolution which implied that at any time it would be willing to accept a regulation placing upon the shoulders of the profession the responsibility of conveying to public officials information which came to them in the secrecy and privacy of the consulting room. He would support the recommendation if the words "at present" were deleted.

Mr. Bishop Harman (Marylebone) remarked that at some future time there might be grants in aid of pregnant women, and that the receipt of a notification would be a necessary preliminary to such a grant being given. The Association ought to be careful not to come to a decision too hastily to the effect that it was opposed to the notification of pregnancy.

The amendment was carried by the requisite two-thirds majority.

Direct Representatives on the General Medical Council.

On the motion of the Chairman of the Medico-Political Committee, the following recommendation was adopted:

That the support of the Association be given to the following candidates in the election of direct representatives on the General Medical Council at the forthcoming election: H. W. Langley Browne, M.D., F.R.C.S.E. (West Bromwich); H. A. Latimer, M.D., M.R.C.S. (Tunbridge Wells); J. A. Macdonald, M.D., M.Ch., LL.D. (Taunton); and T. Jenner Verrall, M.R.C.S., L.R.C.P., LL.D. (Bath).

Royal Commission on Venereal Diseases.

Confidential Registration and Certification of Cause of Death.

On the motion of the Chairman of the Medico-Political Committee the following recommendation was approved:

That arrangements should be made for the confidential registration or certification of the causes of death, the proposals of the Registrar-General being commended for consideration. (*Recommendation 1 of Royal Commission.*)

Uniform Records of Sickness in Institutions.

The following recommendation also was approved:

That the Local Government Board should devise a uniform system of records of sickness in hospitals and Poor Law establishments with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment. (*Recommendation 3 of Royal Commission.*) The cost of these should be borne by the Local Government Board.

Facilities for Diagnosis of Venereal Diseases.

The Chairman of the Medico-Political Committee moved the adoption of the following:

That extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. To whatever body the organization of this service is entrusted such service should include the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general.

In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at universities and hospitals.

Dr. Macdonald, Chairman of Council, said the recommendation raised an old question. Was the profession or the public health authorities to run this? Was it to be the general practitioners or the whole-time medical officer? If the general practitioners were going to have a say in dealing with venereal diseases it was time they were up and doing. Unless they took action at once they would be too late.

Lieutenant A. Lewis Husband said that on the previous evening he attended a meeting at Sheffield, called by the Lord Mayor, at which Sir Thomas Barlow had made a most able speech. The meeting was attended by the bishop and other clergy, by councillors, aldermen, and by leading citizens. He was not prepared to say that the entire medical profession in Sheffield was invited to be present, but at any rate he could say that it was fairly well represented. The whole trend of the meeting was that unless general practitioners were up and doing, the Local Government Board, the medical officers of health, the health committee, etc., would take over this work. They would lay down rules which the profession would have to carry out. In the end medical practitioners would probably be expected to do the work whether they wished it or not, or whether they were to be sufficiently paid for it or not.

Mr. W. Bradbrook (Buckinghamshire) remarked that in the circular of the Local Government Board a great deal was said about treatment and not a word about prevention.

The motion was carried.

Local Schemes.

The Chairman of the Medico-Political Committee moved the following recommendation:

That it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession shall be asked to nominate representatives who shall be entitled to serve

upon any committee having the organization and control of any such arrangements.

He said that he entirely and heartily agreed with all the criticisms which previous speakers had made on the Local Government Board's proposals. In his opinion the medical profession was being shamefully and disgracefully overlooked on the whole question.

Dr. F. L. Pochin (Oldham) submitted the following rider on behalf of his Division:

That the Representative Body request the Council again to approach the Local Government Board as urgently as possible to inform them that, without such representation, the co-operation of the profession will not be afforded, and to suggest that the Local Government Board issue a supplementary circular to local authorities in which it shall be provided that any committee concerned in the arrangements shall include representatives of the local medical profession in addition to the medical officer of health.

The object of the rider was to help the Council to bring up this matter again with the Local Government Board, and to attempt to get it to remedy the neglect of the medical profession by issuing a supplementary memorandum. His Division was quite alive to the fact that their success or failure in their present opposition to the Local Government Board's proposals depended entirely on whether or not they would be able to get the consultants and specialists on their side. If the whole organized medical profession opposed this scheme, then it might be possible to make headway. If the matter were not carefully handled the Government might be furnished with an argument in favour of State Medical Service.

Mr. C. E. S. Flemming (Salisbury, Swindon, and Trowbridge) feared that the rider as it stood would shelve the subject until it was too late to take action. He hoped the Council would ask the Divisions to consider the whole question without further delay.

Major R. Wallace Henry (Leicester and Rutland) said that in his district it had been clearly pointed out to the medical officer of health that he was not to have the power to say who was and was not competent to do the work.

Dr. W. B. Crawford Treasure (Cardiff) pressed for immediate action. It was difficult to get local Divisions to meet, and if they had to be waited for, valuable time would be lost. If the question were to be taken up in a proper spirit medical men must be got to take an interest in it.

Dr. J. E. P. Davies (South-West Wales) said that in connexion with the treatment of tuberculosis the consultant was not only consultant but the doctor who treated the disease as well. It would be well to consider the question of the right of the general practitioner. A specialist appointed should have no right to treat a patient unless he had been deputed to do so by the practitioner.

Mr. Bishop Harman thought that instead of going to the Local Government Board it would be better to go to local authorities and tell them that if they did not do what the medical profession desired their scheme would be defeated. The authorities might make arrangements, but if the patients did not attend through the recommendation of the doctors the schemes would be futile.

Dr. Macdonald said he felt very strongly on this matter. They were dealing with a body which was a law unto itself. The Local Government Board must be told that the scheme could not be carried out unless the general practitioners co-operated. The matter must be thought out carefully, the proposals put into a strong memorandum, and a deputation sent to the President of the Local Government Board to inform him that unless it was going to give fair play to the general practitioners throughout the country the scheme could not be carried on, and the profession must be prepared to carry that out.

Mr. H. B. Brackenbury (Council) referred to the clause in the regulations which required that the consent of the medical officer of health should be given before a general practitioner could administer to one of his own patients the salvarsan supplied gratuitously. It was, he thought, the first instance in which it had been suggested that a county council might, by one of its officials, distinguish between one medical practitioner and another.

The Chairman said that the Executive Committee of the National Committee for Combating Venereal Diseases (of which he was a member) was most anxious to work in harmony with the Association and the general practitioner, and it had postponed taking action until Monday, so that he might then take to them the considered opinion of the Representative Meeting. He intended most strongly to urge the National Committee that it should press upon the Local Government Board the absolute necessity of co-operation and consultation—before the regulations were issued—with the men who had to work at the periphery.

Dr. Macdonald proposed, as an addition to the resolution, that a deputation should be sent to the President of the Local Government Board to explain the vital issues involved and to secure from him a pledge that he would at once issue an order to every local authority concerned requiring it to have effective consultation with, and representation of, the local medical profession at the earliest stages of the scheme and through all its stages.

The motion, with the addendum, was carried *nemine contradicente*.

Diagnosis and Treatment.

On the motion of the Chairman of the Medico-Political Committee, the following recommendations were adopted:

That extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. To whatever body the organization of this service is entrusted such service should include the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general. In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at universities and hospitals.

That measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the facilities for treatment which are afforded. That every registered medical practitioner should be in a position to ensure his patients access to institutional treatment when he considers that course desirable.

Hospital Treatment.

The Chairman of the Medico-Political Committee moved the following recommendation of the Council:

That institutional treatment should, as far as possible, be provided at general hospitals and clinics, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals and the local medical profession in their areas with a view to making arrangements for treatment.

Captain Fothergill moved as an amendment:

That institutional treatment should, as far as possible, be provided at general hospitals to those unable to pay for adequate treatment, and at clinics controlled by the medical profession for others.

The whole question of the nationalization of hospitals was involved.

Dr. Major Greenwood spoke in favour of the amendment, and Dr. W. B. Crawford Treasure (Cardiff) contended that the medical men who conducted these institutions should be paid.

Dr. G. E. Haslip (Westminster) thought it would be necessary to define clearly what was to be understood by the term clinic.

Major G. Parker (Bristol) held that it would be better that venereal patients should be treated at the hospitals by whole-time men.

The amendment was carried and also as a substantive motion.

Dr. G. E. Haslip (Westminster) moved the following rider:

Inasmuch as (1) skin diseases, including syphilis, are a well-recognized branch of professional work, and genito-urinary surgery another well-recognized branch, each branch requiring special knowledge, methods, and equipment, (2) patients are unwilling to attend a "syphilis," "gonorrhœa," or "venereal diseases" department, but are willing to attend a general skin or general genito-urinary department.

He held that the two diseases should be treated separately; the circular of the Local Government Board left it an open question for the hospitals. The whole tenor of the findings of the Royal Commission had been to show that the general practitioner had not kept himself up to date in the matter of venereal diseases, and that it was essential that the new treatment should be carried out at hospitals, but any one who had seen the special treatment of either of these diseases would recognize that the specialist in syphilis was not the man to treat a case of gonorrhœa. If the best men were induced to teach, they would inspire confidence amongst general practitioners, who would be disposed to go to the departments and learn about new methods.

Dr. MAJOR GREENWOOD seconded.

Lieutenant A. LEWIS HUSBAND said that skin clinics to which cases of syphilis were admitted had been conducted at the Royal Infirmary, Sheffield, under the charge of one of the senior surgeons, and had been very successful. With regard to gonorrhoea he could not say quite so much. He believed that the real reason why institutional treatment had been forced upon the profession was that the ordinary general practitioner had not kept himself conversant with the best methods of treating those diseases. In Sheffield the hospital authorities had offered the general practitioner every possible facility for keeping up with their work, but the offer had not been accepted as it might have been.

The motion was carried.

Mr. GARSTANG moved:

That a voluntary institution providing a clinic or beds for the treatment of cases of venereal disease should be carried on in accordance with the following principles:

(*a*) That the organization may run concurrently with that of the institution.

(*b*) That the accounts should be kept so as to show the approximate aggregate cost of the treatment of such patients, including the cost of medical attendance and treatment.

(*c*) That special medical officers selected as far as possible from amongst the local practitioners should be appointed to carry on the work of the venereal wards or clinics, and should work under the supervision of the honorary staff.

(*d*) That the services of all members of the medical staff concerned with the special treatment of such patients shall be paid for by the State and local authority.

Dr. CRAWFORD TREASURE (Cardiff) moved as an amendment that the words, "and under the supervision of the honorary staff," should be deleted from sub-paragraph (*c*). Dr. D. A. SHEAHAN (Portsmouth) seconded. The amendment was lost, as was also an amendment proposed by Captain FOTHERGILL, seconded by Dr. HAWTHORNE, to insert the words "on a rota" after the word "appointed" in the second line of paragraph (*c*). The motion was carried in its original form.

The following recommendation was adopted:

That from all payments received by the governing body of a voluntary medical institution from the State and local authority in respect of the venereal medical service, a proportion to be agreed upon between the governing body and the honorary medical staff should be placed to a special fund which shall belong to the honorary medical staff.

Mr. GARSTANG moved the recommendation of Council making suggestions for the disposal of the special fund.

Dr. W. GRIPPER (Croydon) ventured the opinion that it would be a more equitable arrangement that the money allotted should be paid to those who were actually responsible for the treatment in the hospital, and moved an amendment accordingly.

Dr. J. GORDON LANE (Marylebone) considered that any payment for the treatment of venereal disease ought to be made to the institution to meet the expense involved and not to the individual doctor.

The CHAIRMAN of the Medico-Political Committee thought the number of hospitals which would be affected was being exaggerated. The ordinary small provincial hospital was not likely to be affected, and he believed arrangements would be made almost entirely with the county and county borough hospitals irrespective of their geographical situation. The allocation of the money received towards the expenses of the hospital would be a matter to be considered in the preliminary negotiations between the local authority and the governors of the hospital, and without doubt the payment of out-of-pocket expenses would be allowed for.

The alteration suggested by Dr. Gripper was accepted, and the recommendation approved in the following form:

That the honorary medical staffs may find the following suggestions valuable in connexion with the disposal of the moneys in the Special Fund, and accordingly the Association suggests to the hospital staffs concerned that one or more of the following methods of distribution of any moneys in the Special Fund may be found suitable:

(*a*) To the members of honorary medical staffs for their own personal disposal;

(*b*) For the assistance of members of the medical staff in connexion with research work;

(*c*) For the purchase of instruments, books, etc., for the use of the medical staff or for lending to other members of the profession;

(*d*) For the initiation or development of post-graduate teaching in the institution;

(*e*) The institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases—for example, widows and children of former colleagues;

(*f*) Grants to any recognized medical benevolent fund or institution; or

(*g*) For the purpose of remunerating those who do the work.

(*h*) Otherwise as the majority of the medical staff may decide.

Continuity of Treatment.

The CHAIRMAN of the Medico-Political Committee moved the recommendation of the Council with reference to the necessity, in order to ensure continuity of treatment, of a report of the treatment during his attendance at the institution being at the disposal of the patient. An amendment proposed by Mr. S. T. LORD, on behalf of the Rochdale Division, that the report should be given to the patient under seal, was rejected, and the clause was eventually adopted in the following form, after an amendment proposed by Dr. J. J. TISDALL, of Liverpool, and seconded by Dr. J. ORTON, of Liverpool, had been accepted:

That when a patient is discharged from an institution it is imperative for the continuity of treatment that a report as to his treatment during his attendance at the institution should be kept at the institution, and that a copy should be at the disposal of any medical practitioner who applies for it with the sanction of the patient.

In moving the next recommendation:

That treatment at any institution included in a local authority's scheme should be free to all. There should be no refusal to treat a patient who is unwilling to go to his own doctor.

The CHAIRMAN of the Medico-Political Committee said that the word "free" was not to be interpreted as referring to money payment, and suggested the substitution of the word "available."

Dr. BIGGS said that the Wandsworth Division was absolutely opposed to any scheme which gave free treatment to all. It insisted that those who could afford to pay should pay.

Dr. W. CRAWFORD TREASURE (Cardiff) said that the whole trend of the report of the Royal Commission was to make the treatment of venereal disease available to every one in order that no person should be able to say that he was unable to get treatment.

Dr. G. V. MILLER (Stockton-on-Tees) said he had been most specifically instructed to oppose this motion, which opened up a great vista of abuse.

Dr. JOHN STEVENS said that Edinburgh and Leith had given the same instructions as Wandsworth, and they could not see what purpose was to be served by pauperizing people who were well enough off because those people happened to be suffering from that particular disease.

The recommendation was carried in the following amended form:

That the treatment at any institution included in a local authority's scheme should be available to all who cannot afford to pay.

Evening Clinics at Hospitals.

Mr. GARSTANG moved:

That special arrangements, such as evening clinics, should be made for the treatment of out-patients at hours convenient to the working classes.

Dr. HASLIP (Westminster) thought evening clinics were impracticable. The Panel Committee in London strongly objected to them.

Dr. J. GORDON LANE (Marylebone) said that the accommodation in some of the hospitals in London was so utilized during the day that unless the clinics were held in the evening the hospitals would be curtailed in their usefulness.

A motion to proceed to the next business was carried.

Saturday, July 29th.

THE proceedings were resumed on Saturday, July 29th, at 9.30 a.m., Mr. E. B. TURNER (Chairman of Representative Meetings) in the chair.

The minutes of the previous day's proceedings were corrected and confirmed.

MEDICO-POLITICAL COMMITTEE (*continued*).

ROYAL COMMISSION ON VENEREAL DISEASES (*continued*).

Hospital Treatment.

The Standing Orders having been suspended, Mr. BISHOP HARMAN asked the meeting to reconsider the

amendment to the recommendation of the Council on hospital treatment of venereal diseases carried at the instance of Captain Fothergill on the previous day, to the effect that institutional treatment should, as far as possible, be provided at general hospitals for those unable to pay for adequate treatment, and at clinics conducted by the medical profession for others. Mr. Harman invited the meeting to look at the matter from the public health point of view, and observed that, as every one knew, a patient suffering from an infectious disease dangerous to the public health might, irrespective of his means, be removed to an infectious diseases hospital. He moved to restore the original recommendation of the Council on this point (see p. 48), and also the adoption of the following: "That, subject to the loyal observance of the directions of the last paragraph of Section IV (2) of the Local Government Board Circular, both in the letter and the spirit, this meeting agrees to the direction of the preceding paragraph, that a patient who can afford to pay for his own treatment, but who refuses to consult a private practitioner, shall not be refused treatment at a provided institution or clinic, so long as he is considered to be in an infectious state. This exception to the rule of the Association governing admission of patients to hospitals and institutions is made on the precedent of acute infectious fevers and their relation to the public health."

Captain Fothergill (Brighton) suggested that the motion was out of order, as it ran counter to the declared policy of the Association, but

The Chairman ruled that the motion was in order.

Dr. H. J. Campbell (Bradford), who seconded, said that it was not proposed to throw the hospitals open for the free treatment of patients, but that certain special clinics should be thrown open for the treatment of those who were either unable or unwilling to pay. It was a matter of extreme urgency in an emergency. When the war terminated there would, he believed, be a wave of venereal disease, and some special steps must be taken to cope with the difficulties which would arise. The proposal was not for the good of the patients, but for the good of the country and the protection of the innocent.

Captain Fothergill desired to draw a distinction between the meaning of the words "clinic" and "hospital."

Dr. Major Greenwood (City) hoped that the decision of the previous day would not be reversed. What Mr. Bishop Harman seemed to be contending for was the institution of State medical service. It might be that the question had already been settled by the Government, but that need not prevent the meeting from making a strong protest against it. He felt sure that practitioners throughout the country were generally opposed to this scheme and to the manner in which it had been rushed through without the opinion of the profession having been ascertained.

Dr. J. H. Taylor (Salford) submitted that an expression of opinion from the Representative Meeting was not sufficient, but that steps ought immediately to be taken to obtain a decision of the Association by referring it to the Divisions. He looked upon this as a distinct attack on the province of the general practitioner. If free treatment was given, most patients would go to institutions where it could be obtained.

Lieutenant A. L. Husband (Sheffield and Rotherham) thought that it was a case of the interests of the individual and the State *versus* a form of vested interest. It ought not to go from that meeting to the public that the members looked upon the question from a selfish point of view.

Lieutenant-Colonel Bolam (Council) took exception to Dr. Taylor's statement that the question affected the general practitioner more than any one else. A very great proportion of his living, he said, came from treating syphilis and allied diseases in connexion with skin work both in private and in a public hospital. No one was likely to suffer more than himself if the dangers foreshadowed were actual dangers and not mere shadows. Nobody with experience of public hospital work would dream for a moment that there was any grave danger of abuse in such a clinic. He did not know of any instance in which a Government department had accepted such full liability for payment of all the expense, including medical attendance. The Royal Commission had said that it regarded the question as one of grave national emergency, and asked for the co-operation of all classes of the community: but the medical profession was looked to more than any other class for that co-operation. Was the small proportion of cases that would run the gauntlet of the large clinics in a large centre to stand in the way of the profession taking its righteous place in helping on a good work?

Mr. Harman accepted a suggestion by Dr. C. O. Hawthorne (Marylebone) that the later part of the motion enumerating reasons should be omitted.

A suggestion was made by the Representatives of Cardiff that the recommendation of the Council under this head should be referred to the Divisions, but on Mr. Bishop Harman's motion as amended being put to the meeting, it was carried as follows:

> That, subject to the loyal observance of the directions of the last paragraph of Section IV (2) of the Local Government Board Circular, both in the letter and the spirit, this meeting agrees to the direction of the preceding paragraph, that a patient who can afford to pay for his own treatment, but who refuses to consult a private practitioner, shall not be refused treatment at a provided institution or clinic so long as he is considered to be in an infectious state.
>
> [Section IV (2) of Local Government Board Circular.
> It has already been indicated that medical practitioners should be urged to make the fullest possible use of the laboratory facilities provided under the scheme of the Council and that these facilities should be given without cost to the patient or the practitioner. The Board consider similarly that medical practitioners should be encouraged to avail themselves of the facilities provided at institutions for treatment, to attend the clinics held at these institutions and to arrange for consultations with the medical officers of institutions. In some cases it may be necessary that consultations should take place at the homes of patients or at the institutions.
> The Commission point out in paragraph 149 of their Final Report that some persons may present themselves for treatment at an institution who, in the opinion of the medical officer in charge, can be satisfactorily treated by their own doctor and who can afford to pay for their own treatment. The Commission consider that in such a case the medical officer might properly suggest to the patient that he should consult a private practitioner, but if the patient prefers not to adopt this course, there should be no refusal to treat him at the institution.
> Every effort should, however, be made to secure the full co-operation of private practitioners in the treatment of cases. The Board consider that every patient, whether or not he is an insured person under the provisions of the National Insurance Acts, who attends at an approved institution for treatment, may properly be asked whether he has a doctor of his own, and whether he is willing to be treated by that doctor. If the patient has no doctor, or being an insured person has not yet chosen a panel doctor, but is willing to be referred to a private practitioner for treatment in association with the treatment provided at the institution, he should be advised to choose a doctor who would co-operate in his treatment.]

Free Supply of Salvarsan.

On the consideration of the Council's recommendation that salvarsan and other expensive treatment should be supplied gratuitously to all doctors for the treatment of their patients, Dr. Mackeith (Southampton) proposed that the word "poor" be inserted before the word "patients."

This was seconded by Dr. D. A. Sheahan, but was not carried. An amendment to substitute the word "drugs" for the word "treatment" was accepted, and the recommendation was carried in the following form:

> That salvarsan and other expensive drugs should be supplied gratuitously to all doctors for the treatment of their patients.

Lieutenant-Colonel D. G. Thomson (East Norfolk and Great Yarmouth) moved:

> That the British Medical Association takes exception, and protests against the proposed arrangement described in the subpara. 3, para. 38 (of B), p. 26 of the Memorandum of the Medical Officer of the Local Government Board, whereby the decision as to whether, before salvarsan or its substitutes can be supplied gratuitously, a particular practitioner is or is not capable of its administration, depends upon the opinion of a public medical official.

Dr. Hawthorne (Marylebone) said that if the Government supplied drugs it was only reasonable that it should inquire how they were to be used; the private practice of medicine was best kept from interference by Government officials.

Mr. Garstang held that the essence of the Council's resolution lay in the word "all," and included a protest against the proposed scheme to limit the supply.

Dr. Haslip (Westminster) said that many of the recommendations were impracticable. He hoped that when the deputation went to Mr. Long it should impress upon him that it was the unanimous feeling that those two diseases should be treated separately, and that the question of the treatment of syphilis at hospitals would be under the charge of the physician at the head of the skin department, and he protested against the publicity which salvarsan and its substitutes had been given in the recommenda-

tion and the reports. Salvarsan and its substitutes were entirely on trial. Every one knew that salvarsan was an importation to Britain from Germany. There was no evidence proving that the drug was the proper treatment for syphilis. Syphilis could be properly treated by mercury, and the profession was confronted by proposals for wholesale treatment by salvarsan. The cause of some of the deaths which had occurred was not faulty administration but the drug itself.

Lieutenant-Colonel BOLAM said that the question which the members should ask themselves was: "Why did the Commission ask for any safeguard whatever?" That question was answered under two heads. The first was that there was not yet finality in the treatment of syphilis. There was a large body of evidence, and the greater part of that evidence was in the hands of one Government department—the Army Medical Service. It was wise that there should be a recognized form of treatment in the army. He believed the intention was to make the education in regard to this subject free and open, and he believed that general practitioners would attend to see if they could honestly take up the treatment in their daily work.

Lieutenant-Colonel THOMSON withdrew the amendment he had moved on behalf of his Division.

The view was expressed by several members that the speech of Colonel Bolam had altered to some extent the views of the meeting in regard to the supply of salvarsan and other drugs to all practitioners, and Dr. W. E. THOMAS (North Glamorgan) proposed, and Dr. DAVIES (South-West Wales) seconded, the suspension of the standing orders, but this was not agreed to.

Warning to Patients.

The following recommendation of Council [SUPPLEMENT, July 8th, p. 16, para. 12 (a)]—

> That the obligation should be impressed upon all doctors who treat syphilis and gonorrhoea in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the report, and should be provided at the public expense.

—was adopted, as was also the following rider, moved by Mr. BISHOP HARMAN, and seconded by Captain FOTHERGILL:

> That in the event of any patient known to be suffering from venereal disease in an infectious form failing to continue to attend for treatment at the place he has elected to attend, arrangements shall be made whereby private communication shall be made to the patient by an approved officer of the clinic or hospital, warning the patient of the danger of neglecting treatment.

Professional Secrecy.

The CHAIRMAN of the Medico-Political Committee moved:

> That, in the opinion of the Representative Body, no amendment of the law to provide that a communication such as is contemplated in para. (25) of the Report of the Royal Commission on Venereal Diseases shall be privileged is called for unless and until the duty of making such communications is imposed on medical practitioners as a statutory obligation.

He said that the view expressed in this motion was directly opposed to the recommendation of the Royal Commission. It was for the Representative Meeting to say which it preferred.

Dr. R. A. LUNDIE (Edinburgh and Leith) said that he had been instructed to oppose the motion on the ground that it was a most halting answer to the proposal of the Royal Commission, which was not that doctors should be legally obliged to give information, but that if doctors chose, on their own initiative, to give information to third parties the law would say they had done no wrong. Lawyers wanted to get as much out of the medical profession as possible. When the question came up in such an acute form as now the Association should take up a strong position. It should absolutely decline to have anything to do with the proposal. He moved: "That the Representative Body strongly opposes Recommendation 25 of the Royal Commission."

Dr. C. O. HAWTHORNE (Marylebone) objected to the words "unless and until" in the motion, because they implied that if only the legislative will were imposed upon the profession doctors would willingly bend their necks to the yoke.

On a division the amendment was lost.

Dr. HAWTHORNE then moved:

> That as the members of the profession do not propose to commit the breaches of confidence contemplated by the Royal Commission there is not, in the opinion of this meeting, any need for the suggested legislation.

Dr. MAJOR GREENWOOD seconded.

Captain F. J. SMITH asked why the meeting should discuss what was strictly a legal point? Why should the meeting express any opinion as to whether the law wanted alteration or not? Let each be open to certify or not, according as his conscience prompted him. He moved that the meeting pass on to the next business. This was seconded by Surgeon Lieutenant-Colonel CURME (West Dorset), but rejected on a division, as was also the amendment by Dr. HAWTHORNE.

Dr. W. MITCHEL BRANSON (Halifax) proposed the omission of all words after "called for," in the original motion. The amendment was seconded by Dr. STEVENS.

Dr. VERRALL asked the Representatives to consider Recommendation 25 of the Royal Commission, which was in the following terms:

> (25) The law should be amended to provide that a communication made *bona fide* by a medical practitioner to a parent, guardian, or other person directly interested in the welfare of a woman or man, and with the object of preventing or delaying a marriage with a person who is in an infectious condition from venereal disease, shall be a privileged communication (para. 205).

There were (continued Dr. Verrall) two ways of looking at the question: either such communications should be made or they should not. That could be dealt with by expressing an opinion as to whether, professionally speaking, such communication should be made; but there was the other aspect, that if any doctor should consider that he ought to make such a communication, should such a communication be privileged and protected? If the Representative Body was of opinion that the law should be altered so as to ensure that such a communication should be privileged, it should give expression to that view now. On the other hand, if it wanted to bar all such communication, so that the need for privilege had not arisen, it should express very clearly an opinion to that effect.

The amendment was carried, and when proposed as a substantive motion, Captain FOTHERGILL moved the substitution for the words "is called for" of the words "any amendment of the law is strongly objected to."

The amendment was not carried.

Mr. BISHOP HARMAN maintained it was absurd for them, as representing the profession, to say that they would not welcome an alteration of the law compelling them to warn people that marriage with a certain patient would be both dangerous and disastrous. He moved the substitution for the words "is called for" of the phrase "would not be of real effect." The amendment was seconded by Lieutenant-Colonel Sir JAMES BARR, but was not carried. The original motion as amended was also rejected.

Access of Profession to Institutions.

The following resolution was carried, on the motion of the CHAIRMAN of the Medico-Political Committee:

> That medical students and practitioners should have reasonable access, for educational purposes, to the treatment of venereal diseases at any institution dealing with these diseases as part of a local authority's scheme, whether they be clinics, wards, laboratories or other place subsidized by State funds.

Detention of Poor Law Patients.

Mr. GARSTANG moved the following recommendation of Council:

> That the provisions of Section 22 of the Poor Law Amendment Act, 1867, should be available to secure the detention, where necessary, of Poor Law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation.

Dr. D. A. SHEAHAN (Portsmouth) objected on behalf of his Division, but the motion was carried.

Prohibition of Advertisements of Remedies for Venereal Disease.

The following resolution was adopted on the motion of the CHAIRMAN of the Medico-Political Committee:

> That the Government be urged to put into force the recommendations of the Select Committee on Patent Medicines

regarding the prohibition of all advertisements of remedies for venereal diseases (*Recommendation 24 of Royal Commission*) in view of the statement by the Royal Commission on Venereal Diseases that it had no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that in its opinion the continued existence of unqualified practice constituted one of the principal hindrances to the eradication of those diseases (*paragraph 190 of Report of Commission*).

Declaration by Persons About to Marry.

On the motion to adopt the following recommendation—

That the principle be approved that all persons about to be married should present among other particulars required to be declared by them a declaration of freedom from contagious or infectious disease.

—a motion to proceed to the next business was carried.

Duty of Medical Profession as Educators of Public.

The recommendation on this subject was approved in the following form after amendments by Lieutenant-Colonel W. T. Hayward (South Australia), seconded by Dr. Hawthorne, and by Dr. Haslip, seconded by Lieutenant Husband, had been carried.

That the Representative Body express its complete agreement with the recommendations of the Royal Commission urging the necessity for the better education of the general public on the grievous effects caused by venereal infections to personal life and happiness and on the grave injury done by such infections to the national welfare, and the best means for their prevention.

Reference to Divisions.

The following resolution was adopted, on the motion of Dr. J. H. Taylor (Salford), seconded by Dr. Sellers (Preston):

That the Council be instructed to refer immediately the resolutions of the Representative Meeting on the subject of venereal diseases to the Divisions for report as early as possible.

On the motion of Captain Fothergill, seconded by Dr. Biggs, it was resolved:

That it be an instruction to the Council after the receipt and consideration of the replies of the Divisions as regards the resolutions of the meeting on venereal diseases, to prepare and issue to the Government bodies concerned, county and county borough councils, the principal voluntary hospitals, the Divisions of the Association, Local Medical Committees, and such other bodies and persons as it considers desirable, an explanatory memorandum which shall include the principles on which, in the opinion of the Association, the proposed campaign against venereal diseases should be conducted, as also the terms and conditions under which the medical profession is prepared to give its cordial co-operation; and that a copy of this memorandum be issued to the Press.

The Chairman pointed out that the actual position of the meeting in regard to the question of salvarsan was that the drug should be issued gratuitously to all members but that there should be safeguards. This would be the effect of approving the Report of Council on the subject together with the various recommendations, and it was an eminently practical finish to the whole matter.

On the motion of Captain Fothergill, seconded by Mr. Bishop Harman, it was resolved:

That it be referred to the Council to consider the terms and conditions under which whole time and part-time service under the treatment of venereal diseases scheme be given by the medical profession, and to take necessary action.

The report and recommendations were thereafter approved.

Maternity and Child Welfare Schemes.

Mr. Garstang moved that the following recommendation of Council (Supplement, July 8th, p. 17, col. 1, para. 4) be adopted:

That the Representative Body adopt the following minimum rates of remuneration of medical practitioners for part-time work in connexion with maternity and child welfare schemes:

Attendance at a Centre.

For at least one hour, if necessary, 7s. 6d.: for this fee the practitioner would see not more than six cases; for every two cases seen beyond this number an additional fee of 2s. 6d. to be paid, an odd case being reckoned as two. Both practitioners and patients would be expected to attend punctually at the time appointed, and if on occasion there should not be sufficient cases to occupy the whole time, the practitioner would not be expected to wait till the end of the time.

or

For each complete hour 10s., not more than eight cases being seen in the hour, and help being given by a nurse as set out in the scheme.

Attendance at Home.

A capitation fee of 14s. per person per annum (mother or child) assigned for treatment by the local authority.

The money thus assigned could be distributed in either of the following ways:

(i) By direct capitation payment for each patient on each doctor's list.

(ii) By payment per attendance out of a pool, bills being discounted if necessary.

Dr. W. H. I. Sellers (Preston) moved as an amendment that the remuneration for attendance at each centre be at the rate of a guinea an hour or any part of an hour. If it went out that the rate mentioned in the recommendation was that at which the profession valued its services, then the public would say that these services ought to be cheaper than at present.

Mr. Brackenbury (Council) said the proposed rate was simply a minimum, and there was nothing to prevent a higher payment being got. The chief object was to retain this work for the general practitioner and not to let it all go into the hands of the full-time medical officer, and if such a rate as that proposed by Dr. Sellers were demanded, local authorities would in all cases find it cheaper to employ whole-time officers. The ratepayers would compel them to take the cheaper line.

On the amendment being put to the meeting it was lost, and the motion was carried, and with the insertion of the words "per annum" in the clause referring to the capitation fee.

Remuneration of Whole and Part Time Medical Officers.

The following recommendations were approved:

That no advertisement be published in the Journal for a whole-time medical officer for a maternity and child welfare centre where a less salary than £350 per annum, exclusive of travelling expenses, clerical assistance, stationery and postage, etc., is offered.

That no advertisement be published in the Journal for a part-time medical officer for a maternity and child welfare centre where the salary is less than at the rate of 10s. for an attendance of one hour.

Reduction of Notification Fees.

The Chairman said that amendments to the next recommendation involved censure on himself, and he vacated the chair, which was taken by Dr. Macdonald.

The Chairman of the Medico-Political Committee, in moving the following recommendation, said that Section 24 of the Local Government Board Emergency Act, 1916, only had effect during the present war or for such temporary period, not exceeding one year, as the Local Government Board might decide:

That the Representative Body express its great regret and indignation at the action of the Government in reducing at the present juncture the fees to medical practitioners for notification of infectious diseases, and represent, on behalf of the medical profession, that the reduction must be considered as a temporary measure, and as one of the medical profession's contributions to the national need.

In reply to Dr. Haslip (Westminster) Mr. Garstang said that so far as could be ascertained the amount of money that would be saved to the country by the reduction was nearly £23,000.

The Chairman of Council, in the absence of the Representative for Camberwell, moved the following amendment:

That the Representative Body express its emphatic disapproval of the action of the deputation from the head office of the Association to the Local Government Board in offering to accept a less fee than 2s. 6d. for the notification of infectious disease.

Mr. E. B. Turner said that he was sorry that such an amendment had been put forward. It seemed to him that it was a vote of censure on men who had gone on a deputation and performed a distinctly unpleasant task at extreme inconvenience to themselves. The deputation which met Mr. Hayes Fisher and the other officials of the Local Government Board had made out a very strong case. He was prepared to say this: that the deputation had Mr. Hayes Fisher the man with them, but it might be a different thing with Mr. Hayes Fisher as a Government

official. The deputation had been able to counter every suggestion made by the officials of the Local Government Board. He looked upon this as one of the meanest things the Government had yet done. He made bold to say that the Government would not have the pluck or the determination to act in a similar manner towards any other body of organized workers in the world. The Government had taken that attitude with the medical profession largely because its members were scattered, and were thus negligible from an electioneering point of view. The deputation had done all that was possible, and had certainly refuted every argument that was put forward by the officials of the Local Government Board.

Lieutenant A. LEWIS HUSBAND (Sheffield and Rotherham) said that in some ways the matter was a small one; in others it was big. The constituencies felt that the action was the meanest which had ever been done by any Government, and he did not think the matter should be shelved.

Mr. BISHOP HARMAN described the report of the proceedings as stated in the House of Commons as a travesty of the facts. The battle had, in fact, been lost long before the deputation met the Government representatives, for there were bodies of doctors in the country who had been receiving 1s. only for all diseases, and had never grumbled —so the Government representative said. It was not true to say that the deputation had "offered" to take a lower fee for notifications. On the contrary, it had protested against any lowering of the fee, and only on feeling certain that the Government had made up its mind to reduce the fee was the suggestion made of the acceptance of a lower fee for measles only. This was offered as a contribution to war economy, and for the period of the war only, and the offer would remain on record as an earnest of what the profession would, he was sure, have been willing to do as a compromise. The protest against any reduction would also remain on record.

Lieutenant A. LEWIS HUSBAND (Sheffield and Rotherham) said that after hearing the explanations the members would be able to go back to their constituencies and tell them that, in spite of everything the Council had done, it had been unable to attain what the profession wanted.

The amendment was put and lost, as was also an amendment moved by Dr. F. L. POCHIN (Oldham) suggesting the deletion of the words after "diseases."

The recommendation of the Council was thereafter adopted.

Mr. E. LEWYS-LLOYD (South Carnarvon and Merioneth) moved the following rider:

> That the Association make a stand against the reduction of the notification fee, and formulate some scheme whereby medical practitioners of the country would cease to send in notifications until the fee had been raised to its former level of 2s. 6d.

The rider was lost.

REGISTRATION OF NURSES.

The Chairman of Representative Meetings resumed the chair at this stage.

The CHAIRMAN of the Medico-Political Committee said that the Council had recommended the Representative Body to take into consideration the proposals with reference to the College of Nursing.

Mr. E. J. DOMVILLE (Exeter) said that the bill as now drafted was practically in accordance with the bill approved by the British Medical Association in 1913. The promoters had agreed to adhere to the principle that the British Medical Association should nominate representatives on the Nursing Council and provision would be made for that in the bill, but the other constituencies appointing the remainder of the one-third of the Council were not yet definitely agreed upon. In all other respects there was every prospect of an agreed bill being put before Parliament in which the principles approved by the British Medical Association in 1913 would be substantially maintained.

In reply to Dr. ROBERTSON (Glasgow), Mr. GARSTANG said that the College of Nursing had undoubtedly been started in a manner the Association did not quite approve, but it had now got rid of a good many of its obnoxious features.

Dr. T. JENNER VERRALL outlined the nature of the negotiations which had so far been carried out between the Association and the College of Nursing. The great principle on which the College of Nursing and the Association were agreed was that there should be registration of nurses on lines that the nurses themselves could accept and approve. The Association was working loyally with the Central Committee for State Registration of Nurses, of which it was a member.

At the suggestion of the CHAIRMAN the motion was amended and agreed to in the following form:

> That the Representative Body instruct the Council to take into consideration the possibility of establishing by means of the proposed bill now under consideration by the College of Nursing and the Central Committee for the State Registration of Nurses the general principles desired by the Association in respect of the State registration of nurses, and whether the Association would be justified in supporting the bill.

BILLS IN PARLIAMENT.

Dr. D. A. SHEAHAN (Portsmouth) moved:

> That in the opinion of the Representative Body the Association's facilities for acquiring information of *all* bills in Parliament affecting the status and emoluments of the profession are unsatisfactory, and that the Council should take prompt steps to remedy this defect.

He thought it was clear that many Acts of Parliament passed through without the Council of the Association knowing very much about them.

The CHAIRMAN OF COUNCIL replied that the Council took the greatest care to keep itself acquainted with all such matters.

Dr. C. O. HAWTHORNE (Marylebone) quoted instances which he thought showed that the Chairman of Council's statement required some qualification.

The MEDICAL SECRETARY said that without going to a great deal of expense the Association had as efficient a machine for examining parliamentary bills as could be got. The proceedings of Parliament were gone through by his staff every day. There was no real difficulty except as regards private bills, for which the charges made by the bodies concerned were prohibitive. But as regards provincial private bills the Association always got advance information from any area in which the Division was active, as the bills were always discussed beforehand in town councils and the newspapers. The only real difficulty was in London, where the County Council discussions were not fully reported in the newspapers; the Metropolitan Counties Branch was therefore at a disadvantage. The County Council had been asked to supply copies of all bills it intended to promote which concerned the medical profession, and between the Central Office and the Metropolitan Counties Branch it was hoped to be able to deal even with this part of the business effectively.

Dr. SHEAHAN withdrew his motion.

INTERESTS OF PROFESSION.

The following motion made by Dr. MAJOR GREENWOOD on behalf of the City Division was lost:

> That the Representative Body views with increasing alarm the failure of the Association to take adequate means to protect the interests of the profession.

PATENT MEDICINES.

On the motion of Dr. R. MORTON MACKENZIE (Reigate) the following rider was approved:

> That it be an instruction to the Council to keep before the profession and the public the report of the Select Committee on Patent Medicines, so that when the opportunity occurs full use may be made of the report of that Committee for the furtherance of legislation as recommended in the report.

DRUGS MADE IN GERMANY OR AUSTRIA.

The following, moved by Dr. JOHN L. SPEIRS on behalf of the Gateshead Division, was adopted:

> That the Representative Body recommend medical practitioners to avoid using drugs made in Germany or Austria, if such drugs, manufactured by ourselves or our allies, can be obtained.

As was also a motion made by Mr. BRADBROOK on behalf of the Buckinghamshire Division in the following terms:

> That it be an instruction to the Council to bring before the notice of the Government the advisability of guaranteeing protection to any firm that is willing to lay down plant to manufacture drugs and chemicals that were made in Germany before the war.

SUPPLY OF PETROL.

The following motion by Dr. MAJOR GREENWOOD (City) was approved:

That the Representative Body protests against the limitation of petrol to medical practitioners for professional purposes, and particularly to limitation within a given period, as medical practitioners require more petrol during the winter than during the summer months.

ATTENDANCE UPON SOLDIERS' AND SAILORS' DEPENDANTS.

On the motion of Dr. MACDONALD (Chairman of Council) the following report on the free medical attendance on dependants of men serving with the colours was approved:

REPORT BY THE CHAIRMAN OF COUNCIL AND THE MEDICAL SECRETARY AS THE TWO REPRESENTATIVES OF THE ASSOCIATION ON THE NAVAL AND MILITARY DEPENDANTS (MEDICAL TREATMENT) COMMITTEE.

It will be remembered that at the Annual Representative Meeting, 1915, a proposal that free medical attendance on the dependants of men serving with the forces should be discontinued was lost, but the discussion showed that in many areas the methods used for discriminating between those who ought to receive free attendance and medicines and those who ought not were decidedly faulty. Since that time many complaints of a similar nature have been received and have all been brought by the Medical Secretary to the notice of the Secretaries of the Dependants Committee, who have in each case made representations to the local Committee complained of. In November, 1915, a circular was issued by the Dependants Committee to all the local Committees urging the necessity for greater care, not only in the interest of the doctors and pharmacists who have been giving their services, but also in the interests of the dependants themselves, since the unnecessary issue of books might induce in the recipients a frame of mind which might make them a source of weakness to the community. The result was in most cases exceedingly satisfactory, and the numbers of persons to whom medical books were issued fell off very considerably. But there were still some local Committees which were apparently unwilling to make inquiries from the persons who applied for medical books, and in some of these areas the doctors and pharmacists have withdrawn their services.

An important change has recently occurred in the position inasmuch as the National Relief Fund, which up to June 30th, 1916, had defrayed the net cost of the drugs supplied, informed the Dependants Committee that all the work the Fund had hitherto undertaken in connexion with naval and military distress was being handed over to the War Pensions Statutory Committee, and they asked whether the Dependants Committee had ascertained whether the Statutory Committee was prepared to assume financial liability for the scheme administered by the Dependants Committee.

A deputation from the latter Committee waited on the Finance Committee of the Statutory Committee, explained its position, and asked for an early decision as to what body it could look to in future for the expenses of the scheme. The Statutory Committee explained that, while appreciating to the full the value of the work achieved, they were of opinion that the financing of the scheme falls within the scope of the National Relief Fund.

The matter is now under consideration between the National Relief Fund and the Statutory Committee, each of which apparently thinks that it is the duty of the other to finance the scheme after the end of July. The decision is not yet to hand, but both bodies have been informed that the question of the continuance of the scheme is subject, quite apart from their decision, to any decision which may be arrived at by the British Medical Association and the Pharmaceutical Society of Great Britain, and it was pointed out that the introduction of compulsory military service entirely alters the position that existed at the time the two bodies made their offer of gratuitous service.

The decision of the Statutory Committee is expected daily, and it may be that that body, by declining to finance the scheme further, may bring it to an end. Failing such a decision it is to be remembered that, moved by what was being done by doctors and chemists all over the country, the Association and the Pharmaceutical Society approached the Government jointly in August, 1914, and it is very desirable that any action taken should continue to be taken jointly.

APPENDIX.

The following statement, condensed from a report presented to the Dependants Committee and showing the working of the scheme up to March, 1916, will be of interest:

The scheme was put into operation at the commencement in all but twenty areas in England and Wales, and in every part of Scotland. It was extended to Ireland in the autumn of 1915, but was only found to be needed in five areas, as the needs of the dependants were met by the [illegible] system.

Since the inauguration of the scheme it has ceased to operate in some fifteen areas owing to local dissatisfaction at the manner in which the books have been issued. In a number of districts forming only part of an area it has also been dropped. The chemists alone withdrew in some twelve areas in Scotland.

Some action was found to be desirable in the London metropolitan boroughs in order to secure uniformity of action throughout the County of London, and all applications for medical books, except in cases of extreme urgency, are since February, 1916, examined by the Central Committee of the Soldiers' and Sailors' Families Association before the issue of a book. The result was a marked decrease in the number of books issued, as shown in the following table:

No. of Books issued in London:

1915.		1916.	
August	511	January ...	232
September	361	February ...	66 (incomplete)
October	432	March ...	104
November	344		
December	266		

The total number of medical books issued from the commencement of the scheme until March 31st, 1916, was as follows:

England and Wales	290,994
Scotland	40,205
Ireland	264

The monthly issue of books, which averaged 20,554 in England and Wales from the commencement to July, 1915, dropped to 10,716 in March, 1916.

The corresponding figures for Scotland were 3,386 and 385.

The number of prescriptions dispensed from the commencement to March 1st, 1916, was just over a million, the total value (priced at the net cost of drugs) being £13,000.

Amendments suggesting the discontinuance of the free attendance on dependants of soldiers and sailors, standing in the name of Glasgow, Liverpool, Bromley, Cardiff, and Gateshead, were withdrawn.

The remainder of the Annual and Supplementary Reports of Council under the heading "(H) Medico-Political" was approved.

NATIONAL INSURANCE.

ENLISTED MEN.

The Chairman of the Insurance Acts Committee (Dr. J. A. MACDONALD) moved the adoption of the following recommendation of Council:

That in view of the difficulty experienced in ascertaining the exact number of insured persons who have enlisted, and in collecting evidence as to the sickness incidence of those insured persons remaining, and considering that strong representations on the subject have already been made to the Commissioners, no further action be taken at present, but that the Council be instructed to collect what information it can on the subject in order that it may be used when any revision of the terms on which insurance practitioners are employed is discussed.

The following amendment by the Portsmouth Division was withdrawn, the CHAIRMAN of the Insurance Acts Committee explaining that the matters dealt with therein would not be lost sight of once the war was over:

That considering (1) that some 4,000,000 of the healthiest of the insured men have enlisted, (2) that many of the insured women had been occupied by hazardous employments, and (3) that many of our navy and army will return more or less chronic invalids, it follows that panel practitioners have had their insurance work much increased, and therefore the Representative Body should take action to secure an increase also of the emoluments of panel practitioners.

MEDICAL REFEREES.

Dr. MACDONALD moved the following recommendation of the Council:

That, pending the establishment of a permanent system of referees under the Insurance Commission, it is desirable that the Association should co-operate in the promotion of a system of temporary arrangements under suitable conditions.

Dr. SHEAHAN (Portsmouth) proposed:

That this meeting is of opinion that part-time medical referees should be appointed on the recommendation and nomination of the Local Medical and Panel Committees.

Dr. MACDONALD said part-time referees were appointed by the approved societies, and they had absolutely refused to accept the profession's nominations.

Dr. JOHN ADAMS (Glasgow Central) said that in Scotland certain approved societies had agreed that the profession should nominate the referees who would be employed by the societies.

The amendment by Portsmouth was withdrawn and the motion adopted.

In moving the following recommendation of the Council, Dr. MACDONALD said that there had been reason to fear that the original resolution of the Representative Body might have the effect of penalizing men who were loyal to the Association owing to others coming in and taking referee work at a lower fee.

That the fee of 10s. 6d. already approved by the Representative Body for examination of and report on cases submitted to part-time referees under the National Insurance Act be reaffirmed as the minimum fee for cases examined by practitioners who hold no stated appointment to the approved society submitting the case, and Divisions and

Branches be allowed to approve schemes for the payment of practitioners in their areas appointed as medical referees to approved societies, provided that where such a scheme involves payment by salary or in accordance with the time occupied, or the acceptance of a fee less than 10s. 6d. per case examined, the scheme shall require the approval of the Council of the Association.

The following amendment by the South-Eastern of Ireland Branch was lost:

That the fee for acting as medical referee in disputed cases under the Insurance Act should not be less than one guinea.

Dr. W. M. Clendinnen moved an amendment by Mid Staffs:

That the minimum fee originally fixed of 10s. 6d. be adhered to.

Captain Orton (Coventry, Nuneaton, and Tamworth) opposed the amendment for the reasons stated by Dr. Macdonald, but Mr. W. J. Young said that though practitioners in Cambridge had been penalized, they would rather be penalized than take low fees. Dr. Macdonald said the Council had no control over outsiders, but if once a Division adopted a scheme, the Council and the Association would back up that Division.

The amendment of Mid Staffs was lost.

Dr. Major Greenwood (City) moved:

That a flat rate of 7s. 6d. be adopted for referees.

He (Dr. Greenwood) said that he spoke for the London area, and that in other areas a different rate might be fixed, but Dr. Haslip pointed out that London could act for itself under the regulations of the Council.

The amendment was withdrawn and the original motion was carried, and the remainder of this part of the Annual Report of Council approved.

"Rep. Mist."

Dr. D. A. Sheahan (Portsmouth) moved:

That the refusal to allow the phrase "Rep. mist." when repeating prescriptions entails much unnecessary work, and is irksome and harassing; and that this meeting express its great dissatisfaction that the Insurance Acts Committee did not strenuously oppose the "New Agreement, 1916."

He said that to busy members of the panel it was somewhat irritating not to be allowed by the Insurance Commissioners to make use of the term "Rep. mist."

Dr. Macdonald said there was as much medical opinion throughout the country opposed to the continued use of "Rep. mist." as there was in favour of it. In was therefore impossible for the Association to oppose the abolition of the use of the term. The Association had urged that local option should be given, and this was to a great extent the present position.

The amendment was defeated by a large majority.

Continuing Agreements.

The following amendment by the Oldham Division was withdrawn after it had been explained that the continuing agreement was not intended to last after the war:

That in order to facilitate the introduction of improved conditions of service under the Insurance Act, the agreements between Insurance Committees and panel practitioners should be renewed annually, and not be, as at present, continuing agreements.

Post Bellum Agreement.

Dr. Sheahan (Portsmouth) moved:

That the Representative Body instruct the Council, guided by the experience and knowledge of the past three years, to draft a new *post bellum* agreement for practitioners on the insurance panel; that the independence, rights, and privileges of the profession be fully safeguarded therein; that it be circulated to the Divisions for observations and/or amendment; that it be then reported to the next Annual (or Special) Representative Meeting, and that all panel practitioners be strongly urged to sign no other agreement.

His Division believed the Government had a rod in pickle for the panel practitioners after the war, and their conditions would then be made more onerous and less remunerative.

Dr. Macdonald asked if the Representative Body really proposed to instruct the Council at that stage to draw up a *post bellum* agreement. It could not be done, as there was nothing to go upon. There was a definite understanding with the Commissioners that plenty of time would be allowed to consider any new agreement and the Association would see that it was given.

The amendment was lost, as was also the following amendment, moved by Dr. Branson (Halifax):

That the Council be instructed to invite suggestions from the Divisions before October 1st next as to the terms to be incorporated in the new regulations.

Payments to Panel Practitioners.

On the motion of Mr. C. E. S. Flemming (Trowbridge), the following instruction to the Council was approved:

To consider and report upon the following proposal: That the remuneration of national insurance practitioners should be calculated on the basis of the number of insured persons on their lists on the last day of the previous year.

Dr. Sheahan (Portsmouth) moved the following amendment in connexion with the same paragraphs:

That insured persons under the National Health Insurance Acts make and have appropriated during the past three years a profit out of fees contracted to be paid to their doctors; that this is unjust and contrary to the ethics, policy, and generally recognized principles of the British Medical Association, and that the Representative Body, strongly condemning such practices, hereby instructs the Council to take immediate and strenuous measures to prevent their continuance.

Insured persons, he said, retained a large amount of money. He gave illustrations from Portsmouth of the retention of fees after they were due.

Captain Fothergill said that the money did not belong to a doctor as soon as the card was stamped. It was due only at the end of a year's service. Before that it had not been earned. The payments made by the Insurance Committees were payments in advance, and Dr. Sheahan's motion was based on a fallacy.

Captain Orton said that the Commissioners, instead of keeping back money, were really giving the doctors something that they were not obliged to give.

Dr. Macdonald said that there were grounds for complaints, and the Insurance Acts Committee was doing its best to get the conditions altered.

The amendment was lost by a large majority.

"Arising out of a Confinement."

Dr. F. L. Pochin (Oldham) moved:

That in view of the expressed ruling of the National Health Insurance Commissioners given to the Rochdale Panel Committee, to the effect that the words "arising out of a confinement" are not subject to a time limit, this Representative Meeting repudiates the opinion of the Council as expressed in paragraph 149 of the Report. (Supplement, May 6th, 1916, p. 100.)

He explained that his Division had been in communication with the Insurance Commissioners on the subject, and found that the opinion given by the Council of the British Medical Association expected more from the medical profession than did the Commissioners themselves.

Dr. J. H. Taylor (Salford) said that his Division also had addressed a question to the Insurance Commissioners last March on the same lines as that covered by the amendment. The reply was somewhat different from that given to the Oldham Division. The subject was one which ought to be cleared up.

Dr. Macdonald said that the opinion of the Committee was based on the fact that ten days was the normal time of attendance on a confinement case when no complications arose. As to a more extended period the Committee was of opinion that every case must be judged on its merits.

On a vote the amendment was lost.

Certification.

Dr. Pochin (Oldham) moved:

That the work of educating the insured public as to the details of certification, etc., should not be imposed on panel practitioners. That the education of agents, to whom the insured look for guidance in these matters, should be done by the approved societies they represent, and that the Commissioners be asked to take such steps as will cause societies to see that their agents are acquainted with any changes which are made in the regulations from time to time.

Dr. Macdonald submitted that the Council had done everything possible in the matter, having approached both the Insurance Commissions and the largest approved societies. The motion was lost.

Question of Pensions for Panel Practitioners.

On the motion of Mr. C. E. S. Flemming (Trowbridge) the Council was requested to consider the institution of a pension scheme for National Insurance practitioners.

Venereal Diseases and Sickness Benefit.

Dr. Macdonald moved:

That the National Health Insurance Commission be informed that in the opinion of the Association no insured person should, because he is suffering from venereal disease, be refused sickness benefit if in the opinion of his medical attendant he cannot be efficiently treated without enforced rest.

Dr. Pochin (Oldham) moved to omit all words after "sickness benefit."

The amendment was carried, and the motion was adopted in the following form:

That the National Health Insurance Commission be informed that in the opinion of the Association no insured person should, because he is suffering from venereal disease, be refused sickness benefit.

The following resolution was adopted on the motion of Dr. Pochin (Oldham):

That this Annual Representative Meeting calls the attention of the Council to the serious injustice done to panel practitioners by leakage from the central pool by reason of—(*a*) Lost contribution cards; (*b*) the delay on the part of approved societies in notifying that persons on panel lists have ceased to be entitled to medical benefit, and requests the Council to secure its rectification.

ORGANIZATION.

On the motion of the Chairman of the Organization Committee (Major Russell Coombe) the recommendations of the Council with reference to the grouping of Branches and constituencies were approved, as was also the recommendation to take no further action with reference to a possible standing committee for London.

Membership of Association.

The Chairman formally moved the following motion by North-East Essex, which was agreed to:

That in view of the fact that the financial position of medical practitioners is being seriously affected by the rise in the cost of living, and is likely to be further affected in the future by this and by economies of public departments, it is urgent that the membership of the British Medical Association, which is the only body that voices the opinion of the profession, and carries weight with the Government and with the public, be greatly increased.

Grants to Branches.

The following amendment by Newcastle-on-Tyne was defeated:

That the necessary steps be taken to amend By-law 23 (as to ordinary grants to Branches) so that the Treasurer may be empowered to allow out of the funds of the Association to the treasurer of each Branch a sum not exceeding 5s. for each member of that Branch.

Mr. Garstang, as one of the oldest members of the Organization Committee, explained that the amendment, even if carried, would not have any very practical effect, as whenever a Branch could show good reason for a grant greater than the 4s. laid down in the by-laws, such higher sums could be and had been given.

SCIENCE COMMITTEE.

On the motion of the Chairman of the Science Committee (Captain F. J. Smith) the paragraphs of the Reports of Council dealing with the work of the Committee (Supplement, May 6th, p. 94, paras. 85–6, and July 8th, p. 11, para. 184) were received. He moved:

That the Representative Body request the Council to appoint a small ad hoc committee to confer and act with the Science and State Committee of the British Science Guild and other bodies in the matter of the inadequate recognition and recompense by the Government and other bodies of medical workers in the field of science, and to report to the Council.

Dr. Smith said that science received very inadequate recognition and recompense from the State, and the idea behind the resolution was to see what step could be taken to bring home to the Government the importance of science.

The motion was carried and the paragraphs mentioned approved.

JOURNAL COMMITTEE.

Major Albert Lucas (Birmingham Central) moved the reception of the paragraphs of the Annual Report of Council under heading "(E) Journal" (Supplement, May 6th, p. 94). It had, he said, been no less difficult to run the Journal than other papers during the war. There had been an increase in the cost of paper of from 150 to 200 per cent. The cost was increasing, and might be expected to continue to increase so long as the war lasted, and it had been necessary to make provision for this in the estimates. The paper used now was lighter and of lower quality than that in use before the war. Had the same quality of paper been used the increased postage would have amounted to £1,500 or £2,000 a year. Mr. Louis Taylor, the assistant editor, had resigned owing to failure of health, and his resignation had been accepted, but he continued to give such assistance as he could until a new assistant editor was appointed, a matter to which the Journal Committee was giving attention. As Chairman of the Journal Committee he suggested that the Representative Meeting should express its great appreciation of the work the Editor had done during the past two years. The meeting should express its indebtedness to the editorial staff. (Hear, hear.)

Dr. S. Morton Mackenzie (Reigate), moved to instruct the Council to consider the advisability of issuing the Supplement of the Journal to members of the Association only, and to report. The Reigate Division thought that directly the war was over the profession would be faced with a fight on the terms of the Insurance Act which would be far more severe than in 1912. It believed that when a fight did come it would resolve itself into a fight not between the Association and the Commissioners, but between the individual Insurance Committees and their own doctors. If the Supplement to the Journal were in the hands of Insurance Committees those Committees would have just as good information about what the profession was doing as the profession itself.

The Chairman did not believe that it would make any difference whether the Supplement was sent out with all copies of the Journal or not, because there would be doctors on either side, and the information would come out.

Major Lucas said that no doubt clerks to Insurance Committees did subscribe to the Journal, but if the supply to non-members were stopped, 20,000 copies would still circulate, and he did not believe that secrecy could be obtained. If the Supplement were excluded, there would be an approximate reduction in cost of £200, but against that there would be additional working expenses which would more than set off the saving in paper.

Other difficulties were also indicated by Major Lucas.

The amendment was lost, and the paragraphs of the report approved.

MEDICAL ETHICS.

Dr. Biggs moved that the report of the Ethical Committee (Supplement, May 6th, 1916, p. 94, paras. 87–92, and Supplement, July 8th, p. 11, paras. 185–7), be received and adopted, and this was agreed to.

PUBLIC HEALTH AND POOR LAW.

Mr. Domville, as Chairman of the Public Health Committee, moved the approval of the parts of the Annual Report of Council under the heading dealing with public health and Poor Law (Supplement, May 6th, p. 100, paras. 150–2).

SCOTLAND.

On the motion of Dr. J. R. Hamilton, the Annual Report of Council under heading "(K) Scotland" (Supplement, May 6th, pp. 100–1, paras. 153–7) was approved.

IRELAND.

On the motion of the Chairman, the Annual Report of Council under heading "(L) Ireland" (Supplement, May 6th, p. 101, paras. 158–60) was approved.

OVERSEAS.

On the motion of Major Greenlees, the Annual Report of Council under heading "(M) Overseas Branches" (Supplement, May 6th, p. 101, paragraph 161) was approved.

GENERAL APPROVAL OF ANNUAL REPORT OF COUNCIL, 1915-16.

Dr. MACDONALD moved: "That subject to the amendments and other resolutions adopted by the meeting with reference thereto, the Annual and Supplementary Reports of Council be approved as a whole."

Motion adopted.

ELECTIONS TO COUNCIL.

The results of the election of members of the Council by the Representative Meeting were announced as follows:

Grouped Representatives.

Major A. C. FARQUHARSON: North of England, North Lancashire and South Westmorland, and Yorkshire Branches.
Dr. I. W. JOHNSON: Lancashire and Cheshire Branch.
Colonel C. H. MILBURN: East York and North Lincoln, Midland, Cambridge and Huntingdon, East Anglian, and South Midland Branches.
Dr. H. C. MACTIER: Birmingham, Staffordshire, North Wales, Shropshire and Mid Wales, and South Wales and Monmouthshire Branches.
Mr. N. BISHOP HARMAN: Metropolitan Counties Branch—No. 1 Group.
Dr. M. G. BIGGS: Metropolitan Counties Branch—No. 2 Group.
Dr. W. JOHNSON SMYTH: Bath and Bristol, Gloucestershire, West Somerset, Worcestershire and Herefordshire, Dorset and West Hants, and South-Western Branches.
Captain E. R. FOTHERGILL: Oxford and Reading, Southern, Kent, Surrey, and Sussex Branches.
Lieut.-Col. J. MUNRO MOIR: Aberdeen, Northern Counties of Scotland, Dundee, Perth, Edinburgh, and Fife Branches.
Dr. C. E. ROBERTSON: Glasgow and West of Scotland, Border Counties, and Stirling Branches.
Dr. J. S. DARLING: Munster and Ulster Branches.

No nomination was received for the group Connaught, South-Eastern of Ireland, and Leinster Branches.

By the Representative Meeting.

Mr. E. J. DOMVILLE. Dr. E. RAYNER.
Major ALBERT LUCAS. Dr. T. JENNER VERRALL.

INSURANCE ACTS COMMITTEE.

The following ten members were elected by the group constituencies. No nominations were received from the Metropolitan Counties Branch (inner group) or from the group of Connaught, South-Eastern of Ireland and Leinster Branches:

Major A. C. FARQUHARSON: North of England, North Lancashire and South Westmorland, and Yorkshire Branches.
Dr. J. RATCLIFFE-GAYLARD: Lancashire and Cheshire Branch.
Dr. JOHN DIVINE: East York and North Lincoln, Midland, Cambridge and Huntingdon, East Anglian, and South Midland Branches.
Dr. W. B. CRAWFORD TREASURE: Birmingham, Staffordshire, North Wales, Shropshire and Mid-Wales, and South Wales and Monmouthshire Branches.
Dr. B. A. RICHMOND: Metropolitan Counties Branch—Outer Group.
Mr. R. HARDING: Bath and Bristol, Gloucestershire, West Somerset, Worcestershire and Herefordshire, Dorset and West Hants, South Western, and Wiltshire Branches.
Captain E. R. FOTHERGILL: Oxford and Reading, Kent, Southern, Surrey, and Sussex Branches.
Dr. JOHN HUNTER: Aberdeen, Northern Counties of Scotland, Dundee, Perth, Edinburgh, and Fife Branches.
Dr. JOHN ADAMS: Glasgow and West of Scotland, Border Counties, and Stirling Branches.
Dr. J. S. DARLING: Munster and Ulster Branches.

ELECTION OF CHAIRMAN AND VICE-CHAIRMAN.

The MEDICAL SECRETARY announced that Mr. E. B. Turner had been elected Chairman and Mr. T. W. H. Garstang Deputy Chairman of the Representative Body. There were no other nominations.

The CHAIRMAN, speaking for himself and Mr. Garstang, thanked the Representative Body.

ELECTION OF TREASURER.

Dr. G. E. Haslip was elected Treasurer.

MINUTES.

The Minutes were read by the MEDICAL SECRETARY at the conclusion of business on July 29th and confirmed.

The CHAIRMAN proposed a vote of thanks to the clerical staff and all those working behind the scenes, whose efforts had contributed to the result that the meeting had been able to carry through its business in an expeditious and successful manner.

VOTE OF THANKS TO CHAIRMAN.

Dr. VERRALL said he was sure it would be the desire of the meeting not to separate without expressing the opinion, which he believed would be universal, on that the first occasion on which Mr. Turner had filled the chair. Mr. Turner had done so, as expected, with patience and ability, which more than justified his selection of him for the coming year. He knew that to conduct the business of that meeting involved considerable fatigue, and asked that the members extend a hearty vote of thanks to Mr. Turner.

Dr. HAWTHORNE seconded. He said that the Representatives of Marylebone had inflicted a considerable amount of trouble on the Chairman in the discharge of his responsible duty, although they had to take a second place to Oldham and Portsmouth. (Laughter.) Every one recognized that the successful conduct of the business of the meeting had been due to the patience, tact, and ability of the Chairman. To him the members owed a considerable debt of gratitude in that he had enabled them to get through the business with dispatch and efficiency. They desired to extend to Mr. Turner their hearty and sincere acknowledgements. (Applause.)

The CHAIRMAN said that it had been a pleasure to him to preside over the meeting for the two days, and he thanked the members for the consideration they had shown to him.

This concluded the proceedings.

The following letter has been addressed to the editor of the *Times*:

July 31st, 1916.

Sir,

Annual Representative Meeting, British Medical Association.

In the report of the above meeting, which appeared in the *Times* on Saturday, doubtless by inadvertence an erroneous idea was given as to the result of one of the discussions.

After stating that certain proposals as regards the use of alcohol during the war "met with considerable support and some opposition, and eventually the meeting decided to pass on to the next business," the report goes on to say—"a similar result followed a proposal inviting the meeting to state strong objections to any form of compulsory service for any men under State Medical Service." To those who were not present this would give the impression that the meeting decided to pass on to the next business because there was considerable division of opinion on the subject. But this was not so. If a vote had been taken it is certain that any proposal in favour of a State Medical Service, or compulsion for medical men only, would have been defeated by an overwhelming majority. The meeting passed on to the next business because it was thought to be a bad precedent to discuss an important subject of this kind on proposals made in a newspaper instead of following the usual plan of discussing such subjects on a proposal by the Council of the Association, or from one of our Divisions.

I am, Sir, yours faithfully,

E. B. TURNER,
Chairman of Representative Meetings.

ANNUAL GENERAL MEETING.

THE eighty-fourth annual general meeting of the British Medical Association was held in the Connaught Rooms, Great Queen Street, London, on Saturday, July 29th, at 2 p.m. Dr. MACDONALD, Chairman of Council, occupied the chair.

The Financial Secretary (Mr. GUY ELLISTON) having read the notice convening the meeting, the minutes of the last general meeting were confirmed.

The CHAIRMAN, in reporting that Sir Clifford Allbutt had been elected President of the Association for the year 1916–17, said that it was unnecessary for him to say anything in regard to the appropriateness of the choice. He was a man of world-wide fame, and in honouring him the Association honoured itself. The Chairman then, in the absence of Sir Alexander Ogston, invested Sir Clifford Allbutt with the gold badge of his office.

Sir CLIFFORD ALLBUTT said it would have been a great pleasure to him to have been invested by Sir Alexander Ogston, whom he had long known, but it was no less a pleasure to have been invested by the Chairman. He had accepted office at a very trying time, for no one could see very far forward, but one thing that could be seen was that the Allies were getting the better of their enemies, and that they would have a triumphant victory. It was no stretch of optimism to express the hope that hostilities might have ceased in time for the Association to hold its annual meeting at Cambridge next year. Whether Cambridge would be in a position to give anything like the welcome which the members should have, and which was usually accorded to them at other places, he could not

say. The University had been almost emptied by the war. The medical school was the one department which was keeping the University going, trying to shepherd men through as far as possible; otherwise Cambridge was stagnant, and would so remain until the end of the war. Afterwards there must be a good deal of clearing up in various ways and directions, but he hoped that Cambridge would be able to give the members some respectable kind of reception when they came to Cambridge next summer. Last year it was hopeless; all was then in a state of uncertainty, but the clouds were lifting, and the next meeting of the Association might be held in circumstances of far greater happiness and hope. He thanked the members very sincerely from the depth of his heart for the generous acceptance of him as their President.

Mr. Elliston read the following letter from Sir Alexander Ogston, under date July 26th:

I had expected to be present at the meetings of the British Medical Association this week to have done whatever it behoved the retiring President to do, but the requirements of the many organizations connected with war work in which I am engaged here render it impossible for me to attend. May I therefore ask you, should the occasion arise, to convey to the Association my thanks for the honour which they have shown the northernly part of Scotland in having chosen me as President two years ago. I wish the Association all success under the guidance of Sir Clifford Allbutt, to whom health and happiness.

Mr. Turner moved:

That this Association give Sir Alexander Ogston, K.C.V.O., its hearty thanks for the distinguished services he had rendered to the Association during his tenure of office.

During the last year he had seen, and appreciated, the work Sir Alexander Ogston had put in at the offices of the Association in London. He had travelled up frequently from Aberdeen, and had done good work; he had not been a mere figure-head, but a real working President.

Dr. Macdonald expressed the pleasure he had in seconding the proposal. Those who had been present at the meeting in Aberdeen would have happy memories of that meeting as being one of the pleasantest the Association had held.

The resolution was carried by acclamation, and Sir Clifford Allbutt intimated that it would be his duty to see that it was conveyed to Sir Alexander.

The Stewart Prize.

The Stewart Prize was presented to Colonel W. H. Horrocks, A.M.S., by Sir Clifford Allbutt, as a recognition of his work in preserving the British army on the Continent from epidemic disease.

Colonel Horrocks said that he accepted the prize as a recognition extended to the service of which he was a member. Unquestionably the satisfactory state of the army in France was due to the work of the Army Medical Service. The work which had to be done and the problems that had to be faced would try the most experienced sanitary officers. On behalf of those working in the service he had to thank them for their prize.

Fiftieth Anniversary of the Death of the Founder of the Association.

Dr. Clippingdale said they were meeting that day on the eve of an important anniversary in the history of the British Medical Association, for the following day was the fiftieth anniversary of the death of Sir Charles Hastings, the founder of the Association, who died on July 30th, 1866. He felt it would be congenial to the feelings of those present if he moved the following resolution:

Meeting upon the eve of the fiftieth anniversary of the death of Sir Charles Hastings, the British Medical Association records its unabated veneration for its ever honoured founder.

Sir Clifford Allbutt said he did not suppose for one moment that the name of Sir Charles Hastings, as the founder of the Association, ever stood any risk of being forgotten. Few of those present—perhaps none—could recall with any degree of vividness the circumstances of the foundation of the Association. Personally, he had a faint recollection of some slight acquaintance with Sir Charles Hastings. He had pleasure in supporting the motion.

The motion was carried unanimously, and this completed the business of the Annual General Meeting.

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH.

At the summer meeting of the Branch, held at Weymouth on July 19th, when the President, Dr. W. H. L. Marriner, was in the chair, the suggestion that the new Wiltshire Branch, which has been grouped with the South-Western and Dorset and West Hants Branches for the purposes of representation on the Central Council of the Association, should be given its turn in electing a representative in proportion to its membership, was agreed to. The autumn meeting of the Dorset and West Hants Branch will be held at Bournemouth.

COCAINE AND OPIUM.

Prohibition of Sales.

On July 28th a proclamation applying drastic restrictions to the trade in cocaine and opium was issued, accompanied by regulations made under an Order in Council.

The proclamation prohibits, on and after July 28th, the importation of all cocaine and all opium into the United Kingdom except under a licence from the Secretary of State, and in accordance with the provisions of such licences. The words "cocaine" and "opium" are defined. "Cocaine" includes all preparations, salts, derivatives, or admixtures prepared therefrom or therewith, and containing 0.1 per cent. (one part in a thousand) or more of the drug. The word "opium" means raw opium, powdered, or granulated opium, or opium prepared for smoking, and includes any solid or semi-solid mixture containing opium.

The regulations, as will be seen, deal fully with the distribution of cocaine. They make it an offence to be in possession of the drug, or to sell the drug, or to give it, except under stated conditions. The powers taken under the proclamation and regulations with regard to opium are intended to be used to stop the extensive smuggling of opium to China and America in contravention of the proclamation prohibiting exportation.

It will be seen that the first regulation imposes certain duties upon members of the medical profession. The drug can only be supplied in accordance with a written prescription of a duly qualified medical practitioner, and the prescription must be dated and signed with the prescriber's full name and address and qualifications, and marked "Not to be repeated." The total amount of cocaine to be supplied on the prescription must be specified, though in the case of a proprietary medicine it will be sufficient to state the amount of the medicine to be supplied—a rather curious proviso which, it may be suspected, will yet give the authorities some trouble. If the practitioner desires to repeat the prescription he must endorse fresh directions on it and sign this order for repetition with his name in full, adding the date.

Text of the Regulations.

The regulations, which were published in the *London Gazette*, are as follows:

(1) If any person sells, gives, procures, or supplies, or offers to sell, give, procure, or supply, cocaine to or for any person, other than an authorized person, in the United Kingdom, he shall be guilty of a summary offence against these regulations unless he proves that the following conditions have been complied with:

(a) The cocaine must be supplied on and in accordance with a written prescription of a duly qualified medical practitioner and dispensed by a person legally authorized to dispense such prescription.

(b) The prescription must be dated and signed by the medical practitioner with his full name and address and qualifications, and marked with the words "Not to be repeated," and must specify the total amount of cocaine to be supplied on the prescription, except that, where the medicine to be supplied on the prescription is a proprietary medicine, it shall be sufficient to state the amount of the medicine to be supplied.

(c) Cocaine shall not be supplied more than once on the same prescription except in pursuance of fresh directions duly endorsed on the prescription by the medical practitioner by whom it was originally issued, and signed with his name in full, and dated.

(d) The name of the person, firm, or body corporate dispensing the prescription, the address of the premises at which and the date on which it is dispensed, must be marked on the prescription.

(e) The ingredients of the prescription so dispensed, with the name and address of the person to whom it is sold or delivered, shall be entered in a book specially set apart for this sole purpose, and kept on the premises where the prescription is dispensed, which book shall be open to inspection by any person authorized for the purpose by the Secretary of State.

(2) If any person, other than an authorized person or a person licensed to import cocaine, has in his possession any cocaine he shall

be guilty of a summary offence against these regulations, unless he proves that the cocaine was supplied on and in accordance with such a prescription as aforesaid.

(3) If any person sells, gives, procures, or supplies, or offers to sell, give, procure, or supply, opium to or for any person, other than an authorized person, in the United Kingdom, or if any person, not being an authorized person or a person licensed to import opium, has any opium in his possession, he shall be guilty of a summary offence against these regulations.

(4) If any person prepares opium for smoking, or deals in or has in his possession any opium so prepared he shall be guilty of a summary offence against these regulations.

(5) Every person who deals in cocaine or opium shall keep a record, in such form as may be prescribed by the Secretary of State, of all dealings in cocaine or opium effected by him, and if he fails to do so he shall be guilty of a summary offence against these regulations; every such record shall be open to inspection by any person authorized for the purpose by the Secretary of State.

(6) If any person holding a general or special permit from the Secretary of State to purchase any drug to which this regulation applies fails to comply with any of the conditions subject to which the permit is granted he shall be guilty of a summary offence against these regulations.

(7) For the purpose of this regulation: The expression "authorized person" means a duly qualified medical practitioner, a registered dentist, a registered veterinary surgeon, a person, firm, or body corporate entitled to carry on the business of a chemist and druggist under the provisions of the Pharmacy Act, 1868, as amended by the Poisons and Pharmacy Act, 1908, or of the Pharmacy Act (Ireland), 1875, as amended by the Pharmacy Act, Ireland (1875), Amendment Act, 1890, a licentiate of the Apothecaries' Hall in Ireland, or a person holding a general or special permit from the Secretary of State to purchase the drug in question. The expression "cocaine" includes all preparations, salts, derivatives, or admixtures prepared therefrom or therewith and containing 0.1 per cent. (one part in a thousand) or more of the drug. The expression "opium" means raw opium or powdered or granulated opium.

TEMPERANCE REFORM IN CANADA.

ON April 5th last the Prohibition Bill was received with applause from both sides of the House and was read a second time in the Legislature of the province of Ontario. The bill has been passed without a referendum, as a war measure; the vote of the people will be taken at some future date as to whether or not the law shall be permanent. Licences, which in the ordinary course would have expired on April 30th, have been extended, so that the measure will not come into force until about the end of August next, when the sale of any alcoholic liquor, except for certain specified purposes, will become illegal. It is probable that, as in Saskatchewan, dispensaries will be opened by the Provisional Government for the sale of alcohol at cost price for medicinal, mechanical, or scientific purposes, since the druggists have declared their unwillingness to undertake its sale for such purposes. This attitude is adopted in view of the fact that, according to the provisions of the Act, should a druggist on three occasions sell intoxicating liquor for other than the purposes specified his licence would be taken away, and because of the difficulty he would have in ascertaining whether or not the alcohol was to be used for the purpose stated by the purchaser. The question of compensation for licence holders will be considered later.

In Manitoba the referendum vote on prohibition resulted in 48,936 votes for and 25,293 against. In British Columbia a bill was introduced into the House on May 23rd, which absolutely prohibits the sale of intoxicating liquor as a beverage. From six to twelve months' imprisonment, without option of a fine, is provided for keeping such liquor for sale, selling it, or disposing of it in any way for money. In the case of companies a fine of 1,000 dols. is to be levied. No provision is made for compensation of those engaged in the liquor business, but should the bill be passed in its present form this matter will be placed in the hands of a Commission.

Public opinion in favour of absolute prohibition throughout Canada has been growing steadily for some time, and the war has done much to strengthen it. Prohibition has now been in force in Prince Edward Island for about fifteen years, but it has not proved altogether satisfactory, since there is no difficulty in buying intoxicating drink in another province and bringing it to the island. A bill has now been passed by the Dominion Parliament which is intended to assist those provinces which have adopted prohibition, by making the measure more effective. The Act provides that no intoxicating liquor shall be imported into a province that has adopted prohibition. The bill was the subject of some discussion in the Senate, and an amendment was moved to prohibit the manufacture of alcohol in a province under prohibition; the motion, however, was lost.

INSURANCE.

INSURANCE ACT IN PARLIAMENT.

INSURANCE BENEFIT IN VENEREAL DISEASES.

IN reply to Mr. Denniss, on July 31st, the Chairman of the Joint Committee of Insurance Commissions said that the rule disqualifying for sickness benefit a member whose incapacity was due to his own misconduct was optional, and could be revoked by any approved society at its pleasure. The finance of the Insurance Acts, therefore, must be held to include provision for the payment of benefit in such cases. The problem was, in fact, not wholly or mainly financial, since the safeguarding of the benefit funds was not, so far as he was aware, the object societies had in view in originally adopting rules of the kind. The whole question was receiving careful consideration, and he hoped to have an early opportunity of consulting approved societies with regard to the position under their rules.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

IN order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons S. Roach to the *Roxburgh*, T. W. Phillip, M.B., to the *Orion*, W. S. Sequeira, M.B., to the *Cochrane*, R. Thompson to the *Tyne*. Staff Surgeons A. J. Wernet, M.B., to the *Leviathan*, J. D. Keir to the *Hyacinth*, J. R. Clark-Hall to the *Dolphin*. Surgeons T. C. Patterson, M.B., to the *Bonaventure*, T. W. Drummond to the *Devonshire*, R. G. Elwell to the *Victory*, additional, for Haslar Hospital. Temporary Surgeons J. H. Lloyd to the *Europa*, J. J. Gasperine to the *Vivid*, additional, for Plymouth Hospital, H. Clough to the *Crescent*, additional for medical transport duties, F. A. V. Denning to the *Egmont*, E. G. Fisher to the *Vivid*, A. L. Sutcliffe to the *Princess Royal*, E. P. Gould, F.R.C.S., to the *Cormorant* for Gibraltar Hospital, E. M. Harrison, M.B., and W. W. K. Brown to the *Pembroke*, additional, for Chatham Hospital, J. W. Adams, M.B., to the *Victory*, L. A. Martin to the Hospital Ship *China*, N. K. Henderson, M.B., and A. Williams-Walker to the *Victory*, addition, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon C. O. B. Ryan to the *Albion*, additional, for medical transport duty.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. J. Roberts, M.D., F.R.C.S. (T.F.Res.), to be temporary Major.

Major I. A. O. MacCarthy is retained on the active list and to be supernumerary.

Temporary Captain G. F. Darker, M.D., relinquishes his commission.

Temporary honorary Captain R. W. Collum relinquishes his commission, ceasing to be employed with the St. John Ambulance Brigade Hospital.

Temporary Lieutenants to be temporary Captains: T. Perrin, M.D., F.R.C.S., R. D. Lawrie, M.B., R. N. Thomson, M.B., C. C. Holman, M.B., F.R.C.S.

A. E. Ward to be temporary honorary Captain whilst employed at the Springhorn and Woodside Central Red Cross Hospital.

Temporary Lieutenants relinquish their commissions: H. Parsons, M.B., C. Cooper.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: J. A. Nicholson, M.B., M Stewart, M.B., Cadets C. P. L. Carrier and H. G. Broadbridge (University of London O.T.C.), W. L. Ingham and . W. Dudley (Lee s University O.T.C.), W. C. C. Easton, E. W. Fish, M.B., and W. Corner, M B. (Manchester University O.T.C.), C. Rudd, M B. (Birmingham University O.T.C.), Corporal M. Foster, M B., Lance-Corporal J. Bennet, M.B., A. K. Gibson, M.B., B. J. Eyric, M.B., J. M. Smellie, M.B., D. G. Stoute, M.B., Corporal J. A. Mackenzie, M.B., Lance-Corporal W. N. Greer, M.B., D. G. Duff, M.B., A. McL. Ferrie, M.B., I. MacKenzie, M.B., E. A. Mills, M.B., C. Milne, M.B., J. Milne M.B., C P. Penberthy, M.B., and R. R. S. Weatherson, M.B. (Edinburgh University O.T.C.).

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

To be temporary Majors: Major W. H Merritt, from the Canadian Artillery; Captains R. M. Gorssline, J. S. Jenkins, E C. Cole, A. W. McPherson. To be temporary Captains: E. T. Curran, Captain W. G. Fraser (Canadian Militia).

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Major (temporary Lieutenant-Colonel) F. J. Brown relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

London General Hospital.—Captains P. Hamill, M.D., and C. A. Pannett, M B., are seconded whilst holding temporary commissions in the R.A.M C.

Wessex Casualty Clearing Station.—Lieutenant C. A. Raison, from South Midland Casualty Clearing Station, to be Lieutenant.

Wessex Field Ambulance.—Major (temporary Lieutenant-Colonel) E. B. Bird relinquishes his temporary rank on ceasing to command a casualty clearing station.

East Anglian Field Ambulance.—D. F. Torrens, M.B., to be Lieutenant.

North Midland Casualty Clearing Station.—Lieutenant C. S. J. Kearney to be Captain.

West Riding Field Ambulance. Captain (temporary Major) H. N. Goode, M.B., F.R.C.S., relinquishes his temporary rank on ceasing to command a field ambulance. Major F. Whalley, M B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance

East Lancashire Field Ambulance.—Lieutenant C. Hibbert, M.D., to be Captain.

West Lancashire Field Ambulance.—Lieutenant R. Findlay to be Captain.

Northumbrian Field Ambulance.—Major (temporary Lieutenant-Colonel) P. R. Ash relinquishes his temporary commission on ceasing to command a field ambulance.

Lowland Casualty Clearing Station.—To be Lieutenants: D. Cameron, M B., J. Chalmers, M.B.

Attached to Units other than Medical Units.—To be Lieutenants: W. A. Milne, M.B., late temporary Lieutenant R.A.M.C.; C. E. Proctor, P. G. Phillips.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

AYR BURGH.—Assistant Resident Medical Officer for the Infectious Diseases Hospital. Salary, £120 per annum.

BEDFORD COUNTY HOSPITAL.—House-Surgeon.

BIRKENHEAD UNION INFIRMARY.—Female Resident Assistant Medical Officer. Salary, £175 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Lady Resident Surgeon. Salary, £25 per annum.

BIRMINGHAM CITY.—Lady Assistant Medical Officer for Infant Consultation Work. Salary, £70 per annum, rising to £90.

BIRMINGHAM EDUCATION COMMITTEE. — Two Temporary Assistant School Medical Officers. Salary for whole time, £300 per annum, part time pro rata.

BOLTON INFIRMARY AND DISPENSARY.—Second House Surgeon. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY. — (1) House-Surgeons and House-Physicians. Salary, £120 per annum. (2) House-Surgeon to Throat, Ear and Ear Department.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £246 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £50 per annum.

CHARING CROSS HOSPITAL, W.C.—Resident Medical Officer. Salary, £100 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary, £200 per annum.

DUNDEE ROYAL INFIRMARY.—Two House-Surgeons.

GRIMSBY AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £1 5s. a week.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £120 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, [illegible] N.W.—House Physician. Honorarium, 30 guineas for six months.

HOSPITAL OF ST. JOHN AND OF ST. ELIZABETH, Grove End Road, N.W.—Resident Medical Officer. Salary, £250 per annum.

LINDSAY (LINCOLNSHIRE) COUNTY COUNCIL.—Locumtenent Assistant Tuberculosis Officer. Salary at the rate of £400 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL. — House-Surgeon. Salary, £150 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL. — Junior House-Surgeon. Salary, £150 per annum.

MANCHESTER CORPORATION. — Temporary Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

OXFORD EYE HOSPITAL.—House Surgeon.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—Honorary Casualty Outpatient Surgeons.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £160 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (lady). Salary, £100 per annum.

WARRINGTON: LORD DERBY WAR HOSPITAL. — Resident Anaesthetist. Salary, £1 per day.

WESTMINSTER UNION INFIRMARY, Fulham Road, S.W.—Temporary Assistant Medical Officers. Remuneration, £.50 per annum.

YORK CITY COUNCIL.—Temporary Tuberculosis Officer. Salary at the rate of £500 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CHARSLEY, R. S., M.R.C.S., Acting Assistant Surgeon to the Royal Westminster Ophthalmic Hospital, King William Street, Strand, W.C.

LAMBAH, V. M., M.B., Ch.B., B.Sc.(P.H.)Edin., Medical Officer for the No. 3 District of the Wolverhampton Union.

LITHERLAND, H., L.S.A., District and Workhouse Medical Officer of the Wigan Union.

RIVETT, Louis C., M.A., M.C.Cantab., F.R.C.S.Eng., Obstetrical and Gynaecological Registrar and Tutor, Middlesex Hospital, W.

SHEPHEARD-WALWYN, A. I., M.D.Edin., Honorary Assistant Physician to the Cumberland Infirmary, Carlisle.

STONES, W. B., B.A.Cantab., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Lancaster Union.

ST. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: E. H. V. Hensley, B.A.Cantab., M.R.C.S., L.R.C.P., M. St. C. Hamilton, M.R.C.S., L.R.C.P., N. A. Sprott, B.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P., A. G. P. Wills, B.A.Cantab., M.R.C.S., L.R.C.P., R. C. P. Whitcombe, B.A.Cantab., M.R.C.S., L.R.C.P. Resident House-Physicians: A. Mavrogordato, M.A.Oxon., M.R.C.S., L.R.C.P., O. H. Hyman, J. R. Harris. Resident House-Surgeons: D. C. Bluett, W. Marriott, S. H. M. Johns, M.A. Cantab., M.R.C.S., L.R.C.P., F. H. Vey. House-Surgeon to Block 8 and Resident Anaesthetist: C. H. Hyman.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

LAING.—On July 23rd, at Bramblotye, Limpsfield, Surrey, the wife of Captain G. D. Laing, M.D., R.A.M.C. (on active service), of a son.

MARRIAGE.

RANKINE—L'ESTRANGE EAMES.—On July 18th, at St. Mary's, Henley-on-Thames, by the Rev. Sidney C. Saunders, Rector of Henley, Roger A. Rankine, R.N., to Lilian L'Estrange Eames.

DEATH.

HALL.—On July 24th, 1916, at 13, Battery Place, Rothesay, in his 67th year, Andrew Johnston Hall, M.A., M.D., D.P.H., Medical Officer of Health for Rothesay and the Bute District of the County of Bute.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	AUGUST.
4 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
9 Wed.	London: Central Medical War Committee.
	SEPTEMBER.
7 Thur.	London: Insurance Acts Committee (*provisional*).

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 12TH, 1916.

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Association Intelligence.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held in London on July 29th, 1916.

Present:

Dr. J. A. MACDONALD, LL.D., Taunton, Chairman of Council, in the chair.

Mr. E. B. TURNER, London, Chairman of Representative Meetings.

Dr. EDWIN RAYNER, Stockport, Treasurer.

Dr. JOHN ADAMS, Glasgow
Surg.-Gen. P. H. BENSON, I.M.S.
Dr. M. G. BIGGS, London
Lieutenant-Colonel R. A. BOLAM, Newcastle-on-Tyne
Mr. H. B. BRACKENBURY, London
Dr. H. J. CAMPBELL, Bradford
Major RUSSELL COOMBE, Exeter
Dr. J. S. DARLING, Lurgan
Mr. EDWARD J. DOMVILLE, Exeter
Major A. C. FARQUHARSON
Captain E. R. FOTHERGILL
Dr. ADAM FULTON
Mr. T. W. H. GARSTANG
Dr. JOHN GORDON, Aberdeen
Mr. JAMES GREEN, Portsmouth
Major T. DUNCAN GREENLEES, (South African Group of Branches)
Dr. MAJOR GREENWOOD, London
Dr. J. R. HAMILTON, Hawick
Mr. N. BISHOP HARMAN, London
Dr. G. E. HASLIP, London
Lieutenant-Col. W. T. HAYWARD (Australasian Grouped Branches)
Major ALBERT LUCAS, Birmingham
Dr. H. C. MACTIER, Wolverhampton
Major GEORGE PARKER, Bristol
Dr. F. J. SMITH, London
Dr. W. JOHNSON SMYTH, Bournemouth
Mr. T. JENNER VERRALL, LL.D., Bath
Dr. D. WALSHE
Dr. CLAUDE WILSON, Tunbridge Wells

APOLOGIES.

Letters of apology for non-attendance were read from the President, Dr. W. Ainslie Hollis, and Fleet-Surgeon Lumley.

SIR VICTOR HORSLEY.

The CHAIRMAN reported the death of Colonel Sir Victor Horsley, F.R.S., a former Chairman of the Representative Body and Member of the Council, and was requested to forward a letter of condolence to Lady Horsley and family expressive of the deep sympathy of the Council in their bereavement.

SCIENCE COMMITTEE.

NEW GRANTS.

The following grants were made for 1916–17:

Miller, Arthur H., Pathological Laboratory, Gartside Street, Manchester. (1) For testing the effects of certain chemicals on the course of tuberculosis. (2) On the tubercle bacillus and its loss of power to stain with carbol-fuchsin, with a note on its chemistry. £15.

Onslow, Hon. H., 3, Selwyn Gardens, Cambridge. Experimental breeding and hybridization of datura and hyoscyamus for the purpose of increasing the alkaloid content and for producing early maturity in the plants. £25.

MIDDLEMORE PRIZE, 1917.

The Middlemore Prize will be awarded in the year 1917 for an essay on a subject to be determined by the Science Committee, of which due notice will be published.

A further meeting of the Council was held the same day after the conclusion of the Annual Representative Meeting, Dr. J. A. MACDONALD, LL.D. (Taunton), in the chair.

CHAIRMAN OF COUNCIL.

Dr. J. A. Macdonald was unanimously re-elected Chairman of Council.

NEW MEMBERS OF COUNCIL.

The CHAIRMAN, on behalf of the Council, welcomed Dr. C. E. Robertson and Dr. John Stevens upon attending the Council for the first time.

THE TREASURER.

The CHAIRMAN also welcomed and congratulated Dr. G. E. Haslip upon his appointment by the Annual Representative Meeting to the office of Treasurer of the Association.

MINUTES OF ANNUAL REPRESENTATIVE MEETING.

These were presented to the Council and approved. It was left to the Chairman, in conference with the Chairman of Representative Meetings, to refer the various resolutions of the Representative Meeting to the appropriate Committees.

DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

The following were appointed a deputation to wait upon the President of the Local Government Board, to represent the decision of the Association on Minute 66 of the Annual Representative Meeting: The President, the Chairman of Representative Meetings, the Chairman of Council, Mr. Domville, Dr. Campbell, Mr. Garstang, and Mr. Bishop Harman.

Minute 66.—That it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession shall be asked to nominate representatives who shall be entitled to serve upon any committee having control of the organization of any such arrangements.

And that this body send a deputation at once to the President of the Local Government Board to explain the vital issues involved and to secure from him a pledge that he will forthwith issue an order to every local authority concerned, requiring it to call into effective consultation representatives of the local medical profession (selected for the purpose by the profession) at the earliest stages of the framing of the schemes under the regulations and throughout their working.

DATES OF MEETINGS OF COUNCIL.

The following dates for the quarterly meetings of Council for the ensuing twelve months were agreed upon: October 25th, 1916; January 24th, 1917; April 25th, 1917; June 27th, 1917, it being left to the Chairman to fix the time of meetings, and in case of need to vary or suspend any meeting.

NEW MEMBERS OF THE ASSOCIATION.

The four candidates whose names appeared on the notice convening the meeting were elected Members of the British Medical Association.

RETURNS OF THE ELECTION OF MEMBERS OF COUNCIL BY THE REPRESENTATIVE MEETING.

The returns of the election by the Representative Meeting of members of Council were reported as follows:

(a) *Elected by the Groups.*

Dr. M. G. Biggs, Dr. J. Singleton Darling, Major A. C. Farquharson, Captain E. Rowland Fothergill, Mr. N. Bishop

Harman, Dr. I. W. Johnson, Dr. H. C. Mactier, Colonel C. H. Milburn, Lieutenant-Colonel J. Munro Moir, Dr. C. E. Robertson, and Dr. W. Johnson Smyth.

(b) *Elected by the Representative Body as a whole.*

Mr. E. J. Domville, Major Albert Lucas, Dr. Edwin Rayner, and Dr. T. Jenner Verrall.

PORTRAITS OF OFFICERS OF THE ASSOCIATION.

Dr. GIUSANI raised the question of the portraits of officers of the Association being hung in the Council Chamber or other suitable place. The matter was referred to the consideration of the Committee consisting of the officers of the Association.

BRITISH MEDICAL ASSOCIATION.

ANNUAL REPRESENTATIVE MEETING.

Hospital Treatment of Venereal Disease.

The resolution adopted by the Representative Meeting on the motion of Dr. Haslip, seconded by Dr. Major Greenwood, dealing with the desirability of providing that syphilis should be treated at a skin department, and gonorrhœa at a genito-urinary department, was inadvertently published last week (SUPPLEMENT, p. 48) in an imperfect form; the full text of the resolution is as follows:

Inasmuch as—

(1) Skin diseases, including syphilis, are a well-recognized branch of professional work, and genito-urinary surgery another well-recognized branch, each branch requiring special knowledge, methods, and equipment,

(2) Patients are unwilling to attend a "syphilis," "gonorrhœa," or "venereal diseases" department, but are willing to attend a general skin or general genito-urinary department,

(3) Unless such general departments are available, students cannot be adequately trained in, nor practitioners, without undue expenditure of time and trouble, keep up to date their knowledge of modern methods of diagnosis and treatment of venereal diseases,

(4) It is important that general practitioners shall be as expert as possible in the diagnosis and treatment of venereal diseases, thus preventing hospitals being called upon to deal with cases which should, in the best interests of all concerned, be dealt with by general practitioners,

—it is desirable that, so far as possible, persons suffering from syphilis and considered suitable for hospital treatment should ordinarily be treated in a skin department, and persons suffering from gonorrhœa in a genito-urinary or urological department of the hospital, with suitable arrangements for reference of cases. Each department should have separate divisions for men and women.

Association Notices.

SUGGESTED CHANGES OF BOUNDARIES.

Divisions of Metropolitan Counties Branch.

IN connexion with the Notice which appeared in the SUPPLEMENT of July 15th (p. 26) of proposals made by the Metropolitan Counties Branch Council for alteration of the areas of some of the Divisions of the Branch, notice is hereby given to all concerned that it has been proposed on behalf of the Branch Council that, as an alternative to the incorporation of the area of the existing Lewisham Division (namely, Lewisham borough) in the Greenwich and Deptford Division, that area be incorporated in the Woolwich Division.

Written notice of this alternative proposal has been given to the existing Divisions concerned which have Honorary Secretaries, and the matter will be determined in due course by the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, W.C., not later than September 12th, 1916.

COCAINE AND OPIUM.

THE Regulation made by an Order in Council of July 28th, under the Defence of the Realm Act, 1914, restricting the trade in cocaine and opium, was published in the SUPPLEMENT of August 5th, p. 58. The Order in Council embodied Regulations on other matters, and the Regulation relating to cocaine and opium was numbered 40 B. Paragraph 5 of the Regulation with regard to cocaine and opium is as follows:

(5) Every person who deals in cocaine or opium shall keep a record, in such form as may be prescribed by the Secretary of State, of all dealings in cocaine or opium effected by him, and if he fails to do so he shall be guilty of a summary offence against these regulations; every such record shall be open to inspection by any person authorized for the purpose by the Secretary of State.

We have received from the Home Office a copy of the Regulation, and also a copy of an Order which has been made by the Secretary of State, prescribing the form in which the record of dealings in cocaine and opium is to be kept. The Home Office informs us, further, that medical practitioners who dispense their own medicines will require to keep a record in this form of all cases in which they dispense any cocaine or preparations containing cocaine.

Order.

In pursuance of the Defence of the Realm (Consolidation) Regulations, I hereby prescribe that the record of dealings in cocaine or opium required by Regulation 40 B, to be kept by every person who deals in cocaine or opium shall be in the form contained in the Schedule hereto, and that separate records shall be kept for cocaine and opium respectively.

(Signed) HERBERT SAMUEL,
One of His Majesty's Principal Secretaries of State.

Whitehall, 31st July, 1916.

SCHEDULE.

Date of Sale.	Name of person, body, or firm to whom sold.	Address of person, body, or firm to whom sold.	Authority of person, body, or firm to purchase (*i.e.*, whether duly qualified medical practitioner, etc., etc., or with permit of Secretary of State. If permit give date).	Amount of opium (or cocaine) sold.	Form in which sold.	(For cocaine only.) When sale is on a prescription specify the ingredients of the prescription.

SUBSTITUTES FOR COCAINE IN DENTISTRY.

The Home Secretary gave notice on August 3rd that the Government has arranged to make available a sufficient supply of novocaine for use as a local anæsthetic, in place of cocaine, by practising dentists, whether registered or unregistered.

As the supply is not immediately available in the particular forms usually required for dental purposes, and three or four weeks may elapse before it can be made available in these forms, he has granted a temporary permit to all persons *bonâ fide* engaged on July 28th, 1916, in practising dentistry, but not registered under the Dentists Act, 1878, to purchase preparations containing not more than 1 per cent. of cocaine, adapted for use as local anæsthetics in connexion with dental work, subject to the condition that the preparations are used as local anæsthetics in connexion with such work and for no other purpose. The permit will remain in force until September 15th next. After that date it will not be legal for unregistered dentists to continue to use cocaine preparations.

Public notice will be given in good time stating how and where the novocaine preparations can be obtained.

The Secretary of State also desires to call attention to the fact that cocaine is being manufactured on an increasing scale in this country, and it is probable that considerable supplies of this drug also will be available shortly to meet the demand for local anæsthetics for dental purposes.

In reply to a deputation of members of Parliament on August 9th, the Home Secretary promised to look further into the matter, and said that he would extend the permit allowing unregistered dentists to obtain 1 per cent. solutions until after the House met in October, when the matter might be gone into again.

GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on July 24th, when Sir DONALD MACALISTER, President, was in the chair.

Apothecaries' Hall of Ireland.—A letter was read from the Apothecaries' Hall of Ireland stating that the Board had adopted in full the suggestions for the amendment of the courses of study and examinations of the Apothecaries' Hall of Ireland passed by the General Medical Council in May, 1916. The Executive Committee adopted a resolution expressing the satisfaction with which it had received the communication.

Election of Direct Representatives.—The President was requested to address to the Lord President of the Council a communication suggesting the expediency in the present emergency of further postponing all elections of direct representatives till the end of 1917.

Nurses' Registration.—Correspondence with the Secretary of the College of Nursing was read showing that the

Acting Registrar of the General Medical Council had been instructed to state that the Council would probably not wish to be represented on the governing board of the proposed College of Nursing, but would desire to have the rules and regulations framed by that body submitted to it through the Privy Council for comments and suggestions. It was noted that in regard to a similar measure—the bill to regulate the registration of nurses—the General Medical Council had on November 28th, 1908, adopted the following resolution:

> That it is expedient that the General Medical Council should stand in the same relation to the proposed General Council for the Registration of Nurses in the United Kingdom as the said General Medical Council does to the Central Midwives Board under Sections 3 and 16 of the Midwives Act, 1902.

The Executive Committee instructed the President to request the Lord President of the Council, should the proposed bill be introduced into Parliament, to transmit a copy of it for the consideration of the General Medical Council as on similar previous occasions.

Proposed Warning Notice.—The Committee, with the assistance of Sir Francis Champneys and Dr. Newsholme, who had been invited to attend, proceeded to the consideration of the draft notice prepared by the President, in consultation with the legal advisers, with regard to the covering by medical practitioners of uncertified women practising as midwives. The draft notice and proposed covering letter were approved by the Executive Committee, as follows, and directed to be presented to the General Council for its consideration at the November session:

General Council of Medical Education and Registration of the United Kingdom,
44, Hallam Street, Portland Place,
London, W.

Dear Sir,

As President of the General Medical Council I have been requested by that body to bring to your special attention the provisions of the Midwives Act, 1902, and the Midwives (Scotland) Act, 1915, which (in Great Britain) prohibit any woman who is not certified under one or other of these Acts from habitually and for gain attending women in childbirth, *otherwise than under the direction of a qualified medical practitioner.* The importance to the public welfare of the effective administration of these Acts of Parliament cannot be over-estimated.

In certain disciplinary cases which the General Medical Council have recently had to consider, it has been shown that, notwithstanding the salutary provisions of the above-mentioned Acts, uncertified women have been in effect enabled to defy the law through the countenance, assistance, or connivance of qualified medical practitioners. This has been done either by practitioners paying perfunctory visits to confinement cases, and signing certificates and kindred documents required by certain Acts of Parliament—for example, in relation to National Health Insurance or Notification of Births—or by their countenancing in other ways the false pretence that the uncertified woman was acting under the direction of a qualified medical practitioner.

Conduct of this character is, in the opinion of the Council, discreditable in that it directly tends to defeat the due working of Acts of Parliament which are of the utmost importance to the welfare of the poorer classes, and therefore of the nation, particularly at the present time. The Council accordingly have issued a *Warning Notice* upon the subject, of which I beg to enclose a copy.

Your attention is called to the fact that the penal provisions of the Acts do not apply "to any one rendering assistance in a case of emergency."

I am to add that the General Medical Council regard it as the duty of registered medical practitioners to co-operate with the constituted authorities in helping to secure the strict and effective administration of the Midwives Acts.

I am, yours faithfully,
DONALD MACALISTER,
President.

Draft Notice.

Whereas it is provided in the Midwives Act, 1902, and in the Midwives (Scotland) Act, 1915, that "no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner unless she be certified under this Act";

And whereas it has been made to appear to the General Medical Council that certain qualified medical practitioners have, from time to time, by their countenance or assistance or by issuing certificates, notifications, or other documents of a kindred character, knowingly enabled uncertified women, on pretence that such women were under their direction, to attend women in childbirth, contrary to the law;

And whereas such conduct is, in the opinion of the Council, discreditable to the profession of medicine, and calculated to defeat the purpose of the Statutes made in the public interest for the protection of mothers and infants;

Notice is hereby given that any registered practitioner who is proved to have so offended will be liable to have his name removed from the *Medical Register*.

Midwives Act, Scotland.—The proposed rules of the Central Midwives Board for Scotland were considered, and the Lord President was informed that no objection would be made to them.

Straits Settlements.—An order made by the Governor of the Straits Settlements in Council under the Medical Registration Ordinance, 1907, submitted through the Colonial Office, was considered, and the following resolution adopted:

> That the President be authorized to inform the Lord President of the Privy Council that the conditions laid down in Part II of the Medical Act, 1886, have been complied with as regards practice in the Straits Settlements; and that if it should please His Majesty in Council to apply the Act to the Straits Settlements, the Medical Council is prepared to consider the question of recognizing the diploma granted in the Colony; and that the Colonial Office be informed that this communication has been sent.

British Columbia.—It was reported that no further official communication had yet been received from the authorities in British Columbia in regard to the steps taken to secure the application of Part II of the Medical Act, 1886, to that province, but that it had been learnt unofficially that the necessary legislation had been enacted. Accordingly the Council adopted a resolution authorizing the President, after the receipt of the necessary documents, to advise the Lord President that Part II of the Medical Act, 1886, might properly be applied to the province of British Columbia, and the Acting Registrar was instructed subject to this to register any person who holds the licence or membership of the College of Physicians or Surgeons of British Columbia.

Amendment of Dentists Act, New South Wales.—A copy of an Act to further regulate practice in dentistry in New South Wales and to amend the Dentists Act, 1912, received from the Dental Board of New South Wales, was referred to the Dental Education and Examination Committee for its information.

(To be continued.)

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons E. C. Lomas, M.B., C.B., D.S.O., to Leith Naval Hospital for medical charge; T. Austin to the Hospital Ship *Garth Castle*, vice Lomas; R. L. Dickinson, to the *St. Vincent*, vice Austin. Staff Surgeons to be Fleet Surgeons: J. S. Dudding, N. H. Harris, L. Lindop, C. T. Baxter, W. E. Gribbell, R. W. B. Ball, H. V. Wells, R. B. Scribner, A. I. Sheldon, J. Whelan, C. R. Rickard, W. Bastian. Surgeon C. F. Willis to the *Vivid*. Temporary Surgeons: G. P. O'Donnell, D. P. Brown, M.B., and W. S. Lynd, M.B., to the *Vivid*; J. A. D. Skinner to Plymouth Hospital; W. Whitfield to the *Glory*; T. H. Cresswell to the *Dreadnought*; H. McMaster to the *Vivid* for Royal Naval Barracks. To be temporary Surgeon: Surgeon Probationer W. B. Gabriel (R.N.V.R.).

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationer: H. Donovan.

ARMY MEDICAL SERVICE.

Colonel M. T. Yarr, C.B., to be temporary Surgeon-General whilst a D.M.S. (without the pay or allowance of that rank).

Lieutenant-Colonel H. H. Tooth, C.M.G., R.A.M.C.(T.F.), to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

L. S. Dudgeon, F.R.C.P. (late temporary Lieutenant-Colonel R.A.M.C.), to be temporary Lieutenant-Colonel.

Majors (temporary Lieutenant-Colonels) relinquish the rank of temporary Lieutenant-Colonel on reposting: Sir E. S. Worthington, C.M.G., M.V.O., A. F. Carlyon, D. L. Harding, D.S.O., F.R.C.S.I.

The name of Lieutenant-Colonel (temporary Colonel) John D. Alexander, M.B., is as now described, and not as in the *London Gazette* of May 1st.

Temporary honorary Majors from Australian Voluntary Hospital to be temporary Majors: R. Dick, S. W. Patterson.

Captain (temporary Major) V. T. Carruthers, M.B., F.R.C.S.E., relinquishes the rank of temporary Major on reposting.

H. Wiltshire, M.D., to be temporary Major.

Temporary Captain L. E. Owen to be temporary Major.

Temporary honorary Captains from Australian Voluntary Hospital to be temporary Captains: R. V. McDonnell, B. T. Edye, M.B.

Temporary honorary Lieutenant C. C. Coghlan, M.B., from Australian Voluntary Hospital to be temporary Lieutenant.

Temporary Captain W. J. Maloney, M.D., F.R.C.S.E., relinquishes his commission on account of ill health.

The notification concerning temporary Captain W. D. Chambers, M.D., in the *London Gazette* of July 4th, is cancelled.

Temporary Captains H. R. Bramwell, M.B., and R. C. M. Hoare relinquish their commissions.

To be temporary Captains: R. M. Beaton, M.B., C. T. Parsons, M.D., C. E. Murphy, F.R.C.S., R. T. Smith, M.D., F.R.C.P.I.

Temporary Lieutenants to be temporary Captains: D. T. C. Frew, M.B., W. Elwood, M.B., R. D. Davy, M.B., S. A. Hall, A. H. Tovey, A. F. Bell, M.B., J. MacG. Johnson, M.D., F. T. Simpson, M.D., A. M. Fisher, M.D., F. McKee, M.B., F.R.C.S.I., C. O. Walsh, M.D., H. E. Moore, M.B., P. L. L. Craig, M.B., D. T. Skeen, M.B., C. H. Shearman, M.B., R. Fell, A. F. Cole, H. N. Dixon, M.D., T. Marlin, M.D., A. H. Walker, M.D., H. E. Humphreys, M.B., P. Daly, H. Quigley, M.B., W. H. Compton, J. P. Musson, M.B., W. R. Allen, M.B., T. J. H. Hoskin, A. Robb-Smith, M.B., B. W

Sutherland, M.B., R. Briffault, M.B., I. W. Corkey, M.B., G. R. Gray, M.B., W. E. Stevenson, M.B., N. McC. Boyce, M.B., J. A. Mescall, A. Climie, M.B., D. Whyte, M.B., C. J. West, M.D., J. M. Whyte, M.B., A. Frew, M.D., J. F. W. Leach, M.D., C. F. Nicholas, H. W. Dyke, M.B., H. W. Hodgson, W. F. O'Regan, M.B., E. C. Cunnington, H. Hodge, M.B., H. Croly, M.D., S. W. Williams, G. R. B. Purce, M.B., A. W. Mitchell, J. K. Small, M.B., R. W. Statham, D. A. Birrell, F. H. Allfrey, M.B., W. Russell, M.B., W. H. McWalter, M.B., T. D. Moffatt, M.B., A. M. J. Halligan, C. S. Miller, M.B., F. C. Tibbs, D. Wilson, M.D., R. W. E. Roe, T. C. Ritchie, M.B., J. E. Power, M.B., A. Peden, M.B., A. F. Flower, E. D. F. Hayes, M.B., G. O. F. Alley, M.B., S. G. Vinter, J. C. Fisher, M.B., A. D. Hamilton, M.D., F. G. Ralston, M.B., D. Renton, M.B., L. S. Shoosmith, E. H. Paddison, M.D., R. Dow, M.B., J. M. Smeaton, T. S. Reeves, M. T. Morgan, M.B., A. W. Baker, M.B., P. V. Early, M.B., J. R. McVail, M.B., H. P. Hall, M.B., G. Buchanan, M.B., G. R. Plaister, C. L. Miller, M.B., A. Z. Phillips, M.D., F.R.C.S.E., H. L. H. Greer, M.B., A. J. W. Cunningham, M.D., A. Patrick, M.D., F. B. Martin, M.B., F.R.C.S., J. Patrick, M.B., D. Glen, M.B., R. Miller, M.D., R. D. Nasmyth, M.D., T. Campbell, M.B., W. R. Tutt, M.B., G. B. Kennedy, M.B., F. R. Hassard, M.B., G. W. Anderson, M.B., P. Quesnel, M.B., C. Verge, L. R. Meech, R. W. Young, M.B., A. T. Bond, M.B., G. A. Simmons, M.D., C. B. Davies, W. C. McN. Dickey, H. S. Smith, M.B., A. E. Lundon, M.D., G. T. O'Donnell, M.D., V. D. Desrosiers, M.D., W. P. Jones, C. Russell, M.B., A. C. Major, F. C. H. Piggott, M.D., G. M. Brown, M.B., W. B. Gourlay, M.B., S. P. Hodkinson, M.B., C. J. Young, M.B., S. A. Kuny, M.B., H. Slater, M.D., T. H. Thomas, J. K. Stewart, M.B., J. R. Bryce, M.D., C. F. Brady, M.B., G. Kennedy, H. W. Pigeon, M.D., D. Miller, M.B., H. Appleton, W. K. McIntyre, M.B., C. McK. Craig, M.D., J. McI. Gibson, M.D., G. P. Wilson, A. Chalmers, M.B., C. Mitchell, M.B., J. Simpson, M.B., J. T. Murphy, M.B., E. Underhill, M.B., F. J. P. Daly, S. Forrest, M.D., J. F. Dow, M.D., B. Malaher, P. J. Kelly, M.B., A. C. Keay, M.B., P. McDougall, M.B., F. W. Chamberlain, M. Krolik, M.D., T. L. Clark, M.B., W. N. Child, D. E. Morley, M.B., W. G. Scott, F. N. Stewart, M.D.

Temporary Lieutenants relinquish their commissions: W. Dickson, M.D., J. S. McCallum, M.D., H. Lasnier, M.B., R. Ingram, M.B., G. R. Naylor, M.B., F. Heatherley, M.D., F.R.C.S., J. Hunter, M.B., H. E. Brawn, F.R.C.S., E. W. Goble, D. E. Ferwick, M.B., J. S. E. Selby, C. Ede, M.B., H. J. Hoile, M.B., T. F. Wilson, M.B., J. Landman, M.D., H. W. Sinclair, M.B., P. McGibbon, M.B., D. W. Davis, M.D., W. S. Badger, M.B., R. D. Laurie, M.B., J. J. G. Pritchard, F. S. B. Fletcher, M.B., C. F. Fothergill, M.B., A. Shearer, M.B., H. D. Everington, M.B., R. M. MacLennan, M.B., L. P. Black, M.B., A. T. Moon, F.R.C.S., H. G. Wood-Hill, A. M. Watts, M.D., F. W. Lyle, M.D., A. M. M. Roberts, M.B., A. T. Johns, M.D., O. R. P. Muller, M.B., D. S. Macbean, M.B., W. E. Peck, M.B., W. Lumsden, M.B., W. Browne, E. J. Chambers, C. V. Knight, M.D., J. Menzies, M.B., B. Blacklock, M.D., A. McEwan, M.B., M. B. Stuart, M.B., W. H. N. Bright, M.B., H. C. Meacock, E. Fullerton, M.B.

To be temporary Lieutenants: J. A. Aitken, M.B., T. Jones, J. Kirk, M.D., M. Lyons, E. G. D. Murray, A. H. Bloxsome, S. J. Brennan, R. D. Brennan, M.B., H. E. Scoones, D. K. Henderson, M.D., J. H. Wilson, M.D., W. Dickson, M.D., W. H. Robinson, M.B., A. H. Turner, Lieutenant R. D. Ferguson (Canadian A.M.C.), C. A. Holburn, E. P. Duncan, M.B., W. G. Southey, M.B., R. McLaren, P. K. McCowan, M.B., P. W. Dove, M.B., C. P. Charles, F. C. V. Thompson, R. C. Crawfurd, M.B., P. C. West, M.B., J. H. D. Webster, M.D., A. B. Coomber, C. T. I. Clarke, M.B., J. Sterry, A. H. Davies, M.B., H. A. Tillman, M.D., H. G. Browning, M.B., H. R. Marsh, J. M. Hammond, M.B., W. A. MacKay, M.D., J. Butler, M.B., W. R. Wylie, M.B., D. Craig, M.D., H. Findlay, M.B., F. W. Falconer, M.B., Lieutenant P. S. MacLaren, M.D. (Canadian A.M.C.), W. B. D. Daglish, M.B., J. M. Taylor, M.B., S. J. Haylock, J. L. O. Tilley, C. J. D. Bergin, R. M. Gordon, M.B., R. S. Park, M.B., G. B. Wild, A. Ffolliott, W. Denning, M.B., A. W. George, M.B., A. G. Reid, R. H. Smythe, E. D. S. Heyliger, M.B., C. C. Mecredy, W. P. MacKasey, M.D., N. Kennedy, M.B., C. J. R. Hoffmeister, E. H. Morris, E. E. T. Nuthall, M.D., H. W. Garden, M.B., H. G. Kilner, M.B.

Temporary honorary Lieutenants to be temporary Lieutenants: M. K. Robertson, F. C. Ormerod, P. E. D. Pank, G. P. B. Huddy, G. Moulson, T. D. Morgan.

To be temporary honorary Lieutenants whilst serving with No. 8 British Red Cross Hospital: A. Banks, F.R.C.S., C. E. Sparks, M.B.

Temporary honorary Lieutenant E. Aylward relinquishes his commission on ceasing to be employed with No. 8 British Red Cross Hospital.

Temporary Lieutenants relinquish their commission on account of ill health: J. E. Prentis, C. C. Hargreaves, M.B.

To be temporary honorary Lieutenants: G. C. Hartley, M.B., D. O. Richards, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London (City of London) Field Ambulance.—Captain J. M. A. Costello, M.B., from Attached to Units other than Medical Units, to be Captain.

London Field Ambulance.—A. C. Smith to be Lieutenant.

Second London Sanitary Company.—Lieutenant C. H. Lilley, M.B., to be Captain.

Eastern General Hospital.—Major R. A. Milligan, M.D., is seconded.

Eastern Mounted Brigade Field Ambulance.—Major (temporary Lieutenant-Colonel) W. Archibald, M.D., relinquishes his temporary rank on ceasing to command a field ambulance.

Southern General Hospital.—Captain J. H. Dawe, M.B., resigns his commission on account of ill health.

South Midland Mounted Brigade Field Ambulance.—A. E. Crabbe to be Lieutenant.

North Midland Casualty Clearing Station.—Major A. R. Henchley, M.D., to be temporary Lieutenant-Colonel whilst commanding a casualty clearing station; A. Heaton, M.D., F.R.C.S., from North Midland Field Ambulance, to be Captain; Lieutenant J. W. Archibald, M.B., to be Captain.

West Riding Field Ambulance. To be Lieutenants: L. A. Williams, M.D., M. B. O. Sinnatte, M.B., H. Vallow, M.D.

East Lancashire Field Ambulance.—Major W. L. Bentley to be temporary Lieutenant-Colonel whilst commanding a field ambulance; Lieutenant J. Bruce, M.B., to be Captain.

West Lancashire Field Ambulance.—Captain G. B. Robinson, from a T.F. field ambulance, to be Captain; A. H. Pinder to be Lieutenant (substituted for announcement published in the *London Gazette* of December 22nd, 1915).

Attached to Units other than Medical Units.—Captain G. S. Ward to be Major; Captain J. Orton, M.D., to be Major; Major W. A. Smith, East Lancashire Regiment, to be temporary Major (substituted for announcement published in the *London Gazette* of December 1st, 1915); Lieutenant L. A. Wilson to be Captain; F. Gamm, M.B., to be Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

CHARING CROSS HOSPITAL, W.C.—Resident Medical Officer. Salary, £400 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary, £200 per annum.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House-Physician. Salary, £160 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—House-Physician. Salary, £100 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL OF ST. JOHN AND OF ST. ELIZABETH, Grove End Road, N.W.—Resident Medical Officer. Salary, £250 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Junior House-Surgeon. Salary, £125 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

NORFOLK WAR HOSPITAL, Thorpe, Norwich.—Resident Civil Medical Officers. Terms, £1 per diem.

NOTTS COUNTY COUNCIL.—Resident Medical Officer at the Ransom Sanatorium. Salary, £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) Temporary Assistant Physician. (2) Temporary Assistant Surgeon. Honorarium, £25 per annum.

ST. GEORGE'S HOSPITAL, S.W.—Resident Anaesthetist. Salary, £100 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—Honorary Casualty Out-patient Surgeons.

SHEFFIELD: CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £180 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £160 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common.—(1) House-Physician. (2) House-Surgeon. (3) Temporary Anaesthetists. Salary, for (1) and (2) £100 per annum, and for (3) 10s. 6d. per attendance.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (lady). Salary, £100 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

WINCHESTER: ROYAL HANTS COUNTY HOSPITAL.—Lady Assistant to Resident Medical Officer. Salary, £100 per annum.

YORK CITY COUNCIL.—Temporary Tuberculosis Officer. Salary at the rate of £500 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BUATIA, S. L., B.A.Cantab., M.R.C.S., L.R.C.P., Ophthalmic House-Surgeon to St. Thomas's Hospital, S.E.

HADFIELD, C. F., M.A., M.D.Cantab., Assistant Administrator of Anaesthetics (temporary) at St Bartholomew's Hospital, E.C.

HARRIS, A. G. R., L.R.C.P., M.R.C.S., District Medical Officer of the Tenbury Union.

MOORE, A. M., L.R.C.S.Edin., L.S.A., District and Workhouse Medical Officer of the Basingstoke Union.

PATTERSON, Norman, M.B., F.R.C.S., Assistant Surgeon to the Throat and Ear Department at the London Hospital.

ROBINSON, H. J., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Penrith Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

ROBERTS.—On August 2nd, at Portledge House, Newbridge Hill, Bath, Elias Jones Roberts, M.B.Lond. 1852, M.R.C.S.Eng., late District Medical Officer, East India Railway, Asansol, India. Born February 29th, 1822.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	SEPTEMBER.
7 Thur.	London: Insurance Acts Committee (*provisional*).

Printed and published for the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 19TH, 1916.

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GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

(*Concluded from p. 63.*)

St. Lucia.—It was reported that the Colonial Office had forwarded a copy of an ordinance varying the registration ordinances of 1904 and 1910 of St. Lucia so as to authorize the Governor in Council during the continuance of the present war to direct the Registrar to enter in the register of medical practitioners the name of any person holding a diploma furnishing sufficient guarantee that he is possessed of the requisite knowledge and skill in medicine, surgery, and midwifery. On the instruction of the President, the Acting Registrar had intimated that the Executive Committee would doubtless be gratified to observe that the provisions of the ordinance would be operative during the continuance of the war only, and that the standard of qualifications required would not be permanently lowered. The Committee approved the letter.

St. Vincent.—It was reported that an ordinance to amend the registration ordinance of 1886 of St. Vincent had been submitted through the Colonial Secretary, and that a communication had been addressed to him pointing out certain defects in the ordinance. The Colonial Secretary had replied that these objections were being forwarded to the Governor of the Windward Islands.

Victoria.—An Act of the State of Victoria relating to certain graduates in medicine and surgery who were on war service was considered; it authorized "the Medical Board of Victoria to register as a legally qualified medical practitioner any of such persons who is duly qualified to be registered and to issue to him a certificate of qualification without requiring his personal attendance before the said board." It was reported that information as to the passing of the Act having been received by cable last year, the practitioners in question were registered on the British *Medical Register*, thus enabling them to obtain a commission in the R.A.M.C. An Act to amend the law relating to medical practitioners passed in the State of Victoria last September was also submitted through the Colonial Office, and the Executive Committee adopted the following resolution with regard to it:

> That the Secretary of State for the Colonies be informed that, presumably for reasons of a local and temporary nature, Section 2 of the Medical Act, 1915 (No. 2), No. 2753, of the State of Victoria provides that in certain cases any person who has gone through a course of professional study of not less than four years, and has obtained one of the qualifications described in the first twelve paragraphs of the Fourth Schedule to the Medical Act, 1915, is entitled to registration in the State of Victoria; that the degrees of Bachelor of Medicine and Bachelor of Surgery of the University of Melbourne come within the terms of Section 10 of the Schedule; that this Council has hitherto recognized these degrees, when obtained after a five years' course of study, as entitling to registration in the *Medical Register* of the United Kingdom; and that accordingly, during the operation of the Act, the Council must reserve the right of requiring evidence, in the case of the degrees of the University of Melbourne, that the five years' course of professional study and examination has been undergone by the graduate applying for registration in this country.

Meetings of Branches and Divisions.

EAST ANGLIAN BRANCH:

WEST NORFOLK DIVISION.

THE annual meeting of the West Norfolk Division was held at the West Norfolk and Lynn Hospital on July 6th, when the retiring office-bearers were unanimously re-elected for the ensuing year.

Reduction of Notification Fees.—A resolution was unanimously adopted protesting against the exploitation, by the reduction of notification fees, of the medical profession, which is already doing a large amount of gratuitous work.

Petrol Supply.—The meeting also expressed the opinion that efforts ought to be made to obtain an adequate supply of petrol for the medical profession at the same rate as supplied to the Government.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, gives notice that the annual meeting of the North of England Branch will be held at the Medical Committee Rooms, 23, Ridley Place, Newcastle-upon-Tyne, on Friday, September 1st, at 3.30 p.m. Business:—To elect officers for the ensuing year, the following have been duly nominated by the Branch Council: President, A. E. Morison, M.B. (Sunderland); President-elect, J. W. Smith, M.D. (Ryton); Vice-Presidents, C. G. Maclagan, M.B. (Berwick), Major Dillon, M.D. (Seaham Harbour). To receive the Branch Council's report for 1915, and the financial statement. To transact any other competent business.

INSURANCE.

INSURANCE COMMITTEES.

SANATORIUM BENEFIT IN LONDON.

AT the meeting of the London Insurance Committee on July 27th a letter from the Insurance Commissioners as to sanatorium benefit was read stating that they had difficulty in appreciating the complaint that, "owing to lack of funds, the Committee was unable properly to discharge its duties to insured persons"; the duty of the Committee in relation to sanatorium benefit was to administer the funds available to the Committee to the best advantage of the insured population, with due regard not merely to the number of applications for treatment, but to the kind of treatment most suited to each individual case. Mr. Kingsley Wood characterized this letter as the first statement by any responsible authority that the right to sanatorium benefit was limited to the amount of funds available, and he moved a resolution taking exception to this view, and asserting that it was both the legal and moral duty of the Committee to procure for the tuberculous insured persons such a measure of institutional or other treatment as their needs required. The resolution was adopted and referred to a special committee.

INSURANCE NOTES.

Expensive Prescribing.

A useful fly-leaf for panel practitioners, stating the chief causes which lead to high cost of prescribing, has been issued by Dr. A. E. Larking, secretary of the Bucks Panel Committee. The object of the author is evidently to show how cheapness in prescribing can be attained without sacrificing efficiency. For example, it is pointed out that flavouring and colouring preparations having little therapeutic action are all expensive, and the use of the official stock mixtures, which are both cheap and efficacious, having been tested by years of experience, much decreases the drug bill. It is quite a common thing for panel practitioners to order the medicinal aquae to fill up a bottle—for example, aq. menth. pip. ad 8 oz., the cost of which is 3½d., while by ordering aq. menth. pip. ex. conc. 3 oz. with aq. ad 8 oz., the cost is only ½d. Thus 3d. is saved, and all that is necessary is obtained in the mixture. The fly-leaf contains sixteen separate paragraphs of hints, and ought to be useful even to experienced prescribers who desire economy with efficiency. The sheets are published by Messrs. Locke, 7, Castle Street, Buckingham, price 3d. each, post free, or 7s. 6d. a hundred, carriage paid.

Answers.

Medical Benefit in Accidents.

R. K.—Panel practitioners are liable for attending all cases of accident occurring to patients on their list, whether or no the patient comes under the Workmen's Compensation Act or the Employers' Liability Act, and no fees can be claimed by the panel doctor from either the employer or the employee when the latter is on the doctor's list. The only exception is where the necessary treatment is such as could not, consistently with the best interests of the patient, be given by a general practitioner of ordinary competence and skill. In that case a specialist can claim a fee, but the bill should be sent to the patient, who alone is responsible to the doctor, and it is the workman's business to recover it from his employer if the accident occurred at work, unless the employer definitely admits to the doctor liability for medical attendance on the workman. In such a case as that mentioned (dislocated elbow) the patient can claim free from his panel doctor such treatment as a general practitioner of ordinary competence and skill can give, no matter whether the accident occurred at work or not, but the patient would be liable to pay for specialist treatment. In case the panel doctor were himself a specialist—say, in the use of *x* rays—the patient could not claim the free use of *x* rays, which general practitioners are not accustomed to use, but he can claim free ordinary treatment such as general practitioners usually give. But specialist treatment by panel doctors may readily lead to disputes, and, if so, the matter would have to be settled by agreement between the Local Medical Committee and the Insurance Committee, and, failing such agreement, by referees appointed as the Commissioners direct. It may be noted that sickness benefit in cases of accident is on quite a different footing from medical benefit.

CORRESPONDENCE.

Panel Practitioners' Big Profits.

Sir,—Under this heading the *Evening News* of August 3rd reports on some evidence given by Dr. Smith on behalf of the National Medical Union before the Commission of Investigation into the position of the National Insurance.

Far be it from me to suggest that the medical arrangements of the National Insurance Acts are not open to criticism, but I fail to see the advantage to be derived by wholesale attacks by one section of the profession on another. The great majority of the general practitioners of the country are now engaged in panel work, and if Dr. Smith is to be believed they are a disgrace to their profession. "Perfunctory attendance on their part is a matter of common knowledge." "A consultation is treated as if it were the incident of a moment, like buying tea over the counter."

The incident of the "rubber stamp" is another instance of ill judged criticism. If Dr. Smith had criticized the tyranny of forcing panel practitioners to write all their prescriptions in full he would have had most of them with him, if he had so desired.

He says, "Panel doctors who are making large incomes on the panel are doing the worst work." From his reasoning it would seem that non-panel doctors, working in poor districts and making large incomes, would come under the same category. But freedom of choice is equally open to the patient in each case. If the patient of a busy non-panel doctor is dissatisfied with the "perfunctory attendance" of his doctor, he can choose another non-panel doctor with fewer patients. So also the panel patient of a too busy panel doctor can get on the list of another with a more moderate panel.

After all, Dr. Smith must not forget that there are far more panel doctors with less than a thousand on their lists than there are panel doctors whose lists exceed that number.

Both panel and non-panel doctors uphold freedom of choice on the part of their patients, and it will be found, despite its obvious disadvantage to the patient, that the latter prefers to go to the doctor he or she fancies, whether panel or non-panel practitioner, notwithstanding the fact that the latter has more patients than he can properly attend to.—I am, etc.,

London, N.E., Aug. 4th. Major Greenwood.

"Exploiting Panel Doctors."

Sir,—As a panel doctor I want to bring to publicity for redress one of the injustices of Insurance Act administration. We read in the "Instructions" on the medical card

> If you have not chosen your doctor or approved institution you must do so by filling up Part A on the opposite page and presenting the medical card to any doctor on the panel or approved institution. If you are accepted the doctor or institution will retain the card and send it to the Insurance Committee, from whom you will receive the card with the name of the doctor or institution entered in the space at the foot of the first page.

When the card is duly signed by the would-be panel patient and the doctor, the latter sends it to the Middlesex Insurance Committee, which acknowledges the receipt of the card in the following terms:

> This acknowledgement does not necessarily imply that the person named on the cards have been added to your list.
> The cards will be examined and medical register slips forwarded to you in due course.

Any man with an average intelligence would assume that this would-be panel patient was not on the doctor's list till the doctor's name was either written on the space at the foot of the first page of the card or that the latter had received the usual medical register slip. As a colleague told me that that was not the case I wrote to the Clerk of the Committee to clear up this matter. His reply was as follows:

> 21st July, 1916.
> Dear Sir,—In rep'y to your letter of the 19th instant, when a doctor signs a medical card accepting the insured person on his list he immediately assumes responsibility for the treatment of such insured person.

On the face of it any right-minded person will at once see the unfairness of such a law, for it does happen that a medical man might attend a patient for some time—say a fortnight or three weeks, as it has happened to me—and then to find out that he is not on his panel, yet in my case he brought me a card not signed by any other doctor, which I signed. What remedy have we in such cases? None whatever. I suppose the chemist stands the same consequences.

My proposition is that no panel doctor should be entitled to attend any one unless his name is appended in the card signed by the Clerk of the Insurance Committee of the county where he resides to prove that it is in order.—I am, etc.,

Hornsey, Aug. 4th. L. J. A. de Gébert.

*** The position taken up by the Clerk of the Middlesex Committee is evidently quite unfair, and it is doubtful whether it could be legally upheld. It is monstrous to expect a doctor to accept responsibility for panel treatment of a person who may prove to be disentitled to medical benefit. If the Middlesex Committee tries to enforce the clerk's dictum, the doctor should write across the card some such words as "Accepted only from such date as I receive notification that this person is duly placed on my list." If an insured person is so neglectful as not to choose a doctor until he is ill and wants treatment, then whenever there is any doubt, the doctor applied to should refuse to sign the card and refuse to give treatment unless the person pays for it. The panel doctor is under no compulsion to give free treatment to persons not on his list.

Post Bellum Agreement.

Sir,—The Chairman of Council said (Supplement, August 5th, p. 95), with reference to the proposal to draft a *post bellum* agreement, that "it could not be done." The newspapers of August 5th give currency to the appointment of Labour Committees to consider this very thing from the labour point of view. I suppose what the Chairman of Council meant was that he could not do it. Are we so impoverished that it is impossible to find a legislator in the profession who could do it? If so, could we not borrow one from the representatives of labour? The Chairman of Council moved the recommendation of Council under the head

"Enlisted men": "No further action be taken at present. . . ." All this in face of the Government action in respect to notification fees. If the policy regarding future agreement be not formulated now, we shall be swept off our feet when peace is declared. Is it not a fact that the Commissioners are now cogitating *post-bellum* agreements?—I am, etc.,

Swadlincote, Aug. 5th. D. ROBERTS.

THE NATIONAL MEDICAL UNION AND THE INSURANCE ACTS.

THE following memorandum on the working of the National Health Insurance Acts was furnished by the National Medical Union to the unofficial Commission of Investigation now sitting:

MEMORANDUM.

I. We advocate the repeal of the medical benefit section of the Insurance Acts, on the ground that the panel system is an admitted failure, involving the following defects amongst others:

(*a*) Pressure by Committees leading to the prescribing of cheap and inferior drugs and stock mixtures, with, in addition, what amounts to a pecuniary bribe (the "floating sixpence") to keep down the drug bill.

(*b*) Perfunctory attention, due to congested waiting-rooms and lack of time for examination of patients.

(*c*) Division of the medical profession, due to establishing a State monopoly granted to one section at the expense of the other.

(*d*) Extension of State grant for medical benefit to unregistered persons—for example, "herbalists," "bone-setters," and other quacks.

(*e*) Dissatisfaction of those insured persons who, preferring to employ the doctor of their choice, have in consequence to forfeit their medical benefit and pay twice. The panel doctors still receive capitation fees in respect of these persons, and have consequently a pecuniary interest in transferring their liability to non-panel doctors. They have a similar inducement to refer patients on their panel list to public and poor law institutions.

II. Lay control is objectionable to the medical profession, and will always present a serious obstacle to an efficient service; for our calling has always been a free and liberal profession. Thus the attempt to control medical certification in the working of the Insurance Acts has led in Great Britain to constant friction, and in Ireland to a deadlock. Compulsory violation of professional secrecy is another evil for which lay control is responsible. The history of medical service under lay control has always been thoroughly bad.

III. Free choice of doctor is indispensable.

(*a*) Mr. Lloyd George himself frequently emphasized the importance of granting free choice, until the Insurance Commissioners by regulation limited the choice to doctors on the panel.

(*b*) Permission to make "own arrangements" was arbitrarily refused by most Insurance Committees, notably those of the counties of London and Middlesex. This produced an unexpected "surplus medical benefit fund," being the proceeds of compulsory and inequitable contributions levied on insured persons declining to select a panel doctor. These contributions were distributed amongst the panel doctors by Insurance Committees against the repeated opinion of Mr. Danckwerts, K.C., expressly taken by the Insurance Committee of the County of London, that such distribution was "unlawful" and "in the nature of a dodge."

IV. Adequate treatment has not been secured.

(*a*) See No. I (above).

(*b*) Owing to insufficient sanatorium and tuberculosis dispensary accommodation, numbers of patients are sent to union workhouses. In the County of London there are only 300 beds for tuberculous insured persons. Domiciliary treatment for tuberculosis is also most unsatisfactory, and often criminally culpable.

(*c*) There is no provision under the Acts for consultations, anæsthetics, operations (even those of a minor character), or for special treatment or diagnosis—for example, eye, ear, and throat cases, *x*-ray examination, etc.

(*d*) Necessary medication and appliances are withheld for fear of a surcharge for their prescription.

V. Professional ethics have been ignored.

(*a*) Medical men, who in some instances are panel doctors, have been appointed referees by approved societies, and paid by them. These referees visit patients, diagnose their ailments, and often discredit the certificates and opinions of the regular medical attendants, subsequent events proving in some cases that an obvious injustice to the patient has been done.

(*b*) There has been, under State compulsion, a wholesale transference of the patients of private practitioners to the lists of panel doctors.

(*c*) Contract practice in any form, leading as it does to collective bargaining and undercutting, has always been and will remain unacceptable to a very large section of the profession.

VI. Insurance has not been restricted to those equitably entitled to it. Highly paid manual labourers, such as engineers' mechanics and skilled artisans, have neither the need nor often the desire for the compulsory insurance to which they are now subjected. The same objection applies to the inclusion of the dependants of well-to-do persons.

In conclusion, the National Medical Union has never been opposed to the application of the principle of National Health Insurance to the necessitous classes of the community. The above memorandum is furnished in response to the invitation of the Commission of Investigation of the Faculty of Insurance, and indicates some of the grounds upon which exception is taken to the existing scheme and administration of the medical benefit section of the National Health Insurance Acts.

The following members of the Union attended before the Commission and gave evidence on the matters dealt with in the memorandum: Mr. V. T. Greenyer, F.R.C.S. (Chairman of Council), Dr. Alexander Morison, F.R.C.P. (Chairman of Executive Committee), and Drs. H. B. Greene, Edwin Smith, and G. D. Wilson (members of Council). The taking of their evidence occupied some three and a half hours, and the witnesses were questioned on many points. Among the matters dealt with were the evils of lay control, the refusal of choice of doctor, the inadequate medical service under the panels, the harmful influence of the present system on medical ethics and education, the irregular distribution of the medical benefit surplus funds, and the sanction by the Insurance Commissioners of "treatment" at the public expense by "herbalists" and other quacks. The National Medical Union is confident that good must come from an inquiry into the working of the Insurance Acts such as that now being carried on by the Commission of Investigation.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified by the Admiralty: Staff Surgeons A. C. W. Newport and G. M. O. Richards (emergency) to the *Victory*, additional, T. W. Jeffery to the *Proserpine*. Surgeons T. J. O'Riordan, M.B., to the *Britomart*; J. S. Elliott, M.B., to the *Europa*; G. V. Hobbs to the *Alecto*; R. M. R. Thursfield to the Royal Marine Infirmary, Eastney, vice Preston; A. E. Malone, M.B., to the *Vivid*, additional, for Pembroke Dock Hospital and Dockyard; J. G. Boal, M.B., to the *Egmont*. Temporary Surgeons L. Mandel to the *Vivid*, additional; T. H. Cresswell to the *Pembroke*, additional; J. G. Wardrop to the *Dominion*; J. F. M. Campbell, W. A. Pocock, and T. S. Braburn to the *Pembroke*; P. C. Gibson to the *Dreadnought*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers N. Navine to the *Lucifer*, C. Blurton to the *Stour*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenant-Colonel Sir J. R. A. Clark, Bt., C.B., C.M.G., F.R.C.S., having ceased to be in charge of the St. John Ambulance Hospital, relinquishes his commission.

Temporary honorary Major C. J. Trimble, C.M.G., to be temporary Lieutenant-Colonel whilst in charge of the St. John Ambulance Brigade Hospital.

Lieutenant-Colonel C. C. Heywood, M.B., from Manchester Regiment (T.F.), to be temporary Major.

Temporary Major (temporary Lieutenant-Colonel) E. B. Pooley, having ceased to command a field ambulance, relinquishes the rank of temporary Lieutenant-Colonel.

Surgeon-Captain (temporary Major) S. C. Hayes, Reserve of Officers 1st Life Guards, relinquishes his temporary commission on reposting.

Temporary Captains to be temporary Majors: J. W. Struthers, M.B., F.R.C.S.E., J. S. Morrow, M.D., J. C. Woods, M.D. (whilst serving at the Palace Green Hospital), E. W. Skinner, M.D.

R. A. Fleming, M.D., F.R.C.S. (Captain R.A.M.C.T.F.), to be temporary Major whilst in charge of a medical division of a general hospital.

The following having ceased to be employed with the Australian Voluntary Hospital relinquish their temporary honorary commissions: Major E. T. Thring, F.R.C.S.; Captains W. R. Reynell, M.B., G. A. Paul, M.B., and L. S. Kidd.

Temporary honorary Captain T. Houston, M.D., to be temporary honorary Major whilst employed with the St. John Ambulance Brigade Hospital.

Temporary Captain L. C. Somervell relinquishes his commission on account of ill health.

To be temporary Captains: A. H. H. Sinclair, M.D., F.R.C.S.E., G. D. Mathewson, M.B., J. S. Fowler, M.D., F.R.C.P.E., temporary Lieutenants W. G. Southey and J. M. Morris, M.B. (whilst employed with the Neath Section, 3rd Western General Hospital).

M. Gamble, M.D., to be temporary honorary Captain whilst employed with the Withington War Hospital.

Temporary Captain J. C. McKerrow, M.D., relinquishes his commission.

Temporary Lieutenants relinquish their commissions: W. W. Kennedy, M.B., R. Paul, M.B., T. J. Waddel, M.D., R. J. Gordon, M.D., D. A. McAulay, M.D., F. A. Keillor, M.D., H. H. Planche, M.D., L. G. Gomme, M.D., G. E. Richards, M.B., J. M. Verster, M.B., F. C. Drew, M.B., C. D. File, M.B.

To be temporary Lieutenants: Lieutenant R. H. Astbury, M.B., from Royal Warwickshire Regiment (T.F.), Lieutenant R. H. Stoddard, M.D., Canadian A.M.C., S. B. Hanbury, J. W. Cowie, J. W. O. van Milligen, M.B., F. H. Storey, M.B., A. Wilkin, G. J. R. Carruthers, M.B., G. J. M. Fraser, K. D. Melville, M.D., F. P. Wigfield, M.B., T. Peebles, M.B., E. Burstal, M.B., T. W. E. Ross, M.D., F.R.C.S., J. V. Rees, M.B., R. McL. Wishart, W. J. Crow, M.B., K. B. Allan, M.B., T. N. Darling, J. G. Jack, M.B., F. Stevenson, M.B., H. M. Leathes, T. McL. Galloway, F.R.C.S.E., W. H. Booth, W. S. McLaren, M.B., E. R. Eatock, M.B., J. McN. Murray, M.B., W. H. Peacock, M.B., J. F. Gill, M.B., temporary honorary Lieutenant J. C. N. Harris, R. W. Ironside, P. R. Lowe, M.B., H. Blakemore, J. McMurray, E. C. White, M.B., N. E. Kendall, H. C. Wilson, M.D., F.R.C.S., R. H. Rattray, R. Lee, M.B., E. R. Bastard, K. G. Haig, C. S. O'Neill, M.B., H. C. Harper, J. W. B. Hanington, J. R. Micallef, M.D., A. B. Hewitt, M.D., H. M. Churchill, J. C. Ellis.

Temporary honorary Lieutenant W. E. N. Dunn, M.B., having ceased to be employed with the British Red Cross, Netley, relinquishes his commission.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel P. Carr-White, M.B., to be Colonel, with effect from June 7th, 1916.

Lieutenant-Colonel R. C. Macwatt, an Agency Surgeon of the 1st Class, substantive *pro tempore* and Chief Medical Officer in Rajputana and Civil Surgeon, Ajmere, appointed temporarily to hold visiting charge of the offices of Agency Surgeon, Eastern Rajputana States, and Agency Surgeon, Kotah and Jhalawar, in addition to his own duties, with effect from May 22nd, 1916.

Lieutenant-Colonel A. L. Duke, an Agency Surgeon of the 1st Class, and Residency Surgeon and Chief Medical Officer in Baluchistan, appointed to hold charge of the current duties of the office of Civil Surgeon, Quetta, in addition to his own duties, with effect from June 8th, 1916.

Lieutenants promoted to be Captains, with effect from January 25th, 1916: R. R. M. Porter, M.B., R. Sweet, M.B., E. Calvert, M.B., J. R. D. Webb, F. Phelan, A. C. Macrae, M.B., N. C. Kapur, A. H. C. Hill, J. F. Holmes, N. K. Bal, H. S. G. Haji.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain J. W. Wood, M.B., takes rank and precedence as Captain in the R.A.M.C.(S.R.) as if his appointment to that rank bore date January 15th, 1916.

Lieutenant F. H. Goss to be Captain.

Cadets from University Contingents O.T.C. to be Lieutenants: T. Blackwood, M.B., J. P. Broom, M.B., A. C. Brown, M.B., J. W. Dalgliah, M.B., J. F. Duthie, M.B., J. Ewing, M.B., E. G. S. Hall, M.B., R. W. MacDonald, M.B., D. B. McIntosh, M.B., J. W. Maclean, M.B., A. F. McMillan, M.B., R. Rodger, M.B., J. A. Buchanan (ex cadet), J. M. Downie, S. J. Henderson M.B., O. Johnston (Glasgow), G. Lapage, R. Chevassut, M.B., J. H. Albinson, M.B., R. Colley, M.B. (Manchester), J. M. H. Campbell, P. D. H. Chapman, F. L. Dawson, M.B., R. S. Aspinall, G. E. Kidman (London), E. B. Alabaster (Birmingham), J. A. C. Guy, M.B., H. S. Moore, M.B. (Edinburgh), C. R. Knowles (Leeds), W. F. T. Haultain, M.B. (Cambridge), G. J. Key, M.B., W. D. Whamond, and Cadet Sergeant A. Fowler (Aberdeen).

To be Lieutenants: J. B. Steven, M.B., K. J. T. Wilson, M.B., R. Isbister, M.B., T. Gray, M.B., M. Dwyer, Second Lieutenant G. S. Davidson from Unattached List (T.F.), R. B. Stewart, M.B., R. L. Portway, D. S. Scott, M.B., N. H. Harris, A. H. Craig, M.B., G. Ewen, M.B., R. B. Hick, J. M. Courtney, A. G. P. Wills, A. G. Stevenson (late Captain Gordon Highlanders), D. Lougulin, W. J. Vance.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonel A. Mignault to be temporary Colonel. To be temporary Captains: Captain T. A. Watterson (Canadian Militia), H. S. Smith, Lieutenant W. A. Smith, Sergeant H. W. Byers. To be temporary Lieutenant: R. D. Ferguson.

SOUTH AFRICAN MEDICAL CORPS.

To be temporary Captains: J. J. de Waal, J. J. Van der Spuy, J. de vos Meiring, B. Sampson.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Casualty Clearing Station.—Lieutenant F. A. Dick, M.B., to be Captain.

London Sanitary Company.—Lieutenants to be Captains: K. B. Williamson, J. Tate.

Southern General Hospital.—Lieutenant-Colonel R. S. Smith, M.D., relinquishes his commission.

Western General Hospital.—Captain W. A. Hooton, from T.F.R., to be Captain.

West Lancashire Casualty Clearing Station.—Lieutenant D. F. Harper, M.D., to be Captain (substituted for announcement published in the *London Gazette* of May 23rd).

West Riding Field Ambulance. W. Sharrard, M.B., to be Lieutenant.

Western General Hospital.—Captain T. C. Clare is seconded for duty with a general hospital.

Scottish General Hospital.—Major B. Riddell, M.D., to be temporary Lieutenant-Colonel whilst acting as Administrator of a general hospital.

Lowland Casualty Clearing Station.—To be Lieutenants: A. C. Hodgson, M.B., late Lieutenant Orkney R.G.A., E. M. Dunlop, M.B., D. Campbell, M.B.

Highland Mounted Brigade Field Ambulance.—Lieutenant (temporary Captain) L. M. V. Mitchell, M.B., to be Captain.

Attached to Units other than Medical Units.—Surgeon-Major S. F. Barker, from York and Lancashire Regiment, to be Major with precedence from August 9th, 1914. Surgeon-Captain J. M. Benson, M.B., from West Riding Division Engineers, to be Captain with precedence from September 26th, 1910. To be Captains: Captain F. J. Cosgrove, M.B., from Wessex Field Ambulance; Lieutenants J. Llewall-Cormac and H. G. Ludolf.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICE.

Colonel D. J. MacKintosh, M.B., from Assistant Director of Medical Services, Lowland Division, to be Colonel.

ROYAL ARMY MEDICAL CORPS.

Captain S. Sharples, from a Territorial Force Field Ambulance, to be Captain.

Captain W. A. L. Jackson, M.B., from Attached to Units other than Medical Units, to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON-UNDER-LYNE UNION.—Assistant Medical Officer at the Hospital and Workhouse. Salary, £250 per annum.

BIRKENHEAD UNION INFIRMARY.—Female Resident Assistant Medical Officer. Salary, £250 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary, £200 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon.

HACKNEY UNION INFIRMARY.—Junior Assistant Medical Officer. Salary, £250 per annum.

LEEDS CITY.—Medical Assistant for Maternity and Child Welfare work (female). Salary, £350 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Resident House-Surgeon. Salary, £180 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Junior House-Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer for In-patient Department, Bowdon. Salary, £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANSFIELD AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £200 per annum.

NORTHAMPTON COUNTY BOROUGH.—School Medical Officer and Assistant Medical Officer of Health. Salary, £350 per annum, rising to £400.

NOTTS COUNTY COUNCIL.—Resident Medical Officer at the Ransom Sanatorium. Salary, £250 per annum.

PERTH INFIRMARY.—Radiographer. Honorarium, £50.

SHEFFIELD CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £180 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £160 per annum.

SHEFFIELD ROYAL HOSPITAL.—(1) House-Physician. (2) Casualty Officer. (3) Assistant House-Surgeon. Salary, £140, £130, and £125 per annum respectively.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common.—(1) House-Physician. (2) House-Surgeon. (3) Temporary Anæsthetists. Salary, for (1) and (2) £100 per annum, and for (3) 10s. 6d. per attendance.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Two House-Surgeons. Salary, £150 per annum.

WILLESDEN URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer to the Health Department. Salary, £8 8s. per week.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Clwtybont (Carnarvon), Llansawel (Carmarthen), Walthamstow (Essex).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DRIVER, Miss H. A., L. and L.M.R.C.P.S.I., Assistant Medical Officer of the Bolton Union Workhouse.

GRIFFIN, J. P., M.R.C.S., L.R.C.P., District Medical Officer of the Hitchin Union.

FIELDEN, E., M.B., District Medical Officer of the Easthampstead Union.

MCGEOCH, Thomas, M.D.Glas., Certifying Factory Surgeon for the Girvan District Cottage Hospital.

MOIR, D. R., M.B., Ch.B.Aber., Medical Officer of the Receiving and Scattered Homes of the Kingston-upon-Hull Incorporation.

MORE, J., L.R.C.P., M.R.C.S., Certifying Factory Surgeon for the Rothwell District, co. Northampton.

SCOTT, F. S., M.B., B.S.Lond., District Medical Officer of the Truro Union.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	SEPTEMBER.
1 Fri.	North of England Branch, Annual Meeting, Newcastle-on-Tyne, 3.30 p.m.
7 Thur.	London: Insurance Acts Committee (*provisional*).

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 26TH, 1916.

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British Medical Association.

DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES.

DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

A DEPUTATION from the British Medical Association waited upon the Right Hon. Walter H. Long, M.P., President of the Local Government Board, on August 15th, with reference to the regulations and circulars which have recently been issued by the Board in regard to the diagnosis and treatment of venereal diseases.

The deputation consisted of Sir Clifford Allbutt, K.C.B., President of the Association; Mr. E. B. Turner, Chairman of Representative Meetings; Dr. J. A. Macdonald, Chairman of Council; Mr. T. W. H. Garstang, Chairman of Medico-Political Committee; Mr. E. J. Domville, Dr. H. J. Campbell, Mr. N. Bishop Harman, and Dr. Alfred Cox, Medical Secretary of the Association.

Mr. Long was accompanied by Sir Horace Munro, K.C.B., Permanent Secretary of the Local Government Board, Mr. F. J. Willis, C.B., Assistant Secretary, and Dr. Arthur Newsholme, Medical Officer of the Board.

In introducing the deputation, Sir CLIFFORD ALLBUTT said that the scheme embodied in the regulations and circulars issued by the Board was generally approved by the Association, but the deputation came to urge one point which, in their opinion, was of extreme importance if the scheme was to be as successful as they all hoped it would be.

Mr. TURNER said that the medical profession were absolutely of one mind with the Local Government Board in desiring to make the utmost use of the scheme, and he pointed out that the whole-hearted co-operation of the profession, and especially of general practitioners, was necessary if the best results were to be obtained. The deputation, therefore, wished to urge that local authorities should be asked to consult the local medical profession in order that the views of the profession in each area might be ascertained and considered before the schemes were settled. The deputation realized that the election of representatives of the medical profession on committees of local authorities was impracticable without legislation, but they suggested that local authorities should allow two representatives of the medical profession in each area to attend the meetings of the committees which had the duty of framing schemes. It was thought that one of these representatives might be selected to represent the medical staffs of hospitals in the area, and the other the general practitioners.

An alternative suggestion was that separate advisory committees, consisting of members of the medical profession, and others with special knowledge of the subject, should be appointed in each area, but the deputation considered the first suggestion preferable.

In reply, Mr. LONG thanked the deputation very heartily for coming to see him and for placing their views so clearly before him. He fully realized the great importance of securing the co-operation of the medical profession in the working of schemes for the diagnosis and treatment of these diseases, and this point was sufficiently emphasized in the circulars which had been issued by the Local Government Board. He was anxious to meet the views of the deputation so far as was practicable and he thought there would be no difficulty in adopting the first of the suggestions which had been put forward. He proposed that two or three members of the deputation should discuss with the officers of the Board the best means of giving effect to this suggestion.

This proposal was accepted, and Sir CLIFFORD ALLBUTT thanked Mr. Long on behalf of the deputation for the readiness with which he had met their views.

The following memorandum was submitted by the deputation:

MEMORANDUM.

1. In asking the President of the Local Government Board to receive a deputation from the Representative Body of the British Medical Association, it is desired to make clear that the Association is entirely sympathetic to the campaign which the Board is instituting for the prevention and treatment of venereal diseases, and desires to give to it whatever support it can, provided the conditions under which that support is asked for are such as will command the support of the medical profession. The Representative Body of the Association at its meeting on July 28th and 29th, 1916, was strongly of opinion that the suggestions made by the Board in their circular to local authorities fail at one vital point—namely, as regards the way in which the co-operation of the local profession and local hospitals is proposed to be secured.

2. The Royal Commission on Venereal Diseases laid great emphasis on the necessity for securing the co-operation of the medical profession in any local schemes that might be instituted. The Board in its circular (Section IV, para. 1, page 9) endorses this, but in discussing practical details makes it clear that the framing of the scheme is to be effected by the local authority acting under the advice of the medical officer of health. There is no mention of securing the co-operation of the profession at this, the most important stage. The co-operation of the local profession is apparently to be asked for only after the scheme has been inaugurated. "When the scheme has been approved," the circular of the Board says (para. 7, page 8), "and the facilities for treatment actually provided, the widest publicity should be given to the fact that these facilities are available," etc. In para. 8 it is suggested that "for the purpose of disseminating information as to the scheme, and for making suggestions to the Council, it will be desirable that a committee should be formed containing representatives of" the police and Poor Law authorities, midwives, probation officers, rescue workers, clergy, women, and representatives of the Local Medical Committee for the area.

3. In the first place, the Association is of opinion that to place representatives of the medical profession on a committee of this kind, *after the scheme has been framed*, is to waste the experience of the profession, which should be used by the local authority at the time when it could be most effective, namely, in moulding the details of the scheme. The other persons and bodies referred to in

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Board's circular will no doubt be useful in disseminating information about the scheme. But the medical profession, from the very nature of the whole proposals, is bound to know all about the scheme when it is in working order, and may be trusted to popularize it if it be established on proper lines. It is, however, the firm opinion of the Association that the knowledge and interest of the profession can only be fully utilized if representatives of the profession are invited at the very inception of a local scheme to place their knowledge at the disposal of the local authority. However able a medical officer of health may be, it must be remembered that the question of the treatment of venereal diseases is a clinical matter, with which from the nature of his work the medical officer of health has probably had little acquaintance since his student days. Moreover, the details of any scheme which is to attract the patients it is desired to help require that knowledge of the susceptibilities of the public in their capacity as patients which the general practitioner, in the nature of the case, is most likely to possess.

4. For these reasons the British Medical Association considers it absolutely essential that the local medical profession shall be asked at the very outset to nominate representatives who shall be called into effective consultation by any committee which has the organization and control of the arrangements for any scheme for the diagnosis and treatment of venereal diseases. It is because the Association is convinced that unless this can be done the scheme of the Board will be a failure that it has appointed the deputation to wait on the President of the Board.

5. The Association recognizes the technical difficulties in the way, as the public health committees of county and county borough councils consist only of members who have been elected to those councils, and the statutes under which these bodies exist contain no provision for such co-operation between them and representatives of outside bodies as is desired in this case. It is believed, however, that a workable method can be suggested, and seeing that the scheme is a new one which everybody believes will, if successful, have a powerful effect on the health of the population of the country, the Association would respectfully suggest that lack of precedent should not be allowed to prevent the new scheme starting with the hearty co-operation of the great mass of the practitioners of the country who are engaged in private practice.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, gives notice that the annual meeting of the North of England Branch will be held at the Medical Committee Rooms, 25, Ridley Place, Newcastle upon Tyne, on Friday, September 1st, at 3.30 p.m. Business:—To elect officers for the ensuing year; the following have been duly nominated by the Branch Council: President, A. E. Morrison, M.B. (Sunderland); President-elect, J. W. Smith, M.D. (Ryton); Vice-Presidents, C. G. Maclagan, M.B. (Berwick), Major Dillon, M.D. (Seaham Harbour). To receive the Branch Council's report for 1915, and the financial statement. To transact any other competent business.

INSURANCE.

INSURANCE COMMITTEES.

SALFORD.

The Unofficial Commission of Inquiry.—At the monthly meeting of the Salford Insurance Committee, held on August 17th, the Chairman, Alderman HUDDART, referred to the evidence that had been given before the Commission of the Faculty of Insurance by certain members of the National Medical Union with reference to the character of the insurance medical service in Manchester (SUPPLEMENT, August 19th, p. 67). He said that the fact that this union had shown such an unreasonable bias against the Insurance Act from its very commencement ought to make every one assess such evidence at its proper value. It was clear that the witnesses knew practically little of the working of the Act in Manchester, and as what they said about Manchester would probably be equally applied to Salford, as the medical arrangements were the same as in Manchester, he desired to say that the evidence was altogether misleading as regards Salford. He believed the Salford doctors were as a body working the Act conscientiously and well. There were practically no complaints of neglect from insured persons, and he desired to protest against the evidence given. The above remarks were received with cheers from the committee, and a number of the members, representing approved societies, joined in the Chairman's protest against the evidence of the National Medical Union. Dr. TAYLOR suggested that the Chairman should offer to give evidence before the Commission of Inquiry, as he would, at any rate, know something of what he was talking about and would be free from bias of the witnesses referred to. The CHAIRMAN promised to get in touch with the Commission of Inquiry.

Sickness Benefit in Venereal Diseases.—At a later stage of the meeting the following motion, of which notice had been given, was proposed by Dr. TAYLOR:

> That the Salford Insurance Committee fully agrees with the opinion of the Royal Commission on Venereal Diseases that the application of any rule which makes an insured person ineligible for sickness benefit when suffering from venereal disease is likely to deter patients from seeking prompt and efficient treatment, and is therefore contrary to the interests of both public health and economy, and the committee therefore expresses the hope that approved societies having any such rule will revoke the same at the earliest possible moment.

Dr. Taylor said that the societies were already paying sickness benefit for many cases arising from venereal disease even in its early stages, and to pay in all cases when the patients were unable to work would make little difference. It was important that the disease should be treated as early as possible, as in patients not treated properly a large number of chronic diseases, such as locomotor ataxia and various forms of paralyses, were apt to follow, often many years after the primary disease, and the drain on the sickness and disablement funds for these cases was incalculably great. It was the opinion of the Royal Commission and the Government and the expressed view of the Representative Meeting of the British Medical Association that the rule of the societies tended to prevent patients seeking or accepting efficient medical treatment in the early stages. He believed the societies would benefit rather than lose by abolishing the rule; but if they could prove loss, they would have a good case for special consideration by the Commissioners and the Government. Several members of the committee, including representatives of approved societies, the town council, and deposit contributors, supported the motion, and a member who represents the National Amalgamated Association of Societies read a letter from the General Secretary, saying that that association was entirely favourable to the motion, and would take steps to carry it out as soon as possible. The motion was carried unanimously.

INSURANCE NOTES.

EXCESSIVE FINES OF PANEL PRACTITIONERS.

STILL another instance of excessive fines imposed by the Insurance Commissioners on panel practitioners for breaches of the rules of certification is recorded—in this case from the Falkirk Burgh Insurance Committee, which has protested to the Commissioners against what it regards as an injustice. It appears that for some breach of the certification rules by a panel practitioner the Scottish Commissioners have deducted the sum of £50 from the special Treasury grant to the Committee; the Insurance Committee had previously imposed on him a fine of £5 5s. In spite of the protest of the Committee, the Commissioners have refused to alter their decision, asserting that they had had regard to the numerous complaints that had been received from approved societies as to the non-observance of the certification rules by doctors. They had also kept in view the fact that the doctor in question had previously been reprimanded by the Insurance Committee for similar offences, and to prevent inequality of treatment between different areas they had kept before them the amount of grant that had been deducted in other areas where doctors had been in breach of their agreement. The Commissioners say that the deduction is not to be regarded as in the nature of a fine; that they were bound on behalf of the Treasury to see that the conditions of the special grant were satisfied; and that if a doctor were in breach of his agreement the appropriate deduction was made.

Even a legal mind will be at a loss to understand the quibble that the deduction is not to be regarded as in the nature of a fine, and the further reason offered by the

mmissioners simply amounts to a claim that one cessive fine justifies another. If the Commissioners sire to make the panel system more unpopular with the dical profession, they could hardly proceed in a better y.

CORRESPONDENCE.

"EXPLOITING PANEL DOCTORS."

. J. C. LYTH (Honorary Secretary, York Medical fence Association) writes: With reference to the letter m Dr. de Gébert in the SUPPLEMENT of August 19th, 66, and your note thereon, I am afraid that the clerk to e Middlesex Committee is within his rights, as the regu-ions stand at present, in the attitude he has taken up. actitioners on the panel are under an obligation to treat, t only the insured persons actually on their lists, but o those who are unallocated. For this responsibility the treatment of unallocated insured persons, the prac-ioners on the panel in any given area nominally receive e capitation fees in respect of these persons paid in to e medical benefit fund for that area, in the shape of a ol at the end of the year, or whenever the final credit ay be paid. As this pool is divided amongst the prac-ioners in proportion to the number of persons on their ts, theoretically each practitioner will receive an amount ughly corresponding to the number of unallocated rsons for whom he has been responsible. Actually, this only one of the increasingly numerous ways in which e medical profession has been exploited. For instance, this area of York, and I suppose in practically every her area, when the 1914 final credit ultimately arrived, me eighteen months overdue, it was found, not only at there was no pool whatever, but that over 13 per nt. had been deducted from the amounts due, on e plea of "inflation of lists." The York Panel Com-ittee have under consideration a scheme for verifying e lists for this year, and hope to be in a position timately to claim from the Insurance Committee a finite amount corresponding to the lists of the prac-ioners on the panel, as revealed by this verifica-on. But it is obvious that as the conditions of reement now stand, both in the matter of unallocated rsons, and in many other ways, the medical profession is present quite at the mercy of the Insurance Com-issioners. The letter which you print immediately after at from Dr. de Gébert, on Post Bellum Agreement, from r. Roberts, seems in this connexion very much to the oint, and surely deserves serious consideration; but in y event, whatever the Council of the British Medical ssociation decide to do, surely it lies with the medical rofession to proceed without delay to get together, and various areas to combine into associations such as our vn, in order that any action decided upon by the ecutive may receive the absolute undivided support of e individual practitioners. We must not again risk the sco of 1912–1913. There can be no doubt in the minds those of the profession who have followed the events of e past few years, that after the war we shall be obliged make a very definite and united stand, if we are to have y chance of resisting the various attacks which will be ade upon us, both in connexion with the Insurance Acts d in other ways. We must be prepared to dictate terms regard to the treatment of venereal diseases; we must cure the raising of the infectious diseases certification e to the original figure.

Unless individual practitioners are bound by such bonds hold together the labour trade unions, we shall be werless. In the opinion of our Association, this can only e secured by registration under the Trade Union Acts.

Dr. A. R. EATES (London, W.) writes: Your note to r. de Gébert's plaint (SUPPLEMENT, August 19th, p. 66) is od reading; but one would like also to know why your mpathy with the Middlesex panel doctors is not extended us in London. Surely you know that in London, should e doctor decline to take on any fresh applicant, he is:

1. Bound to give him immediate treatment when any is required.
2. To write for the applicant an introduction to another panel doctor.
3. To write to his Panel Committee, telling them of his action in the matter.
4. To forego any share in further capitation fees.

The whole London panel service has long been treated by the Insurance Committee as if we had a collective agreement with the committee, and a large and very important part of the activities of "our own" committee have been in the direction of supporting this attitude. The topographical relation of Middlesex to London makes it easy for the former's Insurance Committee to follow the lead of the latter, and so on throughout the country.

So long as panel practitioners strive sectionally for the betterment of their conditions and for just treatment so long must they be beaten in detail.

Some months back a short article of mine was published in another place in which I suggested a sure way of doing away with all the anomalies, irregularities, and injustices from which all panel men suffer. My plan, briefly stated, is: Let all Panel Committees throughout the country advise (and require of) their constituents not to treat as panel patients any insured person whose title to benefits had not first been confirmed by the Insurance Committee concerned.

Procedure: A. presents his card and asks for treatment. Dr. B. signs the card accepting A., declines treatment pending confirmation, sends the card to his Insurance Committee, which in course of time notifies A. that he has been placed on B.'s list, and B. to the same effect. Should A. require treatment during this waiting period he must pay for it and look to the Insurance Committee for a refund of the outlay. The committee in turn simply surcharge A.'s approved society, whose statutory obligation it is to give timely information to the committee of the existence and statutory rights of all and each of their insured members.

To protect themselves against surcharges the approved societies must prove that they had so notified the committees, and they would be obliged to see that all their members understood clearly their risk in not selecting a doctor as soon as they were furnished with their medical cards.

The only difficulty I know of is to get panel men to unite and to instruct their representatives on Panel Committees to do this nationally useful thing instead of wasting time, money, and energy upon futilities.

DEDUCTIONS FROM PANEL LISTS.

Dr. B. A. RICHMOND (London) writes: With reference to the communication from Dr. Roberts which appeared on page 34 of the SUPPLEMENT of July 22nd, the particular paragraph quoted by the writer has reference to expulsions and withdrawals, notifications of which must be given to the Commissioners.

The instruction which deals with notifications to Insurance Committees is as follows—namely:

(453.) The notification of any changes affecting the Index Register—for example, suspensions on account of arrears of contributions, deaths, expulsions, etc.—should be sent to the Insurance Committee concerned immediately the necessary facts come to the knowledge of the society. Attention is specially directed to this matter in view of the serious difficulties which may result from delay in making the requisite notifications.

This instruction is printed in unusually heavy type on page 133 of the *Handbook* for the use of approved societies, and a similar instruction is also contained in the Commissioners' Circular to Societies and Branches (A.S. 160), dated March, 1915.

It would appear to be equitable that some arrangement should be made whereby doctors should receive payment in respect of treatment rendered between the date of suspension and the date of the notification of such suspension. In those cases in which it is found that approved societies have been remiss in their duty and have not complied with their obligations as to immediate notification, they should be called upon to pay for the cost of treatment given during the intervening period. It might be possible for societies to reimburse themselves by obtaining a refund of the amount from the member concerned.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified by the Admiralty: Fleet Surgeons J. P. H. Greenhalgh, M.D., to the *Antrim*, E. S. Tuck to the *Egmont*, W. H. Daw to the *Vivid*. Staff Surgeons J. H. L. Page to the *Juno*, J. E. Johnston, M.B., to the *Pembroke*, J. M. Hayes to the *Vivid*, A. C. Newport to the *Dido*, vice Gittings; G. D. Bateman to the *President*, additional, for R.N.A.S. Surgeon F. L. Smith to the *Caroline*. Temporary Surgeons E. Rayner, M.B., to the *Victory*, additional, for

Haslar Hospital; W. L. Cripps, M.B., to the *Victory*, additional; G. S. Mitchell to the *Dreadnought*, vice Gilson; H. G. Stermer to Chatham Hospital; T. E. Ashley to Plymouth Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer E. Pigott to the *Minos*, vice Walker.

ARMY MEDICAL SERVICE.

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services of Divisions: G. W. Tate, M.B., F. E. Gunter.

ROYAL ARMY MEDICAL CORPS.

Captains R.A.M.C.(T.F.) to be temporary Majors: G. H. Colt, M.B., F.R.C.S. A. W. Falconer, M.B.

Surgeon-Lieutenant A. G. Curphey to be Surgeon-Captain.

Temporary Lieutenants to be temporary Captains: E. Mapother, M.B., F.R.C.S., W. P. Taylor, R. W. Buchanan, M.B., J. Purcell, J. B. Milne, M.B., C. Rutherford, M.B., D. McIntyre, M.B., W. R. Thomas, M.D., J. Green, M.B., W. J. Deadman, M.B., L. H. Leeson, M.D., A. Brown, M.B., H. E. Thomas, M.B., J. F. J. Herbert, M.B., N. S. Whitton, M.B., R. W. Valentine, M.B., W. Campbell, M.B., J. V. Holmes, M.B., R. MacDonald, M.D., E. G. M. Gilchrist, M.B., W. H. Thresher, M.B., B. B. Metcalfe, F. C. Matthew, M.D., F.R.C.S.E., G. Redpath, M.B., J. V. Cope, M.B., G. A. Upcott-Gill, F.R.C.S.E., J. G. Thomson, M.B., W. Hutcheson, M.D., J. Brown-Sim, M.B., N. Macleod, M.B., E. A. Lindsay, A. Patrick, M.D., F. B. Martin, M.B., F.R.C.S., F. H. Bowen, M.D., I. Wilson, M.D., J. A. Doull, M.D., H. S. Tait, M.D., W. B. Honey, M.D., W. A. Proud, M.B., R. J. P. McCullough, M.B., E. Sheffield, M.D., S. L. Alexander, M.B., R. J. Kee, M.D., W. V. Coffyn, M.D., P. A. Sullivan, R. Rimmer, M.B., D. G. Gardiner, M.B., C. G. Harmer, M.D., A. H. Watson, M.B., W. J. Knight, M.D., C. B. Macdonald, M.B., J. Rodger, M.B., H. H. Scot, A. H. Huycke, M.D., W. W. Galbraith, M.B., R. A. Mansell, M.B., R. S. Ross, M.B., D. J. Dauth, M.B., J. F. Matheson, M.B., G. E. Keith, M.B., R. Cox, M.B., E. M. B. Payne, J. C. Robertson, M.B., C. L. Sproule, C. Kidd, M.B., J. Dunlop, M.B., A. Benjamin, M.B.

The notification in the *London Gazette* of July 7th regarding temporary Lieutenant A. J. V. McDonnell is cancelled.

The christian names of temporary Lieutenant Alvin McPhee Warner, M.D., and the surname of temporary honorary Lieutenant Reginald Curle are as now described, and not as in the *London Gazette* of July 15th.

Temporary Lieutenants relinquish their commissions: F. W. Doak, L. A. W. Johnston, G. H. L. Armstrong, M.B., A. F. M. Mullane, M.B., T. F. Wilson, M.B., S. McCormac, M.B., H. Kirkland-Whittaker, M.D., W. S. Badger, M.B., T. Divine, M.D., E. J. Chambers, A. B. MacA. Thomson, M.D., A. H. Cran, M.B., A. L. Saunders, K. B. Pinson, M.B., P. Green, M.D., A. F. Studdart, A. R. Young, J. C. Spillane, M.B., R. J. Attridge, M.D., J. Wallace, M.D., A. B. J. Coope, M.B., H. F. Hutchinson, M.B., J. White, J. Pritchard, W. Turner, M.B., J. P. Whetter, M.B., W. Yorke, M.D., R. O. Bridgman, E. F. Watson, M.B.

To be temporary Lieutenants: N. S. Carmichael, M.B., F.R.C.P., Lieutenant W. C. Connell, M.B., Canadian A.M.C., V. E. Somerset, M. E. Delafield, M.B., H. L. Messenger, A. M. Watts, M.D., A. Dingwall, M.D., S. P. Pollard, M.D., J. I. Baeza, M.B., J. W. Applegate, R. H. S. Marshall, P. Rose, J. C. M. Bailey, M.D., R. K. G. Graves, A. L. Husband, M.D., C. H. Cox, F. Newey, M.B., B. H. Swift, M.B., D. L. Spence, H. B. Scargill, M.B., E. G. B. Carpenter, F.R.C.S., H. N. Eccles, William Howat, M.B., and temporary honorary Lieutenants H. K. G. Hodgson, M.B., D. S. Pracy, P. S. Clarke, N. N. Haysom, E. G. Howell.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Captains to be temporary Majors: P. G. Bell, H. W. Coates. Lieutenant H. B. Northover to be temporary Captain.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel E. V. Gostling, East Anglian Field Ambulance, to be Assistant Director of Medical Services, East Anglian Division, with the temporary rank of Colonel (substituted for announcement in the *London Gazette* of April 27th).

Major E. L. Anderson, M.B., from Welsh Field Ambulance, to be Deputy Assistant Director of Medical Services, Welsh Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Major R. Corfe, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

London Sanitary Company.—Lieutenant H. Vickers to be Captain.

East Anglian Field Ambulance.—Lieutenant A. D. Reid, M.B., to be Captain.

South Midland Field Ambulance.—Captain R. A. Kerr, M.B., from Attached to Units other than Medical Units, to be Captain.

1st South Midland Mounted Brigade Field Ambulance.—Captain S. P. Johnson, M.B., relinquishes his commission on account of ill health.

Notts and Derby Mounted Brigade Field Ambulance.—S. F. H. Bissell, late Lieutenant Worcester and Warwick Artillery (Volunteers), to be Lieutenant.

Eastern General Hospital.—Lieutenant G. A. G. Bonser to be Captain.

Eastern Mounted Brigade Field Ambulance.—Major W. Archibald, M.D., to be temporary Lieutenant-Colonel whilst commanding a field ambulance. Captain G. A. G. Bonser, from a general hospital, to be Captain.

West Riding Field Ambulance. Captains T. Whitelaw, M.B., H. D. Pickles, and R. P. Anderson, M.B., from a general hospital, to be Captains.

East Lancashire Field Ambulance.—J. S. Cooper to be Lieutenant.

Southern General Hospital.—Captain A. Ellison is seconded for duty with West Yorkshire Regiment.

Northumbrian Field Ambulance.—C. S. O'Hagan, M.B., late Lieutenant (temporary Captain) Durham Fortress Engineers, to be Captain.

Highland Field Ambulance.—J. Steele, M.B., to be Lieutenant.

Sanitary Service.—Major A. H. Hogarth from A.M.S. to be Sanitary Officer, Northern Army.

Supernumerary for Service with the O.T.C.—Lieutenant A. Macdonald, from Attached to Units other than Medical Units, to be Lieutenant for service with the Medical Unit of the University of London Contingent, Senior Division, O.T.C.

Attached to Units other than Medical Units.—Captains from a general hospital to be Captains: F. Harvey, G. E. Martin, M.B., S. Harrison, M.B., C. H. Keay, M.B. Lieutenants to be Captains: A. N. Worster, M.B., J. P. Clarke. To be Lieutenant: J. S. Ransom.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD UNION INFIRMARY.—Junior Female Resident Assistant Medical Officer. Salary, £250 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £300 per annum.

BRISTOL EYE HOSPITAL.—House-Surgeon. Salary, £80 per annum.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Resident House-Surgeon. Remuneration, £50 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary, £200 per annum.

DERBYSHIRE COUNTY COUNCIL.—Two School Medical Officers. Salary, £400 per annum.

DUNDEE: KING'S CROSS (FEVER) HOSPITAL.—Resident. Salary, £150 per annum.

EDMONTON MILITARY HOSPITAL.—Medical officers. Remuneration, £1 per diem.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House Physician. Salary, £160 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 25 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Assistant Casualty Medical Officer. Salary, £30 for six months.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary, £300 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200 per annum.

MANCHESTER CORPORATION.—Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer for In-patient Department, Bowdon. Salary, £300 per annum.

NORTHAMPTON COUNTY BOROUGH.—School Medical Officer and Assistant Medical Officer of Health. Salary, £350 per annum, rising to £400.

NOTTS COUNTY COUNCIL.—Resident Medical Officer at the Ransom Sanatorium. Salary, £250 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House-Surgeon. Salary, £300 per annum.

SHEFFIELD ROYAL HOSPITAL.—(1) House-Physician. (2) Casualty Officer. (3) Assistant House-Surgeon. Salary, £140, £130, and £120 per annum respectively.

SOUTH AFRICA MENTAL HOSPITAL SERVICE.—Assistant Physicians. Salary, men £440, women £360 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Bromsgrove (Worcester), Crewkerne (Somerset), Gortin (Tyrone), Keswick (Cumberland).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BROWNE, W. M., L.R.C.P. and S.Edin., District Medical Officer of the Tiverton and Honiton Unions.

CAREGAN, O. J., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Ormskirk District, co. Lancaster.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

DURHAM-REID.—On August 20th, at 5, Beach Terrace, Newbiggin-by-the-Sea, the wife of J. Durham Reid, Lieutenant, R.A.M.C.(T.), of a daughter.

MARRIAGE.

ROXBURGH—FLETCHER.—On August 16th, 1916, at St. Michael's, Highgate, by the Rev. W. Ogle, Vicar of the Parish, assisted by the Rev. Prebendary F. S. Webster, Rector of All Souls, Langham Place, and the Rev. P. E. Twamley, Alexander Bruce Roxburgh, M.B., F.R.C.S., of 3, Manchester Square, W., to Edith Annie, daughter of George Fletcher, M.D., J.P., and Mrs. Fletcher, of Highgate, N.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	SEPTEMBER.
1 Fri.	North of England Branch, Annual Meeting, Newcastle-on-Tyne, 3.30 p.m.
7 Thur.	London: Insurance Acts Committee (*provisional*).

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 2ND, 1916.

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British Medical Association.

ANNUAL REPRESENTATIVE MEETING, JULY, 1916.

SYNOPSIS OF PROCEEDINGS.

(NOTE.—*It is particularly requested that Members of the Association will preserve this Synopsis for reference.*)

Composition and General Proceedings.

ONE HUNDRED AND THIRTY-NINE Constituencies entitled to appoint Representatives made returns out of a possible 226. Of the eighty-seven Constituencies making no return thirty-four were Constituencies in the United Kingdom, and fifty-three were Oversea Constituencies. One hundred and thirty-four Representatives attended, an increase of five on the attendance at the Annual Representative Meeting, 1915.

Of fifty-six members of the Council (including in this number the 1915–16 Council and members of the 1916–17 Council elected at the time of the meeting) thirty-seven were present, twenty of them as Representatives.

There were present by invitation, during the consideration of the report as to the work of the Central Medical War Committee, Professor Harvey Littlejohn (Edinburgh) and Dr. D. Naunton Morgan (Bridgend), members of that committee not members of the Representative Body, and also, in response to an invitation to representatives of the Government departments which had helped the committee in its work, Sir Robert Morant, K.C.B., Chairman, and Mr. J. Smith Whitaker, Vice-Chairman, National Health Insurance Commission. The representatives of the National Health Insurance Commission also, with the permission of the meeting, remained in the meeting during the consideration of the questions arising out of the report of the Royal Commission on Venereal Diseases.

The meeting sat on Friday, July 28th, from 10 a.m. to 6.30 p.m., and on Saturday, July 29th, from 9.30 a.m. till 6.55 p.m.

A Representatives' dinner was held at the Waldorf Hotel on Friday, July 28th, under the presidency of Mr. E. B. Turner. It was well attended, and was in every way a success.

Arrangement of Decisions of Meeting.

Mere expressions of approval of reports are not noted in this synopsis, but other decisions of the meeting are classified under the various departments of the Association's work into which they naturally fall, as:

1. Declarations of policy of the Association.
2. Instructions to the Council to take action.
3. References to the Council for consideration and report.

VOTES OF CONDOLENCE.

DEATH OF SIR VICTOR HORSLEY, F.R.S., FIRST CHAIRMAN OF REPRESENTATIVE MEETINGS.

Minute 18.—That the Representative Body place on record its deep regret at the death on active service of Colonel Sir Victor Horsley, F.R.S., who took a leading part in the reconstitution of the Association and the formation of the Representative Body, was first chairman of Representative Meetings, and was for many years a most distinguished and devoted worker for the medical profession and for the British Medical Association; and that a letter of condolence be sent to Lady Horsley.

DEATHS OF OTHER FORMER MEMBERS OF REPRESENTATIVE BODY.

The meeting also placed on record its deep regret at the death of the following former members of the Representative Body:

Killed on Active Service.

Lieutenant-Colonel J. H. Dauber, R.A.M.C. (Westminster).

Died on Active Service.

Captain A. T. Campbell, R.A.M.C.(T.F.) (Glasgow).

Other Deaths.

Dr. Thomas Bushby (Liverpool).
Surgeon-General Sir Charles M. Cuffe (Kensington).
Dr. J. H. Lyell (Perth).
Professor Arthur H. White (Dublin).

Death of Dr. Ratcliff-Gaylard's Son.

A vote of condolence was also directed to be sent to Dr. Ratcliff-Gaylard on the loss of his second son killed at the front.

FINANCE.

WORK OF OFFICIALS AND STAFF.

Minute 26.—That the Representative Body place on record its high appreciation of the valuable services rendered by the whole of the Officials and Staff, and that they be thanked for the able way they have worked on behalf of the Association, and congratulated on the careful manner in which they have conserved during very critical times the financial interests of members of the Association.

CENTRAL MEDICAL WAR COMMITTEE.

Declarations of Policy.

SUMMONING OF MEDICAL MEN TO TAKE COMMISSIONS IN THE SERVICES.

Minute 33.—That this meeting protests against the neglect by the Government departments and local authorities of the recommendations of the local profession relative to the summoning of medical men to take commissions in the services.

REAPPOINTMENT OF CENTRAL MEDICAL WAR COMMITTEE FOR 1916–17.

Minute 36.—That the Central Medical War Committee as at present constituted be reappointed for 1916–17, subject to such modification as may be required by the election of the officers of the Association, and that the Committee be given power to fill any casual vacancies.

REFERENCE TO THE COMMITTEE.

Minute 41.—That the reference to the Central Medical War Committee be: To organize the medical profession in England, Wales, and Ireland in such a way as will enable

the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council; and that the members of it for the time being be empowered to act as members of the Central Professional Committee under the Military Service Acts, 1916, and Regulations made thereunder, so long as so desired by the Army Council.

ORGANIZATION.

Declarations of Policy.

Membership of Association.

Minute 175.—That in view of the fact that the financial position of medical practitioners is being seriously affected by the rise in the cost of living, and is likely to be further affected in the future by this and by economies of public departments, it is urgent that the membership of the British Medical Association, which is the only body that voices the opinion of the profession and carries weight with the Government and with the public, be greatly increased.

Question of a Standing London Committee.

Minute 177.—That no further action be taken with reference to Minutes 67–8 of the Annual Representative Meeting, 1915, as to a possible Standing Committee of the Association for London.

Instructions to Council.

Grouping of Home Branches for Election of Council, 1917–18.

Minute 170.—That the Home Branches be grouped for election of twenty-four members of Council, 1917-18, under By-law 46 (*a*) in the same way as for 1916–17.

(For the 1916–17 grouping see Supplement, May 8th, 1915, pp. 201–2.)

Grouping of Home Constituencies for Election of Twelve Members of Council, 1917–18.

Minute 176.—That, as in the case of the 1916–17 grouping, the grouping of constituencies for election of twelve members of Council, 1917–18, be left to the Council.

SCIENCE.

Instruction to Council.

Question of State Recognition of Scientific Work.

Minute 164.—That the Representative Body request the Council to appoint a small *ad hoc* Committee to confer and act with the Science and State Committee of the British Science Guild and other bodies in the matter of the inadequate recognition and recompense by the Government and other bodies of medical workers in the field of science, and to report to the Council.

MEDICO-POLITICAL.

Declarations of Policy.

Medical Inspection and Treatment of School Children.

Minute 52.—That the Representative Body approve, as the policy of the Association on medical inspection and treatment of school children, the Memorandum published in the Supplement of May 8th, 1915, pp. 227–9.

Medical Certificates in Connexion with Possible Pensions or Gratuities to Dependants of Soldiers and Sailors Killed on Active Service.

Minutes 55.—That in connexion with the giving of certificates by medical practitioners as to the degree of capacity to earn their own livelihood of dependants of deceased soldiers or sailors for the purpose of establishing their claim to pension or gratuity, it is desirable:

(i) That there should be a uniform standard of estimating disability to earn;

(ii) That the work of certification should be done by a board of local practitioners, and should be paid for.

That it be urged upon the Government that the above proposal would be conducive to public economy and efficiency.

Notification of Pregnancy.

Minute 60.—That while it is desirable to encourage prospective mothers to make early arrangements for being properly cared for during the time of pregnancy as well as at the actual time of delivery, the Association is opposed to the compulsory notification of pregnancy by the medical profession.

Election of Direct Representatives on General Medical Council.

Minute 61.—That the support of the Association be given to the following candidates in the election of direct representatives on the General Medical Council at the forthcoming election: H. W. Langley Browne, M.D., F.R.C.S.E., West Bromwich; H. A. Latimer, M.D., M.R.C.S., Tunbridge Wells; J. A. Macdonald, M.D., M.Ch., LL.D., Taunton; and T. Jonner Verrall, M.R.C.S., L.R.C.P., L.L.D., Bath.

Report of Royal Commission on Venereal Diseases.

Representation of Medical Profession on Committees for dealing with Local Schemes.

Minute 67.—That it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession shall be asked to nominate representatives who shall be entitled to serve upon any committee having the organization and control of any such arrangements; and that this Body send a deputation at once to the President of the Local Government Board to explain the vital issues involved and to secure from him a pledge that he will forthwith issue an order to every local authority concerned, requiring it to call into effective consultation representatives of the local medical profession (selected for the purpose by the profession) at the earliest stages of the framing of the schemes under the Regulations and throughout their working.

Confidential Certification and Registration of Cause of Death.

Minute 62.—That arrangements should be made for the confidential registration or certification of the causes of death, the proposals of the Registrar-General being commended for consideration (*Recommendation 1 of Royal Commission*).

Uniform Records of Sickness in Institutions.

Minute 63.—That the Local Government Board should devise a uniform system of records of sickness in hospitals and Poor Law establishments with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment (*Recommendation 3 of Royal Commission*). The cost of these should be borne by the Local Government Board.

Facilities for Diagnosis of Venereal Diseases.

Minute 69.—That extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. The county councils and county borough councils should include in such service the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general. In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at universities and hospitals.

Treatment of Venereal Diseases.

Minute 70.—That measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the facilities for treatment which are afforded (*Recommendation 7 of Royal Commission*). That every registered medical practitioner should be in a position to ensure his patients access to institutional treatment when he considers that course desirable.

Treatment at General Hospitals and Clinics.

Minute 95.—That institutional treatment should, as far as possible, be provided at general hospitals and clinics, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals and the local medical profession in their areas with a view to making arrangements for treatment.

Desirability of Treatment of Syphilis at a Skin Department, and of Gonorrhœa at a Genito-Urinary Department.

Minute 73.—Inasmuch as—

1. Skin diseases, including syphilis, are a well-recognized branch of professional work, and genito-urinary surgery another well-recognized branch, each branch requiring special knowledge, methods, and equipment;

2. Patients are unwilling to attend a "syphilis," "gonorrhœa," or "venereal diseases" department, but are willing to attend a general skin or general genito-urinary department;

3. Unless such general departments are available, students cannot be adequately trained in, nor practitioners, without undue expenditure of time and trouble, keep up to date their knowledge of modern methods of diagnosis and treatment of venereal diseases;

4. It is important that general practitioners shall be as expert as possible in the diagnosis and treatment of venereal diseases, thus preventing hospitals being called upon to deal with cases which should, in the best interests of all concerned, be dealt with by general practitioners;

—it is desirable that, so far as possible, persons suffering from syphilis and considered suitable for hospital treatment should ordinarily be treated in a skin department, and persons suffering from gonorrhœa in a genito-urinary or urological department of the hospital, with suitable arrangements for reference of cases. Each department should have separate divisions for men and women.

Organization: Accounts: Medical Staff.

Minutes 77.—That a voluntary institution providing a clinic or beds for the treatment of cases of venereal disease should be carried on in accordance with the following principles:

(*a*) That the organization may run concurrently with that of the institution.

(*b*) That the accounts should be kept so as to show the approximate aggregate cost of the treatment of such patients, including the cost of medical attendance and treatment.

(*c*) That special medical officers selected as far as possible from amongst the local practitioners should be appointed to carry on the work of the venereal wards or clinics, and should work under the supervision of the honorary staff.

(*d*) That the services of all members of the medical staff concerned with the special treatment of such patients shall be paid for by the State and local authority.

Payments to Institutions : Honorary Medical Staffs.

Minute 78.—That from all payments received by the governing body of a voluntary medical institution from the State and local authority in respect of the venereal medical service a proportion, to be agreed upon between the governing body and the honorary medical staff, should be placed to a special fund, which shall belong to the honorary medical staff.

Disposal of Moneys belonging to Honorary Medical Staffs of Hospitals.

Minute 81.—That the honorary medical staffs may find the following suggestions valuable in connexion with the disposal of the moneys in the special fund, and accordingly the Association suggests to the hospital staffs concerned that one or more of the following methods of distribution of any moneys in the special fund may be found suitable :—

(*a*) To the members of honorary medical staffs for their own personal disposal.

(*b*) For the assistance of members of the medical staff in connexion with research work.

(*c*) For the purchase of instruments, books, etc., for the use of the medical staff or for lending to other members of the profession.

(*d*) For the initiation or development of post-graduate teaching in the institution.

(*e*) The institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases (for example, widows and children of former colleagues).

(*f*) Grants to any recognized medical benevolent fund or institution.

(*g*) For the purpose of remunerating those who do the work.

(*h*) Otherwise as the majority of the medical staff may decide.

Continuity of Treatment in Hospital and Afterwards.

Minute 84.—That, when a patient is discharged from an institution, it is imperative for the continuity of treatment that a report as to his treatment during his attendance at the institution should be kept at the institution, and that a copy should be at the disposal of any medical practitioner who applies for it with the sanction of the patient.

Free Treatment at Institutions.

Minute 96.—That, subject to the loyal observance of the directions of the last paragraph of Section IV (2) of the Local Government Board circular both in the letter and the spirit, this meeting agrees to the direction of the preceding paragraph, that a patient who can afford to pay for his own treatment, but who refuses to consult a private practitioner, shall not be refused treatment at a provided institution or clinic so long as he is considered to be in an infectious state.

Section IV. (2) of Local Government Board Circular.

It has already been indicated that medical practitioners should be urged to make the fullest possible use of the laboratory facilities provided under the scheme of the Council, and that these facilities should be given without cost to the patient or the practitioner. The Board consider similarly that medical practitioners should be encouraged to avail themselves of the facilities provided at institutions for treatment, to attend the clinics held at these institutions, and to arrange for consultations with the medical officers of institutions. In some cases it may be necessary that consultations should take place at the homes of the patients or at the institutions.

The Commission point out in paragraph 149 of their Final Report that some persons may present themselves for treatment at an institution who, in the opinion of the medical officer in charge, can be satisfactorily treated by their own doctor and who can afford to pay for their own treatment. The Commission consider that in such a case the medical officer might properly suggest to the patient that he should consult a private practitioner, but if the patient prefers not to adopt this course, there should be no refusal to treat him at the institution.

Every effort should, however, be made to secure the full co-operation of private practitioners in the treatment of cases. The Board consider that every patient, whether or not he is an insured person under the provisions of the National Insurance Acts, who attends at an approved institution for treatment, may properly be asked whether he has a doctor of his own, and whether he is willing to be treated by that doctor. If the patient has no doctor, or being an insured person has not yet chosen a panel doctor, but is willing to be referred to a private practitioner for treatment in association with the treatment provided at the institution, he should be advised to choose a doctor who would co-operate in his treatment.

Free Supply of Salvarsan, etc.

Minute 103.—That salvarsan and other expensive drugs should be supplied gratuitously to all doctors for the treatment of their patients.

Warnings to Patients.

Minute 105.—That the obligation should be impressed upon all doctors who treat syphilis and gonorrhoea in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the report of the Royal Commission, and should be provided at the public expense (*Recommendation 14 of Royal Commission*).

Minute 106.—That in the event of any patient known to be suffering from venereal disease in an infectious form failing to continue to attend for treatment at the place he has elected to attend, arrangements shall be made whereby private communication shall be made to that patient by an approved officer of the clinic or hospital, warning the patient of the danger of neglecting treatment.

Access of Profession to Institutions.

Minute 116.—That medical students and practitioners should have reasonable access, for educational purposes, to the treatment of venereal diseases at any institution dealing with these diseases as part of a local authority's scheme (*Recommendation 15 of Royal Commission*), whether they be clinics, wards, laboratories, or other place subsidized by State funds.

Detention of Poor Law Patients Suffering from Venereal Diseases.

Minute 117.—That the provisions of Section 22 of the Poor Law Amendment Act, 1867, should be available to secure the detention, where necessary, of poor-law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation (*Recommendation 18 of Royal Commission*).

Prohibition of Advertisements of Remedies for Venereal Diseases.

Minute 118.—That the Government be urged to put into force the recommendations of the Select Committee on Patent Medicines regarding the prohibition of all advertisements of remedies for venereal diseases (*Recommendation 24 of Royal Commission*), in view of the statement by the Royal Commission on Venereal Diseases that it had no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that in its opinion the continued existence of unqualified practice constituted one of the principal hindrances to the eradication of those diseases (*paragraph 190 of Report of Commission*).

Duty of Medical Profession as Educators of Public.

Minute 124.—That the Representative Body express its complete agreement with the recommendations of the Royal Commission, urging the necessity for the better education of the general public on the grievous effects caused by venereal infections to personal life and happiness and on the grave injury done by such infections to the national welfare, and on the best means for their prevention.

REMUNERATION OF MEDICAL PRACTITIONERS FOR PART-TIME WORK IN CONNEXION WITH MATERNITY AND CHILD WELFARE SCHEMES.

Minute 135.—That the Representative Body adopt the following minimum rates of remuneration of medical practitioners for part-time work in connexion with maternity and child welfare schemes:

Attendance at a Centre.

For at least one hour, if necessary, 7s. 6d.; for this fee the practitioner would see not more than six cases. For every two cases seen beyond this number an additional fee of 2s. 6d. to be paid, an odd case being reckoned as two. Both practitioners and patients would be expected to attend punctually at the time appointed, and if on occasion there should not be sufficient cases to occupy the whole time, the practitioner would not be expected to wait till the end of the time ;

or

For each complete hour 10s., not more than eight cases being seen in the hour, and help being given by a nurse, as set out in the scheme.

A capitation fee of 14s. per person (mother or child) per annum, assigned for treatment by the local authority.

The money thus assigned could be distributed in either of the following ways:

(i) By direct capitation payment for each patient on each doctor's list.

(ii) By payment per attendance out of a pool, bills being discounted if necessary.

REMUNERATION OF WHOLE-TIME MEDICAL OFFICERS FOR MATERNITY AND CHILD WELFARE CENTRES.

Minute 137.—That no advertisement be published in the JOURNAL for a whole-time medical officer for a maternity and child welfare centre where a less salary than £350 per annum, exclusive of travelling expenses, clerical assistance, stationery and postage, etc., is offered.

REMUNERATION OF PART-TIME MEDICAL OFFICERS FOR MATERNITY AND CHILD WELFARE CENTRES.

Minute 138.—That no advertisement be published in the JOURNAL for a part-time medical officer for a maternity

and child welfare centre where the salary is less than at the rate of 10s. for an attendance of one hour.

Fees for Notification of Infectious Diseases.

Minute 144.—That the Representative Body express its great regret and indignation at the action of the Government in reducing at the present juncture the fees to medical practitioners for notification of infectious diseases, and represent, on behalf of the medical profession, that the reduction must be considered as a temporary measure and as one of the medical profession's contributions to the national need.

Avoidance of Use of Drugs made in Germany or Austria.

Minute 154.—That the Representative Body recommend medical practitioners to avoid using drugs made in Germany or Austria, if such drugs, manufactured by ourselves or our allies, can be obtained.

Manufacture of Drugs and Chemicals Hitherto Imported from Germany.

Minute 155.—That it be an instruction to the Council to bring before the notice of the Government the advisability of guaranteeing protection to any firm that is willing to lay down plant to manufacture drugs and chemicals that were made in Germany before the war.

Supply of Petrol to Medical Practitioners for Professional Purposes.

Minute 156.—That the Representative Body protest against the limitation of petrol to medical practitioners for professional purposes, and particularly to limitation within a given period, as medical practitioners require more petrol during the winter than during the summer months.

Instructions to Council.

Further Action by the Association in Connexion with Question of Venereal Diseases.

Minute 128.—That the Council be instructed to refer immediately the resolutions of this Representative Meeting on the subject of venereal diseases to the Divisions for report as early as possible.

Minute 129.—That it be an instruction to the Council after the receipt and consideration of the replies of the Divisions as regards the resolutions of this meeting on venereal diseases, to prepare and issue to the Government bodies concerned, county and county borough councils, the principal voluntary hospitals, the Divisions of the Association, Local Medical Committees, and such other bodies and persons as it considers desirable, an explanatory memorandum which shall include the principles on which, in the opinion of the Association, the proposed campaign against venereal diseases should be conducted, as also the terms and conditions under which the medical profession is prepared to give its cordial co-operation.

That a copy of the memorandum in question be issued to the press.

Patent Medicines.

Minute 153.—That it be an instruction to the Council to keep before the profession and the public the report of the Select Committee on Patent Medicines, so that when the opportunity occurs full use may be made of the report of that committee for the furtherance of legislation as recommended in the report.

References to Council for Consideration.

Special Committee.

Minute 47.—That it be referred to the Council to consider what steps should be taken to organize public opinion, as also the medical profession, for the advancement of medical and allied sciences, and to maintain the honour and interests of the profession in view of the obligations and other consequences likely to result from the war; if thought right, to appoint a Special Committee, or to refer it to the appropriate committee of the Association to take action and to report to the Council and Representative Body.

In the event of such a committee being appointed, that it make a report to the next Annual Representative Meeting on the policy of teaching the principles of hygiene, eugenics, physiology, and home craft to elementary school children at the age of puberty as the best means to be adopted for the success of proposals for child welfare, notification of pregnancy, and similar schemes.

Proposed Bill of College of Nurses, Ltd., for Registration of Nurses.

Minute 147.—That the Representative Body instruct the Council to take into consideration the possibility of establishing by means of the proposed bill now under consideration by the College of Nursing and the Central Committee for the State Registration of Nurses, the general principles desired by the Association in respect of the State registration of nurses, and whether the Association would be justified in supporting the bill.

Treatment of Venereal Diseases.

Minute 152.—That it be referred to the Council to consider the terms and conditions under which whole-time and part-time service for the treatment of venereal diseases scheme be given by the medical profession, and to take necessary action.

NATIONAL HEALTH INSURANCE.

Declarations of Policy.

Effects of the War on the Medical Side of the Insurance Acts.

Minute 181.—That, in view of the difficulty experienced in ascertaining the exact number of insured persons who have enlisted, and in collecting evidence as to the sickness incidence of those insured persons remaining, and considering that strong representations on the subject have already been made to the Commissioners, no further action be taken at present, but that the Council be instructed to collect what information it can on the subject in order that it may be used when any revision of the terms on which insurance practitioners are employed is discussed.

Medical Referees under the Insurance Acts.

Minute 189.—That pending the establishment of a permanent system of referees under the Insurance Commission, it is desirable that the Association should co-operate in the promotion of a system of temporary arrangements under suitable conditions.

That the fee of 10s. 6d. already approved by the Representative Body for examination of and report on cases submitted to part-time referees under the National Insurance Act, be reaffirmed as the minimum fee for cases examined by practitioners who hold no stated appointment to the approved society submitting the case, and Divisions and Branches be allowed to approve schemes for the payment of practitioners in their areas appointed as medical referees to approved societies, provided that where such a scheme involves payment by salary or in accordance with the time occupied, or the acceptance of a fee less than 10s. 6d. per case examined, the scheme shall require the approval of the Council of the Association.

Venereal Diseases and Sickness Benefit.

Minute 203.—That the National Health Insurance Commission be informed that, in the opinion of the Association, no insured person should be refused sickness benefit on the ground that he is suffering from venereal disease.

Instruction to Council.

Leakage from Central Medical Benefit Pool.

Minute 205.—That this Annual Representative Meeting call the attention of the Council to the serious injustice done to panel practitioners by leakage from the central pool by reason of:

A. Lost contribution cards.
B. The delay on the part of approved societies in notifying that persons on panel lists have ceased to be entitled to medical benefit,

and requests the Council to secure its rectification.

References to Council for Consideration.

Payments to Panel Practitioners.

Minute 195.—That the following amendment by Trowbridge in connexion with paragraphs 143-5 of Report of Council (Supplement, May 6th, pp. 99-100) be referred to the Council:

That the remuneration of National Insurance practitioners should be calculated on the basis of the number of insured persons on their lists on the last day of the previous year.

Question of Pensions for Panel Practitioners.

Minute 200.—That the Council be requested to consider the institution of a pension scheme for National Insurance practitioners.

OVERSEA BRANCHES.

Instruction to Council.

Grouping of Oversea Branches for Election of Council, 1917-18.

Minute 171.—That the Oversea Branches be grouped for election of seven members of Council, 1917-18, under By-law 46 (*b*) in the same way as for 1916-17, except that the new Grenada Branch be included in the Canada and West Indies group of Branches.

(For the 1916-17 grouping of the Oversea Branches *see* British Medical Journal Supplement, May 8th, 1915, p. 202.)

STANDING ORDERS.

Standing Order 20 was amended so as to make the Deputy-Chairman of Representative Meetings a member *ex officio* of the Agenda Committee.

ELECTIONS.

(*a*) *Officers.*

Mr. E. B. Turner (London) was re-elected Chairman of presentative Meetings, 1916–17, and Mr. T. W. H. Garstang ltrincham) Deputy-Chairman.

Sir Thomas Clifford Allbutt, K.C.B., LL.D., was elected esident of the Association, 1916–17. A resolution was also ssed congratulating Sir Clifford Allbutt on the attainment of s 80th birthday.

Dr. G. E. Haslip (London) was elected Treasurer of the ssociation for the period 1916–19.

(*b*) *Council.*

A list of the members of the Council, 1916–17, was published the SUPPLEMENTS of June 24th, page 153, and August 5th, ge 57.

(*c*) *Committees.*

The Standing Orders relative to election of members of anding Committees were suspended with a view to the Elec- on Returns Committee electing the members of the various mmittees, other than the Insurance Acts Committee, from e nominations of the Representative Body.

A list of the members of the Committees, 1916–17, will be ublished in an early SUPPLEMENT.

Meetings of Branches and Divisions.

CAMBRIDGE AND HUNTINGDON BRANCH:

ISLE OF ELY DIVISION.

HE annual general meeting of the Division was held on ugust 15th at March, when the Vice-Chairman, Dr. P. A. ENDLEY, was in the chair.

Election of Officers. — The following officers were ected for 1916–17 :

Chairman: P. A. Hendley.
Vice-Chairman: R. H. Barrett.
Honorary Secretary and Treasurer: A. C. S. Waters.
Representatives for Branch Council: C. H. Gunson and A. C. S. aters.
Representative for Representative Meeting: W. J. Young larston).
Executive Committee: R. H. Barrett, F. H. Beckett, H. apham, H. F. Curl, C. H. Gunson, A. Hamilton, C. H. arding, P. A. Hendley, C. W. Howe, G. H. Lucas, J. F. G. artin, F. M. Mawby, F. E. W. Rogers, C. E. Stephens, ax F. Tylor, J. J. Waddelow, A. C. S. Waters.

Dr. W. J. Young (Harston, Cambridge) was thanked for s attendance at the Annual Representative Meeting, and was resolved that non-members of the Division be proached with a view to their joining the Association. was resolved also to protest against the reduction by the overnment of the fees for notification of infectious sease.

IAGNOSIS AND TREATMENT OF VENEREAL DISEASE.

accordance with the undertaking he gave to the deputa- on from the British Medical Association, which had an terview with him on August 15th (SUPPLEMENT, August 5th, p. 69) the President of the Local Government Board as caused the following circular to be issued to the uncils of counties and county boroughs and to the mmon Council of the City of London.

Prevention and Treatment of Venereal Diseases.

Local Government Board, Whitehall, S.W.,
29th August, 1916.

Sir,

I am directed by the President of the Local Govern- ent Board to refer to the Circular issued by this Depart- ent on the 13th ultimo in regard to venereal diseases.

(1) The scheme outlined in the Circular has since been nsidered at the Annual Meeting of the Representative dy of the British Medical Association, and a deputation m that body have waited upon Mr. Long in regard to it. he deputation stated that they cordially approved of the heme and that the medical profession generally were st anxious in every way to co-operate with the Depart- ent in making it successful. They suggested that it uld be a great advantage if committees of local thorities, to whom the preparation of a scheme was legated, were to invite the local medical profession to minate two representatives to attend all committee and bcommittee meetings at which the proposed scheme y be discussed and to assist the committee with their cial knowledge of the needs of the particular area. One these representatives should, they thought, ordinarily resent the medical staffs of hospitals and the other the eral practitioners in the administrative area.

Mr. Long is most anxious that each scheme should meet the local needs in the fullest possible way, and he therefore commends this suggestion to the Council as being likely to secure the cordial co-operation of the medical profession.

(2) Some questions have been raised with reference to the safeguards which should be provided in regard to the distribution of salvarsan or its approved substitutes. The intention of the Board is that these drugs should be supplied free, for the purpose of intravenous administration to patients, to all medical practitioners who can produce satisfactory evidence of training or experience in the administration of these drugs. Mr. Long does not think it desirable to lay down any hard and fast lines in regard to this matter, but he is advised that as a general rule the drugs should be distributed by the Medical Officer of Health, or some person acting as his agent, and that he should be required to satisfy himself before issuing a supply that the applicant is a registered practitioner who possesses one or other of the following qualifications :—

(*a*) Holds a certificate of having satisfactorily fulfilled the duties of clinical assistant in a Hospital Department recognized by the Local Government Board in connexion with a local authority's scheme for the diagnosis and treatment of venereal diseases in their communicable stages;

(*b*) Holds a certificate of satisfactory attendance at a course of instruction in the diagnosis and treatment of venereal diseases (including intravenous medication) in such a Hospital Department or in a recognized Medical School or Post-Graduate College;

(*c*) Is or has been within the last five years a member of the permanent staff of a Hospital managed by a Committee and containing not less than fifty beds;

(*d*) Produces satisfactory evidence, other than that indicated in the foregoing paragraphs, that he has had adequate experience in the administration of these drugs by intravenous injection.

I am, Sir, your obedient servant,
H. C. MONRO, Secretary.

INSURANCE.

IRELAND.

MEDICAL REFEREES UNDER THE INSURANCE ACT.

THE Irish Insurance Commissioners have recently issued a circular letter to approved societies and to the secretaries of Local Medical Committees relative to the arrangements for the obtaining of second opinions in connexion with medical certification under the National Insurance Acts in Ireland. It is stated in the letter that the Commissioners made representations to the Treasury as to the desirability of supplementing the existing scheme of medical certification by the provision of facilities for the obtaining by approved societies of second opinions by means of the employment of medical referees. As a result the Treasury has placed a sum of money at the disposal of the Commission for distribution among approved societies. The more important conditions under which the sum has been made available are as follows:

1. Approved societies will make their own arrangements for the obtaining of second opinions whether by the appointment of doctors at fixed rates of remuneration or by the payment of a fee in each case.
2. Of this sum the maximum amount which, in ordinary circumstances will be available to an approved society, will be a sum equivalent to a capitation rate of 1½d. per annum per insured person resident in Ireland.
3. The Commissioners reserve the right to discontinue these arrangements by the approved societies for obtaining second opinions when any system for the appointment of medical referees under the direct control of the Commission is established.

Although the present arrangement made by the Commissioners for the obtaining of second opinions is stated in their letter to be of a temporary character, it is nevertheless looked upon by the Irish medical profession as a distinct violation of the arrangements made between their representatives and the Commissioners that the appointment of medical referees should be made by the Commissioners, and not by the approved societies. It was as the result of assurances satisfactory to the profession as regards the professional status and the appointment of medical referees that the Irish Medical Committee consented to a substantial portion of the grant for certification being set aside for the payment of medical referees. From past experience the insured have no great faith in the impartiality of the majority of the medical referees appointed by approved societies, and in many cases, when appeals were made to the Commissioners, their certificates were set

aside. It is not unnatural that the insured should view with distrust the decisions of medical referees appointed and paid by approved societies, and in all the circumstances it is indefensible that the Treasury, on the recommendation of the Irish Insurance Commissioners, should make a grant towards defraying the expenses of medical referees, who, as a body, will neither command the confidence of the insured nor of the members of the profession on whom they sit in judgement. Heretofore the approved societies, when selecting medical referees, have not all shown any great readiness to appoint doctors conspicuous for their desire to respect the ethics of their profession when dealing with their colleagues.

CORRESPONDENCE.

Post Bellum Agreement.

Dr. Denis A. Sheahan (Portsmouth) writes: I have read Dr. Roberts's letter (Supplement, August 19th, p. 66), and hope it is a sign that the general practitioner is at last waking up to his position, its risks, and possibilities. Unless he—the power behind the Representative Body—makes himself felt, I am convinced that that body and the Council will do comparatively little for him. If you want to do a thing well do it yourself. He can make and unmake the Representative Body, and indirectly the Council. He should remember this. There never was a time when it was so necessary for him to take stock of his position. We have short memories, but certainly not so short as to have forgotten how, by chicanery and bluff, we were stampeded into our present position, which has robbed us of our rights, privileges, and prestige. Our degradation was brought about principally by want of forethought, foresight, and strong determined leadership, but it was largely due to weakness and want of cohesion in the rank and file of the profession.

The British Medical Association has done very much for us in the past. It might, I think, have done very much more. For its defects the general practitioners of the kingdom are to blame. They, under the constitution of the Association, can send men to represent or misrepresent them as they choose. They may thus alter the policy of the Association, the character of its leaders, and the results achieved.

The Association has two great assets—its prestige and its financial position; the latter valued by the late treasurer at about £121,000. These have been built up by the present and past generations of medical men. Neither can be produced in a year or a decade, and I think it is almost criminal folly to leave that Association when one is dissatisfied. He should fight by word and vote to alter its defects, but still remain one of its organic whole. I wish my voice could reach the great body of practitioners and ask them if they value their position and freedom to join the Association at once, as I am certain there is a great battle ahead.

Everybody knows our conditions of service are to be reviewed. Thrift must be the Government watchword. Are we to be the scapegoats? Mr. C. Roberts, speaking in the Commons on June 21st, 1916, said:

> War conditions made it impossible to deal administratively with a number of questions which were too controversial to touch at the present time. The Committee would feel that when the whole of the medical profession was being mobilized for the army it was out of the question to revise or consider in any way the terms of agreement which were originally framed. That must wait till peace gave normal conditions. . . . They must have a policy of deliberate marking time. . . . The present position of affairs was well understood.

Do the medical profession understand it? We do know the mind of the Government by their contemptibly mean action in connexion with our fees for notification of disease. Why do they not bring forward their revised "agreement" now? Not because they love us. Not at all. They are afraid they could not count on Mr. Lloyd George's backsliders now. War has made medical men scarce at home. They will be plentiful, and perhaps unemployed, after the war. That is the time for Mr. George and Mr. Roberts. Then we shall have their agreement—revised.

Now it was with the object of being prepared that my Division instructed me to bring forward an amendment to ask the Representative Body to instruct the Council to draft our agreement, and bring it before the Divisions, etc. I am amazed that the Representative Body—swayed largely by the Chairman of Council, who stated "it cannot be done"—voted against it. Why can it not be done? I must confess I am so dense that I see no reason. Do we not know approximately after three years' experience what we want, and where the present shoe pinches us? If we do, certainly we can draft an agreement as well as the Commissioners. They have one drafted and pigeon-holed I have no doubt, and if the war were to end to-morrow we should have their "agreement" by registered post in a month or two as in the past. Can we as men not say on what conditions, and what conditions only, we will sell our skill and our labour, and draft our agreement to secure those conditions?

But the term "agreement" does not, I submit, apply to the document we have been compelled to sign. The essence of an agreement is freedom of the contracting parties. There was no such freedom in the past. Our patients were forced into insurance, many very much against their better judgement; and we by *force majeure*, want of cohesion, and threats, were compelled to sign it or be deprived in part or wholly of our vested interest and our living. Hence the "agreement," if legal—which I doubt—lost all moral force.

The Chairman of Council tells us that there is a definite understanding with the Commissioners to give notice in time, yet in the same breath he told the Representative Body that the Council did not have timely notice. I wonder if they had any of the "1916 agreement" There was want of good faith by the Commissioners then. Is it not unbusinesslike and indeed almost childish to trust them again? They are not free men. The five years for which they were appointed have nearly expired. They are simply the tools of adventurous and vote-catching politicians. They must "run the show."

What is timely notice? The British Medical Association is unwieldy in dealing with these matters. There is the time spent in drafting or/and examining an agreement by the Council, sending it to the Divisions, then a Special Representative Meeting, etc., etc. I think it would take at least six months. We have no guarantee of such a length of time. It must go to the Divisions. The Council of the Association is not trusted; if it were, the Panel Practitioners' Union would not have come into being.

Again, the Chairman of Council says "there is nothing to go upon."

Is there not more to go upon than when the Acts came into force? Have we not the experience of three years with their petty tyrannies and awakenings?

Are there not many well-known grievances to right?

Are we so bereft of initiative that we must wait for the Commissioners to produce their agreement?

Do we want our position financially worse than it is as another "war contribution" like our notification fees?

Do we mean to insist on a minimum of 7s. a head per annum?

Do we wish to have our fees paid in part eighteen months after date, while the interest obtained on them after being earned and yet unpaid is handed back to our contract patients? I can prove that in the present condition of the money market, when the Government are paying more than £6 7s. 6d. per cent. per annum for money, we lose from £80,000 to £100,000 a year interest on our fees from the time our patients pay until we receive them.

Are we satisfied with the constitution of, and treatment by, Local Insurance Committees? Do we wish to have our professional conduct supervised by a local lay committee or, as of old, by the General Medical Council? Do we wish to still allow the Insurance Committees power to fine medical men enormous sums in the form of surcharge?

After a medical man has spent time, money, and energy in qualifying, are we satisfied that he may be deprived of his living by being struck off the panel without appeal to the ordinary law courts or to the General Medical Council? And this done by a few generally lower-grade tradesmen, a few friendly society bosses, and a few maidens who have strayed through the matrimonial market and yet cannot show even a scar from Cupid's arrows.

We had power to dispense our own prescription, and were told in effect that we were not honest enough to do so. Are we satisfied?

Are we satisfied in attending well-to-do persons for 7s. a year when the State has valued their dog's life at 7s. 6d.?

Are we satisfied with the clerical work in connexion with the Acts?

Do we love the regulation which prevents an insured person paying his panel doctor a sum commensurate with the service rendered?

Are we satisfied that insured persons who will not employ a contract doctor should be fined 9s. a year (the amount of medical benefit) for not doing so?

Do we want what Dr. Greenwood calls the "tyranny of writing all prescriptions in full"? Are we satisfied that every effort is made to compel us to employ the crudest stock mixtures and the cheapest grade of drugs for the insured—those unfortunate people who Mr. G. K. Chesterton, in his book *The Crimes of England*, states are by the compulsory Insurance Act "treated as a fixed, separate, and lower caste, who must not themselves dispose of the margin of their small wages." An Act which reduces them to a "state of slavery."

Are we satisfied that the worker should be deprived of the right of safeguarding his health in his own way—the same right as Mr. George or Mr. Asquith possesses?

Are panel practitioners to be an inferior caste of medical men willing for the sake of a miserable competence to dovetail themselves into any unjust and arbitrary Government schemes, and ready to submit to annual increments of tyranny doled out by the Commissioners through registered post?

These are a few of the things "to go upon."

Putting the matter in a nutshell, the Representative Body and the Council are willing to wait until the Commissioners produce their agreement, and then, with hat in hand, beg for its alteration. I, on the contrary, contend that we should be masters in our own house, and that conscious of our heritage and our trust, we should draft and evolve our agreement, and say definitely and with no uncertain voice on what conditions we agree to sell our time, skill, and service.

The former plan we have already found leads to slavery and ruin. The latter, I respectfully submit, is the course that should be pursued by a self-respecting, noble, and unfettered profession.

THE ASSOCIATION AND THE PANEL.

Dr. T. J. FLETCHER (Castle Donington, Derby) writes: I was glad to read the remarks of Dr. Brennan (SUPPLEMENT, July 29th, p. 38) about the Association, and quite agree with his views in the matter. I have often been pained to find the Association apparently so little in touch with its members, especially as regards the National Insurance Act.

The panel practitioner, for instance, searches in vain the pages of the JOURNAL for a protest against an unfair, unnecessary, and to him degrading contract into which he has been inveigled. On the contrary, he finds in it little but an irritating and complacent agreement with the same.

One wonders what Sir Clifford Allbutt and the other gentlemen—whose names I forget but who sent us a remarkable circular some four years ago asking, nay, even entreating, us to enjoy the benefits of the Act—think of the present state of things. Do they realize that a large number of their professional brethren are now finding the dry and refreshing fruit of their labours like that of the Dead Sea, or like the mirage in the desert, and that the income derived from insurance practice is not what it ought to be—that any inconvenience owing to the war (the high price of drugs, etc.) has all to be borne by the panel doctor and none by the Commissioners, and that, like Job, we are getting almost into the state of cursing at the day of our birth, but the one on which we became medical men? I do not wish to be tiresome or even disagreeable, but it is surely time that we "cleared our minds of cant" and faced things as they are.

One question I should like to ask in conclusion, Is a contract reasonable that now gives only two-thirds of the amount formerly paid for a less number of patients and for presumably less work? This surely requires more explanation than the vague allusions to inflation of lists, etc., obtained from the clerks to the Commissioners—things that, as Lord Dundreary would say, "no fellow can understand."

INSURANCE PRACTICE.

Dr. B. G. M. BASKETT (Rayleigh, Essex) writes: On August 7th Dr. Harry Roberts proclaimed to the readers of the *Daily News* that he had, with the help of a beneficent legislature, taken on four partners, several nurses and a dentist, had installed an *x*-ray apparatus, and was now able to treat panel patients as he had always felt they should be treated. Next day Dr. S. Constable told the same audience (as he had previously told the readers of the *Star*) that the Insurance Act had lifted him and 14,999 others out of the Slough of Despond; that his, and unnamed others', skill had so far improved that he and they were ready to do major operations at the worst of homes, adding, with happy obliviousness to the fact that he is perfectly at liberty to extend the cheap contract system to the wealthiest of patients, that he dared not treat ordinary with the same assiduity as panel patients.

These are matters which hitherto have generally been left for patients to find out for themselves, and it is probable that but for the unjust strictures on the average panel doctor made by Dr. Smith before the Commission now sitting, the public would not even now have been in possession of this cheering news. It is impossible not to admire the self-restraint with which these gentlemen had, in deference to old-fashioned, perhaps obsolete, ideals, withheld from an eager world information so essential to its welfare; and one fears lest it may seem hypercritical to ask whether there was really any need for them to do so obvious a violence to their feelings as to sign their names. On the other hand, if they knew their *Daily News* and *Star* at all well, these authors must have recognized the eagerness of the two organs for any testimony from medical men that the Act is, after all, not a curse to the people, as was supposed, but a blessing, and that doctors who dislike the Act are really all ignorant, prejudiced, and selfish.

For myself, I frankly recognize that it is for my good that the State has taken so much from me to give to them. I am sure that it was not in charity but in recognition of their extraordinary merit that they have been enriched, in part at least, at my expense. But as Captain Macmurdo said, "It is a very censorious world": and I hope that both will see this letter and be warned that there are many carping critics who will be ready to ask why they too should not be endowed by the State with *x*-ray apparatus and a whole school of partners. Less conscious of demerit in themselves—perhaps less conscious of the merit of the favoured two—than I, they may consider it a poor compensation for their own enforced privations that Dr. Roberts should vicariously enlarge his sphere of usefulness or Dr. Constable acquire a skill beyond his wildest dreams. Ignorant of the patient scrutiny into comparative merits which the State always undertakes in these cases, they may have the audacity to doubt the rightfulness of a scheme which rewards or penalizes in a manner so apparently haphazard; may even think it invidious and ungenerous to flaunt before men made poor that they may be rich these pictures of prosperity and greatness thrust upon a worthy few—especially when they are hung in a gallery where correcting touches are only with great difficulty allowed, so that perforce the public comes away with the impression that they truthfully portray the conditions of common men, not merely of highly-favoured individuals.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified by the Admiralty: Fleet Surgeons A. R. H. Skey, M.B., to the *Vivid*, additional; E. Cooper to the *Pembroke*; A. A. Lavertine to the *Egmont* and for tenders. Staff Surgeons F. J. Gowans, M.B., to the *Challenger*, vice Cox; H. A. Kellond-Knight to the *Pembroke*, additional; N. S. Meiklejohn and H. M. Whelan to the *Vivid*; L. F. Cope to the *Victory*; W. W. D. Chilcott to the *Vivid*, additional, for disposal. Surgeons A. G. V. French to the *Pembroke*; J. L. Priston to the *Victory*, additional, for disposal; H. StC. Colson, M.B., to the *Victory*. Temporary Surgeons J. A. Adams to the *Victory*, additional, for disposal; F. H. S. Greenish to Haslar Hospital; R. H. Rae, M.B., to Chatham Hospital; D. McAlpine, M.B., to the *Pembroke*, additional; J. C. Baggs to the *President*, additional; T. E. Francis, M.D., to the Hospital Ship *Soudan*; H. T. S. McClintock, M.B., to the *Britannia*; J. F. M. Campbell to the *Wildfire*, additional, for disposal; G. Cochrane to the *Victory*. To be temporary Surgeon: T. E. Ashley.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer J. G. Campbell to the *Wolverine*.

ARMY MEDICAL SERVICE.

Colonel C. E. Nicol, C.M.G., D.S.O., M.B., to be temporary Surgeon-General whilst a Director of Medical Services.

Colonel W. H. Horrocks, M.B., K.H.S., is retained on the active list and to be supernumerary.

Temporary honorary Lieutenant-Colonel P. Sargent, M.B., F.R.C.S., to be temporary Colonel whilst employed as a Consulting Surgeon to the British Armies in France.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services of a Division: M. Boyle, M.B., E. W. Bliss, J. Grech, D.S.O.

Major F. J. Brown, Reserve of Officers, to be temporary Lieutenant-Colonel.

Captain (temporary Major) H. M. J. Perry relinquishes temporary rank on reposting.

Major (Brevet Lieutenant-Colonel) W. Hind, M.D., F.R.C.S. (T.F.Res.), to be temporary Major.

W. J. Richard, M.B., to be temporary honorary Major whilst employed at the Merryflats War Hospital.

Captain R. W. D. Leslie, R.A.M.C., is granted the local rank of Major whilst employed on embarkation duties.

Temporary Captain C. C. Forsyth, from Seaforth Highlanders, to be temporary Captain.

Temporary Lieutenants to be temporary Captains: W. Fletcher, M.D., N. Instone, M.B., C. P. S. Allingham, O. F. McCarthy, O. J. F. C. Greenidge, M.B., A. G. Glass, M.D., J. C. Watson, M.B., A. G. Cook, M.B., L. Horsley, F. A. M. Flegg, C. A. E. Ring, F.R.C.S.E., F. A. Anderson, M.D., S. H. Harris, M.B., M. Dobbs, M.D., A. Cowes, W. Sansom, M.D., E. Newton, M.B., O. M. de Jong, M.B., W. H. F. F. Godwin, A. L. Martyn, J. R. Polson, M.D., E. Montgomery, F.R.C.S.I., A. G. Clark, M.B., D. McNeill, M.B., R. S. Gibson, M.B., D. S. Campbell, M.B., J. K. Rennie, M.B., I. M. Byers, M.B., H. G. Parker, M.B., A. H. Parkinson, M.D., T. J. W. Swinburne, M.B., F. L. Webster, N. J. H. Gavin, M.B., E. F. Bashford, M.D., W. Kelley-Patterson, M.D., W. E. Passmore, L. Gibbons, C. A. Wickham, M. Clover, R. E. Ingram-Johnson, R. C. Poyser, A. Scott, M.B., D. McFarlane, M.B., P. H. Day, C. de Z. Marshall, M. S. Sprent, M.D., G. G. Lyttle, M.B., J. M. Wishart, M.B., J. A. Clarke, M.B., A. F. Millar, S. J. Cowell, H. L. G. Hughes, J. S. Alexander, T. W. Sheldon, M. Coghlan, M.B., P. MacD. Little, G. S. Clark, M.D., W. A. Young, M.B., C. Dickson, M.D., W. J. Gibson, J. Walker, R. Wilson, M.B., H. B. L. Henderson, M.B., G. C. Gaynor, M.B., D. J. Glen, M.B., G. Joughin, M.B., L. J. Lock, P. R. Boswell, A. U. Webster, M.B., C. R. Chichester, M.B., B. C. Powell, M.B., W. R. L. Waters, M.B., F. P. Montgomery, M.B., R. B. Robson, M.B., B. Whitehead, H. McIntyre, N. A. Scott, J. V. Bates, J. V. Duffy, J. P. O'Hea, M.B., F.R.C.S., A. W. Rowe, M.B., F. V. Cant, R. W. Hodgson-Jones, J. Hepburn, M.B., H. Pringle, M.D., F.R.C.S.I., C. W. S. Davies-Jones, M.B., R. A. W. Proctor, W. J. Hogg, J. B. Tombleson, M.B., A. A. Skeels, M.D., C. J. Stanley, M.B., H. S. Laird, E. Biddle, V. E. Lloyd, J. M. Richey, M.B., S. E. Y. Elliot, A. Willat, W. Waddell, M.D., J. L. Russell, M.B., K. N. Perkis, E. B. Jones, F.R.C.S., P. G. Milne, M.B., W. Campbell, M.B., J. C. T. Teggart, M.B., A. J. Ireland, M.B., D. Craig, M.D., E. W. D. Hardy.

Temporary Lieutenant C. C. Mecredy, M.B., relinquishes his commission on appointment to the Indian Medical Service.

Temporary Lieutenants relinquish their commissions: F. C. Drew, M.B., J. Reid, M.D., G. Kalichman, M.D., A. T. Embury, M.D., W. A. Henderson, M.D., F. J. Ellis, M.D., F. W. Hart, M.D., G. Belfie, M.B., L. G. Nash, W. Young, M.D., F.R.C.S.E., N. B. Taylor, M.B., F.R.C.S.E., J. G. R. Stone, M.B., J. H. Rutter, M.B., L. J. Legris, M.D., F. C. Ellison, M.D., R. J. Harley, M.D., G. W. Hardy, D. R. Alexander, A. G. Waddell, M.B., G. R. D. Lyon, M.D., A. Wood.

To be temporary Lieutenants: E. Tooke-Jameson, M.D., J. Brunton, M.D., Lieutenant J. R. Kerr, M.B., Canadian A.M.C., C. H. Comerford, M.B., W. Dickey, M.B., G. Elam, M.D., B. W. Howell, M.B., F.R.C.S., R. J. Mackessack, M.D., R. Govan, M.B., H. P. Miles, P. Pollard, M.B., J. A. Renshaw, J. Loftus, M.B., R. H. Hadfield, W. I. Adams, F.R.C.S.I., A. H. H. Howard, D. J. Foley, M.B., D. G. S. Gartshore, M.B., J. Mellor, L. C. Blackstone, M.B., C. S. U. Rippon, M.B., C. J. Brookes, M.B., F.R.C.S.E., H. D. Stewart, A. Fothergill, M.D., R. Jones, A. F. Martin, M.D., W. S. Kidd, M.B., H. V. Taylor, M.B., D. Penman, M.B., W. McM. Millar, M.B., L. Laurie, M.D., H. I. Pinches, M.B., H. H. Butcher, H. F. Bellamy, M.D., D. North, H. H. McCaskie, M.D., H. L. Craig, M.B., R. F. Moore, F.R.C.S., J. L. Birley, M.B., H. W. Heasman, H. Nicol, R. H. Jamieson, M.D., F.R.C.S.E., J. Wright, M.B., A. W. Kendall, M.B., M. Waldron, M.B., M. Colt, R. H. Cotton, J. Macfadyen, M.B., H. H. Hiley, E. W. Squire, M.B., C. W. Gittens, J. C. Clayton, A. J. S. Pinchin, M.D., M. L. Hine, M.D., F.R.C.S., G. Rainford, M.B., F. E. Wayte, J. G. Johnstone, M.B., J. H. Baukes, M. C. Stark, J. S. F. Weir, M.D., J. Finnegan, M.D., E. J. Roberts, C. D. Day, M.B., H. V. O'Shea, M.B., E. B. Appleby, M.B., E. Evans, F. G. Hack, M.B., A. H. Muir, M.B., T. Whitehead, M.B., T. Coogan, M.B., G. L. Irwin, H. P. Aubrey, W. H. W. Attlee, M.D., J. M. Anderson, M.B., J. W. Steel, M.B., V. D. C. Wakeford, M.B., H. E. H. Mitchell, M.B., C. B. Hutchinson, M. M. Woods, A. P. Adams, I. M. Edis, S. F. Fouracre, M.B., R. W. Ammon, W. R. Harris, W. McQuiban, M.B., C. J. C. Macquarie, M.B., S. W. Rawlings, J. E. Middlemiss, J. J. Gilmore, M.B., E. H. Stokes, M.B., H. S. Knight, M.B., W. A. Simpson, M.B., R. E. Collins, M.B., F.R.C.S., C. M. Young, M.B., S. C. H. Bent, M.D., J. H. Stephens, M.B., W. B. Thomson, M.D., A. C. Murray, M.B., F. E. L. Phillips, F. M. Gardner Medwin, V. P. G. Pedrick, G. E. E. Nicholls, M.B., S. F. Stallard, M.B., J. E. Sharp, M.B., J. Warnock, M.D., P. C. V. Bent, V. C. T. Bent, W. R. Swete-Evans, M.D., E. H. B. Orpen, M.B., F.R.C.S., R. S. Doran, A. B. Ross, M.D., G. Lewin, M.B., E. P. Dewar, J. A. S. Burges, M.B., G. Viner, M.D., F.R.C.S., J. P. P. Inglis, M.B., J. E. P. Sierra, M.D., J. D. S. Sinclair, M.B., F. Wallace, N. C. Lake, M.D., F.R.C.S., F. W. Stuart, M.D., C. F. Groves, W. H. Gray, W. T. Melling, M.B., G. Holman, W. Warnock, M.B., J. G. Fleming, M.B., J. R. Martin, W. Gault, M.B., D. J. Connolly, M.B., F. W. Perry, P. J. Carroll, M.B., J. A. H. White, M.D., G. F. Page, T. Dunlop, M.B., O. R. Belcher, A. Reeves, A. S. Holden, M.B., W. H. Duncan, F.R.C.S.E., M. C. Saylor, A. A. Henderson, W. A. Reynolds, J. A. Ure, M.B., A. Atkinson, T. Smith, W. T. Dobson, W. L. Clements, M.B., J. C. Scott, M.D., C. C. Morgan, A. W. P. Pyle, M.B., V. Sol. Pinnock, M.B., S. Davidson, M.B., H. G. Brown, M.D., A. C. Craighead, M.B., T. L. Henderson, M.B., A. Kerr, M.B., W. C. Fraser, K. McKay, M.B., W. W. Johns, M.D., J. Findlay, M.B., A. Macrae, M.B., W. C. Ledwidge, T. H. Underhill, M.B., temporary honorary Lieutenants L. W. Evans, K. D. Atteridge, and D. C. Norris.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Fourth Southern General Hospital.—Major W. L. Woollcombe, F.R.C.S.E., relinquishes his commission on account of ill health.

Home Counties Field Ambulance.—Lieutenant R. H. Hardwick to be Captain.

City of London Sanitary Company.—Lieutenants to be Captains: J. Teare, M.B., F. E. W. Rogers.

Northern General Hospital.—Lieutenant-Colonel D. Burgess, M.B., relinquishes his commission on account of ill health.

West Riding Field Ambulance.—Major (temporary Lieutenant-Colonel) H. Collinson, M.B., F.R.C.S., to be Lieutenant-Colonel.

Northumbrian Field Ambulance.—Captain E. L. Martin, M.D., from Attached to Units other than Medical Units, to be Captain. J. Rosencwige, M.B., to be Lieutenant.

Highland Field Ambulance.—D. Lyons, M.B., to be Lieutenant.

Attached to Units other than Medical Units.—Captains R. G. McLadell, M.B., H. M. Soden, and R. Paterson relinquish their commissions on account of ill health.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary, £300 per annum, and £5 for expenses.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £300 per annum.

BRISTOL UNIVERSITY.—Demonstrator in Physiology. Salary, £15

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road. Resident House-Surgeon. Salary, £50 per annum.

CITY OF WESTMINSTER UNION.—Temporary Assistant Medical Officer (male) at the Fulham Road Infirmary. Salary, £250 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Assistant Casualty Medical Officer. Salary, £30 for six months.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary, £300 per annum.

ISLE OF MAN LUNATIC ASYLUM.—Assistant Medical Officer. Salary, £200 a year.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200.

LIVERPOOL: BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officer. Salary, £300 per annum.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary £200 per annum.

MANCHESTER CORPORATION.—Assistant Tuberculosis Officer. Salary, £350 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL.—Clinical Assistant in Out-patient Department.

PLYMOUTH BOROUGH LUNATIC ASYLUM.—Medical Officer. Salary and emoluments approximately £750 per annum.

SHEFFIELD UNIVERSITY.—Demonstrator in Pathology and Bacteriology. Salary, £300 per annum.

SCOTTISH WOMEN'S HOSPITALS, Edinburgh.—Medical Women for service abroad. Honorarium, £200 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

SUNDERLAND RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary, £550, rising to £650.

WESTERN OPHTHALMIC HOSPITAL, Marylebone Road.—Non-resident House-Surgeon. Salary, £100 per annum.

WINSLEY SANATORIUM, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Misterton (Nottingham), St. Annes-on-the-Sea (Lancaster).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

RENSHAW, W. H., M.R.C.S., L.R.C.P., Medical Officer of the Tan Street Institution of the Manchester Union.

RIDDELL, W. A., M.B., Ch.B., District Medical Officer of the Birkenhead Union Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

FANNIN.—August 11th, 1916, at Malta, to Edward M. Fannin, M.B., Lieutenant R.A.M.C.(T.), of Dublin, and Norah Sidford Fannin, daughter.

DEATHS.

BIDIE.—On the 8th July, 1916, "met with fatal accident flying in France," George Maxwell Vereker, Lieutenant Royal Flying Corps and 1st Battalion the Royal Scots, aged 22 years and 9 months, dearly-loved son and only child of Margaret and George Bidie (Lieutenant-Colonel I.M.S., Bangalore), and the devoted husband of Maren Bradbury Bidie.

GILES.—On August 24th, 1916, at 4, The Esplanade, Plymouth, George Michael James Giles, M.B.Lond., F.R.C.S., Lieutenant-Colonel I.M.S. (ret.), and C.A.M.S. (ret.), son of the late Captain George Giles, R.N.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 9TH, 1916.

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British Medical Association.

ANNUAL REPRESENTATIVE MEETING.

REPORT OF ROYAL COMMISSION ON VENEREAL DISEASES.

A Correction.

ATTENTION is drawn to the fact that the resolutions of the Representative Meeting relating to the Report of the Royal Commission on Venereal Diseases, which were published on pages 74 and 75 of the SUPPLEMENT of September 2nd, under the heading "Declarations of Policy," not having been published in the JOURNAL at least two months before the Annual Representative Meeting, must be regarded as only the opinions of the Representative Body, and not as technical "decisions" of the Association.

INSURANCE.

INSURANCE ACTS COMMITTEE.

THE Insurance Acts Committee, at its meeting on August 31st, appointed Mr. H. B. Brackenbury chairman for the year.

Mr. Brackenbury is an old member of the Insurance Acts Committee, and has had considerable practical experience of work under the Insurance Act. He has also had a great deal of administrative experience as Chairman of the Middlesex Panel Committee, and as a prominent member of the County Insurance Committee. We feel sure the appointment will command the confidence of the members of the Panel Committees throughout the country, especially having regard to the fact that Mr. Brackenbury is one of the six members of the Insurance Acts Committee directly elected by the Local Medical and Panel Committees.

TIME LIMIT IN PRESCRIBING.

The attention of the Insurance Acts Committee having been drawn by Panel Committees to the fact that they have been requested by Pharmaceutical Committees (under the terms of old Regulation 40) to inquire into the prescribing of medical practitioners during 1914 at a date considerably subsequent to that of the time of the prescribing in question, a communication was addressed to the Commissioners asking them to fix a reasonable time limit beyond which Pharmaceutical Committees would not be able to make representations under Article 40 in relation to prescriptions for either 1914 or 1915.

In reply, the Commissioners pointed out that it was not open to them under the Regulations to limit in the manner suggested the period within which the right of Pharmaceutical Committees to make such representations shall remain operative. The activity displayed by most Panel Committees in carrying out the investigation of prescriptions on their own initiative as part of their ordinary duties renders it extremely unlikely that many Pharmaceutical Committees will feel it necessary at the present time to take action in respect of the prescribing of 1914 and 1915, and of course the difficulty cannot arise in respect of prescribing from January 1st of this year onwards. In the event of any tardy representations being made, however, it should be remembered that where a Panel Committee has held that inquiry is useless in particular cases owing to the fact that the record cards have been sent in and the practitioner thereby deprived of any means of refreshing his memory as to the prescribing in question, this has been accepted as an adequate reason for not making the inquiry.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

IN the August number of the *London Panel Committee Gazette* attention is drawn to the great importance of the scheme for the clearance of the registers, and the Committee urges on panel practitioners the desirability of furnishing to the Insurance Committee all information in their possession which may be helpful in tracing the insured persons whose title to benefit is unconfirmed. Many practitioners appear to be very dilatory in this matter, and they are reminded that it is solely in the interests of practitioners generally that the registers should be made accurate as early as possible.

Repeat Prescriptions.—With regard to the term "Rep. mist.," the Insurance Committee objected entirely to its use in opposition to the wishes of the Panel Committee, and a letter has now been received from the Commissioners stating that the use of the term is open to objection, and should be discontinued. In view of the war, however, the total prohibition desired by the Insurance Committee shall be subject to the following qualifications: (1) No repeat prescription to refer to a previous month; (2) nor to an order containing more than one prescription; (3) no repeat to be ordered which in any respect modifies the original prescription, and no additional prescription to be given on any such order; (4) prescriptions to be given in full if the patient so requests; and (5) every repeat order to give the date of the original prescription. These rules are to continue during the war and for a period of three months after conclusion of peace, but if they are disregarded to any substantial extent the Commissioners may alter or revoke them at the end of the present year.

Stock Mixtures.—The Insurance Committee has now issued notices to the chemists of the area that the reduced dispensing fee of 2.3d. will be applied as from July 20th to a list of ten stock mixtures which have been chosen. Of these, six are included in the London Insurance Pharmacopoeia, and have to be marked on the prescription forms with the letters "L.I.P.," while four have been selected from the list jointly prepared by the British Medical Association and the Pharmaceutical Society, and must be marked "C.L." The formulae of the ten mixtures are given in the *Gazette*, which is circulated to panel practi-

County Palatine of Chester.

The great bulk of general practitioners will undoubtedly heartily support the sentiments expressed in a letter sent from the County of Chester Local Medical and Panel Committee to the President of the Local Government Board with regard to the effect on the position of general practitioners of recent legislation and circulars of some Government departments, not least those of the Local Government Board itself. The committee notes that there is a tendency towards creating administrative machinery and even curative agencies which will undertake duties hitherto the province of the general practitioner, such as the creation of tuberculosis dispensaries, the proposed clinics for venereal diseases, school clinics for treatment, and the so-called prematernity clinics. The committee considers that apart from the effect on general practitioners, the Government in developing these tendencies has been acting on too narrow a view, and on advice which is too specialist, whereas "solid progress can only be made by dealing with all these problems concurrently, not by creating *ad hoc* departments to deal with certain of them at the expense of the efficiency of the general medical service." In counties like Cheshire general practitioners have been accustomed to undertake most departments of medical practice and have had facilities for operative and other special work, and a system which encourages the general practitioner to fit himself for a considerable range of work will in the long run serve the nation best. To such men it is not satisfactory to be invited by the authorities responsible for local government to consult on their cases "with recently-appointed specialists whose short though intensive apprenticeship to their speciality cannot justify confidence in the maturity of their judgement." The committee regrets the great expenditure of money in the organization of campaigns which it regards as misdirected. In the memoranda of several departments "there has been a persistent misrepresentation of the professional ability of the general medical practitioner to deal with the treatment of various diseases for which they have had ample preparation and subsequent matured experience. These reflections, against which a strong protest is now made, constitute a grave public danger in the effect which is likely to be produced in the public mind by most undeserved aspersions on the fitness of medical men for carrying out the duties and responsibilities of their profession." In fostering local general hospitals, especially those where practitioners may attend their own patients for moderate fees, in provision of laboratories, food extras, shelters for consumptives, sick nursing under practitioners' orders, and so on, the committee believes "incalculably more good will be done to the health of the public than at a greater cost would result from administrative machinery which gradually must supplant the general practitioner."

North Tipperary.

At a recent meeting of the North Tipperary Local Medical Committee the following resolutions were passed unanimously:

1. That the North Tipperary Medical Committee, having considered the various sums sent by the National Health Commissioners as payment for certificates for the quarter ending March 31st, 1916, to the members of the Committee without any general statement of account, are of opinion that, as a business transaction they are entitled to ask the Commissioners to furnish them in the future with particulars as to the numbers of insured and exempted persons in their area for each quarter, and the amount of money distributable in such area.
2. That the members of the North Tipperary Medical Committee, believing that its members have all carefully filled up the blocks of the certificates granted by them, request the National Health Commissioners to allocate the amounts payable according to the dispensary areas as originally arranged.

CORRESPONDENCE.

The Association and the Panel.

Dr. J. M. Brennan (Honorary Secretary, Stockport Panel Committee) writes: I asked in the Journal of July 29th, "Is the British Medical Association any use to the panel practitioner"? and much has happened since that date. In my letter of that date I said that if the registers were not accurately kept as they ought to be in any business concern, we were liable to be defrauded of money due to us. The editorial comment on my letter was that "I was not well acquainted with the work of the Association." I fear that I know my Association only too well. I know that it was holding a Representative Meeting at the time, and that the concentrated wisdom of that body was expressed in the phrase "Nothing doing—nothing to do," vide the Chairman's answer to the *post bellum* amendment. I know too well the old *laisser faire* of our Association, and I have tons of evidence that my words of July 29th are absolutely true: "There are thousands of medical men in the country to-day who are of opinion that the British Medical Association is of no service whatever to the panel practitioner. Thousands are wavering in their faith, and it will be a good thing for the Representative Meeting if it recognizes facts as they are."

But the Representative Meeting played the ostrich and murmured "All's well." If all is well, how comes it that by every post I am receiving circulars asking our panel to join an association or a union, etc., to safeguard the interests of panel practitioners? So I rubbed my eyes on receipt of the Journal on September 2nd, and wondered if Rip had at last awakened. We are now told in September that we are being "exploited." I said in July "defrauded." And what is the Journal's "desperate remedy for a desperate disease"? To pour out some rose water.

No, sir, this is the time for action if the Association is to retain the vast majority of panel men as its members.

1. There is profound dissatisfaction with the present agreement on several counts:

   (*a*) It is grossly unfair and contrary to all ideas of equity that Clause 1 should be in any agreement binding the signatories of the agreement to any regulations the Commissioners may from time to time insert. Clause 1 must go.

   (*b*) The index registers must be kept accurately. Otherwise we are being robbed of money due to us.

   (*c*) We must demand that we shall be paid in decent time for work done, and not be kept waiting two years for our money.

   (*d*) Instead of receiving less than the promised 7*s*. per head, we ought to receive an increased capitation fee for the removal of our best lives by recruiting.

   (*e*) We must resist by every possible means the iniquitous imposition of fines.

2. We must insist upon no new work being put upon us by the *new* agreement. If such is proposed it must be submitted to us for our approval, and we must demand three months to consider it, and not *two weeks*.

All this is simple justice, not a begging of favour. Let the Association boldly put this to the Commissioners as its minimum demand, and call upon the whole of the panel men of the country to support it. How? By the only method of any service—the method of resignation from the panel service if simple justice is not done.

If support is forthcoming from the country then the Association will have wiped out the reproach that it is doing nothing for the panel man. If the effort fail, then the Association will have done a noble work which will give it a new lease of life.

One last word as to the timeliness of drastic action now. Some of us who are for instant action are told that we are unpatriotic. To my mind the man who tries to conserve honourable terms of service for an honourable and self-sacrificing profession deserves well of his country. The man who would tamely submit to the debasement of the medical profession by the acceptance of unworthy and degrading terms of service is the enemy alike of his profession and of his country. Ours is the sacred work of fighting for our profession at home and for our absent colleagues, as their noble work is to risk their lives or health at the front. It would be a sorry return for their sacrifice to invite them back to a debased, degraded, and dishonourable service in what we proudly call a noble profession. *Noblesse oblige!*

"Exploiting Panel Doctors."

Dr. W. Stanley Rooke (North Finchley) writes: With regard to the advice you give in your editorial comment on Dr. de Gébert's letter in your issue of August 19th, and in your leading article of September 2nd, excellent as this advice is, practitioners on the Middlesex panel are unable to follow it.

I understand there is an arrangement between the Middlesex Insurance Committee and the Panel Committee under which any panel doctor in Middlesex is bound to give attendance to any insured person who may be in need of immediate treatment, provided that person produces a medical card. In the event of the practitioner applied to not wishing to accept the patient on his list, necessary attendance must be given for three days. The practitioner must meanwhile inform the patient he is not acceptable, advise him to select another doctor, and communicate with the secretary of the Panel Committee to this effect. It is then the duty of the secretary to assign the patient to a doctor if one cannot be found to accept responsibility voluntarily. The doctor originally applied to gets no remuneration for the three days' treatment.

If my impression of such an arrangement is erroneous, I shall be glad to be corrected.

DEDUCTIONS FROM PANEL LISTS.

DR. D. ROBERTS (Swadlincote) writes:—My compliments to Dr. Richmond. I was aware of the instruction 453 quoted by him. What I want is the insertion of a time limit in it like there is in 85, and I think the latter can be employed as a fulcrum to secure such an insertion; until it is done I am afraid the present most unsatisfactory state of affairs will not be remedied. It is the pith of the whole matter. The phrase in 453, "Notification . . . *immediately* the necessary facts come to the knowledge of the society," is as indefinite as the phrase concerning yearly settlements, "as soon as may be," and the societies have been allowed to make it cover one, two, or even three years. In the absence of a *time limit* the societies find a loophole and the Insurance Commission and Committees fail to bring them to book. Dr. Richmond makes an excellent suggestion as follows: "In those cases in which it is found that approved societies have been remiss in their duty and have not complied with their obligations as to immediate notification, they should be called upon to pay for the cost of treatment given during the intervening period." But all the Commissioners say is they "have always urged upon societies . . . the necessity for prompt notification . . . and they will continue to . . ." If there were a time limit it could be enforced at law.

INSURANCE NOTES.

ANSWERS.

What are Panel Doctors Paid?

DR. G. B. HICKSON.—It is quite impossible to give a simple answer to this "simple question." Without entering into details which would require a long article, it may be stated that the Commissioners claim that for every person entitled to medical treatment by panel doctors for a year the sum of 6s. 6d. is pooled for division sooner or later, and in some way or other among the panel doctors of the kingdom, either as capitation fees, or payment for travellers, or temporary residents, etc. To this must be added 6d. for domiciliary treatment of tuberculosis, and in areas where the drugs cost less than 2s., part or all of the floating 6d. is available. Thus the minimum is 7s. and the maximum 7s. 6d. But it is utterly wrong to say that every individual panel doctor receives from 7s. to 7s. 6d. per person on his list, for in the first place the list may vary during the year, so that an average has to be taken at quarterly intervals; and, further, the list often contains names of persons not entitled to treatment for whom no payment is made—for instance, persons who have enlisted and not notified the fact at once; persons who have fallen out of insurance, or become disentitled to medical benefit through arrears or other causes; persons who have removed to other areas and may be on the lists of several doctors at the same time. Thus the doctor's list may be greatly inflated. There appears to be no reason to doubt that the total central medical pool is as accurate as possible, but its distribution among the various areas has to depend on the index registers, which are hopelessly inaccurate, and more so in some areas than in others. Thus, though the total for the whole country may be correct, it is almost a matter of chance whether any particular doctor receives what he might consider himself entitled to, judging from his list.

THE PETROL SUPPLY TO DOCTORS.

THE following letter has been received by the Medical Secretary in reply to an inquiry as to the supply of petrol to medical practitioners:

Petrol Control Committee,
19, Berkeley Street, London, W.,
4th September, 1916.

Sir,—I have to acknowledge the receipt of your letter of the 24th August, and in reply to inform you that the holder of a licence may not purchase more than one month's supply in any one month. If, on the other hand, the full monthly supply is not purchased, the remaining amount, subject to the monthly maximum, may still be purchased at the end of six months, without a fresh licence.—I am, Sir, your obedient servant,

(Signed) P. G. L. WEBB.

The Secretary, British Medical Association,
Medical Department, 429, Strand, W.C.

Meetings of Branches and Divisions.

SOUTH WALES AND MONMOUTHSHIRE BRANCH:

SOUTH-WEST WALES DIVISION.

THE following officials were elected for the ensuing year at the annual meeting held on July 25th:

Chairman: Joshua Powell.
Vice-Chairman: C. D. Mathias.
Honorary Secretary and Treasurer: D. R. Price.
Representatives for Branch Council: Evan Jones, Y. H. Mills, H. H. Roberts.
Representatives for Contract Practice Committee: J. E. P. Davies, T. Morgan, Owen Williams.
Representative for Representative Meeting: Richard Hopkin.
Deputy Representative: J. E. P. Davies.
Executive Committee: C. A. Brigstocke, D. M. Davies, J. E. P. Davies, Colonel Evan Evans (Llanelly), Captain Evan Evans (Lampeter), Richard Hopkin, T. J. Jenkins, T. Morgan, D. G. Lloyd, Captain C. D. Mathias, David Phillips, D. Lewis Williams, E. R. Williams, Owen Williams.

SURREY BRANCH:

WIMBLEDON DIVISION.

AT the annual meeting of this Division, held on July 28th, the ethical rules were adopted, the officers and Executive Committee were unanimously re-elected, the only change being that Dr. Newton was elected a member of the Executive Committee in place of Dr. Findlay (resigned).

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH WALES BRANCH.—Dr. J. R. Prytherch (Honorary Secretary, Doldir, Llangefni, Anglesey) gives notice that the autumn meeting of the North Wales Branch will be held at the Hotel Metropole, Colwyn Bay, on September 12th, at 2.30 p.m. The presidential address will be delivered by Dr. Drinkwater, Wrexham, on the inheritance of normal and pathological traits in man. Cases will be shown and a discussion on the present relationship of the State and the treatment of venereal disease.

The Services.

INDIAN MEDICAL SERVICE.

WE have received the following announcement from the Under Secretary of State for India:

In view of the present great need for experienced officers in the Indian Medical Service the Secretary of State for India has approved a proposal of the Government of India to retain in their appointments, when it is considered desirable in the public interest, Colonels of the Indian Medical Service after they have completed the ordinary period of tenure or would in ordinary circumstances be placed on the retired list. In order, however, to obviate the block in promotion which would thereby occur, such officers are regarded as supernumerary in their rank and promotions are being made in succession.

For similar reasons the following special arrangements have also been made in the case of lieutenant-colonels who, under the terms of the Royal Warrant governing promotion in the Indian Medical Service, may be specially selected for increased pay for ability and merit. The number of officers eligible for this increase of pay is at present fixed at 41. Among such of these as retire in any one year four extra pensions of £100 per annum are distributable subject to certain conditions. Retirements being suspended during the war, the Secretary of State for India has decided as a measure of relief: (1) That, provided there are a sufficient number of applicants who satisfy the required conditions, these four extra pensions, which would otherwise lapse, shall be allotted in each year, but that payment of the extra pensions shall be held over until the allottees have actually retired; and (2) that such recipients shall be regarded as supernumerary on the list of 41 selected lieutenant-colonels, and that promotions to the list shall be made in their place.

EXCHANGES.

CAPTAIN R.A.M.C.(T.F.), seventeen months' service with Field Ambulance in France, desires to exchange with officer home hospital or home service unit.—Address No. 3549, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C., Regimental M.O., almost two years' service, desires exchange with medical officer in casualty clearing station in France.—Address No. 3548, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Temporary Captain R.A.M.C., in casualty clearing station, serving in France since November, 1914, desires exchange into a base hospital in England.—Address No. 3550, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C., France, attached Cavalry Field Ambulance, desires exchange to a stationary hospital on lines of communication, or hospital ship.—Address No. 3547, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical Officer of military hospital in Midlands desires to transfer to one in or near London at an early date, or is willing to do duty on an ambulance train, home or abroad—Captain (T.F.).—Address No. 3546, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are notified by the Admiralty: Fleet Surgeons H. H. Gill to the *Pembroke*; J. H. Fergusson to the *Vivid*, additional. Staff Surgeons A. H. S. Richardson to the *Vivid*, J. H. L. Page to the *Pembroke*, J. M. Hayes to the *Penelope*. Surgeon C. H. Symons to the *Pembroke*. Temporary Surgeons C. J. C. Faill to Plymouth Hospital; R. A. Hobbs, W. L. Anderson, and E. P. L. Hughes to the *Pembroke*; R. K. Ford to the *Leviathan*; E. O. Morrison to Haslar Hospital; D. M. Connan to the *Queen Elizabeth*; H. C. Broadhurst, M.B., to the *Dublin*; J. A. McVea, M.B., to the *Mars*; R. Tennant, M.B., to the *Excellent*; T. R. B. Kerby to the *Queen*; T. H. W. Idris and T. W. Drummond to the *Vivid*, additional. To be temporary Surgeon: W. H. Sarra.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: H. G. Topping, A. W. Davison, H. J. Phillips, J. S. Quinn, J. Baird, P. Carnold, G. J. Moore, R. B. Gibson, C. E. McQuade, T. Madill, E. C. Whitehall-Cooke, G. R. Hull, H. S. Le Marquand, J. Candles.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Captain H. Wade, M.D., F.R.C.S.E., R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel.

To be temporary Majors: Captains W. C. Bosanquet and A. D. Reid, R.A.M.C.(T.F.).

Captain R. L. Guthrie, M.D., R.A.M.C.(T.F.), to be temporary Major whilst in charge of the Fulham Military Hospital.

S. Bousfield, M.D., to be temporary honorary Major whilst in charge of Aubrey and Moray Lodge Hospitals.

Temporary Captain K. F. Sonntag, M.D., relinquishes his commission.

Temporary Lieutenant G. Stonehouse relinquishes his commission on account of ill health.

G. M. Huggins, F.R.C.S., to be temporary Captain.

Robert M. Fenn, M.B., to be temporary Lieutenant.

Temporary Lieutenants relinquish their commission: W. A. Smith, M.D., C. W. Green, M.D., C. C. Gibson, W. J. Logie, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain D. Gilmour, M.B., relinquishes his commission on account of ill health.

Lieutenants to be Captains: R. Green, C. A. Slaughter, W. L. A. Harrison.

Lieutenants (on probation) N. A. Martin, M.B., C. O. J. Young, and C. B. C. Anderson are confirmed in their rank.

To be Lieutenants: M. C. Cooper, A. G. Harsant, J. J. Murphy, E. H. V. Headley, M. St. C. Hamilton, E. T. Gaspey, J. P. Bracken, P. R. E. Barry, P. N. Cook, and L. J. F. Bull, from the University of London O.T.C.; W. C. Berrie, A. R. Steven, and A. F. Cook, from the Glasgow University O.T.C.; A. Johnstone, M.B., and G. S. Mather, M.B., from the Aberdeen University O.T.C.; J. Ross from the Edinburgh University O.T.C.; A. C. Dickey, M.B., from Queen's University, Belfast, O.T.C.; W. A. Malone and B. J. Daunt from Royal College of Surgeons in Ireland O.T.C.; F. B. Macaskie and F. Cairns from Sheffield University O.T.C.; F. J. Murphy, M.B., W. O. F. Sinclair, M.B., H. M. Wharry, R. H. C. Pryn, J. C. Preston, M.B., W. Griffiths, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Sanitary Company.—Lieutenant E. P. Wheeler to be Captain.

London Sanitary Companies.—Lieutenants (temporary Captains) to be Captains, with precedence next below Captain S. R. O. Dudfield, M.B., and in the following order: C. G. Moor, E. C. Sprawson, A. T. Pitts. Lieutenants to be Captains: E. B. Argles, S. Summerson, W. A. F. Maxine, M.B., A. F. Girvan, D. Porter, M.B.

East Anglian Field Ambulance.—Captain (temporary Lieutenant-Colonel) J. R. Pooler, M.B., reverts to the temporary rank of Major on ceasing to command a field ambulance, with precedence as from February 20th, 1915.

North Midland Casualty Clearing Station.—Lieutenant C. Cooke, M.B., to be Captain.

North Midland Field Ambulance.—Lieutenant (temporary Captain) A. C. F. Turner, M.B., to be Captain.

Welsh Field Ambulance.—Lieutenant J. S. Wallace to be Captain.

East Lancashire Division Sanitary Section.—Lieutenant N. S. Gidney to be Captain.

East Lancashire Field Ambulance.—Captain G. Bailey resigns his commission on account of ill health; Lieutenant J. R. Jagger, M.B., to be Captain.

Lowland Casualty Clearing Station.—J. W. Anderson, M.B., to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenant-Colonel H. G. Fulham, from Army Medical Service, to be Lieutenant-Colonel. Captain B. L. Cobbold, M.D., is seconded whilst holding temporary commission in the R.A.M.C.; Major R. B. Bolderston from A.M.S. to be Major; Lieutenant A. L. Bedley to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice to Appointments) appearing in our advertisement columns, setting forth particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL. Resident Surgical Officer. Salary, £150 per annum.

CARDIFF: KING EDWARD VII's HOSPITAL.—House-Surgeon. Salary, £100 per annum.

CHESHIRE EDUCATION COMMITTEE.—Lady Assistant School Medical Officer. Salary, £350 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary, £200 per annum.

CONSUMPTION SANATORIA OF SCOTLAND.—Assistant Resident Medical Officer. Salary, £150 per annum.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Two ladies as House-Physicians, Anaesthetists, and Casualty Officers. Salary, £150 per annum.

DUDLEY: THE GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon.

HACKNEY UNION INFIRMARY.—Junior Assistant Medical Officer. Salary, £250 per annum.

HARROGATE INFIRMARY.—House-Surgeon.

HUDDERSFIELD EDUCATION COMMITTEE.—Temporary Dental Surgeon. Salary, £250 per annum.

ISLE OF MAN LUNATIC ASYLUM.—Assistant Medical Officer. Salary, £200 a year.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £200 per annum.

MANCHESTER CORPORATION.—Assistant Tuberculosis Officer. Salary, £350 per annum.

PLAISTOW FEVER HOSPITAL.—Second Assistant Medical Officer (Lady) for temporary duty. Salary at the rate of £150 per annum.

PLYMOUTH BOROUGH LUNATIC ASYLUM.—Medical Officer. Salary and emoluments approximately £750 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road.—Temporary Medical Officer as Assistant Surgeon for the period of the war. Honorarium, £25.

RHONDDA URBAN DISTRICT COUNCIL.—Lady Assistant Medical Officer. Salary, £350, rising by £25 to £400 a year.

SHEFFIELD UNIVERSITY.—Demonstrator in Pathology and Bacteriology. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

THROAT HOSPITAL, Golden Square.—Resident House-Surgeon.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Alexandria (Dumbarton), Irvine (Ayr).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ASEEW, J. R., F.R.C.S.Edin., District Medical Officer of the Howden Union.

FORBES, T. J. L., M.B., C.M.Glasg., District Medical Officer of the Rochdale Union.

HOLROYD, J. B. H., M.R.C.S., L.R.C.P., Medical Officer of the Sheffield Union Workhouse.

HUNTER, John, M.B., D.P.H., Acting Medical Officer of Health, Tuberculosis Officer, and Medical Officer in charge of Fever Hospital and Infant Welfare Centre in the Burgh of Motherwell.

MARRIOTT, F., L.M.S.S.A., Certifying Factory Surgeon for the Tibshelf District, co. Derby.

PETYT, A. J., M.B., B.C.Camb., Certifying Factory Surgeon for the Longton District, co. Stafford.

SMITH, E. C. Temple, D.O.Oxon., F.R.C.S.Edin., Honorary Ophthalmic Surgeon, St. Vincent's Hospital, Sydney, N.S.W.

WILLIS, D. V., M.B., B.Ch., B.A.O.Belfast, District Medical Officer of the Walsall Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

BURKE—MADDOCK.—August 28th, 1916, at Rathfarnham Church, by Rev. J. Sandys Bird, A.M., Rector of the Parish, Captain Henry James Burke, M.C., R.A.M.C., eldest son of Edward W. Burke, of Sandy Mount, Abbeyleix, to Jeannie J., daughter of the late Benjamin Maddock, Dartmouth Square, Dublin.

DEATHS.

BARK.—On August 27th, at 20, Fosse Road Central, Leicester, aged 67 years, Ernest O. Bark, M.R.C.S.Eng., L.R.C.P.Lond., formerly of Birmingham.

GRAFF.—On 1st inst., at 396, Bury New Road, Manchester, Henry Graff, L.R.C.P. and S.I., aged 43 years.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	SEPTEMBER.
12 Tues.	North Wales Branch, Annual Meeting, Hotel Metropole, Colwyn Bay, 2.30 p.m.
	OCTOBER.
4 Wed.	London: Journal Committee, 2 p.m.
10 Tues.	London: Organization Committee, 2.15 p.m.
11 Wed.	London: Medico-Political Committee, 2 p.m.
18 Wed.	London: Finance Committee, 2 p.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 16TH, 1916.

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THE FACULTY OF INSURANCE AND ITS COMMISSION OF INVESTIGATION.

The attention of the British Medical Association having been drawn to the Commission of Investigation appointed by the Faculty of Insurance to consider the position of National Insurance, a communication was addressed by the Association to the National Health Insurance Joint Committee on June 26th last, asking whether the general terms of the reference of the Commission of Investigation were intended to include matters connected with the medical service under the Insurance Acts, or whether the inclusion of such matters was entirely unauthorized and would not be made the subject of departmental consideration until a more appropriate opportunity arose. The following reply, dated July 5th, 1916, was received from the Insurance Commissioners:

I have laid before the Chairman of the National Health Insurance Joint Committee Mr. Neal's letter of the 26th ultimo on the subject of an investigation into the administration of the National Insurance Acts, which is understood from announcements in the Press to have been instituted by the Faculty of Insurance, and I am directed by him to say that his Department is not in possession of any information other than that contained in those announcements with regard to the matters which it is intended that any such investigation should cover.

I am to add that since the body by which it is proposed that this inquiry should be conducted has no official standing, the question of the scope of the inquiry is not one with which any Government department is concerned, but your Association will be aware that, for reasons arising out of the present national situation which have frequently been explained by the Chairman of the Joint Committee in the House of Commons, any questions affecting the position of medical practitioners who have entered into agreements under the Acts for the treatment and attendance of insured persons were advisedly excluded from review by the Departmental Committee on Approved Society Finance and Administration appointed in January last.

As it appears from correspondence which has recently taken place in the lay press and medical journals that there is considerable ignorance on the part both of the medical profession and of the public as to the exact status of the Commission of Investigation appointed by the Faculty of Insurance, it seems desirable to emphasize the entirely unofficial standing of that body. Notwithstanding the fact that the Commission holds its meetings in a committee room in the House of Commons it has absolutely no official status, and its investigation is merely a private inquiry instituted apparently in the interests of certain approved societies. The Insurance Acts Committee of the Association entirely repudiates the evidence furnished to the Commission both by the National Medical Union and certain individual practitioners, and considers that the profession and the public should be informed that such evidence will be rebutted when the proper time comes before an authorized body. The Association, however, feels that the present time is most inopportune for any impartial inquiry into the terms and conditions of medical benefit under the Insurance Acts, owing to the absence on military service of many medical practitioners directly affected, and to the necessity for those remaining at home to devote their time to attendance on the civilian population.

The memorandum that was furnished to this unofficial Commission by the National Medical Union, and which was published on page 67 of the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of August 19th, 1916, was only published for the purpose of letting insurance practitioners appreciate the character of the evidence which the National Medical Union is supplying to the Commission.

There is no doubt that the Government at a more fitting time will hold a full and impartial inquiry into the whole question of medical benefit. Pending such inquiry panel practitioners will wisely ignore the partial and prejudiced investigations of any unofficial inquiry into the working of the Acts, and may safely rely upon the Association zealously to watch the various movements and phases of this question, and take prompt action when the proper time arrives.

British Medical Association.

COMMITTEES.

THE following is a list of the members of Committees of the Association for 1916–17:

The President (Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S., Cambridge), the Chairman of Representative Meetings (Mr. E. B. Turner, London), the Chairman of Council (Dr. J. A. Macdonald, LL.D., Taunton), and the Treasurer (Dr. G. E. Haslip, London) are members of all Committees *ex officio*.

FINANCE COMMITTEE.

Barr, Lt.-Col. Sir James, M.D., LL.D., Liverpool.
Fulton, Dr. Adam, Old Basford.
Hall, Dr. C. Herbert, Watford.
Langdon-Down, Dr. R., Hampton Wick.
Lawson, Dr. David, Banchory, N.B.
Milburn, Col. C. H., Hull.
Rayner, Dr. Edwin, Stockport.
Verrall, Mr. T. Jenner, LL.D., Bath.

Together with the Chairmen of the Organization, Journal, Science, Medico-Political, and Central Ethical Committees, and two Representatives of the Journal Committee.

ORGANIZATION COMMITTEE.

Barnes, Mr. J. A. Percival, Tottenham, N.
Coombe, Major Russell, R.A.M.C.(T.F.), Exeter.
Garstang, Mr. T. W. H., Altrincham.
Hamilton, Dr. J. R., Hawick.
Mackenzie, Dr. S. Morton, Dorking.
Wilson, Dr. Claude, Tunbridge Wells.

JOURNAL COMMITTEE.

Hall, Dr. C. Herbert, Watford.
Hawthorne, Dr. C. O., London.
Lucas, Major Albert, Birmingham.
Smith, Dr. F. J., London.
Smyth, Dr. W. Johnson, Bournemouth
Wilson, Dr. Claude, Tunbridge Wells

Science Committee.

Bolton, Dr. Chas., London.
Campbell, Dr. H. J., Bradford.
Dixon, Professor W. E., F.R.S., Cambridge.
Haldane, Professor J. S., F.R.S., Oxford.
Martin, Dr. C. J., F.R.S., London.
Smith, Dr. F. J., London.
Stevens, Dr. John, Edinburgh.
Stockman, Professor Ralph, M.D., Glasgow.

Central Ethical Committee.

Bateman, Dr. A. G., London.
Biggs, Dr. M. G., London.
Ewart, Mr. J. Henry, Eastbourne.
Jordan, Mr. J. Furneaux, Birmingham.
Kerr, Dr. J. Wishart, Glasgow.
Langdon-Down, Dr. R., Hampton Wick.
Lee, Mr. P. G., Cork.
Mactier, Dr. H. C., Wolverhampton.
Milburn, Col. C. H., Hull.
Moore, Dr. Milner M., Eastbourne.
Orton, Capt. John, Coventry.
Rayner, Dr. Edwin, Stockport.

Medico-Political Committee.

Bone, Dr. J. W., Luton.
Brackenbury, Mr. H. B., London.
Domville, Mr. E. J., Exeter.
Farquharson, Major A. C., R.A.M.C.(T.), York.
Fulton, Dr. Adam, Old Basford.
Garstang, Mr. T. W. H., Altrincham.
Gordon, Dr. John, Aberdeen.
Harman, Mr. N. Bishop, London.
Henry, Major R. Wallace, R.A.M.C.(T.F.), Leicester.
Lundie, Dr. R. A., Edinburgh.
Mactier, Dr. H. C., Wolverhampton.
Verrall, Mr. T. Jenner, LL.D., Bath.

Public Health Committee.

Clark, Dr. Francis W., Gosforth.
Dearden, Mr. W. F., Old Trafford.
Domville, Mr. E. J., Exeter.
Green, Mr. James, Portsmouth.
Jones, Lt.-Col. Herbert, Blythburgh.
Lewys-Lloyd, Mr. Evan, Towyn.
Robb, Dr. A. Gardner, Belfast.
Westcott, Dr. W. Wynn, London.

Insurance Acts Committee.

Adams, Dr. John, Glasgow.
Brackenbury, Mr. H. B., London
Campbell, Dr. T., Wigan.
Claydon, Dr. Olive, Oldham.
Darling, Dr. J. Singleton, Lurgan.
Divine, Dr. J., Hull
Drever, Dr. J. R., Glasgow.
Farquharson, Major A. C., R.A.M.C.(T.), York.
Fothergill, Capt. E. R., Shorncliffe.
Fry, Dr. P. V., Sowerby Bridge.
Greenwood, Dr. Major, London.
Harding, Dr. R., New Radnor.
Hill, Professor A. Bostock, Birmingham.
Hollis, Dr. W. A., Brighton.
Hunter, Lieut. John, Musselburgh
Jones, Mr. P. Napier, Crowthorne, Berks.
Ratcliff-Gaylard, Dr. J., Birkenhead.
Richmond, Dr. B. A., London.
Ridley-Bailey, Dr. T., Bilston, Staffs.
Peers, Dr. T. H. Parkes, London.
Treasure Dr. W. B. Crawford, Cardiff.

Hospitals Committee.

Biggs, Dr. M. G., London.
Bolam, Lt.-Col. R. A., Newcastle-on-Tyne.
Campbell, Dr. H. J., Bradford.
Fraser, Capt. J., Edinburgh.
Galt, Dr. John, Bothwell.
Harman, Mr. N. Bishop, London.
Johnson, Dr. J. W., Bury.
Johnstone, Mr. R. J., Belfast.
Larkin, Capt. F. Charles, R.A.M.C.(T.F.), Liverpool.
Morison, Professor J. Rutherford, Newcastle-on-Tyne.
Parker, Major George, Bristol.
Robertson, Dr. C. E., Glasgow.

Naval and Military Committee.

Benson, Surg.-Gen. P. H., I.M.S.(retd.), Southwick.
Bond, Col. W. H., R.H.S., V.D., Stony Stratford.
Elliot, Lt.-Col. R. H., I.M.S., London.
Greenwood, Capt. F. W., London.
Hackett, Col. R. I. D., M.D., A.M.S.(retd.), Weymouth.
Lumley, Fleet-Surg. F. D., R.N.(retd.), Greenock.
Thomas, Col. J. Raglan, K.H.P., R.A.M.C.(T.F.), Exeter.

Dominions Committee.

Benson, Surg.-Gen. P. H., I.M.S.(retd.), Southwick.
Cook, Dr. Francis W., Gosforth.
Greenwood, Major T. D., Weymouth.
Hayward, Lt.-Col. W. T., LL.D., Australian Hospital, Harefield Park.
Johnson, Dr. J. W., Bury.
Mercer, Mr. C. G. D., London.
Wilmam, Dr. A. H., Harrow.

Scottish Committee.

Adams, Dr. John, Glasgow.
Anderson, Dr. G. C., Methil.
Balsh, Dr. R. C., Dundee.
Fraser, Capt. John, Edinburgh.
Gordon, Dr. Isaac, Aberdeen.
Kerr, Dr. J. W., Glasgow.
Langdon, Major J. Langdale, Dunbar, N.B.
Munro, Lt.-Col. J. Munro, Inverness.
Robertson, Dr. C. E., Glasgow.
Smith, Capt. F. K., Aberdeen.
Stevens, Dr. John, Edinburgh.
Yellowlees, Dr. D., Stirling.

Irish Committee.

Cooke, Dr. J., Londonderry.
Costello, Dr. T. B., Tuam.
Craig, Dr. J., Dublin.
Darling, Dr. J. Singleton, Lurgan.
Giusani, Dr. J., Cork.
Grace, Dr. Pierce, Kilkenny.
Johnstone, Mr. R. J., Belfast.
Kenny, Dr. J., M.S., Granard.
Lee, Mr. Philip G., Cork.
Mahon, Dr. R. B., Galway.
Mills, Dr. John, Ballinasloe.
Power, Dr. Joseph, Cahir.
Robb, Dr. A. Gardner, Belfast
Ryan, Dr. J. V., Carlow.
Story, Dr. W. L., Belfast.
Walshe, Dr. Denis, Graigue.
Warnock, Dr. H. T., Donegal.

Welsh Committee.

Brook, Major W. F., Swansea.
Greer, Major W. J., Newport, Mon.
Mactier, Dr. H. C., Wolverhampton.
Marks, Dr. L. Freem Mumbles.
Prytherch, Dr. J. R., Ang sea.

Together with four Members appointed by the Welsh Branch

Arrangements Committee.

Campbell, Dr. H. J., Bradford.
Fraser, Lt.-Col. Thomas, Aberdeen.
Galloway, Col. James, A.M.S., London.
Hamilton, Dr. J. R., Hawic N.B.
Johnstone, Mr. R. J., Belfas
Lucas, Major Albert, Birmin ham.

Together with six members appointed by the Local Executive

Central Medical War Committee.

Barr, Lt.-Col. Sir James, M.D., LL.D., Liverpool.
Bolam, Lt.-Col., R.A., R.A.M.C. (T.F.), Newcastle-on-Tyne.
Browne, Dr. H. W. Langley, West Bromwich.
Buttar, Dr. C., London.
Coombe, Major Russell, R.A.M.C.(T.F.), Exeter.
Fulton, Dr. Adam, Nottingham.
Godlee, Sir Rickman J., Bt., K.C.V.O., London.
Greer, Major W. J., R.A.M.C. (T.F.), Newport, Mon.
Harman, Mr. N. Bishop, London.
Hennessy, Dr. Thomas, Dublin.
Littlejohn, Professor Harv Edinburgh.
Lucas, Major Albert, R.A.M (T.F.), Birmingham.
Morgan, Dr. D. Naunto Bridgend.
Ogston, Col. Sir Alexand K.C.V.O., M.D., LL. R.A.M.C.(T.F.), Aberdeen
Osler, Sir Wm., Bt., M. F.R.S., LL.D., Oxford.
Rayner, Dr. Edwin, Stockpo
Richmond, Dr. B. A., Londo
Shipley, Dr. A. E., F.R. Cambridge.
Shore, Dr. T. W., London.
Taylor, Dr. Frederick, Londo
Verrall, Mr. T. Jenner, LL. Bath.

Special Committee re Minute 47 of Annual Representati Meeting, 1916.

Brackenbury, Mr. H. B., London.
Campbell, Dr. H. J., Bradford.
Domville, Mr. E. J., Exeter.
Fothergill, Capt. E. R., Sho ham Camp.
Gordon, Dr. J., Aberdeen.

Special Joint Committee with British Science Guild

Allbutt, Sir Clifford, K.C.B., M.D., F.R.S.
Haldane, Professor J. S., F.R.S.
Smith, Dr. F. J.
Turner, Mr. E. B.

Meetings of Branches and Divisions.

SOUTH-EASTERN (IRELAND) BRANCH:

An ordinary meeting of the South-Eastern (Irelan Branch was held at the Adelphi Hotel, Waterford, September 6th, Dr. R. R. O'Brien in the chair.

Appointment of Medical Referees under the Insuran Act.—A resolution was unanimously passed that the whol time medical referees should be appointed on the recon mendation and nomination of the Local Medical Com mittees, and where Local Medical Committees do not exi by the votes of the local profession.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

Surrey.

At a meeting of the Panel Committee on July 21st all th officers were re-elected for the ensuing year. It wa decided to invite Mr. E. B. Turner, a member of the Insur ance Acts Committee of the British Medical Association to address a meeting of practitioners at the Surbiton Cottage Hospital on October 20th.

The Chairman was requested to draw up a scheme fo issuing an annual handbook, and to submit an estimate t the next meeting. It was decided to draw the attention o the Insurance Committee to the frequent delay in the issu of medical cards to insured persons, owing to the neglec of the approved societies to send an index slip to th

Insurance Committee, and to suggest that there should be some penalty for such neglect.

It was agreed to support the County Borough of Stockport Panel Committee in its efforts to secure the following reforms:

1. That the Commissioners be urged to take steps forthwith to put the method of payment upon an intelligible and business footing capable of being audited, as is done in ordinary business concerns; that after the expiration of three years the inflation system should be rectified, and not allowed to continue permanently.
2. The establishment of a central clearing house for the purpose of securing a correct register, as promised at the conference between the British Medical Association and the Commissioners in January, 1915.
3. The insertion in next year's agreement with practitioners of a date for the final settlement in lieu of the present most unsatisfactory clause as soon as may be.

CORRESPONDENCE.

POST BELLUM AGREEMENT.

DR. NOY SCOTT (Plymstock) writes: I am glad that your correspondence columns are affording evidence of the unrest there is among panel practitioners (or at least amongst those of them who think), and sufficient time has now elapsed to prove that in most things such practitioners are absolutely in the hands of the Commissioners. The evidence which has recently been collected at the inquiry into the Insurance Act is not likely to decrease the thinly-veiled contempt with which the Commissioners seem to think they can treat the medical profession. My object in writing, however, is not to grumble (for we can only thank ourselves for our present position, seeing it is the logical development of the lamentable failure to be true to ourselves during the fight whilst the Insurance Act was becoming law), but to ask all my fellow practitioners—panel or otherwise—to think seriously how we can organize ourselves for the coming fight and sink our differences in one large and influential organization, for whichever way we look there are indications that the State intends, if possible, to further "exploit the profession." Is there any organization existing under whose banner we could all rally and so present a united front? The answer is, of course, Yes: the British Medical Association. But what are the present conditions? Is it not a fact that during the last two or three years its membership has largely decreased, and that nearly every Branch had to report a smaller membership this last year? Is it not a fact that even those who are members show such apathy that it is almost impossible to get them together for any meetings? And, worse than all, is it not a fact the Association has only a bare majority of the profession within its ranks? Is it not a fact that there are other smaller associations fighting for one section or another, and by this fact fostering discussion? In spite of all these, however, the cardinal fact remains that the British Medical Association is still the most powerful and numerous association of medical men and, so far, has a certain right to represent them and to be recognized by the State, and that right has to a certain extent been so recognized. But can it ever be powerful enough to influence any Government until its membership is almost doubled? The practical question is, therefore, How can its membership be increased? Two years ago at the Annual Representative Meeting I suggested one way, and a resolution was passed that the general secretaries of the Association should make a missionary effort to obtain new members, but so far as I know nothing effective has yet been done, although the Association has now four medical secretaries. The war is probably the excuse, but if rumour is correct, the war has not prevented the Commissioners preparing for what must take place when the war is over—namely, a great alteration in the working of the Insurance Act; and if they are preparing for that, surely it is of vital importance that we should do the same; and at any rate it is obvious that unless we are so prepared we shall be caught napping, and the result will again be disastrous. We must, therefore, largely increase the membership of the British Medical Association or bring about such an amalgamation of the various societies which are in existence for the protection of our interests that we can show a really united front. If things continue as at present we shall find a large number of panel practitioners who will accept anything which the Commissioners propose, and, on the other hand, if the State propose a State medical service (whatever that may mean), there are many practitioners who expect to find therein a Utopia in which doctors will get a very easy life and patients will never be troublesome! To these I would recommend a careful study of the regulations which are issued from time to time by the Insurance Commissioners.

INSURANCE NOTES.

MIDLOTHIAN PANEL COMMITTEE.

IN a circular letter sent by the Midlothian Panel Committee to the panel practitioners of the area the doctors are informed that the report of the Central Bureau on dispensing for 1915 is not so creditable to the profession as it might be. Though a sum of 2s. only per insured person is set apart for drugs and appliances, at least some of the practitioners are "dispensing" (? prescribing) at the rate of 2s. 6d. and upwards—not per patient, but per insured person on their lists. The Panel Committee was astounded to find that the cost of drugs supplied ranged from a minimum of 1¾d. to a maximum of 3s. 8d. per insured person. Of course, in individual cases there may be satisfactory reasons for the high rates, and the Panel Committee will treat them with every consideration, but it feels that some of the doctors are not supporting it as they should. Too many proprietary medicines are being prescribed as well as drugs for which cheaper substitutes could be found. Practitioners are not asked to sacrifice their patients to make the report look well, but only to remember the fund at their disposal. Two possible consequences may follow if extravagant prescribing continues: (1) Not only would there be no floating sixpence, but the chemists could not be paid in full; and (2) the practitioner may be surcharged. The average records for the area are then given, and each doctor is supplied with his own records for comparison. On the average it appears that the "frequency"—that is, the number of prescriptions per head of the persons on the panel list—is 1.43; the percentage of prescriptions costing over 1s. is 21.68, the average cost per prescription 10.32d., the cost of drugs per insured person 14.89d., the prescriptions per patient attended 3.27, and the attendances per prescription issued 3.6.

It is further stated that there is evidence that the records are not being kept as they should be, and the failure to do so is not only contrary to law and agreement, but against the interest of the profession. The immediate penalty may be the stopping of the payment of 2s. 6d. per insured person, and the ultimate penalty is that in the recasting of the Insurance Act after the war, the records may be used against the profession for the reduction of the capitation rate. The domiciliary 6d. is also to be kept in mind, and practitioners are urgently requested to notify all cases of tuberculosis to the Insurance Committee—for example, tuberculosis of bones, skin, joints, etc. If that be done, there will be no further talk of withdrawing this fee on the plea that it is not earned.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Surgeon-General Sir W. Watson Cheyne, Bt., to the *Pembroke*, additional, for Chatham Hospital. Fleet Surgeons P. H. Bannister, M.B., to the *Victory*; F. Bolster, M.B., to the *Leviathan*. Staff Surgeon W. W. D. Chilcott to the *Blanche*. Surgeon M. P. Fitzgerald to the *Pembroke*. Temporary Surgeons D. P. Brown to the *Ganges*, additional, for Shotley Sick Quarters, vice Tongue; W. H. Du Pré to H.M.S. *Pembroke*, additional, for Chatham Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon J. H. F Lamb, M.B., to the *Victory*, additional. Surgeon-Probationer J. R. Hughes to the *Garland*.

ARMY MEDICAL SERVICE.

Temporary honorary Major S. M. Smith, M.B., F.R.C.S. (Captain R.A.M.C., T.F.), from St. John Ambulance Brigade Hospital, to be temporary Colonel.

Colonel J. C Morgan is placed temporarily on the half-pay list on account of ill health.

Lieutenant-Colonel E. M. Pilcher, D.S.O., M.B., F.R.C.S., R.A.M.C., to be Brevet-Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel A. T. I. Lilly is retained on the active list, and to be supernumerary.

Temporary Captain F. S. Brereton to be temporary Major.

Temporary Captain R. R. K. Paton, M.B., to be local Major whilst employed on embarkation duties.

Temporary Captains relinquish their commissions: A. N. Clemenger, M. D. Eder, J. Mils, M B

Temporary Captain W. J. Stewart, M.B., relinquishes his commission on account of ill health.

H. W Carson, F.R.C.S., to be temporary honorary Captain whilst serving with No. 10 Red Cross (Lady Murray's) Hospital.

L. J. Weatherbe, M.B., late Surgeon-Captain Paget's Horse, to be temporary Captain.

Temporary Lieutenants to be temporary Captains: A. J. V. McDonnell, J. Brunton, M.D., R. W. Ironside, late Lieutenant R.A.M.C.(T.F.), J. B. Butler, M.B., W. Browne, B. D. Crichton, M.B., W. P. MacKasey, M.D., A. M Watts, M.D., W. L. Clements, M B.

Temporary Lieutenants relinquish their commissions: W. S. Macdonald, M.D., E. D. Wolff, A. H Style, M.D., J. G. Waine, M.B., C. A. F. Gavilier, M.D., G. W. Middlemiss, M.B., P. Rendall, M.D., A. R. McLachlan, F.R.C.S.

The notifications in the *London Gazette* of August 7th regarding temporary Lieutenants W. Browne and R. D. Laurie, M.B., are cancelled.

Temporary Lieutenant J. A. Robinson relinquishes his commission on account of ill health.

To be temporary Lieutenants: P. E. el Howie, M.B., W. S. Angus, M.B., E. A. S. Shaw, F. M. P. Rice, C. H. Brookes, M.D., C. I. Stockley, M.B., F. Corner, A. S. Dawson, G. H. Baird, M.D., A. Jervis, M.D., J. Dulberg, M.D., R. Haslam, M.B., W. Craik, M.B., E. O. Marks, M.B., J. Lindsay, M.D., D. C. Druitt, M. C. Gardner, M.B., H. Greenwood, E. Evans, H. L. Cronk, C. D. Pile, M.B., J. B. Whitfield, M.B., J. M. Jarvis, M.B., T. A. Matthews, M.B., O. H. Woodcock, M.B., J. W. Gill, M.D., F. W. Murray, R. M. Coalbank, A. S. Paterson, M.B., R. J. Wilson, M.B., W. E. Morgan, J. M. Hall, M.D., F.R.C.S., E. J. Fitzgerald, M.B., H. G. Ramsbottom, J. D. Judson, M.B., T. S. Forrest, M.B., W. E. Bramley-Moore, M.D., J. Maclean, M.B., W. S. Badger, M.B., S. Gooding, M.D., H. M. L. Crawford, M.D., J. Goss, M.B., A. Kinsey-Morgan, F.R.C.S.E., J. J. Anning, H. A. Fenton, W. R. Wiseman, M.B., C. H. Bryan, S. J. Yeates, M.B., J. M. Adams, M.B., J. H. C. Thompson, M.D., J. Fraser, M.B., S. J. Moore, M.B., A. D. Campbell, M.B., R. N. West, M.B., W. S. McDougall, M.B., H. North, J. T. Bailey, M.B., E. Fullerton, M.B., D. F. Borrie, J. C. Walker, T. H. W. Brewer, G. E. A. Petrie, M.B., R. A. Shekleton, M.D., D. M. M. Ross, M.B., C. A. Harrison, J. J. Ryan, E. G. Fearnsides, M.D., F.R.C.P., J. R. Frost, T. G. Maitland, M.D., H. F. Woods, M.D., T. Stordy, A. Duguid, M.B., M. J. Horgan, M.B., J. E. Richards, M.B., G. F. Longbotham, M.B., W. C. Latley, R. S. Barker, M.B., R. C. Smith, M.B., W. L. Johnson, M.B., F. W. Grant, C. Tylor, M.D., H. S. Brown, W. Garstang, M.B., J. E. Barnes, M.B., P. Henderson, J. B. McCutcheon, M.B., W. Dunn, M.B., T. D. H. Hoggs, M.D., F. G. Bergin, F. C. Drew, M.B., E. H. Dendy, M.B., H. L. de Caux, H. S. Banks, M.B.

To be temporary honorary Lieutenants: S. Morris, M.D., J. Fanstone, M.B., H. C. Shockett, M.B., W. Simpson, M.B., R. H. Maingot, H. G. E. Williams, M.B., A. G. Morris, D. G. C. Tasker, M.B., E. E. Lightwood, W. M. Crombie, S. Hutchinson, T. Jackson, J. Bado.

INDIAN MEDICAL SERVICE.

The promotion of Lieutenant H. S. Cormack, M.B., F.R.C.S.E., is antedated from October 22nd, 1914, to July 28th, 1914.

To be Lieutenants: A. N. Bose, U. J. Bourke, G. B. Hanna, D. R. Thomas, J. H. G. White, R. L. Vance, H. M. Collins.

The date of retirement of Lieutenant-Colonel J. N. Macleod, C.I.E., M.B., F.R.C.S.E., is August 23rd, 1916, and not March 18th, 1916, as previously stated

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: W. Saunderson, M.B., from Queen's University, Belfast, O.T.C.; H. J. Wright, M.B., and E. G. Fishe, M.B., from University of Dublin O.T.C.; D. H. Anthony, B. E. Jerwood, W. R. Dickinson, J. D. Dyson, and J. B. Hume, from University of London O.T.C.; F. B. Jago, T. Wilson, and G. L. Maule, from Manchester University O.T.C.; H. M. Alexander, from Royal College of Surgeons in Ireland O.T.C.; D. Colombos, M.B., H. T. Lamb, B. H. Yolland.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—To be Lieutenants: J. R. Clark, M.B., G. Thomson, M.B.

London General Hospitals.—Officers seconded for duty with a general hospital: Lieutenant-Colonel H. E. B. Bruce-Porter; Captains L. G. Crossman, L. N. Reece, A. H. Gosse, M.D., V. G. Copo, G. Finch, S. H. Warren, C. E. H. Milner, J. A. Willett, M.D., G. W. Shore, C. E. W. McDonald, and P. G. Doyne.

London Mounted Brigade Field Ambulance.—J. B. Hogarth, M.B., to be Lieutenant.

Home Counties Field Ambulance.—Captain T. S. Helo, M.D., from a general hospital, to be Captain; W. C. D. Maile to be Lieutenant.

Northern General Hospital.—Major H. R. Dean, M.D., F.R.C.P., is seconded for duty with a general hospital.

Welsh Field Ambulance.—Major R. Griffith, from a field ambulance, to be Major.

Scottish General Hospital.—Major J. Smart, M.B., to be temporary Lieutenant-Colonel whilst acting as administrator.

Highland Field Ambulance.—Captain G. B. Killon, M.B., relinquishes his commission on account of ill health; Lieutenant A. J. Melvor, M.B., to be Captain.

Attached to Units other than Medical Units.—Major J. G. Macindoe, M.B., relinquishes his commission on account of ill health. To be Captains: Captain G. Eustace, M.D., from a field ambulance; Lieutenant M. Thompson. To be Lieutenants: B. T. J. Glover, M.B., K. Atkin.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonel C. W. F. Gorrell to be temporary Colonel. Major F. H. Mewburn to be temporary Lieutenant-Colonel. Captain J. M. Robinson to be temporary Major. To be temporary Captains: R. A. Kennedy, J. G. Wilson, J. G. Sutherland, C. S. Williams (late Lieutenant R.A.M.C.), C. R. B. Crompton and D. A. Webb. Major W. Creighton to revert to the temporary rank of Captain at his own request.

SOUTH AFRICAN ARMY MEDICAL CORPS.

Major P. M. Thornton to be temporary Lieutenant-Colonel whilst in charge of Bamford African Hospital, Richmond.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice see Index to Advertisements—Important Notice to Appointments appearing in our advertisement columns. Full particulars of vacancies as to which inquiries should be made, before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £200 per annum.

BIRMINGHAM CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary, £150 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon (Lady). Salary, £200 per annum.

BRIGHTON COUNTY BOROUGH ASYLUM, Hayward's Heath.—Locumtenent Assistant Medical Officer. Salary, £6 6s. per week.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CARDIFF: KING EDWARD VII's HOSPITAL.—House-Surgeon Salary, £140 per annum.

CONSUMPTION SANATORIA OF SCOTLAND.—Assistant Resident Medical Officer. Salary, £150 per annum.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Two ladies as House Physicians, Anaesthetist, and Casualty Officers. Salary, £150 per annum.

DUDLEY: THE GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

DUNDEE: KING'S CROSS (FEVER) HOSPITAL.—Resident. Salary, £150.

ELDWICK SANATORIUM SCHOOL FOR TUBERCULOUS CHILDREN, Bingley, Yorks.—Lady Resident Medical Officer. Salary, £120.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—Clinical Assistants. House-Physician; salary, £160 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon.

HARROGATE INFIRMARY.—House-Surgeon.

HUDDERSFIELD EDUCATION COMMITTEE.—Temporary Dental Surgeon. Salary, £250 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Assistant House-Surgeons (2). Salary: Qualified, £100; unqualified, £80.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

MINISTRY OF MUNITIONS.—Lady Medical Officer for Factory in Midlands. Salary, £400 per annum.

PADDINGTON GUARDIANS.—Second Assistant to Medical Superintendent of Infirmary and Medical Officer of the House. Remuneration, £6 6s. a week.

PLAISTOW FEVER HOSPITAL.—Second Assistant Medical Officer (Lady) for temporary duty. Salary at the rate of £150 per annum.

SALFORD ROYAL HOSPITAL.—House-Surgeon: salary, £200 per annum. Junior House-Surgeon; salary, £150 per annum.

SHEFFIELD CITY HOSPITALS.—Assistant Medical Officer. Salary, £225 per annum.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SHEFFIELD UNIVERSITY.—Demonstrator in Pathology and Bacteriology. Salary, £300 per annum

STOKE-ON-TRENT EDUCATION COMMITTEE.—Lady School Medical Inspector. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120.

WEST DERBY UNION: ALDER HEY HOSPITAL.—Temporary Assistant Resident Medical Officer. Salary, £300 per annum.

WEST HAM UNION.—Resident Assistant Medical Officer for the Infirmary, Leytonstone; salary, £300 per annum. Dispenser and Storekeeper for Relief Station, Plaistow; salary, £2 per week.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Godalming (Surrey), Sidmouth (Devon).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BARNES, Frank, M.B., M.S.Lond., F.R.C.S.Eng., Honorary Surgeon to the General Hospital, Birmingham.

PETYT, A. J., M.B., B.C.Camb., Certifying Factory Surgeon for the Longton District, co. Lancashire. (Correction.)

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

CAMPBELL.—At a nursing home, on 7th inst., John Munro Campbell, M.B., C.M.Glasg., of "Cairntable," Newlands, Glasgow.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	OCTOBER.
4 Wed.	London: Journal Committee, 2 p.m.
10 Tues.	London: Organization Committee, 2.15 p.m.
11 Wed.	London: Medico-Political Committee, 2 p.m.
18 Wed.	London: Finance Committee, 2 p.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 23RD, 1916.

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INSURANCE.

FINANCIAL ADMINISTRATION OF THE INSURANCE ACT.

DISABLED INSURED PERSONS.

WE have received the following letter from the Honorary Secretary of the Bath Panel Committee:

Sir,

Much dissatisfaction has been expressed in the long delay in settlement of the balances due for the first three years of operation of the Insurance Act. It is a very real grievance and ought not to occur again. But most of your correspondents assume that the amount of the central medical benefit pool is correct, and only concern themselves with the method and time of distribution.

We hear much about the inflation of registers and doctors' lists, and that this accounts for the reduced medical credit. Believing as I do that our local medical credit is reduced out of all proportion to the inflation I took some trouble to inquire as to the constitution of the central pool. In answer to an inquiry the Secretary to the Insurance Commission states that—

> No charges are raised against societies in respect of persons who enter into insurance during the second half-year or who have not surrendered contribution cards owing to their having been in receipt of sickness or disablement benefit or unemployed for the whole of the first half-year.
>
> I am to point out, however, that charges are raised for the whole year (1) in respect of persons who were in insurance during any portion of the first half-year, however late in the half-year the date of entry into insurance may be, and (2) in respect of persons who lapse from insurance owing to death or any other cause at any time of the year; and that these excess charges are computed to be at least the equivalent for the absence of any charges in respect of the classes of persons referred to in the first paragraph above.

In other words, for medical benefit purposes the calculation is made on the basis of those who return cards during the first half-year, those who drop out during the second half-year balancing those who come into insurance during that period. So far this seems an excellent and equitable arrangement, whereby the calculation of the medical credit can be made early in any given year, enabling the distribution to be made early in the following year.

But thrown into the scales against the profession are all those who are in receipt of sickness or disablement benefit or who are unemployed for the whole of the first half-year. Most ordinary illnesses do not last six months, so a card would be surrendered for the first half-year; but it is very different in the case of disablement benefit; if a person is disabled and lives for twenty years, the medical benefit fund is not credited with a single penny in respect of his treatment, and, being disabled, he probably needs a good deal of attendance. When an insured person reaches 70, the position is different. Approved societies are asked to tell the Commissioners how many members they have over 70, and, according to their returns, they are debited for the medical benefit fund. If these returns are as unreliable as the returns of suspensions, the medical benefit fund is likely to suffer very severely; no cards being returned, the Commissioners have not the advantage of this check on the figures. So far as I know, no financial arrangement for crediting the medical benefit pool for the treatment of soldiers discharged through disablement has been made, although there is a clause in the agreement for 1917 which is intended to ensure their more effective treatment.

The delay in notifying to the profession the suspensions from a right to medical benefit is very unfair; we are told that if a card is returned for the first half-year the whole year's attendance is paid for, whether the insured person is suspended or not. But my experience is that suspensions are rarely notified until twelve months after date, and persons often continue to avail themselves of medical benefit long after they cease to be entitled to it. This is due to neglect of the approved society to notify the Insurance Committee, and I have never heard of any penalty being inflicted for disobeying the rule, although the least delinquency on the part of a doctor is dropped on.

I have been told in high quarters that the matter is an actuarial one, and does not concern the doctors. But if, as I hope I have been able to show, the method adopted results in large pecuniary loss to the medical benefit pool, it concerns the doctors a vast deal more than the actuaries.

I am, Sir, faithfully yours,
CHARLES A. MARSH.

20, Victoria Buildings, Bath, Sept. 16th.

The new regulation referred to above as to be embodied in the agreement for 1917 is as follows:

On and after the first day of January, 1917, the following clause will be substituted for Clause 3 of the conditions of service for practitioners set forth in the First Schedule to the Medical Benefit Regulations, 1913:

> 3. Where the condition of the patient is such as to require services beyond the competence of an ordinary practitioner, the practitioner shall advise the patient as to the steps which should be taken in order to obtain such treatment as his condition requires, and shall, where provision is made for such services, in, or for, the area by any public authority after consultation with the Local Medical Committee, and due notice of such provision has been given to the practitioner by the Insurance Committee, take such other steps as may be reasonably necessary in order that the patient may derive full advantage from the provision of such services:
>
> Provided that where, for the purpose of defining the duties of practitioners as aforesaid, a scheme has been prepared by the Panel Committee in consultation with the Insurance Committee and approved by the Commissioners, the provisions of any such scheme shall be deemed to be part of the agreement, and shall be substituted for this Clause.

The Insurance Commissioners have addressed a memorandum to Insurance Committees in England explaining the significance of this regulation and instructing the Insurance Committee forthwith to transmit to Panel and

Local Medical Committees a copy of the regulations and of the memorandum. A new order with regard to the keeping of records of domiciliary treatment of tuberculosis and to consultations in cases of that disease, issued by the Local Government Board on September 20th, is also to be noted. A communication setting out the change in the agreement embodied in the new regulation (3) quoted above and certain others of minor importance must be issued to all panel practitioners not later than November 5th, and they will be required either to accept the new conditions or to resign from the panel not later than November 19th.

The memorandum points out that the agreement with the panel practitioner does not, save in the case of domiciliary treatment of tuberculosis, expressly define the duty of the practitioner towards a panel patient whose condition needs specialist or consultant services beyond requiring him to advise the patient as to the steps which the latter should take. A different situation has now developed owing to two circumstances which are set out in the memorandum as follows:

4. . . . Certain special emergencies created by the present war have necessitated the early establishment of some special medical provision of an expert character, namely, in connexion with (*a*) the prevention and treatment of venereal diseases, and (*b*) the medical (including, of course, the surgical) treatment of disabled sailors and soldiers after they have left the service.

The importance of establishing for discharged disabled sailors and soldiers, both for the alleviation of their injuries and sufferings and in the interests of the community, as full a measure of medical provision as the circumstances permit has for some time been, and is still, engaging the close attention of the Government departments and other public bodies concerned. As regards the second point, namely, the prevention and treatment of venereal diseases, a duty has been imposed on local authorities by order of the Local Government Board to organize arrangements for this purpose in their respective localities.

5. Since, therefore, in these spheres, at all events, an organized provision of expert services is now in process of development, it appears no longer possible to defer taking steps to define in the practitioner's agreement, or to enable that agreement to define, the relations of the panel practitioner to any consultant or specialist whose services may be made available for any particular panel patient. Such action is, in the Commissioners' opinion, incumbent upon them, firstly in the best interests of insured persons, who cannot fail to derive advantage from the more effective organization of the panel service and its proper co-ordination with whatever expert services may hereafter be made available by any public authority. Further, it appears to the Commissioners important to secure to panel practitioners the opportunity, before any arrangements for the provision of such services come into operation in their area, of expressing their views on the proposals and of having their duties in relation thereto expressly defined and limited for their own guidance and protection.

6. The Commissioners have, accordingly, after consultation with representatives of the medical profession, made a Regulation (Article 3), which will come into operation on 1st January next, providing for the necessary amendment of the conditions of service for practitioners, as set forth in the First Schedule to the 1913 Regulations. The Regulation is, as will be seen, general in character; and, in view of the fact that it is impossible at the present time to forecast under what precise arrangements expert services may in the future be afforded, it provides for consultation with practitioners and reserves the actual details of definition and limitation for the provisions of a local scheme, thus ensuring the elasticity necessary for dealing with the contingent arrangements.

LOCAL MEDICAL AND PANEL COMMITTEES.

Cheshire.

At a meeting of the Local Medical and Panel Committee on September 3rd it was reported that, of the ninety-six replies received with reference to the proposed action in anticipation of changes in terms of service, eighty-four agreed to hand in resignations from the panel to the County Panel Committee to be used by that body as proof of the solidarity of the medical panel in demanding reasonable terms of service. It was agreed to make a further attempt to obtain fuller adhesion to the proposal, and the secretary was instructed to send to each doctor on the panel a form of resignation therefrom with the request that it be returned when signed to the committee. It was resolved that a deputation should interview the Insurance Acts Committee of the British Medical Association in order to press it to approach the Commissioners, and to endeavour before the issue of changes in the agreements to secure improvements in the conditions of service.

The county medical officer of health, Dr. Meredith Young, attended during the discussion of the question of the provision by the county council for the diagnosis and treatment of venereal diseases. Dr. Young invited suggestions as to the best method of carrying out the instructions of the Local Government Board that salvarsan should only be supplied gratuitously to practitioners competent to use it. He also sought help in arriving at the best means of bringing the fact that venereal diseases were in future to be treated without cost to the patient to the notice of the public, or at any rate to the notice of persons suffering from the disease.

The Secretary explained the views of the members of the Drug Committee, who had agreed to the provision of facilities for diagnosis, which they considered should extend to all diseases, and to the principle that salvarsan, etc., should be provided at the public expense (just as diphtheria antitoxin is provided). They suggested that in each hospital in the county demonstrations of the administration of salvarsan should be arranged at the expense of the county council by the county and local medical officers of health with the secretaries of the hospitals and of the district Medical Committees adjacent, and that the neighbouring members of the profession should attend. Thus the local medical officer of health would know that doctors, having attended the demonstrations, were eligible under the terms of the Local Government Board circular to be supplied with salvarsan free. They suggested, further, that any members of the staffs of these hospitals who undertook the work should be regarded as the "medical officer of the clinic," in the sense of the Local Government Board circular, and that they should be paid; and that the publication of the scheme should be left to doctors to communicate to patients who needed its assistance. The opinion was expressed that the proposals for the collective education of children in sex hygiene, etc., were ill advised.

CORRESPONDENCE.

Insurance Practice.

Dr. John J. Cowan (Malvern) writes: I was very pleased to see your recent comments on National Insurance work. I enclose a balance sheet sent for 1914. You will notice that it is a most unbusinesslike statement, which would not be tolerated for a moment in business circles.

Whereas our capitation fees are supposed to be 1s. 9d. per quarter and 4½d. for dispensing, from this sheet it will be seen that for two quarters we were paid at 100 per cent. on that amount, on the other two quarters at 90 per cent.

A wrong average has been drawn and a misleading statement which would look as if we had been paid at 6s. 8.12d. and 1s. 5.12d. respectively.

The numbers on the list during the year (in Roman type) are incorrect. The numbers in italics are the Committee's own figures, on which we have been paid at the above rate. Since the commencement I have engaged a secretary to do the clerical work of the Act as it was intended.

I give the Committee the credit for having made an attempt to be business-like, but their figures were always below mine. When an annual agreement is entered into for a stipulated sum with Government security, surely it is less than honest not to abide by it.

I am aware, and so are the Commissioners, that the amount of clerical work the Act entails for our profession is such that few of our colleagues could cope with it without neglecting the serious part of their practices, and they do as they like with us. It is in the highest degree unpleasant when one has loyally attempted to work the Act that one should be penalized because the Committee do not carry out their side of the bargain, have to wait two years for a statement of account such as I forward to you, and then find a loss.

It is hopelessly impossible at this date to readjust matters, and to expect the chairman and members of the Committee to use such scrutiny as will prevent the issue of such a document.

It is stated that our lists are greatly inflated by members having joined the forces, but in the instance

I give this could not be so until late on in the year. In the first year no notice was taken of our complaint that many had not been credited in our lists through secretaries of friendly societies neglecting, so it is said, to give lists of members who were in their different clubs. The agreed figures on my list are now 1,163 after all "army and removals" have been taken out, so that some idea can be gathered of the number with which I should have been credited in 1914!

It is manifest that our profession is being treated shamefully. Those at home doing double work, and those who are looking after our troops, unable from their circumstances to protect their home interests, are being juggled out of fees through no fault of their own and without any hope of redress.

In Account with the Worcestershire Insurance Committee.

(Period from 12th January, 1914, to 31st December, 1914.)

Capitation fees in respect of insured persons accepted for treatment:

No. on list 12th January, 1914	= 1,152	*1,124*
,, ,, ,, 12th April, 1914	= 1,151	*1,172*
,, ,, ,, 12th July, 1914	= 1,212	*1,232*
,, ,, ,, 12th October, 1914	= 1,249	*1,298*
	4,764	*4,766*

Correct average, 1,191 ... ... £397 4 0

	£	s.	d.
Average number for year 1,180½ @ 6s. 8 12d.	394	4	2

Capitation fees for dispensing in respect of insured persons:

No. on list 12th January, 1914			
,, ,, ,, 12th April, 1914			
,, ,, ,, 12th July, 1914			
,, ,, ,, 12th October, 1914			
Average number for year 231 @ 1s. 5.826d.	17	4	2
Amount overpaid c/f. to 1915 a/c	5	16	9
	417	5	1

Payments on Account.

Capitation fees in respect of insured persons accepted for treatment:

		£	s.	d.	£	s.	d.
First quarter	*1,124*	98	7	0			
Second quarter	*1,172*	102	11	0			
Third quarter	*1,232*	97	0	5			
Fourth quarter	*1,298*	97	9	10			
					395	8	3
Capitation fees for dispensing in respect of insured persons:							
First quarter		5	4	[illegible]			
Second quarter		5	6	6			
Third quarter		5	12	11			
Fourth quarter		5	12	11			
					21	16	10
[illegible]					417	5	1

The above statement was submitted to an accountant for comment. So far from the amount overpaid being £5 16s. 9d., it is £21 8s. 9d. which is due at 7s. and that on their figures, which from the first have been less than my acceptances.

It is high time every member of our Association placed his grievances before his parliamentary representative, and that this be an instruction from our Council, or that we refuse further to work the Act owing to our agreement as to the amount payable per capita being broken.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

WILTSHIRE BRANCH.—Dr. Frank F. Bond (Honorary Secretary, Court House, Trowbridge) gives notice that a meeting of the Branch will be held at the Council Chamber, Market Place, Salisbury, on Wednesday, September 27th, 1916, at 2.15 p.m. Lieutenant-Colonel Harrison, R.A.M.C., of the Military Hospital, Rochester Row, London, will give an address and practical demonstration on specimen taking, mixing, and administration of salvarsan, and some remarks on the treatment of syphilis by salvarsan. The lecture will be of particular interest in view of the Regulations of the Local Government Board *re* Venereal Disease. Members of the R.A.M.C. in the Southern Command and the Colonial Contingent and medical men practising in Wilts who are not members of the Association are heartily invited to attend the meeting. Afternoon tea will be provided by the president.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon P. H. Bannister, M.B., to the *Briton*, vice Chater. Staff Surgeon H. A. Kellond-Knight to the *Weymouth*. Surgeons M. S. Moore, M.B., to the *Hussar*, vice Parnell; R. F. P. Cory to the *Endeavour*, vice Cross; H. St. C. Colson, M.B., to the Royal Marines, Plymouth; H. E. P. Sayers to the *Brambl*e, vice Perkins. Temporary Surgeons J. P. C. Shehan, M.B., to the Haslar Hospital; H. E. Scowcroft to the *Vernon*; J. Richardson, M.B., G. C. Mathie, and T. C. Summers to the *Victory*, additional, for Haslar Hospital; E. M. Harrison to the *Weymouth*; C. W. Shepherd, M.B., to the *Superb*, vice Brown: R. A. Brown to Queensferry Hospital, vice Greenhill; H. Williamson to the *Victory*; H. Y. Bates to the *Pembroke*. To be temporary Surgeons: S. H. M. Johns and N. A. Sprott, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon J. H. F. Lamb, M.B., to the *Arrogant*; D. J. Forbes, M.B., to the *Caroline*, vice Murray; C. F. A. Hereford to Portsmouth Dockyard, vice Forbes; W. J. A. Quine, M.B., to the *Pembroke*. Surgeon Probationer J. Hale to the *Loyal*, vice Birket.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Major B. W. Housman, F.R.C.S., having ceased to be employed with the 2nd Birmingham War Hospital, relinquishes his commission.

R. C. Tweedy, M.D., to be temporary Major whilst employed at the 2nd Birmingham War Hospital.

Temporary Captain V. van Langenberg, M.B., relinquishes his commission on account of ill health.

Captain H. V. Leigh, M.B., from Welsh Regiment (T.F.), to be temporary Captain (substituted for notification in the *London Gazette* of May 3rd, 1915).

The surname of temporary Lieutenant (now temporary Captain) G. H. Keene, M.D., is as now described, and not as in the *London Gazette* of June 12th, 1915.

Temporary Captains relinquish their commissions: H. A. Watermeyer, E. L. Reid, M.B., F.R.C.S.E., J. B. Young, M.B., T. M. Low, M.B., R. E. Walker, M.B., A. B. Bradford, M.B., E. D. Pullon, M.B., E. T. C. Milligan, M.D., W. E. Reid, M.B., A. L. Christie, M.B., F. A. Anderson, M.D.

Temporary Lieutenants to be temporary Captains: A. H. Laird, M.B., H. G. Coulthard, M.B., F. A. J. R. Brooke, A. W. McArthur, M.D., T. M. J. Stewart, M.B., M. McK. McRae, M.B., G. M. Jackson, E. L. Taylor, C. Samut, M.D., A. C. Troup, M.D., J. F. Young, M.B., F. O. Stohr, M.D., L. E. Sutcliffe, M.B., M. J. T. Wallis, H. Wales, M.B., W. Forsyth, M.B., F. S. Eschwege, J. B. McFarland, C. R. Hoskyn, M.D., W. G. T. Storey, M.B., R. A. P. Hill, M.D., R. H. Wilson, M.B., G. F. P. Heathcote, M.B., J. A. Conway, M.D., W. Cullen, M.D., T. S. Brodie, M.B., P. J. Lane, M.B., J. R. A. D. Todhunter, M.B., J. Lindsay, M.D., J. Reid, M.B., W. V. Johnstone, T. A. Hawkesworth, M.B., J. C. Fergusson, J. W. W. Hewitt, M.B., W. Mason, D. C. Maclachlan, M.B., W. R. Nasmyth, M.D., F.R.C.S.E., W. J. Robertson, M.B., G. Wight, M.B., J. Young, M.B., R. W. Telford, M.D., M. G. Hannay, A. McC. Davidson, M.D., D. S. Cassidy, M.D., H. Harvey, M.D., G. P. Armstrong, M.D., D. St.C. Creighton, M.D., J.A. Wellwood, M.D., J. F. Sadleir, M.D., F. L. McKinnon, M.D., C. E. Tucker, M.B., F. S. Noble, M.D., R. D. Smedley, M.D., J. A. G. Sparrow, M.B., J. C. Davies, M.B., D. Malloch, M.B., G. D. MacKintosh, A. C. Laing, M.B., H. P. Cuthbert, D. H. Jones, M.B., W. F. Shanks, M.B., A. Ashmore, W. D. Bathgate, H. G. Jamison, M.D., G. A. Hodges, R. P. Graham, J. T. Kyle, M.B., E. U. MacWilliam, M.B., T. F. Weakliam, M.B., E. Hutley, M.B., G. Johnston, J. Porter, M.B., D. M. Gill, M.B., J. Dickie, M.B., H. V. FitzGerald, W. Gilmour, M.D., E. H. G. Duncan, D. McKail, M.D., R. A. Parsons, H. F. Wickens, M.B., A. Rennie, M.B., E. J. McSwiney, M.B., S. J. L. Lindeman, G. Munro, M.B., H. W. Gabe, F.R.C.S.E., J. P. Dee, M.D., J. Lyons, M.B., G. E. Spence, M.B., D. Ferguson, M.B., J. C. D. Simpson, M.B., W. Barkes, M.D., R. P. Weldon, R. Puttock, M.B., W. T. Wearing, M.B., J. MacArthur, M.B., H. St.J. Randell, M.B., G. A. Barss, M.D., T. Milling, M.B., E. S. Sowerby, M.B., W. E. H. Beard, M.B., M. T. Cassidy, M.B., G. T. Gifford, M.D., M. F. Bliss, T. H. James, A. H. Aldridge, J. Kirk, M.D.

Lieutenant R. L. Williams, from Welsh Regiment (T.F.), to be temporary Lieutenant (substituted for notification in the *London Gazette* of May 3rd, 1916).

Temporary Lieutenants relinquish their commissions: M. H. Cane, W. C. Swenerton, M.B., G. W. Gower, M.B., W. P. Wippell, T. P. McQuaid, M.B., A. Gibson, M.B., F.R.C.S.E., J. J. Tate, J. C. P. Beatty, M.B., J. Davidson, M.B., J. Rosenthal, M.B., J. Cook, M.B.

Temporary Lieutenants relinquish their commissions on account of ill health: C. W. Webb, M.D., A. M. Fisher, M.D., B. C. W. Pasco.

Temporary Lieutenants Watkin Watkins and Colin William McRury are dismissed the service by sentence of general court-martials.

INDIAN MEDICAL SERVICE.

Major R. A. Needham, D.S.O., M.B., has been reappointed to be Health Officer, Simla.

Lieutenant-Colonel P. J. Lumsden has been advanced to the higher position of his rank, with effect from April 1st, 1916.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieutenants to be temporary Captains: A. Pare, J. H. A. Paquette, J. A. A. Watters, J. G. R. Stone, S. R. Johnston, E. E. Cleaver.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain W. M. Browne relinquishes his commission on account of ill health.

Captain Patrick McDonnell, M.B., is dismissed the service by sentence of a general court-martial.

To be temporary Lieutenants: J. A. Murray, from Glasgow University Contingent O.T.C., J. J. Landers, M.B.

The name of Robert Cecil Davonport is as now described, and not as in the *London Gazette* of August 29th.

Lieutenant (on probation) R. S. Woods is confirmed in his rank.

To be Lieutenants: J. E. Kitchen, E. Lipman, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Southern General Hospital.—Captain G. P. Mills, M.B., is seconded for duty with a general hospital. Captain H. G. Pinker resigns his commission.

Wessex Field Ambulance.—Major E. B. Bird to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

London Field Ambulance.—Major A. W. French to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Home Counties Casualty Clearing Station.—Major (temporary Lieutenant-Colonel) J. Ward relinquishes his temporary rank on ceasing to command a field ambulance. Captain J. J. C. Hamilton, from a field ambulance, to be Captain.

Third Home Counties Field Ambulance.—Captain S. Hughes, from Attached to Units other than Medical Units, to be Captain.

Eastern General Hospital.—Officers to be seconded for duty with a general hospital: Major F. E. A. Webb; Captains W. L. Murphy, D. Mallam, C. H. Budd, E. J. Y. Brash, R. V. Slattery, J. F. Gaskell, M.D., and F. Roberts.

East Anglian Field Ambulance.—Lieutenant J. Anderson, M.B., to be Captain.

South Midland Mounted Brigade Field Ambulance.—Lieutenant C. P. C. Sargent to be Captain.

North Midland Field Ambulance.—Captain W. Duncan, M.B., from Attached to Units other than Medical Units, to be Captain.

West Riding Field Ambulance. Major (temporary Lieutenant Colonel) F. Whalley, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

Northern General Hospital.—Captain A. E. Barnes, M.B., is seconded for duty with a general hospital. Lieutenant E. R. Flint to be Captain.

Scottish General Hospital.—Officers seconded for duty with a general hospital: Lieutenant-Colonel A. G. Hay, M.D.; Majors H. Rutherford, M.B., and H. Walker, M.B.; Captains A. W. Harrington, D. Watson, M.B., J. Patrick, M.B., F.R.C.S.E., J. D. Holmes, M.B., J. Henderson, M.D., A. Fraser, M.B., J. R. Riddell, W. Whitelaw, M.B., and W. J. Stuart, M.B., F.R.C.S.E. Captain R. A. Fleming, M.D., is seconded whilst holding a temporary commission in the R.A.M.C.

Highland Casualty Clearing Station.—Lieutenant A. E. Campbell, M.B., to be Captain.

Supernumerary for Service with the O.T.C.—Temporary Lieutenant V. G. L. Fielden to be temporary Captain whilst serving with the Medical Unit of Belfast University Contingent, Senior Division, O.T.C.

Attached to Units other than Medical Units.—Lieutenant F. J. P. Saunders to be Captain.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. H. Stephen, M.B., from a casualty clearing station, to be Lieutenant-Colonel.

Major W. H. Flint, from a field ambulance, to be Major.

Lieutenant-Colonel W. J. Fleetwood, M.D., from West Lancashire Field Ambulance, to be Lieutenant-Colonel.

COLONIAL MEDICAL SERVICES.

The following changes are notified by the Colonial Office:

WEST AFRICAN MEDICAL STAFF.

Transfers and Promotions.—R. Laurie, M.B., Ch.B.Glas., B.Sc., Publ.H.Edin., Sanitary Officer, Nigeria, to be Senior Sanitary Officer, Sierra Leone; H. P. Lobb, M.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Irel., Senior Medical Officer, to be Provincial Medical Officer, Nigeria (Northern Provinces); J. Currie, M.D.Lond., Medical Officer, Southern Provinces, to be Senior Medical Officer, Northern Provinces, Nigeria; F. J. A. Beringer, M.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Irel., Sanitary Officer, transferred from Sierra Leone to Nigeria (Southern Provinces); W. A. Nicholson, M.B., B.Ch.Dub., and E. J. Powell, M.B., B.Ch.Dub., Medical Officers, transferred from Sierra Leone to Nigeria; J. S. Pearson, M.R.C.S.Eng., L.R.C.P.Lond., from Sierra Leone to the Gold Coast.

Retirement.—R. H. Keenan, M.D., M.Ch., D.P.H.Dub., F.R.C.S.Irel., Senior Sanitary Officer, Sierra Leone, retired on pension.

Death. G. Beatty, M.B., C.M.Edin., Medical Officer, Nigeria.

The following officers whose services have been placed at the disposal of the Army Council have been given temporary commissions in the R.A.M.C.: Messrs. F. H. Storey, H. W. Gush, K. B. Allan, M. Graves, G. G. P. Beckett, A. S. Burgess, J. I. baëza (Gold Coast); F. C. V. Thompson (Gambia); J. C. M. Bailey, R. F. Williams, W. H. Peacock, G. F. Forde, J. Lindsay, A. J. M. Crichton, B. J. Courtney, W. C. E. Bower, F. M. P. Rice, J. W. B. Hanington, C. J. B. Pasley (Nigeria).

The following officers have been permitted to rejoin the army for military duty: Major W. H. Best, R.A.M.C.(S.R.), Captain F. E. Bissell, R.A.M.C. (Reserve of Officers), Major E. L. Anderson, R.A.M.C.(T.F.); Surgeon Captain J. M. Benson, R.N.(T.F.), all from Nigeria.

The following officers are on military duty in East Africa: Messrs. J. C. Watt (Gambia); J. S. Pearson, G. P. D'Amico, J. A. Beamish, A. J. R. O'Brien (Gold Coast); W. A. Trumper, L. Doudney, C. Kelsall, C. J. H. Pearson, W. H. Kauntze, A. R. Paterson (Nigeria).

The following officers have been temporarily lent to other Colonial administrations: Messrs. F. E. Whitehead (Sierra Leone), and J. T. Watt (Nigeria), to Somaliland; F. B. Thompson (Nigeria), to Cyprus; H. A. Percival (Nigeria), to Gibraltar.

OTHER COLONIAL SERVICES.

L. G. Cummings, M.B., B.S.Durh., to be Medical Officer, Nigeria.

E. J. Wright, M.R.C.S.Eng., L.R.C.P.Lond., to be Medical Officer, Sierra Leone.

A. J. Borg, M.D. (Malta), to be Medical Officer, Fiji.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £200 per annum.

BIRMINGHAM CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary £250 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—(1) Second House-Surgeon. (2) Third House-Surgeon. Salary, £200 and £180 per annum respectively.

BRIDGE OF WEIR: CONSUMPTION SANATORIA OF SCOTLAND.—Assistant Resident Medical Officer. Salary, £150 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—Junior House-Surgeon. Salary, £80 per annum, with a war bonus at the rate of £20 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—(1) Resident Medical Officer. (2) Assistant Resident Medical Officer. Salary, £250 and £150 per annum respectively.

DUDLEY: THE GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

DUNDEE: KING'S CROSS (FEVER) HOSPITAL.—Resident. Salary, £150.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—(1) House-Physician; salary, £160 per annum. (2) Clinical Assistants.

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary £200 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Two Assistant House Surgeons. Salary: Qualified, £150; unqualified, £80.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary £200.

LEICESTER CORPORATION.—Second Woman Resident Medical Officer for the Isolation Hospital and Sanatorium. Salary, £25 per annum.

MINISTRY OF MUNITIONS.—Lady Medical Officer for Factory in Midlands. Salary, £400 per annum.

NORTH BORNEO: GOVERNMENT MEDICAL SERVICE.—Medical Officer. Salary, £500 per annum, rising to £660.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND, Newcastle, co. Wicklow.—Assistant Resident Medical Officer. Salary, £200 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Senior and Junior Lady House-Surgeons. Salary, £300 and £200 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—Pathologist (female). Salary, £250 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer at the Bramcote Sanatorium, Nuneaton. Salary, £250 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120.

WOOLWICH TUBERCULOSIS DISPENSARY, Plumstead, S.E.—Medical Officer.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Kirkoswald (Cumberland), Pollokshaws (Lanark).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BENNETT, F. J., M.R.C.S., L.D.S., Clinical Assistant to the Dental Department of the King George Hospital, Waterloo Road.

CLARK-JONES, E., M.R.C.S., L.R.C.P., District Medical Officer of the Pewsey Union.

DEVLIN, J. F. P., M.B., B.Ch., N.U.I., Certifying Factory Surgeon for the Gorton District, co. Tyrone.

MARRIOTT, F., L.M.S.S.A., Certifying Factory Surgeon for the Tibshelf District, co. Derby.

TUXFORD, R., M.R.C.S., L.R.C.P., Medical Officer for the Workhouse, District, and Cottage Homes of the Boston Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

JORDAN.—On August 17th, 1916, at 6, Maxted Park, Harrow, to Dr. and Mrs. Alfred O. Jordan (of 13, Upper Wimpole Street, W.)—a daughter (Beatrice Rose Christine).

KENT.—At Tongshan, North China, on August 3rd, 1916, to Dr. and Mrs. Hugh Kent—a son.

ROWAN.—September 11th, at Mickleover, the wife of M. L. Rowan, M.D., Medical Superintendent, Derby County Asylum—a daughter.

DEATHS.

BARNES.—On September 17th, at 25, Southfields Gardens, Strawberry Hill (late of Hammersmith), Edward Charles Barnes, M.R.C.S.Eng., L.S.A., aged 75.

DAVIES.—September 12th, at 50, Downs Park West, Durdham Down, Bristol, George Augustus Davies, L.R.C.P., M.R.C.S.Lond., J.P., after a long illness, most patiently borne, aged 70.

GLOSTER.—On September 19th, at 15, Upper Phillimore Place, Kensington, W., James Lockburn Gloster, B.A., M.B., aged 62 years. Interment at Kensington Cemetery, Hanwell, at 12 noon, Friday, 22nd.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		SEPTEMBER.
27	Sat.	Scottish Committee, Station Hotel, Perth, 12 noon.
27	Wed.	Wiltshire Branch, Salisbury, 2.15 p.m.
		OCTOBER.
4	Wed.	London: Journal Committee, 2 p.m.
10	Tues.	London: Organization Committee, 2.15 p.m.
11	Wed.	London: Medico-Political Committee, 2 p.m.
18	Wed.	London: Finance Committee, 2 p.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 30TH, 1916.

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INSURANCE.

INSURANCE ACT:

DRAFT AGREEMENT FOR 1917: NEW REGULATIONS.

THE following letter (M. 3, 1916–17) has been addressed to the honorary secretaries of Local Medical and Panel Committees, and of Divisions and Branches (for their information only).

Dear Sir,

1917 AGREEMENT: NEW REGULATIONS.

I beg to append herewith copy of the new Provisional Regulations for 1917 dated 14th September, 1916.

These Regulations will be discussed at the forthcoming Conference of Representatives of Local Medical and Panel Committees, which will be held in London on Thursday, 19th October, full particulars about which will be sent you as soon as possible. The Insurance Acts Committee, however, wishes to place in your hands with as little delay as possible the results of its negotiations with the Insurance Commissioners respecting these Regulations and its comments on the form they now take.

Article 2 needs no special consideration as it simply provides formally for due notice being given to doctors and chemists in all cases of alterations of Regulations which affect them. This notice has been given by most, if not all, Committees, but it is doubtless better that the Regulations should definitely provide for it.

Article 3, the chief alteration, extends Clause 4 of the Practitioners' Agreement (Clause 3 of the First Schedule to the principal (1913) Regulations) by providing that where provision for medical services over and above those provided by the panel practitioner is made by any public authority, after consultation with the Local Medical Committee, and after due notice to each panel practitioner by the Insurance Committee, the practitioner shall take such steps as are reasonably necessary to enable the patient to take full advantage of such provision.

As an alternative, if the Panel Committee prefers to define strictly the duties of panel practitioners in connection with any such extra provision, it may prepare a scheme in consultation with the Insurance Committee (the Panel Committee is to take the initiative, not the Insurance Committee) which, after approval by the Commissioners becomes part of the agreement instead of the former part of the clause.

Article 4 provides for testing the drugs and medicines supplied by panel chemists under the provisions of the Food and Drugs Act—a step which the British Medical Association has pressed on the Commissioners frequently.

Article 5 continues during 1917 the power conferred upon Insurance Committees by the Medical Benefit Regulations, 1914, to alter the terms of service of practitioners on the panel as from such date in the current year as the Commissioners may approve, upon giving notice of such alteration to those practitioners not later than 8 weeks before that date.

Article 6 continues the provision as regards the protection of the practices of panel practitioners on military service.

As regards the amendment of the L.G.B. Order concerning domiciliary treatment of tuberculosis, referred to in par. 8 of the Memorandum to I.C.'s (Memo 227 I.C.), its effect is to rescind that provision of the Order of July 26th, 1912, whereby a medical practitioner carrying out the Domiciliary Treatment of an insured person suffering from tuberculosis is required to keep a continuous record of the clinical history of the illness of the patient, and particulars of the treatment given to a patient under his direction, and submit the card or sheet containing the record periodically to the Consulting Officer. At the same time the new Order prescribes the form in which a medical practitioner shall make his periodical reports to the Consulting Officer in regard to each of the patients under his care, and provides that the medical practitioner shall make arrangements with the Consulting Officer for each of his patients to be examined by the Consulting Officer not less often than once in every 12 months.

The Committee has been in consultation with the Commissioners on the question of the proposed alterations during the past few weeks, and has succeeded in persuading that body to modify the terms of Article 3, so as to make it more general, the first proposal of the Commissioners having been to specify much more closely the nature of the obligations of the practitioner in relation to the consultant or specialist.

The Commissioners were informed that in the opinion of the Committee it was preferable that there should be no new regulation at all on the subject, as it was believed that panel practitioners generally would, without it, do all that is required in the interests of their patients if consultant and specialist services were provided.

The Commissioners, however, were of opinion that it was preferable that the obligation should be specified in regulations; mistaken inferences they feared would otherwise inevitably be drawn from the absence of any specific reference to particular obligations, now become important through the new provision of special services, in an agreement in which other professional obligations are expressly stated.

The Committee has informed the Commissioners that the acceptance of any new duties by panel practitioners must be understood to be without prejudice to the right of the profession to demand that such extra service shall be considered in connection with the review, after the war, of the whole question of proper remuneration for medical service under the Insurance Acts. It is clear that the specification in the Agreement of certain duties in connection with the provision of new services strengthens the claim of the profession that the present remuneration cannot be decreased, if indeed it should not be increased.

On the ground that it is to the interest of the profession, and particularly to that part of it working the Insurance Acts, that everything should be done to improve the quality and extend under suitable conditions the range of the medical attendance given to insured persons, the Committee has no hesitation in recommending Panel Committees to agree to the new Regulations which indeed impose on the practitioner nothing that the average practitioner has not always done for such of his patients as required and could obtain the services of consultants.

I am, yours faithfully,

ALFRED COX,
Medical Secretary.

429, Strand, London, W.C., Sept. 23rd, 1916.

To Honorary Secretaries of—
(*a*) Local Medical and Panel Committees, and
(*b*) Divisions and Branches FOR THEIR INFORMATION ONLY.

APPENDIX.

PROVISIONAL REGULATIONS, DATED 14TH SEPTEMBER, 1916, MADE BY THE NATIONAL HEALTH INSURANCE JOINT COMMITTEE, ACTING JOINTLY WITH THE INSURANCE COMMISSIONERS, UNDER SECTION 15 OF THE NATIONAL INSURANCE ACT, 1911.

The National Health Insurance Joint Committee, acting jointly with the Insurance Commissioners, hereby certify under Section 2 of the Rules Publication Act, 1893, that on account of urgency the following Regulations should come into operation immediately, and hereby make the following Regulations to come into operation forthwith as Provisional Regulations:—

1. These Regulations may be cited as the National Health Insurance (Medical Benefit) Regulations, 1916 (No. 2), and shall be read as one with the National Health Insurance (Medical Benefit) Regulations (England), 1913, hereinafter called the "principal Regulations," as amended by any subsequent Regulations for the time being in force.

2. Where by any Regulations relating to the administration of medical benefit any alteration or addition is made in or to the conditions of service for practitioners or in the conditions of agreement for the supply of drugs and appliances set forth in the First and Third Schedules respectively to the principal Regulations, the Committee shall, in accordance with the provisions of paragraph (3) of Article 16 or of paragraph (3) of Article 18 of the principal Regulations (as modified by these Regulations), give notice to the practitioners on the panel or to the persons supplying drugs and appliances, as the case may require, that corresponding alterations or additions will be made in or to the terms of service of practitioners on the panel or in or to the terms upon which the supply of drugs and appliances has been undertaken.

3. On and after the first day of January, 1917, the following clause shall be substituted for Clause 3 of the conditions of service for practitioners set forth in the First Schedule to the principal Regulations:—

> "3. Where the condition of the patient is such as to require services beyond the competence of an ordinary practitioner the practitioner shall advise the patient as to the steps which should be taken in order to obtain such treatment as his condition requires, and shall, where provision is made for such services in or for the area by any public authority after consultation with the Local Medical Committee, and due notice of such provision has been given to the practitioner by the Insurance Committee, take such other steps as may be reasonably necessary in order that the patient may derive full advantage from the provision of such services:
>
> "Provided that, where, for the purpose of defining the duties of practitioners as aforesaid, a scheme has been prepared by the Panel Committee in consultation with the Insurance Committee and approved by the Commissioners, the provisions of any such scheme shall be deemed to be part of the agreement and shall be substituted for this clause."

4. On and after the 1st day of January, 1917, the following proviso shall be added to Clause 9 of the conditions of agreement for the supply of drugs or appliances set forth in the Third Schedule to the principal Regulations:—

> "Provided nevertheless that the chemist shall sell to any one of the persons mentioned in Section 13 of the Sale of Food and Drugs Act, 1875, or to any person authorised by such person, at the price usually charged to private customers, any drug or medicine prescribed or specified on the appropriate prescription form provided by the Committee for the use of insured persons and signed by a practitioner on the panel."

5. The National Health Insurance (Medical Benefit) Regulations, 1914, (which extend the power of Insurance Committees to give notice of the alteration of the terms of agreements with practitioners and chemists), shall continue during, and shall have effect as respects the year 1917.

6. Articles 3 and 4 of the National Health Insurance (Medical Benefit) Regulations, 1915 (which restrict the right of insured persons on the lists of practitioners holding commissions in the Naval and Military Forces of the Crown to select other practitioners at the end of the year), shall apply to the current year with the substitution of "1916" for "1915."

Dr. J. A. W. PEREIRA (Exeter) writes: I am extremely sorry that the Association has given its assent to the new regulations for 1917 (SUPPLEMENT, September 23rd, p. 90). An army of consultants and specialists is to be brought within the wire entanglements of the Insurance Act. The last hope of those who stood out for the independence of the profession is now extinguished. For the extra work thrown upon him the panel practitioner, of course, gets no extra remuneration. In fact, I am inclined to think he will soon be expected to pay for the gratuitous education which the Commissioners are planning for him. In Styrap's *The Young Practitioner: His Code and Tariff*, which was a standard work in my student days, we were taught that it was perfectly legitimate to charge double fees to patients who demanded our time and labour for a consultation, and I believe most men do so. But the Association and the Commissioners seem to ignore Styrap.

The Association should obtain information, as early as possible, as to the source from which the money will come to pay the consultants, seeing the Commission have scarcely the money to pay the panel men in full. As to the consultation, is it the patient, the practitioner, the Committee, or the Commission who decides when this is to take place?

In paragraph 2 of their Memorandum to Insurance Committees the Commissioners call attention to the comparatively rare cases in which panel patients have obtained access to specialist and consultant services. Is it really necessary to inform the Commissioners that the cases are rare on account of the wholesome restraint of having to find the fee, but that they will be plentiful when consultations can be got for the asking?

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY OF LONDON.

Range of Medical Service.—At the meeting of the Local Medical Committee on September 19th a discussion as to the range of medical service was raised. The particular question, referred by the Insurance Committee, was as to whether the treatment of a case of aural polypus was within the ordinary professional competence and skill of a general practitioner. The Panel Service Subcommittee held that the treatment required was of a specialist character. Dr. H. G. COWIE thought it would be very unfortunate if it should go forth from the Committee that there were such limitations to the competence of the general practitioner. There were undoubtedly different degrees of skill and competence, but he did not think it should be laid down that there were definite limitations. He moved an amendment dissenting from the recommendation, but adding a clause to the effect that such cases were best treated in an institution. Dr. H. H. MILLS seconded the amendment, which, however, was rejected by a large majority, and the original recommendation adopted.

The Treatment of Venereal Diseases.—Dr. R. V. Donellan was nominated as the representative of the Panel Committee to serve as a member of the National Council for Combating Venereal Diseases. In some discussion on this subject Dr. HASLIP urged that the special section which the Panel Committee has appointed to consider questions relating to the treatment of insured persons suffering from venereal diseases should take steps to prevent the threatened creation of venereal specialists, and with that end in view suggested that cases of syphilis should go to the skin department of a hospital and gonorrhoeal cases to the genito-urinary department. Dr. LAURISTON SHAW, the chairman of the section, said that in all discussions hitherto with the various bodies, it had been contended that the hospital treatment of venereal diseases should be divided among three departments—namely, dermatological, genito-urinary, and gynaecological.

MIDDLESEX.

The Local Medical and Panel Committees for Middlesex have chosen their officers for the year ending July 15th, 1917. The officers of the former are—Chairman, Dr. C. G. Burton; Vice-Chairman, Dr. H. B. Brackenbury; Treasurer, Dr. J. L. Timmins. The officers of the latter are—Chairman, Dr. H. B. Brackenbury; Vice-Chairman, Dr. C. G. Burton; Treasurer, Dr. J. L. Timmins. The Local Medical Committee has had under discussion the arrangements for the treatment of venereal diseases, and appointed Drs. Brackenbury and Burton to represent it at the deliberations of the Public Health Committee. The Panel Committee appointed Dr. Brackenbury as its representative at the forthcoming conference of Panel Committees.

EAST SUFFOLK.

At a meeting of the Local Medical Committee on September 12th the County Medical Officer of Health attended and explained the effect of the regulations issued by the Local Government Board with regard to the prevention and treatment of venereal diseases. It was resolved to appoint Dr. Barraclough to represent the medical staff of the hospitals, and Dr. Giuseppi the

general practitioners, on the committee to be formed by the County Council.

ISLE OF WIGHT.

At a meeting of the Local Medical and Panel Committees on September 13th it was reported that the Insurance Commissioners had sanctioned the reappointment of the committees for a period of twelve months. Mr. J. W. Pridmore was elected to represent the Committees at the Conference of Local Medical and Panel Committees to be held in October, and was instructed to bring up the Kent scheme and promote its adoption by the conference. It was decided to invite the Chairman of the Kent Local Medical and Panel Committees to stand for election on the General Medical Council at the forthcoming election of direct representatives.

YORK.

At a meeting of the Local Medical and Panel Committee on September 13th it was arranged that the lists of practitioners on the York panel should be verified for 1916, and that a sum not exceeding £40 should be set aside from the voluntary fund for that purpose. It was decided to recommend all general medical practitioners in York to undertake the treatment of members of the National Deposit Friendly Society at the rate of 3s. a visit and medicine, the society collecting from the patient the difference between that figure and the amount payable under the rules of the society, ultimately paying over the full amount to the doctor. Drs. G. W. Gostling and Lyth were appointed to attend a conference convened by the North Riding of Yorkshire Insurance Committee with reference to the treatment of insured persons from York in the Scarborough Cottage Hospital. Dr. Lyth was appointed as representative of local medical practitioners on the Committee for Venereal Diseases.

INSURANCE NOTES.

THE LIVERPOOL PHARMACEUTICAL COMMITTEE.

THE report of the Liverpool Pharmaceutical Committee for the year 1915–16 shows that on January 1st, 1915, the chemists' list contained 133 firms having 186 shops for dispensing medicines to the insured, while on January 1st, 1916, there were 122 firms with 169 shops. The committee had analysed the prescriptions for 1914 and made representations to the Panel Committee as to surcharging those practitioners alleged to have prescribed in an extravagant manner, and the Panel Committee is making its investigation in accordance with the regulations. An analysis for 1915 is at present being made. The amount received for distribution to the Liverpool pharmacists from the special Government grant owing to the rise in the prices of drugs was £114 18s. 3d. The committee had accepted an emergency settlement of the drug accounts for 1914, and it was found that by accepting this settlement £203 more was received than would have been received had the final adjustment been awaited, without reckoning the advantage of the use of the money for several months. An emergency settlement has also been recommended for 1915.

Referring to the dispensing of medicinal aquae, the Checking Bureau had stated that they were generally dispensed "ex conc." whether so marked or not, but the committee maintains that is not the case, and it would be a breach of the chemists' agreement to supply the cheaper article when the more expensive distilled aquae are ordered and charged for. The committee had objected to the use of the term "Rep. mist.," and the Insurance Committee decided to prohibit its use, but recently agreed that during the war, when a locumtenent is acting for a doctor in cases of emergency, the term may be used provided that (1) no "repeat" be given by reference to a previous month; (2) no reference be made to an order containing more than one prescription; (3) no "repeat" be given which modifies the first prescription; (4) the prescription be given in full if the patient so requests; and (5) the date of the original prescription be given. If these conditions are not observed, the pharmacist will be justified in referring the prescription back to the doctor. The committee had made a strong protest against the use of stock mixtures, in which it was supported by the Insurance Committee, but the Commissioners insisted on the insertion of a clause in the drug tariff providing for their use upon a month's notice being given by the Panel Committee. The Panel Committee has now selected ten mixtures and given the requisite notice, so that the reduced fee of 2.3d. instead of 2.8d. will apply to these mixtures after July 31st, provided that the letters "C.L." are added to the title by the practitioner.

Referring to the recruiting of pharmacists, it appears that the total staff of pharmacists for the area was 332 (exclusive of 22 women), and 163 were eligible for military service. Of these, 68 were now serving with the forces, and in the case of 83 exemption was recommended on account of indispensability.

In the year 1913 the number of prescriptions dispensed was 532,722, and the accounts, amounting to £21,529, were paid in full. In 1914, 666,486 prescriptions were dispensed, and of the accounts, which amounted to £25,377, only £22,506 could be paid, that is, 88.29 per cent. In 1915 the prescriptions numbered 571,319, and the bills amounted to £22,394, of which the pharmacists have received on account £18,307, that is, 81.75 per cent., but this latter figure may require slight alteration when final adjustments are made. The cost per script, which may contain more than one prescription, at the end of 1913 was 9d., at the end of 1914, 9.37d., and at the end of 1915 it had risen to 9.77d. The Pharmaceutical Committee had received for its working expenses during the year 1915 from the Insurance Committee the sum of £300 5s., out of which £100 was paid as the secretary's salary, and £98 for the staff engaged on the analysis of prescriptions, and after paying sundry expenses there was a balance in hand of about £60.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH:

BURNLEY DIVISION.

AT a meeting of the Division on September 15th the following resolution was passed:

That the British Medical Association inform and impress upon the National Health Insurance Commissioners the fact that the panel doctors are inadequately remunerated for their work.

As the men remaining on the lists of panel doctors are the medically unfit and the discharged soldiers who require constant attention, it is obvious that the panel doctors left to the civil population are not paid sufficiently for the increase of work.

The extra expenditure on living, petrol, and other necessaries for the carrying on of a medical practice in an efficient manner compels them to apply for a 25 per cent. increase on their panel payment.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Deputy Surgeon-Generals W. W. Pryn and J. L. Smith, M.V.O., to be Surgeon-Generals: Fleet Surgeons W. J. Colborne and J. H. Stenhouse to be Deputy Surgeon-Generals; Fleet Surgeon W. Bastian to the *Europa*. Staff Surgeons E. D. Kenny to the *Pembroke*, additional; M. T. Male, M.B., to the *Aurora*; W. M. Haydon to the *Blenheim*; N. S. Meiklejohn to the *Galatea*. Surgeons G. M. Graham, M.B., to the *Egmont*, additional, for Malta Hospital; G. G. D. Fergusson to the *President*, additional, for Chingford Air Station; H. M. Whelan to Leith Naval Hospital; H. White to the *Victory*, for disposal. Temporary Surgeons A. H. Moore, M.B., D.P.H., to the *Cyclops*, additional; W. Meikle, M.B., and S. Robertson, M.B., to the *Victory*, additional, for disposal; A. J. MacDiarmid, M.B., to H.M. Dockyard, Devonport; E. Rayner, M.B., to the *Vanguard*; H. W. L. Molesworth to the *Vivid*, additional, for Plymouth Hospital; R. O. Townend and G. Hamilton, M.B., to the *Victory*, additional, for Haslar Hospital; J. Brooks and A. L. Punch, M.B., to the *Pembroke*, additional, for Chatham Hospital; D. McAlpine to the *Emperor of India*; L. F. Strugnell to the *Queen*; J. A. D. Skinner to the *Shannon*; A. Williams-Walker to the *Exmouth*; L. Mandel, M.B., T. Norman, A. Toulmin, and J. L. Owen to Leith Naval Hospital.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel F. M. Caird, M.B., F.R.C.S.E., R.A.M.C.(T.F.), to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. S. Green, M.B., retires on retired pay on account of ill health.

Temporary Major R. T. McKenzie, M.D., relinquishes his commission.

To be temporary Majors: J. F. Porter, M.D., Captain E. D. Macnamara, M.D., R.A.M.C.(T.F.).

Temporary honorary Captain C. W. M. Hope, M.D., F.R.C.S., to be temporary honorary Major.

Temporary Captains relinquish their commissions on account of ill health: H. C. C. Rennie, M.B., C. C. Keates.

L. S. Kidd, M.D., to be temporary Captain.

Temporary Lieutenants to be temporary Captains: W. H. W. Attlee, M.D., C. H. Brookes, M.D., C. D. Pile, M.B., W. S. Badger, M.B., E. Fullerton, M.B., J. Fraser, M.B., J. E. Barnes, M.B.

Temporary Lieutenant Philo W. Tuller is dismissed the service by sentence of a general court-martial.

The notification in the *London Gazette* of August 21st, 1916, concerning temporary Lieutenant Wm. Turner, M.B., is cancelled.

Temporary Lieutenant C. Checchi, M.B., relinquishes his commission.

To be temporary Lieutenants: C. H. Houghton, M.B., Lieutenants G. A. Lyons, M.D., and A. Moyse, M.D., Canadian A.M.C., W. H. O'Heffernan, E. W. Atkinson, J. F. Powell, R. C. Macpherson, M.B., G. R. Hughes, F. W. Lyle, M.D. Temporary honorary Lieutenants G. T. Symons, H. J. H. Symons, H. H. Castle, A. H. Clarke, and W. T. Warwick; W. C. E. Bower, E. Williams, J. Maguire, H. C. Wimble, W. L. Johnston, M.B., H. Somerville, R. Adam, M.B., L. Kilroe, M.D., A. J. P. Nowell, M.B., H. Granger, S. Nix, M.D., S. R. Sibbald, M.D., W. J. G. Johnson, R. Cunliffe, M.B., G. G. Butler, M.D., T. H. Harker, M.D., J. E. Spence, M.B., J. W. Miller, M.B., J. L. Phibbs, M.D., A. Macintyre, M.B., E. D. Richardson, A. Glen, J. R. Davies, T. Stang, J. H. McAllum, R. McC. Blair, F. G. Adye-Curran, S. C. Pritchard, M.D., E. W. Cross, H. Case, J. Forrest, M.B., H. W. B. Monteagle, M.D., C. J. E. Edmonds, S. F. Lusk, M.B., W. Gemmill, M.B., J. W. Elliott, J. Brownlee, M.D., H. Angel, M.B., J. F. Windsor, M.D., W. Shaw, M.B., R. T. Dobson, M.B., P. W. Leathart, M.B., A. H. Style, M.B., P. Levick, M.B., A. Falconer, M.B., G. L. Ranking, N. S. Neill, M.B., J. V. McNally, M.B., G. C. March, W. P. Pinder, P. A. Steven, M.B., C. W. Coghlan, C. F. P. Plunkett, W. Beckton, F. L. Wood, D. L. Lindsay, J. R. McFerran, M.D., A. J. Pirie, M.B., R. Govan, M.B., L. Cohen, M.B., R. M. Fenn, M.B., P. Bowes, M.D., G. H. Wilkinson, R. D. R. Allison, M.D., T. Taylor, M.B., M. J. Ahern, A. H. Wade, G. H. Hanna, M.D., G. C.

Belcher, M.B., J. M. Smith, M.B., W. S. Sheldon, J. H. Wilks, M.B., H. Austin-Smith, M.B., G. A. Ticehurst, M.B., H. E. Newman, M.D., C. E. Clay, J. A. C. Donnan, M.B., E. B. Hill, M.B., G. Hargreaves, M.D., W. Gibson, M.D.

INDIAN MEDICAL SERVICE.

Colonel A. O. Evans, Inspector-General of Civil Hospitals, Burma, has been granted combined leave for seven months and twenty-eight days, with effect from May 25th, 1916.

Lieutenant-Colonel T. W. Irvine, an Agency Surgeon of the 1st class and Chief Medical Officer in the North-West Frontier Province, has been granted privilege leave for three months combined with fur ough for three months, with effect from May 18th, 1916

Major H. Crossle, an Agency Surgeon of the 2nd class, has been appointed to hold charge of the current duties of the office of the Chief Medical Officer in the North West Frontier Province, in addition to his own duties as Civil Surgeon, Hazara, with effect from May 18th, 1916.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Major A. C. Turner, from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services, West Riding Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Lieutenant J. H. Lloyd, M.D., to be Captain.

London General Hospital.—Captain W. C. Bosanquet, M.D., is seconded whilst holding a temporary commission in the R.A.M.C.

London Sanitary Companies.—Lieutenants to be Captains: W. C. Lyons, M.B., T. Legge.

South-Western Mounted Brigade Field Ambulance.—Captain H. A. B. Whitelocke, from a general hospital, to be Captain.

Wessex Casualty Clearing Station.—Captain A. C. Alport, M.B., to be temporary Major whilst commanding a casualty clearing station; Lieutenant W. S. Richardson, F.R.C.S.E., to be Captain.

Western General Hospital.—Captain J. P. Buckley is seconded for duty with a field ambulance

Welsh Field Ambulance.—Captains from a general hospital to be Captains: J. G. McKinlay, M.B., F. Chadwick, M.B., and R. T. Jones.

Southern General Hospital.—Captain C. F. Coombs, M.D., is seconded for duty with a general hospital. Captain E. W. H. Groves, M.D., F.R.C.S., is restored to the establishment

South-Eastern Mounted Brigade Field Ambulance.—Captain (temporary Major) F. Loud, Sussex R.G.A., to be Major (temporary).

Eastern General Hospital.—Captain H. S. O. Starkey is seconded for duty with a field ambulance.

East Anglian Field Ambulance.—Captain J. H. Owens, from a general hospital, to be Captain. Lieutenants V. T. Ellwood, M.B., and E. N. Hoffmeister, from a general hospital, to be Lieutenants.

North Midland Casualty Clearing Station.—Lieutenant N. H. Hill to be Captain.

North Midland Field Ambulance.—Majors to be temporary Lieutenant-Colonels whilst commanding a field ambulance: J. C. S. Burkitt, M.D., G. A. Stidston, M.D.

West Riding Field Ambulance.—Captain H. N. Goode, M.B., F.R.C.S., to be temporary Major whilst commanding a field ambulance.

Northern General Hospitals.—Major G. G. Turner, M.B., F.R.C.S., is seconded for duty with a general hospital. Lieutenant-Colonel W. H. B. Brook, M.B., F.R.C.S., from the permanent personnel, to be Lieutenant-Colonel whose services will be available on mobilization. Major F. S. Lambert to be Lieutenant-Colonel on the permanent personnel. Captains seconded for duty with a mounted brigade field ambulance: J. J. Rainforth, M.B., F.R.C.S., F. Alcock, M.D.

West Lancashire Casualty Clearing Station.—Major H. J. Taylor, from Attached to Units other than Medical Units, to be Major.

West Lancashire Field Ambulance.—Lieutenant N. McCall-Smith, M.D., to be Captain.

Northumbrian Field Ambulance.—Captain C. D. Rogers, M.B., is seconded for duty with a general hospital. E. S. Simpson, M.D., to be Lieutenant

Lowland Field Ambulance. Captains from a general hospital to be Captains: J. W. Simpson, M.B., I. G. Bisset, M.B., D. W. Berry, M.B., P. F. Catto, M.B., and F. W. C. Brown, M.B.

Scottish General Hospitals.—Officers seconded for duty with a field ambulance: Major J. M. Cowan, M.D., Captains G. Stuart, M.B., D. Lamb, M.B., and W. A. Campbell.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOLTON INFIRMARY AND DISPENSARY.—(1) Second House-Surgeon, (2) Third House-Surgeon. Salary, £200 and £180 per annum respectively.

BRIDGE OF WEIR CONSUMPTION SANATORIA OF SCOTLAND. Assistant Resident Medical Officer.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—(1) Resident Medical Officer. (2) Assistant Resident Medical Officer. Salary, £250 and £150 per annum respectively.

FARNBOROUGH HALL HOSPITAL FOR OFFICERS, E.C.—Resident Medical Officer.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary, £300 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Two Assistant House-Surgeons, qualified, £150; unqualified, £80.

ITALIAN HOSPITAL, Queen Square, W.C.—Honorary Assistant Surgeon for Out-patients.

KENSINGTON GENERAL HOSPITAL, Earl's Court, S.W.—Anæsthetist.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

LEYTON, WALTHAMSTOW, AND WANSTEAD CHILDREN'S AND GENERAL HOSPITAL, Walthamstow.—Pathologist and Radiographer.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon. Salary, £150 per annum.

LONDON COUNTY COUNCIL.—Assistant Organisers of Children's Care Work. Salary: Permanent staff, £100 per annum, increasing to £130; temporary, £2 a week.

MONMOUTHSHIRE COUNTY COUNCIL, Newport.—Lady Assistant Medical Officer. Salary, £350, rising to £400 per annum.

NORTH BORNEO: GOVERNMENT MEDICAL SERVICE.—Medical Officer. Salary, £500 per annum, rising to £660.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Senior and Junior Lady House-Surgeons. Salary, £300 and £200 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £150 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—Pathologist (female). Salary £250 per annum.

STAFFORD: STAFFORDSHIRE EDUCATION COMMITTEE.—Four temporary Women Assistant School Medical Inspectors. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer at the Brancote Sanatorium, Nuneaton. Salary, £250 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120.

YORK: BOOTHAM PARK MENTAL HOSPITAL.—Temporary Assistant Medical Officer. Salary, £250 per annum.

MEDICAL REFEREE under the Workmen's Compensation Act, 1905, for the County and City of Dublin. Applications to the Under Secretary, Dublin Castle, by October 13th.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BRADLEY, H. C., L.R.C.P. and S.Edin., District Medical Officer of Wigan Union.

CARLYLE, P. M., M.B., C.M Edin., Certifying Factory Surgeon for the Gretna District.

HAWTHORN, H. W. J., M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Wellington (Salop) Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGE.

PRITCHARD—ANDREWS.—On September 20th, 1916, at Lyndhurst Road Church, Hampstead, by the Rev. R. F. Horton, M.A., D.D., Captain N. P. Pritchard, R.A.M.C., younger son of Urban Pritchard, M.D., F.R.C.S., of 55, Wimpole Street, W., to Dorothy Alford, youngest daughter of James Andrews, M.D., of 59, Elsworthy Road, N.W.

DEATHS.

KINCH.—On September 25th, George Henry Kinch, M.R.C.S., etc., "The Brambles," Station Avenue, Walton-on-Thames, and late of Matlock, Derbyshire.

SHADWELL.—On September 23rd, at Ivydene, Derry Downs, St. Mary Cray, St. Clair Brockway Shadwell, M.D., of Lyndhurst, Walthamstow, aged 64. Cremation Monday, 25th. Funeral service at All Saints, Orpington, on Thursday, 28th, at 4 o'clock. No mourning by his request.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF OBSTETRICS AND GYNÆCOLOGY, 8 p.m.—Specimens and short communications:—Dr. W. F. Shaw: Cæsarean Section and Hysterectomy for Accidental Hæmorrhage. Specimens.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		OCTOBER.
4	Wed.	London: Journal Committee, 2 p.m.
		London: Hospitals Committee, 2 p.m.
		London: Public Health Committee, 2.30 p.m.
		London: Joint Medico-Political, Public Health, and Hospitals Committees re Venereal Diseases, 3 p.m.
6	Fri.	London: Central Ethical Committee, 2 p.m.
10	Tues.	London: Organization Committee, 2.15 p.m.
11	Wed.	London: Medico-Political Committee, 2 p.m.
18	Wed.	London: Finance Committee, 2 p.m.
19	Thurs.	London: Conference of Representatives of Local Medical and Panel Committees, Connaught Rooms, Great Queen Street, 10 a.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 7TH, 1916.

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Meetings of Branches and Divisions.

CAMBRIDGE AND HUNTINGDON BRANCH:
Isle of Ely Division.

A successful social and scientific meeting of the Isle of Ely Division, to which non-members were invited, was held at March on September 26th.

Twilight Sleep.—The Chairman, Dr. P. A. Hendley (Littleport), read an excellent paper on twilight sleep and its alternatives. An interesting discussion followed, those taking part being Drs. Grove (St. Ives), Stephens, Curl, Young, Clapham, Harding.

Annual Representative Meeting.—Dr. Young (Harston), the Representative of the Isle of Ely and Cambridge and Huntingdon Divisions, gave an interesting account of impressions of the Representative Meeting, and urged all non-members to consider seriously whether they were doing anything for themselves or their profession in the uncertain times ahead by remaining outside the Association.

Royal Medical Benevolent Fund.—A collection on behalf of the Royal Medical Benevolent Fund amounted to £6, and it was decided to circularize those who were unable to be present.

GRENADA BRANCH.

A special meeting of the Branch was held at St. George's on July 18th, Hon. Colonial Surgeon Hatton, President, in the chair.

Medical and Dentists' Registration Ordinance.—The President said the meeting had been called to discuss the Medical and Dentists' Registration Ordinance. Dr. Paterson, after reading the provisions of the Ordinance, said it was within the knowledge of members that both in St. Vincent and St. Lucia, within recent months, legislation had been brought into effect which allowed admission to registration far beyond the limits obtainable in Grenada. As similar conditions to those that brought this about—for example, scarcity of medical men, and changes in the staff working in connexion with the International Health Commission—might any day arise in Grenada, they met that day to ask the Government to safeguard their Ordinance. It was feared that measures were likely to be taken to allow medical men not registered or registrable in Great Britain to practise in the colony. The replacing of the officers working in connexion with the International Health Commission was likely to be the cause of this; it was said that owing to the war it was impossible to make other arrangements. He thought, however, the Association should be satisfied that all efforts had been made to secure registrable men, and, as the medical journals week by week contained advertisements of men with tropical experience and ineligible for the war offering for colonial appointments, what were they to think? They considered this Ordinance sacred, and they did not want to have it interfered with. He proposed the following resolution:

> That this representative meeting of the British Medical Association in Grenada recommends to the Governor in Council that any amendment of the Medical and Dentists' Registration Ordinance, cap. 43, Grenada, extending the limits of registration beyond those recognized in Great Britain, or any Ordinance having similar effect, will be against the best interests of the colony.

Dr. Bishop seconded the resolution, and Drs. W. A. D. Whiteman, O'Neale, Wells, Hughes, Arthur, Alexis, and Copland spoke strongly in support of it. The President said he was unable to support the motion. When the present Ordinance was being prepared he was anxious that the Governor in Council should have the power to admit to be registered persons possessing medical qualifications from colonial and foreign universities and colleges approved of by the Medical Board, and he had given similar recommendations to the Governor in Council. The International Health Commission had already been asked by the Secretary of State to send a man to Grenada, and, as to the advertisements referred to, he assured them that the Secretary of State at the present juncture would send no medical man out of England. With the panel service and many other openings in England for medical men, the colony would have to offer much higher salaries to induce men to come here. He therefore had made what he thought were necessary recommendations for the advantage of the colony. Dr. Dunbar Hughes said he had been specially desired to ask whether it had been definitely stated by the Governor that he was unwilling to add more native Grenadians to the medical service. The President denied all knowledge of any such statement. Dr. Paterson said that from the President's statement it was evident there were before the Government recommendations seriously endangering their registration ordinance; and, unless they were prepared to show a way out without danger, it was highly probable that these extreme measures would be rushed through in spite of them. The motion, being put to the meeting, was supported by all except the President. After further discussion, it was proposed by Dr. O'Neale, seconded by Dr. Dunbar Hughes, and unanimously resolved:

> That this meeting of the Grenada Branch of the British Medical Association desires to add that, although from advertisements in the medical journals it would appear possible to obtain the services of men registrable in the United Kingdom, they would not view with disapproval special legislation to empower the Government to allow the temporary registration of medical men not at present registrable in the colony, whose registration shall be subject to the prior approval of the local medical board, and whose activities shall be limited to work in connexion with the International Health Commission.

It was further proposed by Dr. Paterson, seconded by Dr. W. A. D. Whiteman, and unanimously resolved:

> That this meeting of the Grenada Branch of the British Medical Association respectfully begs that the draft of any ordinance affecting the medical profession be submitted for the consideration and suggestions of the local Branch of the British Medical Association previous to its being made law.

The secretary was asked to have copies of the minutes circulated, and to send a copy of the resolutions to the local Government.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

The Library of the British Medical Association has recently received, through the kind exertions of Professor Rushton Parker of Liverpool, the following works by the late Mr. Hugh Owen Thomas, M.R.C.S., of Liverpool, as a gift from Lieutenant-Colonel Robert Jones:

Past and Present Treatment of Intestinal Obstruction. 1877.
Review of the Past and Present Treatment of the Diseases of the Hip, Knee, and Ankle Joint. 1878.
The Treatment of Fractures of the Lower Jaw. 1881.
Intestinal Obstruction, with an Appendix on the Action of Remedies. 1883.
Nerve Inhibition and its Relation to the Practice of Medicine. 1883.
Principles of Treatment of Diseased Joints. 1883.
Fractures of the Neck of the Femur. 1884.
Principles of the Treatment of Fractures and Dislocations. 1885.
Fractures, Dislocations, Diseases, and Deformities of the Bones of the Trunk and Upper Extremities. 1887.
The Collegian of 1666 and the Collegians of 1885. 1888.
A New Lithotomy Operation. 1888.
Fractures, Dislocations, Deformities, and Diseases of the Lower Extremities. 1890.

INSURANCE.

SURCHARGES AND DEFERRED PAYMENTS.

The Medical Defence Union.

The President, Sir John Tweedy, presided at the annual general meeting of the Medical Defence Union, when the annual report was adopted, the retiring members of the elected council re-elected, and the ordinary statutory resolutions passed.

Among the matters referred to in the report was the action the Union had been called upon to take on behalf of the members who were panel practitioners. The council and its legal advisers, when they considered that action regarding surcharging should be taken, instituted the necessary proceedings, although not always with the success desired. The bulk of the cases turned upon the question whether the procedure adopted by the Insurance Committee before surcharging was in accord with the statutory regulations. As a result, the satisfactory conclusion might be drawn that where the procedure had been improperly varied the surcharge had been rendered invalid either by the judge or the Commissioners in their appellate jurisdiction.

With regard to the question of delayed or deferred payment of panel practitioners under the Act and regulations, the report contained the following observations:

The hesitation in taking the matter into the law courts arises from the circumstance that the contract into which panel practitioners have entered with the Insurance Committees is hampered by the regulations issued by the Commissioners, which regulations have to be read into the contract, although the latter has been entered into prior to their promulgation. By these regulations there is no actual contract to pay a fixed capitation grant annually, as was originally imagined; and the sum actually receivable by the panel practitioner for work done or contracted for is of no definite amount, nor is it to be paid within certain limits of time. Again, although the contract is with the Insurance Committee, the Committee is not the paymaster nor the employer who pays the wages for work done; the Committee is merely the vehicle by which an unnamed sum of money is conveyed on uncertain dates from the Commissioners, which sum, after certain deductions are made, is paid to the panel "as soon as may be" after its receipt. There are therefore legal difficulties in making the Insurance Committee the defendant in an action for the "recovery of fees due," and the difficulties are enhanced when it is proposed to sue the National Insurance Commission. It follows, therefore, that the panel practitioner cannot at any time accurately reckon his income from his panel practice, although he may accurately estimate the number of his panel; he has to rest content with carrying out all his statutory obligations without failure with the certainty that if he fails in one of the least he may be haled before the Committee and probably penalized, and in addition be subject to loss of valuable time in defending himself. On the other hand, he has to accept with more or less gratitude any sums of money, however small, which, at various times and at longer or shorter intervals, the Committee may dole out to him. A contract, to be valid, should, legally speaking, be held to be bilateral; but in this respect the National Insurance Act and its regulations prove that this is not always the case.

In touching upon the coercion which is being put upon panel practitioners to give a receipt in full settlement for the amount offered, under threats of withholding further payments if this receipt be not given, the report made the following comments:

To carry out to the full the attendance of panel patients in 1914, to have payment of fees deferred until 1916, and then to have tendered to one a sum not commensurate, and at the same time to receive a demand for a receipt in full settlement with a threat that if it be not receipted and accepted, moneys due in other respects will be held *sine die*, may be a procedure legally correct, but it is not one calculated to remove friction between the administrators of the Act and the Executive, or to make the Act less obnoxious in its working. The council hopes that those responsible for the statute will take the proper steps to make the causes of friction less in future years and to smooth the path of those who, as panel practitioners, carry out their professional duties with care and skill.

The council expressed the opinion that the use of "stock remedies" was neither in the best interests of the insured person, nor of the medical profession, nor of the registered pharmacists.

The council had resolved to take steps to resist the imposition upon the over-burdened panel practitioner of the work of examining for errors of refraction, and would, if necessary, take a case to the High Court and carry it to the House of Lords if required. It was hoped, however, that the medical Commissioners upon the Insurance Commissions would see the matter in the right light and put a stop to an unwarrantable tax upon the profession which imposed upon it a duty requiring special knowledge and special skill. Even when such knowledge and skill were possessed, sight testing required considerable time and involved an expensive outfit of trial lenses and other apparatus.

In the discussion on the report Dr. Major Greenwood described the comments upon the National Insurance Act and its manifold regulations and procedure as the best *précis* of the disabilities of a panel practitioner which had ever been issued. Sir John Tweedy spoke of the varied nature of the cases brought before the council and the advantage it possessed in dealing with them, owing to the presence upon it of many experts, whose practical knowledge was most invaluable in the elucidation of difficult points which often arose.

The meeting concluded with a vote of thanks to the President and the Council, proposed by Dr. Seymour Taylor, F.R.C.P., and carried unanimously.

CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

Dr. J. M. Brennan, J.P., Honorary Secretary of the Stockport Panel Committee, informs us that a circular letter was recently addressed to all Panel Committees in the country suggesting for the consideration of the Conference of Local Medical and Panel Committees, to be held in London on October 19th, the following amendments of the present one-sided agreement, and advising that they should be made a *sine qua non* in any agreement which may be drafted as the result of negotiations between the Commissioners and the Association:

1. No alterations to existing regulations should be made or new regulations adopted until practitioners have had at least *three months'* notice of the proposed change (in substitution for the present period of *two weeks*, which renders a proper consideration of such changes practically impossible).
2. The establishment of a central clearing house whereby a correct register would be in operation, and practitioners instead of receiving payments on account based upon local figures (which are said to be inflated and therefore unreliable) would have some definite knowledge as to the number of insured persons actually on the register. (Note.—This clearing house was promised by the Commissioners "at the earliest practicable date," so long ago as December, 1914, but is not yet inaugurated.)
3. The provision of a definite date in the agreement for the annual settlement, in lieu of the present elastic clause "as soon as may be," under which payment may be postponed indefinitely. (Note.—It has been suggested that the final payment should be made within a period of three months from the expiration of the year.)
4. The provision of a clause relegating all alleged breaches of the agreement to an independent party of judicial experience in substitution for the present method of making the Commissioners (who are for all practical purposes parties to the agreement) the final court of appeal.
5. That if the present system of penalizing practitioners is to be continued, then approved societies should also be required to observe the regulations, and in case of default be penalized. (It is most unjust that practitioners should be mulcted, whereas the societies are immune from penalties.)
6. That the present system of altering from time to time the quarterly rate of deduction from practitioners' accounts

be abolished and a fixed rate per quarter substituted therefor.

In addition, the Stockport Committee expresses the opinion that all additional work—for instance, eye-testing, venereal cases, etc., etc.—should be paid for, as such additional work was not contemplated at the time when the present terms of payment were arranged with the Commissioners.

INSURANCE COMMITTEES.

County of London.

Payments in Respect of Medical Benefit.

At the meeting of the London Insurance Committee on September 28th the Finance Committee reported that the Government auditor's report showed that the progressive total of the sums allotted out of the medical benefit fund to the Panel and Pharmaceutical Committees respectively, for administration expenses, had reached a sum exceeding one penny in all in respect of each insured person entitled to obtain medical attendance and treatment from practitioners who had entered into an agreement with the Insurance Committee. On the Treasury interpretation of the section concerned the production of 1d. in all, or a sum of £5,423 17s. 8d. only, was available for allotment. An amount of £4,379 7s. 2d. had been overpaid to the committees to the end of the period under audit.

Mr. Kingsley Wood, who characterized this as another of the financial blunders by which the history of National Insurance was marked, moved that the Insurance Committee should not make any further payment to the Panel and Pharmaceutical Committees unless and until it was authorized by the Treasury to do so. Hitherto it was stated these payments had been made on the assumption, supported by the Commissioners, that one penny was available for each insured person each year, and a representative of the chemists put forward the plea that, since the committees were annually elected bodies, the one penny a year was still applicable, for the previous year's committees had ceased to exist, and payment must be made *de novo*.

Mr. Wood's motion was adopted.

Another matter occasioning some perplexity was the withdrawal by the Finance Committee, for no reason given save that an unread communication had been received from the Commissioners, of the proposal to pay the practitioners at the rate of 1s. 2d. for each insured person for the last quarter of the present year. It was hinted that serious overpayments had been made to the doctors. Strong protests against this procedure were made by medical members of the Committee, and ultimately it was agreed that, as the payment in any case would be made in two instalments, the first instalment of 8d. should be sanctioned, leaving the second instalment of 6d. to be discussed subsequently.

Appeal to Non-Panel Practitioners.—Mr. James Howarth, the Chairman of the Committee, made another appeal for non-panel practitioners to come forward and help to maintain the panel service during the absence of 17 or 18 per cent. of panel practitioners on military duty.

LOCAL MEDICAL AND PANEL COMMITTEES.

Cheshire.

At a meeting of the Local Medical and Panel Committee on September 24th it was reported that half the resignations from the medical panel had been placed in the hands of the secretary, and that, in addition, several members had given contingent promises of resignation. It was decided to ask the district secretaries to make every effort to obtain the signatures of those members of the panel who had not signed the resignation form. Dr. Hodgson was appointed to represent the committee at the conference of representatives of Local Medical and Panel Committees in London on October 19th. It was decided to send the following letter to the Commissioners, to the Cheshire Insurance Committee, and to the Insurance Acts Committee of the British Medical Association:

September 25th, 1915.

Sir,

I am directed by resolution of this committee to inform you that it is opposed to the introduction of the new Regulations, Clause 3, quoted in the Appendix of Form 164 D/I.C. and explained in Memo. 227/I.C.

My committee trusts that the Commissioners may see their way to withdraw it.

The grounds of my committee's opposition are:

1. That it imposes upon practitioners during the currency of the agreement new duties, increasing the scope of the service, for which no further payment is proposed, and that this is contrary to the terms and spirit of the agreement.
2. That the regulation is unnecessary, inasmuch as practitioners do in fact take and have always taken means to see that their patients get any necessary special treatment.
3. That the regulation will arrest the sympathies and jettison the services of those general practitioners who, both singly and in co-operation with their medical colleagues, have fitted themselves by years of labour to carry out the higher and special forms—the more technical points—of medical and surgical work; and that by so doing it will undermine and tend to degrade the present high standard of medical service.

My committee, which is of opinion that the existence of that standard is not appreciated by the Commission, cannot regard with favour a proposal which would render it incumbent on its constituents to consult with, and hand over, their patients for special treatment to medical officers of junior rank and recent experience in their speciality, as they are at present invited to do in connexion with the one specialist service already initiated—namely, the tuberculosis service.

I have the honour to be, Sir, your obedient servant,

Lionel Jas. Picton, Honorary Secretary.

County Galway.

At a meeting of the County Galway Medical Committee at Galway on September 12th the following resolution, proposed by Professor P. J. Pye, M.D. (Galway University), and seconded by Dr. J. J. Gannon (Oranmore) was passed:

The County Galway Medical Committee having had before them the proposals of the Insurance Commissioners of the 22nd August, 1916, having reference to the appointment of temporary referees in cases where a second medical opinion is called for by approved societies, beg to say:

1. That these proposals appear to be a breach of the agreement between the Commissioners and the Irish Medical Committee representing the Irish medical profession that referees should be appointed by the Commissioners.
2. That the appointment of a referee by one of the parties in a dispute seems to be unfair. We therefore beg to protest against these proposals.

INSURANCE NOTES.

Discharged Sailors and Soldiers: Medical and Sanatorium Benefits.

The Insurance Joint Committee has by an order dated September 16th, 1916, added the following paragraph to Article 25 of the National Health Insurance (Arrears) Consolidated Regulations, 1916:

Notwithstanding anything contained in these Regulations, no man discharged from service as a seaman, marine, or soldier after the beginning of the present war shall be suspended from or cease to be entitled to medical or sanatorium benefit on account of arrears.

CORRESPONDENCE.

Financial Administration of the Insurance Act.

Disabled Insured Persons.

Panel Practitioner writes: I was very interested to read the letter of Dr. Marsh in your issue of September 23rd, and agree with him that the subject of the return to our lists of thousands of disabled soldiers, for whom no stamped cards will be given up and accordingly no contribution made to the general pool, is a gross scandal which the British Medical Association should take the strongest measures to rectify.

Another grievance which strikes me as a very real one, both to the medical profession and to the insured, is the extraordinary delay in issuing medical cards on entering insurance. A lad in my employ was 16 years of age on January 20th. He has required medical attention on many occasions during the past few months, but despite repeated applications he only received his card on August 30th. To-day, September 25th, a girl brought me her medical card, having only just received it from her society, who also was 16 in January. If the same thing is happening all over the country it is easy to see how many hundreds of pounds are filched from individual doctors. Are there no rules to govern society secretaries, or, if penalties can be imposed, are they never fined? Yet we meekly acquiesce when a doctor is fined the outrageous sum of £50 for being too conscientious in signing a certificate. How long are we going to sit quiet under this one-handed justice?

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Deputy Surgeons-General G. T. Broatch, M.B., to the *Egmont*, additional, for Malta Hospital; W. J. Colborne to the *Victory*, additional, for Haslar Hospital; J. H. Stenhouse, M.B., to the *Vivid*, additional, for Plymouth Hospital. Fleet Surgeons A. H. H. Vizard, M.D., to the *Hibernia*; J. Menary, M.D., to R.M.A., Eastney, Portsmouth; J. H. Fergusson to the *Lord Nelson*; H. P. Turnbull to the *Leviathan*, for Bermuda Hospital and Yard. Temporary Surgeons J. G. Nicholson and G. E. Heath to the *Victory*, additional; G. Lilico to the *Pembroke*, additional; R. M. Dannatt to the *Venus*; S. F. Abbott to the *Pembroke*, additional, for disposal; W. W. Rorke, M.B., to the R.M.A., Eastney; G. E. Heath to the *Hercules*; A. Young, M.B., to the *Thistle*; J. G. Nicholson, M.B., to R.M. Division, Chatham; T. J. T. Wilmot, M.D., to the *Crescent*, additional, for medical transport duties and supervision of naval patients in Edinburgh hospitals; T. W. Drummond to the *Conqueror*; W. Ibbotson to the *Pembroke*, additional, for Chatham Hospital.

Royal Naval Volunteer Reserve.

Surgeon H. C. W. Nuttall to the *Conqueror*, vice Lilico. To be Surgeon Probationer: C. N. Armstrong.

ARMY MEDICAL SERVICE.

Surgeon-General T. J. O'Donnell, C.B., D.S.O., to rank as Lieutenant-General whilst employed as Director of Medical Services in India.

Lieutenant-Colonel A. Kennedy, from R.A.M.C., to be Colonel, vice Colonel J. C. Morgan.

Royal Army Medical Corps.

Temporary Lieutenant-Colonel W. G. P. Graham relinquishes his commission on account of ill health.

Temporary honorary Lieutenant-Colonel D. W. Finlay, M.D., relinquishes his commission on vacating the appointment of Officer in Charge, Red Cross Hospital, Bellahouston, Glasgow.

Major E. E. Powell, from supernumerary list, to be Lieutenant-Colonel.

Temporary honorary Major H. Chaffer, F.R.C.S., to be temporary honorary Lieutenant-Colonel whilst officer in charge, Red Cross Hospital, Bellahouston, Glasgow.

Captain R. E. Todd, M.B., is restored to the establishment.

Temporary Captains relinquish their commissions: W. Hutcheson, M.B., N. Black, M.C., M.B., F. R. Featherstone, M. McK. McRae, M.B., T. D. Jago.

Temporary Lieutenants to be temporary Captains: F. K. Kerr, M.B., H. S. Raper, M.B.

The commission as temporary Lieutenant granted to Thomas Coffey in the name of William Joseph Greehy announced in the *London Gazette* of October 26th, 1915, is cancelled.

Temporary Lieutenants relinquish their commissions: J. T. Bowman, M.D., D. A. Volume, M.D., D. L. Dick, M.B., C. T. Galbraith, M.B., E. M. Pearse, B. F. Kelllor, M.B., A. P. Robertson, M.B., W. Girdwood, M.B., F.R.C.S., L. B. Burnett, M.B., F. C. Stewart, M.D., J. F. Wood, M.D., J. F. Lambie, M.B.

F. D. Saner, F.R.C.S., M.B., to be temporary Lieutenant.

INDIAN MEDICAL SERVICE.

Majors to be Lieutenant-Colonels (July 29th, 1916): J. M. Woolley, M.D., J. H. Hogg, I.S.O., M.B., W. H. Kenrick, R. H. Price, M.B., F.R.C.S.E., R. Bryson, F.R.C.S.E.

Captains to be Majors (August 1st, 1916): H. C. Buckley, M.D., F.R.C.S.E., M. R. C. MacWatters, M.B., F.R.C.S., W. H. Hamilton, F.R.C.S., J. Cavanagh, M.D., H. Falk, M.B.

The provisional promotion to the rank of Captain of E. R. Armstrong, M.B., and C. J. Stocker, M.B., with effect from July 29th, 1914, has been confirmed.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The name of Hugh Montagu Cameron Macaulay is as now described, and not as in the *London Gazette* of August 28th, 1916.

Lieutenant (on probation) A. A. Dear relinquishes his commission.

Lieutenant (on probation) R. L. Newell is confirmed in his rank.

To be Lieutenants: L. Keen, M.B., R. W. H. Miller (from Edinburgh University Contingent O.T.C.).

L. A. B. Moore to be Lieutenant.

OVERSEAS CONTINGENTS.

Canadian Army Medical Corps.

To be temporary Captains: S. B. Taylor, D. W. Davis, and W. S. Macdonnell (late temporary Lieutenants R.A.M.C.), H. E. H. Chipman, M.S. Inglis, Captain A. S. Allison, P. R. Scoble, W. E. Campbell.

Major C. Laviolette relinquishes his temporary commission.

Sergeant C. H. Hudson, from 99th Canadian Infantry Battalion, to be temporary Captain.

TERRITORIAL FORCE.

Royal Army Medical Corps.

London Sanitary Company.—Captain T. J. Murray is seconded for [illegible] as sanitary instructor. Lieutenant W. Johnstone, M.B., to be Captain.

North Midland Field Ambulance.—Lieutenant E. G. Anderson, M.B., to be Captain.

North Midland Casualty Clearing Station.—Captain G. Holmes, M.B., from North Midland Field Ambulance, to be Captain.

Eastern General Hospital.—Captain H. M. Gest, M.B., resigns his commission.

Wessex Field Ambulance.—Captain H. N. Collier to be temporary Major whilst commanding a stationary hospital.

Supernumerary for service with the I.C.—Lieutenant A. Macphail to be Captain.

Attached to Units other than Medical Units.—Major W. G. Sutcliffe, F.R.C.S., to be Supernumerary Lieutenant-Colonel whilst commanding a casualty clearing station. Miss J. Scarlett, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance. Major R. W. Jones, M.D. (late T.F. Res.), to be Major. Captain H. C. Bell, from a field ambulance, to be Captain. Captain S. Southam relinquishes his commission on account of ill health. Lieutenant J. L. Hamilton to be Captain.

Territorial Force Reserve.

Royal Army Medical Corps.

Major W. V. Sinclair, from London Field Ambulance, to be Major. Captain A. Cruickshank, M.B., from attached to units other than medical units, to be Captain.

VACANCIES.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Assistant House-Surgeon.

BEDFORD COUNTY HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £1[illegible] per annum.

CHESHIRE COUNTY ASYLUM, Parkside, Macclesfield.—Temporary Assistant Medical Officer. Salary, £300 per annum.

CROYDON UNION INFIRMARY.—Locumtenent. Remuneration £10 10s. per week.

DORCHESTER: DORSET COUNTY EDUCATION COMMITTEE.—School Dentist. Salary, £260 per annum.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary, £300 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Two Assistant House Surgeons. Salary: Qualified, £150; unqualified, £80.

HULL CORPORATION.—Resident Medical Officer for the Infectious Diseases Hospitals. Salary, £300 per annum.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary £80 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary £200.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon. Salary, £150 per annum.

LONDON THROAT HOSPITAL, Great Portland Street, W.—House Surgeon (non-resident). Honorarium, £50 per annum.

MONMOUTHSHIRE COUNTY COUNCIL, Newport.—Lady Assistant Medical Officer. Salary, £350, rising to £400 per annum.

NORTH BORNEO: GOVERNMENT MEDICAL SERVICE.—Medical Officer. Salary, £500 per annum, rising to £660.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Physician-in-Charge of Antenatal Department.

ROCHDALE BOROUGH.—Assistant Medical Officer of Health. Salary, £350 per annum.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £150 per annum.

STAFFORD: STAFFORDSHIRE EDUCATION COMMITTEE.—Four temporary Women Assistant School Medical Inspectors. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior and Junior House-Surgeons. Salary, £200 and £150 per annum respectively.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House Surgeon. Salary, £120.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

LEIGHTON.—September 27th, at 3, St. George's Street, Chorley, to Dr. and Mrs. Wm. J. Leighton, a daughter.

MARRIAGE.

ASHTON—MORHAM.—At 17, Mansion House Road, Edinburgh, on September 23rd, by the Rev. James Lumsden, B.D., Minister of Tolbooth Parish, Captain Basil Cedric Ashton, R.A.M.C., to Agnes May, youngest daughter of George Morham, Edinburgh.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8 p.m. General Meeting. 8.30 p.m., Presidential address by Lieutenant-Colonel D'Arcy Power, R.A.M.C.(T.): John Ward and his Diary.

TUESDAY.

SOCIETY OF INEBRIETY, 11, Chandos Street, W., 4 p.m.—Discussion on Alcohol and Antenatal Child Welfare, to be opened by Dr. J. W. Ballantyne.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		OCTOBER.
6	Fri.	London: Central Ethical Committee, 2 p.m.
10	Tues.	London: Organization Committee, 2.15 p.m.
11	Wed.	London: Medico-Political Committee, 2 p.m.
18	Wed.	London: Finance Committee, 2 p.m.
19	Thurs.	London: Conference of Representatives of Local Medical and Panel Committees, Connaught Rooms, Great Queen Street, 10 a.m.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 14TH, 1916.

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MEDICAL REMUNERATION UNDER THE INSURANCE ACTS.

THE Insurance Acts Committee has frequently had occasion to communicate with the Commissioners as to the doubts and difficulties that have arisen in connexion with the method of payment of insurance practitioners. When, therefore, the Commissioners invited the co-operation of the Committee, as stated in the first paragraph of the following Memorandum, the Committee at once availed itself of the opportunity to collaborate in the preparation of a detailed explanatory statement of the present position. It will be remembered that an attempt was made at an interview with the Commissioners in December, 1914, to elucidate the difficulties which have been experienced, and an agreed report of that interview was published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of January 30th, 1915, and was submitted to the Conference of Local Medical and Panel Committees in June, 1915. Experience has shown, however, that, owing probably to the desire for brevity, this explanation failed in clearing up a number of points which are constantly being raised. In the present Memorandum the Commissioners have, at the request of the Insurance Acts Committee, entered into the matter in detail with a view of dealing explicitly and fully with every point of difficulty.

The deputation appointed to confer with the officials of the Commission in preparing the Memorandum consisted of Drs. H. B. Brackenbury (Chairman), T. A. Campbell (Wigan), P. V. Fry (West Riding Yorks), A. Fulton (Nottingham), J. Ratcliff-Gaylard (Birkenhead), J. A. Macdonald (Taunton), B. A. Richmond (London), and the Medical Secretary and Deputy Medical Secretary.

It must be understood that the Commissioners are responsible for the explanation of the system, the part of the deputation being limited to stating the points upon which explanation seemed to them desirable, and assisting to secure that the explanations were framed in a way which would enable doctors, ignorant of official technicalities, to understand them.

MEMORANDUM EXPLANATORY OF THE SYSTEM OF REMUNERATING MEDICAL PRACTITIONERS.

1. At a recent conference with the medical members of the Advisory Committee to the National Heath Insurance Commissions it was suggested that, with a view to removing certain misapprehensions, a memorandum should be prepared explanatory of the present system of remunerating practitioners. The Commissioners willingly adopted the suggestion, and have since prepared the following memorandum after conferring with representatives nominated by the Insurance Acts Committee of the British Medical Association as to the difficulties which have been brought to their notice.

2. Before describing in detail the system under which the remuneration of panel practitioners is calculated in practice, it will probably be of assistance to state certain general considerations as to the principles on which it is based.

3. The Regulations and the clauses of the doctor's Agreement dealing with remuneration, and the administrative arrangements made thereunder for carrying these into effect, are all means devised for giving effect to the general agreement as to remuneration offered by the Government in October, 1912, and accepted by the doctors in undertaking service under the Insurance Acts.

4. The substance of many of the criticisms on particular points in the working of the system adopted, is that, whether or not they may be technically in conformity with the letter of the Regulations and Agreements signed by doctors who come on the panel, they result in not giving the profession that remuneration for their work under the Act which was originally promised. It is necessary first, therefore, to look to the nature of that promise.

5. The national bargain upon which the medical profession undertook service on the inception of medical benefit under the Insurance Act was that the funds out of which doctors and chemists would be paid, for services rendered and materials supplied to insured persons, would be constituted upon what is known as the "capitation" basis, but that the remuneration of the individual doctors in the area of any particular Insurance Committee would be calculated upon such basis as might be agreed upon, between the doctors of that area and the Insurance Committee, with the approval of the Commissioners, for the distribution of the money pertaining to that area. As regards the amount of that money, the undertaking of the Government was that in respect of medical benefit there should be contributed out of Insurance Funds and the Special Exchequer Grant, for medical attendance and treatment, including drugs, a sum calculated at the rate of 8s. 6d. per head of persons entitled to the benefit per annum—that is to say, a full 8s. 6d. for every person in respect of whom the doctors and chemists were at risk for a full calendar year, and proportionate amounts for shorter periods.

6. It is important to pay attention to the element of time in the calculation. Experience shows that the fallacy of many unfounded, but, as they appeared to doctors, plausible criticisms, has been due to overlooking the fact that the full 8s. 6d. is not payable for less than a full year's risk.

7. Doctors would not, of course, contend that the original bargain meant that if an insured person were entitled to medical benefit for one day only during a year the full 8s. 6d. would be paid in respect of him. When stated

thus explicitly the proposition is at once seen to be absurd, but instances which have been put forward as evidence of failure of the insurance arrangements to yield the remuneration originally promised have, in fact, amounted to the same thing.

8. There being, then, no doubt as to the nature of the fundamental bargain, the question is as to how it is carried out in practice. The direct way, if it were practicable, would be to follow up from day to day all changes in the status, location, etc., of every individual insured person throughout the country—those who come into insurance, those who go out of insurance, changes of residence from place to place, and any other relevant facts; to calculate from the data thus obtained the exact number of days for which the doctors and chemists throughout the country were at risk in respect of each insured person, and to pay the corresponding sums from the appropriate Insurance Funds into the funds from which doctors and chemists are paid.

9. But it is clear that the data necessary for this method of calculation could only be obtained by taking a census of the whole insured population in every place every day, and it cannot have been supposed by any one that this could in fact be done.

10. Therefore, the data for this direct method of calculation being unavailable, it was necessary to adopt some indirect method of calculation which would yield the same result but was based upon the use of data which could in practice be obtained.

11. As affecting the availability of the data, the system to be adopted must take account of inherent features of the general scheme of administration of the Insurance Act, some of which were introduced by Parliament expressly at the instance of the medical profession itself. One of the most important of these is the separation of the administration of Medical Benefit from that of Sickness and Disablement Benefits.

12. It was a fundamental assumption of the scheme that the vast majority of insured persons would be grouped in approved societies. The great majority of these societies are not confined to particular localities, but have their membership distributed throughout the country; but, on the other hand, the basis of administration of medical benefit is strictly territorial, the benefit being administered by the Insurance Committees, each dealing with a particular area and with that area alone. Many of the difficulties of the system of registration on which doctors' payments are based are due to the complications which this duality of administration inevitably entails. The 200 Insurance Committees concerned in the administration of medical benefit have to rely for the necessary information upon some 20,000 societies and branches, in which the insured persons are grouped for purposes of sickness benefit, etc.

13. The object of the Commissioners in framing the methods which they have from time to time adopted for calculating the payments to be made in respect of medical benefit has been essentially that of devising a formula of a practical kind, which, taking account of data which could in practice be obtained, shall at the same time yield, both to the profession generally and to individual doctors, the sum to which they are entitled under the general bargain.

14. The calculation of medical remuneration proceeds, necessarily, by three stages—namely, first, the constitution of a central pool by transferring to it the proper sums from the funds of approved societies and the Exchequer; second, the distribution of this central pool among the various Insurance Committee areas; and third, the distribution of the medical funds thus accruing to each Insurance Committee among the doctors and institutions who have undertaken the treatment of insured persons for whose medical benefit that Committee is from time to time responsible.

15. For the method of constituting the central pool the Insurance Commission is entirely responsible. Using such data as are available to them, they must use every effort to secure that the sums paid into that pool shall yield an aggregate amount equal to the amount which would have been paid in if it had been possible to carry out the process of counting all insured persons from day to day, recording their daily movements, and paying in each day $\frac{1}{365}$th part of 8s. 6d. for every person who was, during that day, entitled to medical benefit.

16. Different methods of calculation, described in later portions of this memorandum, have been adopted from time to time for the purpose of securing this result. The differences between these methods have depended on the nature of the data which were available and the conditions of the time, and especially upon the extent to which the Commissioners have from time to time found themselves able to adjust their arrangement so as better to satisfy the natural desire of doctors and chemists that the settlement for each year should be made as expeditiously as possible after the close of that year. But under every method it is clearly the duty of the Commissioners to see that the method of calculation which they adopt shall secure that the sum paid in to the central pool gives effect to the national bargain.

17. The method of division of the central pool among the various Insurance Committees is determined by regulations forming part of the conditions of service which apply throughout the country, and the method of division of the funds of each Insurance Committee among the doctors who contract for service with that Committee is arranged locally, between the profession and the Insurance Committee, and is set out in the agreement for each area.

18. The principle underlying the Regulations as regards the distribution of the central pool between Committees is necessarily that of capitation payment. Each Committee receives an amount calculated on methods which are intended to yield a sum bearing the same proportion to the central pool as the number of "insured-person-days" in respect of which that area was at risk bears to the number of "insured-person-days" in respect of which the central pool was at risk through the year.

19. If, through defect in the Regulations, or in the administrative procedure adopted for carrying them out, this result were not, in fact, achieved, the effect would be to pay to some groups of doctors more and to other groups less than their fair share; but no advantage would result to the approved societies or the Exchequer. The same consideration applies to the distribution of the funds of Insurance Committees among the local doctors.

20. It will thus be seen that, while the Commissioners cannot divest themselves of the responsibility of securing that the machinery of distribution, as between area and area and between doctor and doctor, is effective for securing the objects in view, questions of this kind stand on a different footing from the question whether the central pool is in fact properly constituted.

21. The object, therefore, of all the practical methods adopted for the calculating of medical remuneration must be to give full effect to the national bargain, and therefore to yield financial results identical, as nearly as can be ascertained, with those that would follow if what is above referred to as the direct method of calculation could in fact be carried out. But the steps of procedure of any practicable indirect method are entirely distinct from those of the procedure that would be necessary for carrying out the theoretical direct method, and hopeless confusion of thought results if this distinction is not kept in view.

22. In attempting to prove the alleged failure of the methods adopted to fulfil the bargain, cases of individual insured persons are often cited in respect of whom doctors allege that they have received no payment, although they were at risk or even actually rendered services. Such cases could only be relevant if the calculations were in fact made by following from day to day the actual movements of individual insured persons. When once it is recognized that this method of calculation is impracticable, then it must also be recognized that the method that must in practice be adopted must be based upon averages and set-offs in the way described in detail in the following part of this memorandum. It must always be remembered that the object of all the calculations is to arrive at a number, not of persons, but of time-units (that is, "insured-person-days"); and that the correctness of the result can therefore never be tested by a count of individual insured persons on a particular day. Hence the only question is whether the methods of calculation are such as, when applied to the data available, may reasonably be held to yield results which are in accordance with the bargain.

23. Cases of individuals may be of great cogency for the purpose of illustrating particular points, but they can of themselves demonstrate nothing as to the validity of the procedure as a whole.

24. Passing now to a description of the methods adopted, the funds available for the remuneration of panel practitioners are collected by the Insurance Commissioners, through whom they pass to the Insurance Committee who make the actual payments to practitioners. The subject, therefore, naturally falls as above indicated under the following main heads:

A.—The collection of funds by the Commissioners.
B.—The distribution amongst Insurance Committees of the collected funds.
C.—The distribution by Insurance Committees to the individual doctors.

25. Every stage in these operations, whether in the offices of Insurance Committees or the Commissioners, is subject to a strict Government audit, which is entirely independent of the Commission, the approved societies, and Insurance Committees.

A.—THE COLLECTION OF FUNDS BY THE COMMISSIONERS.

26. The amount to be collected from each society is the sum due for the year in question in respect of the membership of that society, at the fixed rate per annum per head of the members entitled to medical benefit. The number of such heads, and, therefore, the amount due both from the society and the Exchequer* in respect of each society's membership, is reckoned centrally by the Commissioners.

27. At the beginning of 1914 what is referred to in this memorandum as the "normal system" was introduced. The special circumstances of the war, and the desire of the profession for a more rapid settlement than was in war conditions practicable under the "normal system" led to its modification in making the settlements for 1914 and 1915. For convenience of exposition it is proposed to deal first with the "normal system," and to explain later the procedure actually adopted as regards 1913, and then the modifications necessitated by the war conditions, and otherwise, for 1914 and 1915.

28. The "normal system" provides for the charge to each society being arrived at in the following manner. The stamped contribution cards surrendered by the society in respect of *the first half of the year* are counted, and, to the number thus obtained, is added the number of members who were at the commencement of the year aged 70 years and upwards, as shown in a return obtained from the society which is certified by the Government auditor. The result is taken by the Commissioners to represent the number of the insured members of the society for the year entitled to medical benefit for the year, and the society is charged the *full yearly sum* for each such member. To the aggregate of the numbers thus ascertained for all approved societies is added the number of deposit contributors, exempt persons, and members of the Navy and Army Fund entitled to medical benefit, as shown in the books of the Commissioners, by whom the accounts of these persons are kept.

29. It has been contended that the above method of charging approved societies does not do justice to the proper claims of the medical profession, since no stamped contribution cards for the first half of the year are surrendered by the following classes of insured persons:

(i) Insured persons who enter into insurance during the second half of the year.
(ii) Insured persons who are permanently incapacitated (for example, those in receipt of disablement benefit).
(iii) Insured persons who, though not permanently incapacitated, are, through illness or some other cause, unemployed throughout the first six months of the year.

30. This criticism overlooks the fact that under the system the charge for a full year is made in respect of *each* stamped contribution card, irrespective of the number of stamps on it. The *full* yearly charge is, therefore, paid in the following classes in which a smaller charge would, theoretically speaking, be payable:

(i) Members who enter into insurance at any time during the first six months. Thus a full yearly charge will be paid where the member entered into insurance, say, June 25th.

(ii) Members who lapse from insurance through death or any other cause at any time during the year after the payment of one or more contributions in the first half-year. Thus a full yearly charge will be paid where a member worked in January and died in, say, February.

31. These excess charges (which experience has shown are so often overlooked by medical correspondents on the subject) have been computed by the Government actuary, after careful investigation, to be at least the equivalent for the absence of any charge in the cases where no stamped contribution card for the first half-year is surrendered.

32. Fears have been expressed on behalf of the medical profession that delay on the part of the societies in transmitting to the Commissioners contribution cards operates to the detriment of the profession and to the advantage of the society. These fears are based apparently on the impression that the society's charge is calculated on the number of cards *received* by the Commissioners during the first half-year. This is not the case. The charge is raised upon the contribution cards that were *stamped* during the first half-year (every card issued being printed with the particular half-year of its currency), and an ample period of grace is allowed to the society for their surrender, in order to ensure that all but a negligible number of the cards in question are received by the Commissioners before the figures are utilized for the purpose of the calculations. In fact, it is the necessity for allowing a sufficient period to ensure the surrender of practically all the cards which has caused the delays in settlement in respect of which complaints have been made. However long the period of grace allowed for the surrender of cards, there will, of course, always be belated cards subsequently surrendered. But societies do not escape charges in respect of these cards. All belated cards are duly brought into account, and the proper charges made in respect of them for the purposes of the next settlement effected after the date of the receipt of the card, so that in no circumstances can a society benefit in the manner suggested by delay in transmitting its contribution cards.

33. As affecting the suggestion that societies may in some way profit by delay, it must further be remembered that the contribution cards play an all-important part in the society's own internal working, and that it is only by surrendering the contribution cards of its members to the Commission that a society can obtain the funds (represented by the stamps upon them) which are necessary for its work. Moreover, the amount which the society may apply out of those funds for the purpose of defraying its staff and administration expenses is determined by the number of its members, and the membership of societies for this purpose is calculated on the basis of the number of cards surrendered, in the same manner as the money due from the society for medical benefit is calculated. It will be seen, therefore, that the interests of societies and doctors in the matter of the due transmission of contribution cards to the Commissioners are identical, and that there is no ground for the apprehensions referred to at the beginning of the preceding paragraph.

34. The foregoing paragraphs relate to the "normal system," as outlined by the Commissioners at the beginning of 1914. The procedure adopted for 1913, and the modifications in the "normal system" necessitated by war conditions, and otherwise, for 1914 and 1915 are as follows:

35. *Procedure adopted in 1913.*—In 1913 quarterly contribution cards were in use. The procedure proposed involved taking a mean of the effective membership at the beginning and end of the year as ascertained from the contribution cards. It became apparent, however, in the course of 1914 that this procedure must necessarily involve great delay, and, in view of the desire of the medical profession for a more prompt settlement, it was modified by substituting the membership as at the middle of the year. This modified procedure having been decided upon before the settlement for 1913 had been effected, the membership of each society for that year was determined by taking the number of cards stamped for the quarter ending July, 1913. No addition was made in respect of persons of the

* The amount payable by the Exchequer in respect of members of approved societies is reckoned strictly by reference to the amount collected from the society, so that, for every member for which the society pays, the Exchequer contributes 2s 6d. as well as its statutory proportion of the 6s.

age of 70 or upwards, since such persons were not then entitled to medical benefit.

36. The medical benefit year 1913 was three days short of a full calendar year.* A corresponding deduction was made in calculating the total amount payable by each society and the Exchequer.

37. *Procedure adopted in 1914.*—The outbreak of war at the beginning of August, 1914, at once resulted in large numbers of insured persons joining the forces, and ceasing thereby to be entitled to medical benefit. This fact at once disturbed the compensatory balances upon which the normal procedure (outlined in paragraph 28 above) relies, and rendered it impossible to calculate the membership of societies according to the formula which was valid in normal conditions—namely, on the basis of the first half-year's card, without specially taking into account the effect on their membership of the outbreak of war. Figures were accordingly obtained from the Admiralty and War Office, and by means of these figures an allowance was made in the calculations for the purpose of adapting the normal formula to the altered conditions, thus securing the proper reduction on account of enlistments in the number of units in respect of which each society was in fact charged for medical benefit.

38. The medical benefit year 1914 was eleven days short of a full calendar year.† A corresponding deduction was made in calculating the total amount payable by each society and the Exchequer.

39. *Procedure adopted in 1915.*—The difficulties created by the war delayed the settlement for 1914 beyond the period that would have been necessary for the normal working of the system. It became apparent, moreover, that the necessity for allowing societies a period sufficient under war conditions to ensure the surrender of all but a negligible number of the contribution cards would result in a corresponding or even longer delay in effecting a settlement for 1915, unless an alternative plan for ascertaining the charges to societies could be devised to meet the abnormal difficulties. Accordingly a plan was propounded and submitted through the Insurance Acts Committee of the British Medical Association to Panel Committees and ultimately adopted. Under this plan the total charges for 1915 were calculated on the basis of the charges for 1914, adjustments being made (i) for the fact that 1915 was a full calendar year of 365 days, (ii) in respect of the abnormal influx of workers into insurance, as calculated on the basis of a comparative analysis of contribution receipts (namely, sales of insurance stamps, etc.) in 1914 and 1915 respectively, and (iii) in respect of the number of enlistments, and discharges, of insured persons in 1915, as ascertained from confidential Admiralty and War Office figures. The settlement for 1915 on this basis was made subject to the condition that an adjustment would be made in the settlement for 1916, should it prove that the amount so ascertained for 1915 is either appreciably less or appreciably more than the amount calculated by the normal procedure which will be ascertained when the necessary data become available.

40. Continuing the description of the "normal system," the charges to societies, together with the corresponding charges to deposit contributors, exempt persons, and the Navy and Army Fund, and the State grants payable towards the cost of medical benefit are credited to a single fund in the books of the Commissioners for distribution amongst Insurance Committees. The amount so distributed for each of the years 1913, 1914, and 1915, is given in the table below, which also shows the insured population represented by each amount.

41. As regards the years 1913 and 1914, it can be definitely stated, after a careful weighing of all relevant circumstances, that the basis of charge adopted results in a full payment being made for each insured person for the period of the year for which he is entitled to benefit. As regards 1915, the Commissioners are satisfied that the amount credited to the central pool represents as close an approximation as it is possible to make on the basis of the available data, and, as already indicated, they have provided for any subsequent adjustment which may prove to be necessary when more definite figures are available.

* Medical benefit came into operation on January 15th, 1913. The first medical benefit year began, therefore, on that date. It ended on January 11th, 1914.

† The medical benefit year 1914 began on January 12th, 1914, and ended on December 31st, 1914.

TABLE.

Medical Year. (1)	Amount Distributed Amongst Insurance Committees. (2)	Amount Available for Medical Benefit* of Each Insured Person for the Year. (3)	Insured Population Represented by Amount in Column (2). (4)
ENGLAND.	£	s. d. s. d.	
1913 (362 days)	4,491,021	$\frac{362}{365}$ths of 8-6 = 8-5.16	10,654,854
1914 (354 days)	4,258,485	$\frac{354}{365}$ths of 8-6 = 8-2.926	10,331,322
1915 (365 days)	4,053,424	8-6	9,537,468
WALES.			
1913 (362 days)	294,919	$\frac{362}{365}$ths of 8-6 = 8-5.16	699,689
1914 (351 days)	271,596	$\frac{354}{365}$ths of 8-6 = 8-2.926	658,908
1915 (365 days)	263,081	8-6	619,013

* The "domiciliary sixpence" is additional to the amount shown in column 3, but is not included in this table as it is paid to the doctors out of the Insurance Committee's local Sanatorium Benefit Fund.

42. Before leaving this portion of the subject, the Commissioners desire to make it clear that the method of determining the membership of societies on the basis of the cards stamped in the first half of the year is one which cannot be regarded as necessarily producing equitable results in all circumstances. The method is, in fact, merely a formula for the purpose of arriving at the desired result, and under these conditions with a view to which it was devised the Commissioners are satisfied that it does full justice to the claims of the medical profession. But an alteration in the circumstances may involve a revision in the formula. As explained above, adjustment was necessary in 1914 and 1915, by way of reduction in the charges, to adapt the formula to the abnormal conditions of enlistment; and it may well be the case that on a return to peace conditions, if the contribution card basis is adhered to, an adjustment in a contrary direction may prove necessary. For instance, it may prove that the number of permanently incapacitated persons entitled to medical benefit will have so increased owing to the war, that the excess charges paid by societies in certain cases will no longer compensate for the absence of charges where a card is not surrendered. The stamped card basis, like any other basis, can in fact, be retained only so long as it results in charges equitable alike to the profession and societies. The responsibility devolves upon the Commissioners for keeping a watch upon the course of circumstances which may affect the validity of the formula current for the time being, and of revising the formula when altered circumstances render such a course necessary in order that it may ensure the calculation of the proper charges against societies.

43. This responsibility is fully recognized by the Commissioners. The profession can rest assured that the present method (or any other that may be adopted) will continue to be subjected to close and continuous scrutiny. The Commissioners have no other purpose in view than to arrive as accurately as is humanly possible at the sum of money which is due from societies to the doctors. They have to do justice to both parties as regards the determination of the amount to be paid, while, as regards the actual sums collected, every stage in the disposition of these funds, whether in the offices of Insurance Committees, approved societies, or Commissioners, is, as already stated, subject to independent audit.

B.—THE DISTRIBUTION AMONGST INSURANCE COMMITTEES OF THE COLLECTED FUNDS.

44. The central pool is apportioned amongst the Insurance Committees on the basis of their "Index Registers." The Index Register is a list kept by the Insurance Committee of the insured persons for the provision of whose medical and sanatorium benefits it is responsible. As regards the great majority of the insured, the basis of the register is information furnished to the Committee by societies on "index slips" containing the names and addresses, membership numbers, etc., of those of their

members who, so far as is known, reside within the area of that Committee. The initial issue of index slips was made at the end of 1912, and the arrangements provide for the Registers being kept up to date through the notification (*a*) by societies of deaths, lapses from benefit, new members, etc., and (*b*) through insured persons themselves of removals involving a change of doctor.

45. In distributing the central pool, the Index Register is used in the following manner. The total of the Registers of all Committees for the year is ascertained by the Commissioners from the certified returns of Committees.* Each Committee then receives such proportion of the central pool as the total of its own Register bears to the aggregate total of the Registers of all Committees. In 1913, the aggregate of all Insurance Committees' Registers in England was 10,951,483. Thus, the gross Medical Benefit credit of a Committee, the Register of which in 1913 totalled 500,000, would be $\frac{500{,}000}{10{,}951{,}483}$ multiplied by the central pool for 1913, that is, £4,491,021 = £205,041 13s. 7d.

46. It will be at once appreciated that if the total of the Index Registers corresponded with the total insured population on which the charges to societies, etc., were based, each Insurance Committee would receive a sum represented by the total of its Index Register multiplied by the amount available per insured person for the year, shown in column 3 of the table above (see paragraph 40). But the Index Registers are known to be inflated by the causes presently explained. For example, the total of the Index Registers for 1913 was, as above stated, 10,951,483, whilst the insured population entitled to medical benefit in that year was 10,654,854 (see column 4 in the table on page 104).

47. It will be seen from paragraph 45 above that the method of distribution adopted assumes that the same degree of inflation is present in the Register of each Insurance Committee, and it has been contended that this assumption results in some Insurance Committees not receiving their proper share of the pool. In particular it has been asserted that the method penalizes efficiency by ignoring the efforts of individual Committees to reduce the inflation in their own respective Registers. In dealing with this contention it is necessary to examine the causes leading to the inflation.

48. These causes are in the main two—namely, (*a*) the issue of an index slip by two societies in respect of the same insured person, and (*b*) the failure on the part of societies to notify deaths, etc. With regard to (*a*), the duplication arose by reason of the fact that at the inception of the Act many insured persons were regarded as members by more than one society. In consequence of the migratory habits of the insured population, the duplicate slips have become widely distributed through the Index Registers of the Insurance Committees. Further, the great majority of insured persons are members of societies having members all over the country.† It follows that the causes of inflation, *being concerned with the functions of societies*, must necessarily operate all over the country. If it could be contended that a particular society with members in all parts of the country is unusually active in notifying deaths, etc., to a particular Insurance Committee, there would be reason to apprehend that the tendencies to inflation are operating less in the case of that Committee than in the case of other Committees. But no such contention could be justified, and the Commissioners are satisfied that the degree of inflation is, in fact, approximately uniform throughout all parts of the country.

49. Moreover, no efforts of an individual Insurance Committee could have any substantial effect upon the inflation due to the causes above stated. The remedy for this inflation must be sought in measures of a comprehensive character which are necessarily outside the scope of individual Insurance Committees. Where the duplicates are in the Registers of other Insurance Committees they have no knowledge of them. Even where the duplicates may be in the same register but, of course, in different approved society sections of it, similarities in name would not afford sufficient evidence of identity.‡ Again, where societies have failed to notify lapses, etc., amongst their membership, there is no possibility of Insurance Committees obtaining the evidence independently through the working of any administrative machinery set up by them.

50. With regard to the view that the method of distribution adopted penalizes Committees who are particularly active in connexion with their Index Register, it has been shown above that the causes of the inflation are such that no efforts of an individual Insurance Committee can have any substantial effect. There is, however, another and entirely different aspect upon consideration of which the Commissioners are convinced that, so far from a vigilant Committee being prejudiced by its activities, the reverse is the case. Each Insurance Committee has what is known as a "suspense register," which comprises "suspense slips," containing the names of insured persons who have selected doctors, but whose index slips have not been received by the Committee. In many of these cases the index slips are with other Committees, and in some the slips have not yet been issued by the society. The activities of a Committee in tracing and obtaining these index slips must necessarily result in an increased Index Register, to the advantage of the Committee's funds.

51. It has been suggested that delay on the part of societies in notifying new entrants must benefit the society financially at the expense of the medical funds of Insurance Committees. This is not the case. As shown in the earlier part of this memorandum, societies are charged on the basis of the stamped contribution cards appropriate to the first half of the year. Delay in notifying Insurance Committees of the entry of new members into insurance will not, therefore, in any way reduce either the charge to the society or the amount in the central pool. As bearing on the question whether an individual committee is prejudiced by this delay, it may be pointed out that, for the reasons indicated in paragraph 48 above, there is no reason to suppose that the delay will operate otherwise than to an approximately uniform extent all over the country, so that under the method of distribution adopted an individual Committee will not be prejudiced by delay in this respect. Nor is it believed, as a result of experience, that there is any substantial omission on the part of approved societies to forward index slips in respect of new entrants. Whether the index slip is forwarded, as it should be, on the initiative of the society, or whether at the request of an Insurance Committee who have themselves received an application for a medical card from the new entrant, the increasing tendency of insured persons to select doctors at an early date affords little opportunity for the continued absence of an index slip.

52. Substantially, therefore, the present system results in each Committee being credited with the funds necessary for the payment of the doctors in its area in respect of all insured persons entitled to medical benefit in the area.

C.—The Distribution by Insurance Committees to Individual Doctors.

53. A portion of the Committee's credit is necessarily reserved for payments in respect of medicines, to institutions, and to persons who have obtained the Committee's consent to make their own arrangements for medical treatment. The remainder of the Committee's credit is distributable amongst the doctors.

54. It is necessary in dealing with this portion of the subject to explain the financial provisions of the doctor's agreement, and the regulations which are incorporated in the agreement. The agreement quoted below is that relating to payment on the capitation basis, which is the basis adopted in all areas in England and Wales save two.

55. Clause 10 of the agreement states as follows:

> The remuneration of the practitioner in respect of patients other than temporary residents, shall be calculated in accordance with the provisions of Part IV of, and the First Schedule to, the Regulations on the basis of the rate contained in the Second Schedule hereto.

56. It will be seen that three documents are referred to in the above clause, viz., Part IV of the Medical Benefit

* Returns are obtained showing the totals of the register at the beginning of each quarter. The quarterly totals are added together and divided by four, and the result is taken to represent the total for the year.

† Approximately six millions of the insured persons in England and Wales (that is, more than half of the total insured population), are comprised in the memberships of the following societies, which operate in each case from one head office all over England and Wales: Prudential, National Amalgamated, Hearts of Oak, National Deposit, Liverpool Victoria, Royal Liver.

‡ In the Register of one Insurance Committee there are, in fact, approximately 1,000 index slips bearing the name of "William Smith."

Regulations, 1913, the First Schedule thereto, and the Second Schedule to the Agreement.

57. Part IV of the Medical Benefit Regulations contains various financial provisions relating to medical benefit generally. Those pertinent to the particular question now being dealt with are as follows:

"*Article* 35 (1).—

Where the Committee have adopted a capitation system of payment they shall credit to each practitioner on the panel in respect of each of the persons included in his list at the commencement of each quarter, an amount (in these regulations referred to as a 'capitation fee') calculated in accordance with the rate contained in his agreement with the Committee, and there shall be credited to such of the practitioners on the panel, and in such proportions as are agreed between the Committee and the Panel Committee, or in default of agreement, as the Commissioners may determine, such further capitation fees as are in the aggregate equal to the number of insured persons (other than insured members of institutions and persons making their own arrangements) whose names are, at the commencement of the quarter, included in the Register of the Committee, and who have not at that date been accepted by or assigned to any practitioner on the panel, and in arriving at any such agreements the Committee shall have regard to the responsibility incurred by each practitioner on the panel to give treatment during that quarter to insured persons not included in his list at the commencement of the quarter."

"*Article* 35 (3).—

The Committee shall ascertain the aggregate amounts so credited to the practitioner, and the aggregate amounts so credited to all practitioners on the panel, and shall pay to each practitioner an amount bearing the same proportion to the sum credited to him as the amount in the Practitioners' Fund (after deductions of any sums payable out of that fund to the Central Medical Benefit Fund or set apart for mileage, as hereinafter in these regulations provided) bears to the aggregate amounts so credited to all the practitioners."

58. The First Schedule to the Regulations (which is the second document referred to in Clause 10 of the Agreement) merely lays down certain conditions of service, and sets forth the various alternative systems of remuneration—for example, capitation or attendance system, etc.—which the Committee and the doctors can adopt. It need not be here quoted. The Second Schedule to the Agreement (the third document quoted in Clause 10) is as follows:

The practitioner shall be credited at the rate of 1s. 7½d. a quarter in respect of persons included in his list, at the commencement of the quarter, who are entitled to medical benefit, and at a further rate of 1½d. a quarter in respect of persons so included who are eligible for sanatorium benefit.

59. Reading Clause 10 in conjunction with the documents to which it refers, it will be seen that under the agreement each doctor is entitled—

(*a*) To be *credited* in the books of the Committee with a certain sum; and

(*b*) To be *paid* that portion of the local pool (referred to in the regulations as the Practitioners' Fund) which bears the same relation to the local pool as the particular doctors' credit ((*a*) above) in the books of the Committee bears to the aggregate of the credits of all the doctors on the Committee's books.

60. In other words, the local pool is divided amongst the doctors in proportion to their credits. A doctor cannot, therefore, arrive at his remuneration merely by multiplying the number of insured persons nominally on his list by 7s. It cannot be disputed that doctors' lists are inflated. The inflation is due in the main to the same causes which have led to the inflation in the Index Register, and was clearly demonstrated early in 1914 when medical cards were issued to all insured persons then on doctors' lists. Nearly a million of these cards were returned through the post office undelivered, the insured persons having died, gone abroad, or removed, leaving no trace of their whereabouts,* etc. Moreover, since that date the outbreak of war has resulted in hundreds of thousands of insured persons becoming members of the Forces. It is known that these enlistments, owing to absence of information on the part of societies, have not by any means been completely notified to Insurance Committees, who have not, therefore, been in a position to secure the proper adjustments of the doctors' lists. These lists, therefore, like the Index Register, are at present abnormally inflated on this account.

61. Many efforts have already been made, and the profession can rest assured that every practicable step will be taken to make the lists and Index Registers more accurate. A scheme of clearance was, in fact, in an advanced state of preparation at the outbreak of war, but its operation has necessarily been postponed for the present. It is not pretended, however, that the operation of a clearance scheme of whatever magnitude would admit of payment being made to the doctor solely by reference to the number on his lists without a pooling system. As indicated in the earlier part of this memorandum, such an arrangement would only be practicable under a national capitation system (such as is now in operation), if it were possible to take an elaborate census nightly of the whole insured population. Then and only then would it be possible to calculate the exact number of days per annum each doctor was at risk for each insured person on his list, and to make payment accordingly. If, therefore, the profession are not satisfied with any system short of one which could be demonstrated to produce theoretically exact results it would be necessary in order to give them satisfaction, to adopt some other method of payment than the capitation basis.

62. It may be mentioned that, although the operation of the clearance scheme above referred to has necessarily been postponed on account of the war, certain steps have for some time been, and are at present being, taken by societies, with a view to the clearance of their membership registers. These steps cannot but assist towards the reduction of the inflation in the Index Register and lists of doctors, and should, therefore, be welcomed by the profession. For example, as has been stated above, insured persons in many instances are included in the membership of more than one society. Further, in many cases insured persons have died, gone abroad, etc., without the facts coming to the knowledge of the society. All these cases, and others where the absence of a contribution card indicates the necessity for action, are gradually being investigated; and where it is clear that the persons cannot now be regarded as members of the society, a notification is sent to the Insurance Committee. In such cases the date of suspension is taken for the purposes of the society as the end of the half-year in which the last stamped card was received. But although this retrospective date is notified to the Committee, and by them to the doctor (the society not having been in a position to notify the Committee until some considerable time after that date), it does not follow that doctors have been prejudiced. In cases of lapse from membership due to death, emigration, etc., obviously no doctor has been at risk in respect of the insured person, while as regards retrospective notification due to the clearance of duplicates from the society's books the insured person remains upon the Index Register by virtue of the index slip issued by the correct society, and is paid for by that society.

63. Isolated cases will, doubtless, come to light in which, owing to the omission on the part of an approved society to send the necessary notification to the Insurance Committee, insured persons suspended from medical benefit on the ground of arrears, have received treatment after the date of their suspension. Seeing that the whole number of insured persons thus suspended is small, cases of such omission among them cannot be numerous. Accidents of this kind are, however, bound to happen, and cannot be avoided by any tightening up of machinery, but there are now under consideration certain steps which will deal with this difficulty more thoroughly than could be done by mere strengthening of the administrative machinery.

64. The Commissioners are, however, fully alive to the necessity for prompt notification on the part of societies, and no efforts will be spared to secure that the obligations of societies in this respect are duly observed.

65. In order to view the matter in its true perspective it is necessary to keep in mind the essential character of the arrangement with the panel practitioners. The arrangement is in effect a contract of insurance under which the doctor undertakes a defined liability in return for a premium calculated in advance at a flat rate per head. Such a system can make no claim to precision. The

* Some of these cards doubtless related to insured persons who had removed to another address and within the practice of the doctor; but a certain number, which are included in the figure given, there are the means, not so included, which are known to have been delivered at empty houses.

variation in the incidence of sickness as between one area and another, and still more between one practice and another, must result in substantial difference in the liability undertaken in respect of the same number of persons. In comparison with these fundamental differences any inequalities due to imperfections of machinery may be found to be insignificant. In so far as this is the case, the profession would no doubt readily agree that they should be ignored. This is the ultimate test which should be applied in determining whether the admittedly rough and ready basis of medical lists, as governing the distribution of funds between practitioners, is substantially just.

66. One case in particular has been cited in which it is claimed that the inequality due to defective lists is *not* insignificant in the sense above indicated. This is the case of munition areas. There has been, in general, an influx of insured persons into those areas, and it has been argued that the doctors there have not obtained a return commensurate with the additional risk that they have been called upon to take, since the new patients coming on their lists contain, it is said, a preponderance of sick persons, those who are not sick preferring to remain on the list of their doctor in the home area. This is a matter affecting solely the distribution of the available fund among practitioners, and the Commissioners have no interest but to see that all sections of the profession receive equally fair treatment. If a case for redistribution is made out in respect of these areas, it would, no doubt, be possible to devise some satisfactory method of effecting the necessary adjustment within the scope of the Regulations, as was done, for example, in the case of temporary residents, under what is known as the "case-value" system. But obviously, before any such step could be taken, improving the position of one group of doctors at the expense of other groups, conclusive arguments would have to be adduced; and it must be stated that on the application of such tests as are at present available the contention which has been put forward on behalf of the doctors in munition areas does not appear to be borne out. A fair measure of the degree of risk that is in fact borne by doctors is afforded by the "case values" which are calculated separately for each area from the record cards. If any general tendency, such as has been described, were operating, uncompensated by other factors, it would be reflected in a reduction in the "case values" for the areas affected, for 1915 as compared with 1914. In point of fact, however, no such general tendency to reduction is apparent. The average "case value" for 1915, for the whole of England, has increased as compared with 1914, and this average increase has been contributed to by increases in the "case values" of munition areas no less than by the "case values" of other areas.

67. Moreover, experience has shown that a large proportion of munition workers at once leave the munition area and return home upon falling ill. This fact has a material bearing upon the contention that the doctors of munition areas are prejudiced by the present position, and must not be overlooked in the consideration of the question.

68. To sum up this portion of the subject, the Commissioners, as above stated, are not satisfied on the facts at present before them that a case for redistribution has been made out on behalf of the munition areas. The Commissioners are, however, prepared to consider any further facts which may be adduced bearing on the matter. But it is necessary to emphasize that the question is one affecting solely the *distribution* of available funds amongst practitioners, and not the *amount* of those funds. The question is one, therefore, between, on the one hand, the practitioners in munition areas, and, on the other, the practitioners in the remaining areas. The views of both groups are equally entitled to consideration by the Commissioners, who, as already stated, have no interest but to see that all sections of the profession receive fair treatment.

69. The foregoing memorandum has been compiled with special reference to England and Wales. The general considerations set forth apply equally to Scotland, but certain minor differences in practice prevent the memorandum being regarded as wholly applicable to that country.

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.
National Health Insurance Commission (Wales), Cardiff.
October, 1916.

Association Notices.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, October 25th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.—By order,

Guy Elliston,
Financial Secretary and Business Manager.

Oct. 12th, 1916.

ELECTION OF MEMBERS OF COUNCIL, 1917–18, BY BRANCHES OUTSIDE THE UNITED KINGDOM.

Notice is hereby given that, in accordance with By-law 49, nominations of candidates for election as members of Council by the grouped Branches outside the United Kingdom for a period not exceeding three years, as prescribed by By-law 52 (2), must be forwarded in writing so as to reach me on or before February 15th, 1917.

Nomination papers may be signed by not less than three members of any Branch comprised in the group, and must be in the form prescribed below or in a form to the like effect.

Election will be by voting papers, which will contain the names of all duly nominated candidates, and will be issued from the head office in London to each member of each Branch comprised in the group.

By order of the Council,

Guy Elliston,
Financial Secretary and Business Manager.

429, Strand, London, W.C.,
October 14th, 1916.

NOMINATION FORM.

By not less than Three Members of the Grouped Branches.

We, the undersigned, hereby nominate

.....
of.....

[*Full name and address must be given*]

as a candidate for election by the (*here state the names of the Branches in the group*) Branches as a member of the Council of the Association.

Names and addresses of nominators, and Branches to which they belong.

Signature and Address. *Branch.*

....

Date ..... 19...

This form should be forwarded to the Financial Secretary and Business Manager, 429, Strand, London, W.C., so as to be received not later than February 15th, 1917.

Not later than the second week in June, 1917, a notice of the result of the election will be published in the Journal.

N.B.—The foregoing notice is not intended to apply to the African and Mediterranean grouped Branches, which have appointed their Member of Council for a period of three years under By-law 52 (2).

Grouping of Branches not in the United Kingdom for Representation on Council of Association, 1917–18.

	No. to be elected.
South Australian, Tasmanian, Victorian, Western Australian	1
New South Wales, Queensland	1
New Zealand...	1
Barbados, Bermuda, British Guiana, Grenada, Halifax (Nova Scotia), Jamaica, Leeward Islands, Montreal, St. John (New Brunswick), Saskatchewan, Toronto, Trinidad and Tobago	1
Assam, Baluchistan, Bombay, Burma, Ceylon, Hyderabad and Central Provinces, Punjab, South Indian and Madras	1
Hong Kong and China, Malaya	1
Border (South Africa), Cape of Good Hope (Eastern), Cape of Good Hope (Western), East Africa and Uganda, Egyptian, Gibraltar, Griqualand West, Malta and Mediterranean, Natal Coastal, Natal Inland, Orange Free State, Pretoria, Rhodesian, Witwatersrand	1

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeon G. C. Cross to the *Victory*. Surgeon A. C. Rusack, M.B., to the *Pembroke*, additional, for disposal. Temporary Surgeons E. P. L. Hughes, to the *Pembroke*, additional, for transport duties; A. C. Roxburgh, M.B., to the *Resolution*; E. H. Heaton, to the *Pembroke*, additional, for Chatham Hospital; H. B. Lawrie, M.B., to the *Vivid*, additional, for disposal; H. E. Scowcroft, to the *Victory*, for R.N. Barracks; G. Lillico, M.B., to the *Vernon*, vice Scowcroft.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

To be temporary Colonels whilst Assistant Directors of Medical Services of Divisions: Lieutenant-Colonels G. T. K. Maurice, C.M.G., W. H. S. Nickerson, V.C., C.M.G., M.B., F. S. Penny, C.M.G., M.B., P. MacKessack, M.B., and Brevet-Colonel H. Ensor, D.S.O.

The undermentioned relinquish their temporary rank on reposting: Lieutenant-Colonels (temporary Colonels) M. Boyle, M.B., and N. Tyacke, M.B., Captains (temporary Majors) P. S. Stewart and W. E. Marshall.

Captain F. A. Hepworth, F.R.C.S., R.A.M.C.(T.F.), to be temporary Major whilst employed at the Wharncliffe War Hospital.

Temporary Captains to be temporary Majors: J. B. Stephens, M.B., G. H. Ross, M.B.

To be temporary Captains whilst employed at the Keighley War Hospital: J. N. Dobie, M.B., J. M. Crocker.

The notification in the *London Gazette* of September 16th, 1916, regarding temporary Captain E. T. C. Milligan, M.D., is cancelled.

Temporary Captain Wm. M. O'Connor is dismissed the service by sentence of a general court-martial.

Temporary Lieutenant J. C. Walker to be temporary Captain.

R. S. Bernard (Fleet Surgeon R.N., ret.) to be temporary honorary Captain.

Temporary honorary Lieutenants to be temporary honorary Captains whilst employed with the St. John Ambulance Brigade Hospital: F. W. Goyder, M.B., F.R.C.S., F. Hall, M.B., A. D. Brunwin, M.D., J. M. McCloy, M.D., C. E. Butterworth, M.B., J. V. S. Taylor, J. Beckett, M.D., W. D. Coplestone.

Temporary Lieutenant H. E. Newman, M.D., relinquishes his commission on account of ill health.

Temporary Lieutenant Charles W. Dixon is dismissed the service by sentence of a general court-martial.

Temporary honorary Lieutenant H. T. Thomson, M.D., having ceased to be employed with the Scottish Red Cross Society, relinquishes his commission.

R. A. Holmes to be temporary honorary Lieutenant whilst serving with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital.

A. T. Paterson, M.D., F.R.C.S.E., to be temporary honorary Lieutenant whilst employed with the St. John Ambulance Brigade Hospital.

Temporary Lieutenants relinquish their commissions: M. A. Kenny, M.D., J. McDonald, M.B.

Temporary Lieutenant C. W. von Bergen, M.B., relinquishes his commission on account of ill health.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

South-Eastern Mounted Brigade Field Ambulance.—Captain J. Hamilton to be Major (substituted for notice published in the *London Gazette* of December 4th, 1914).

South-Western Mounted Brigade Field Ambulance.—Major C. W. Edwards, F.R.C.S., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Wessex Field Ambulance.—Major T. P. Puddicombe to be temporary Lieutenant-Colonel whilst commanding a field ambulance; Captain (temporary Major) H. N. Collier relinquishes his temporary rank on ceasing to command a stationary hospital.

London Sanitary Company.—A. C. Bescoby (late Captain Unattached List T.F.), to be Lieutenant.

East Anglian Field Ambulance.—Lieutenant E. N. Hoffmeister to be Captain.

Northern General Hospital.—Captain (temporary Major) L. R. Braithwaite, M.B., F.R.C.S., is restored to the establishment.

Scottish Horse Mounted Brigade Field Ambulance.—Major S. M. Sloan, M.B., to be Lieutenant-Colonel. (Substituted for announcement published in the *London Gazette* of October 27th, 1914.)

Attached to Units other than Medical Units.—Major T. Kay, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance. Lieutenants to be Captains: J. E. S. Wilson, G. C. Walker, M.D.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON-UNDER-LYNE: DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

BEDFORD COUNTY HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

BRISTOL: CLIFTON DISPENSARY.—Resident Medical Officer. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—(1) House-Surgeon. (2) Fourth-year Student Dresser. Salary, 42 guineas per annum.

DENBIGHSHIRE COUNTY COUNCIL.—Lady Assistant Medical Officer of Health. Salary, £250 per annum.

DORCHESTER: DORSET COUNTY EDUCATION COMMITTEE.—School Dentist. Salary, £250 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House-Physician. Salary, £100 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House-Physician. Honorarium, 30 guineas for six months.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

LITTLE BROMWICH FEVER HOSPITAL, Birmingham.—Lady Assistant Medical Officer. Salary, £300 per annum, rising to £350.

MAIDENHEAD UNION.—Medical Officer and Public Vaccinator of the Bray District. Salary, £130 per annum and fees.

MANCHESTER: ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN.—Resident Surgical Officer at the High Street Hospital. Salary, £150 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—(1) Four House-Physicians. (2) Four House-Surgeons. (3) Accident Room House-Surgeon. (4) House-Surgeons to departments (*a*) Aural and Ophthalmic, (*b*) Skin and Gynaecological, (*c*) Out-patient Dressing.

NEW ROMNEY BOROUGH.—Medical Officer of Health. Salary, £30 per annum.

NOTTINGHAM GENERAL HOSPITAL.—(1) Two House-Physicians. (2) Assistant House-Surgeon. Salary, £250 per annum each.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—(1) House-Physician. (2) House-Surgeon. Salary, £80 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, N.W.—(1) Two House-Physicians. (2) Two House-Surgeons. (3) Senior Obstetric Assistant. (4) Junior Obstetric Assistant. (5) Assistant Anaesthetist. Salary, £50 for (1) and (2), £93 for (3) and (5), and £30 for (4).

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £150 per annum.

STAFFORD: STAFFORDSHIRE EDUCATION COMMITTEE.—Four Temporary Women Assistant School Medical Inspectors. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Clacton-on-Sea (Essex).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BOTHAM, R. H., M.R.C.S., L.S.A., District Medical Officer of the Gainsborough Union.

DAMAN, Thomas Walter Alfred, M.A.Cantab., M.B., C.M.Edin., re appointed Medical Referee under the Workmen's Compensation Act for the county courts of Lincolnshire.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5*s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

CROWE.—On October 1st, at 43, Foregate Street, Worcester, the wife of H. Neville Crowe, M.D., Captain R.A.M.C.(T.)—a son.

TONKS.—On October 7th, at St. Margaret's, Rochester, Kent, to Dr and Mrs. Myles Tonks, a daughter.

DEATHS.

ADDISON.—Killed in action on September 26th, Geoffrey Addison, 1st Canadian Expeditionary Force, elder son of Dr. W. B. and Mrs Addison, Isles of Scilly, aged 22.

CHAWNER.—On October 5th, at Hill House, Clay Cross, Derbyshire, Alfred Chawner, M.R.C.S., L.R.C.P., aged 65.

FRAZER.—On October 5th, at 36, Foxbourne Road, Upper Tooting, S.W., Robert Fair Frazer, M.R.C.P., L.R.C.S.Ire.

DIARY FOR THE WEEK.

WEDNESDAY.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—4 p.m., Harveian Oration by Sir Thomas Barlow, Bt.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY.—4.30 p.m., Exhibition of Cases. 5 p.m., Cases and Specimens.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Clinical Evening.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Dr. Angus Macdonald: Malaria in Sanitary Administration.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		OCTOBER.
13	Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
18	Wed.	London: Finance Committee, 2 p.m.
19	Thurs.	London: Conference of Representatives of Local Medical and Panel Committees, Connaught Rooms, Great Queen Street, 10 a.m.
20	Fri.	London: Central Medical War Committee, 2 p.m.
25	Wed.	London: Council Meeting, 11 a.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 21ST, 1916.

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INSURANCE.

CORRESPONDENCE.

MEDICAL REMUNERATION UNDER THE INSURANCE ACTS.

DR. SAMUEL CRAWSHAW (Ashton-under-Lyne) writes: There is undeniably throughout the country a feeling of unrest and dissatisfaction on the part of panel practitioners with the conditions of their work under the Insurance Act. It seems to me that this unrest can be traced to the unsatisfactory nature of our agreement in one respect. It is between the Insurance Committee of a county or county borough on the one hand and the individual practitioner on the other. Wherever the Commissioners are referred to in that agreement it is in the light of a judicial committee appointed to hold the balance between the two parties to the agreement. Yet it is obvious, from the recently published Memorandum on the remuneration of medical practitioners, that they are the real paymasters; but they delegate this duty to the Insurance Committees, so that it gives them a free hand to alter the conditions of our service as and when they may think fit. They are like a god sitting up aloft looking serenely on the common affairs of panel practitioners, ever ready to punish any laxity in the carrying out of old duties and never hesitating to impose new ones.

In my opinion we shall not cease to have friction in our work until the Commissioners are made parties to the agreement. The agreement should be made directly between us and them without the intervention of the Insurance Committees. Until this is done it is not much use fighting about details. Let the agreement with them be signed yearly, and then we are in a position to bargain with some chance of success.

My advice at the present moment is that we should make this our platform. Let every Local Medical and Panel Committee throughout the country consider this matter and decide to fight for it, and, if necessary, force the matter by the judicious use of the signed resignations of the members. Let us go for this thing now; we can get the rest afterwards, as it will give us power, and we have none at present.

DR. T. ARCHIBALD DUKES (Croydon) writes: The Insurance Commissioners have published a nineteen-page "Memorandum explanatory of the system of remunerating medical practitioners" (Memo. 229/I.C.), reprinted in the BRITISH MEDICAL JOURNAL SUPPLEMENT, October 14th, 1916.

Now we can prove from their own words that the panel profession is underpaid. The references, unless otherwise stated, are to this Memorandum.

The Commissioners admit (§ 65) that "the arrangement is in effect a contract of insurance under which the doctor undertakes a definite liability for a premium calculated in advance."

Yet they declare (§§ 22, 8, 15, 18): "The object of all their calculations is to arrive at . . . the exact number of days for which the doctors and chemists were at risk in respect of each insured person, and to pay . . . $\frac{1}{365}$th 8s. 6d. for . . . each insured-person-day into the central pool.'"

Fancy suggesting the payment of $\frac{1}{365}$th of your fire insurance premium because your house was burnt down in the first day of the year! To adopt the Commissioners' words (§ 7), "When stated thus explicitly, the proposition is at once seen to be absurd." The whole annual premium is due, even though the house cease to exist long before the year is out. Seven shillings is a very poor payment for attending any one through a fatal illness. The full insurance premium should be paid whether the illness occurs during the first week, the last week, or not at all.

"The undertaking of the Government was (§ 5) that there should be contributed . . . 8s. 6d. per head . . . per annum." Yes, not 8½d. a month, and certainly not a fraction of a farthing a day. Mr. Lloyd George repeatedly promised the doctors that they should receive at least 7s. per annum, or with the floating 6d., 7s. 6d. for each insured person. The official explanatory statement urging doctors to join the panel says (§ 22): "Each practitioner . . . will know definitely that if he has 1,000 insured patients on his list for the year he will receive . . . at least £325." With the tuberculosis 6d., and the floating 6d., "it will be £375."

When doctors had been persuaded to join the panel, the national bargain was quickly broken by offering to pay panel doctors 1s. 9d. "*per quarter* in respect of each person included in the practitioner's list at the end of the quarter" (10/I.C., § 2).

Now the Commissioners pretend to pay us by the day (§§ 18, 22). "Insured-person-days" were never dreamt of in the original national bargain; and the idea (of the Commissioners) (§ 15) of "paying in each day $\frac{1}{365}$th part of 8s. 6d. for every person who was during that day entitled to Medical Benefit" is so absurd that (§ 61) "such an arrangement would only be practicable if it were possible to take an elaborate census nightly of the whole insured population;" . . . and (§ 9) "it cannot have been supposed by any one that this could in fact be done."

Thus do the Commissioners prove that their scheme of payment has nothing whatever to do with the national bargain of insurance.

The effect of their plan is to reduce the annual payment promised by approximately six months' payment for each person who either commences or falls out of benefit. The profession would be much better off if they were honestly paid per head per annum, and suffered straightforward deductions of half a premium for each person who either commenced or lapsed from benefit. We then should be paid something for the permanently disabled, and there would be no excuse for postponing settlement. Now, as an excuse for refusing to make a settlement for many months after the year is finished, the Commissioners plead (§§ 35, 39) the cumbrous complexity of the involved scheme which they have built up as a means of guessing how much money to allow as payment for the doctors.

Why do not the Commissioners say they wish to pay us by the hour, and plead the multitude of clerks and tons of stationery involved in pretending to calculate the fractions of farthings to be credited to the doctors as an excuse for not paying us for years afterwards?

The Commissioners should be reminded that universally

all insurance premiums are paid in advance. At first (10 I.C., § 14) instead of leaving the doctors to starve for a year: "Committees were allowed, should they so desire, to make advance payments to doctors on the panel on account of the sums due to them at the end of the quarter," if the doctors do humbly agree to accept such sums as sufficient. But now the Commissioners claim the right to defer a settlement till "so soon as may be" convenient to themselves after the end of the year. While, nevertheless, to make sure that they shall always have in hand the money to pay in advance, every insured person is compelled to pay for six months without any benefit.

This Memo. 229/I.C. explains a cumbrous system continually changed to produce, for the doctor's payment, as small a sum as possible. For example, the procedure for 1913 (§ 35) is changed halfway through 1914 (§ 37) because in the latter half of that year many healthy insured persons joined the forces. But that is no fair reason under any scheme of insurance for paying the doctors any less to attend to all the sick ones who remained behind. Throughout the method described is incompatible with any honest scheme of insurance. The Commissioners consistently abstain from giving any evidence that even that scheme is in fact worked justly.

They say (§ 28) they do not count for payment those insured persons who have no stamped card in the first half of a year, because (§ 31) the Government Actuary says that they are equivalent to those who have cards and fall out of benefit during the year. We demand an opportunity of checking the facts and figures on which such an opinion is held.

Especially we demand to know the number of insured persons in the country each year; not (§ 40) the number "represented by the amount" which the Commissioners see fit to allow for paying the doctors.

They explain (§ 29) how they avoid counting for payment large numbers of insured persons, so of course they have not enough money to pay for all the insured persons on our lists. In excuse the Commissioners plead (§ 46): "Inflation of the Index Register." Even if those lists be inflated we were promised payment on those lists. It is preposterous to make the inefficiency of insurance officials an excuse for depriving doctors of their promised payment.

Examine their excuse (§ 48): The causes are in the main two, namely:

(a) Plural Index Slips. Where two or more are issued with the same name and the same address, any committee clerk who did not identify them as belonging to the same person would be grossly incompetent.

(b) Deaths, etc. All deaths are followed by registration and burial. They can be checked by examining the local cemetery returns. Poor Law officials check their lists by just such means, and avoid any inflation. The Commissioners can show no cause but incompetence for the "inflation." This incompetence belongs chiefly to the Commissioners themselves. By their regulations (§§ 45, 57; Art. 35 (3) § 60) inflation of the lists of an Insurance Committee increases its income and not its expenditure. So of course inflation grows.

If the Commissioners were able to ensure that an Insurance Committee shall honestly pay the full agreed premium for every name upon their lists, then inflation would vanish. The Insurance Commission cannot do that. If it did, Insurance Committees would not be of so much use to it in shuffling away its own responsibilities.

There being thus no doubt that the fundamental bargain has been broken, we see that in practice each modification of that bargain has been in turn consistently and systematically violated also, always by some subtle insidious [illegible]. Lastly, by enacting that discharged sailors and soldiers shall never drop out of benefit, while leaving the poor panel practitioner to attend to all his ills for ever for nothing.

Dr. Geoffrey Pearse (Kineton, Warwick) writes:

1. Did we or did we not agree to 9s. per head per annum?

2. Are we getting it?

3. Why not?

We should also be receiving half fees for those insured who are at the front.

*** We can only refer Dr. Dukes and Dr. Price to the memorandum itself, and to the short article upon it published at p. 560.

Post Bellum Agreement.

Dr. A. J. Campbell (Duns) writes: I cannot join Dr. Sheahan in his accusation of the British Medical Association or the Government (Supplement, September 2nd).

Many of his questions are begged, such as:

"Do we want to have our fees paid in part eighteen months after date, while the interest obtained on them after being earned and yet unpaid is handed back to our contract patients?" The question either contains or appears to contain, the statement that the interest is handed back to the contract patients. This is not the case. Interest on money due for medical benefit and in arrear may swell the coffers of the Treasury as of the Insurance Committee, but it cannot go to the friendly societies. The friendly societies never touch medical benefit money.

"Do we wish to have our professional conduct supervised by a local lay committee, or, as of old, by the General Medical Council?" Our professional conduct is supervised now as much as it ever was by the General Medical Council. As far as it is supervised by a local committee that supervision is exercised by a subcommittee of seven, of whom three are doctors elected by the Local Medical Committee or by the Panel Committee, of whom all the members are medical men. We have always been subject to lay supervision by parsons, squires, and ladies bountiful and unfriendly "society bosses" of many kinds.

One of his questions reads: "Are we satisfied in attending well-to-do persons for 7s. a year when the State has valued their dogs' life at 7s. 6d.?" The adverbial clause in the question has nothing to do with the matter of the principal clause. We might as well ask, "Are you satisfied in attending poor people for 7s. a year when your fair personal share of the national war expenditure is about £1 per day?"

To three of his questions I ask leave to give my answers.

1. Are we satisfied with the clerical work in connexion with the Acts? I am not. Long before the Insurance Bill was introduced I kept a record of my clinical work, short indeed but far fuller than the Act demands; that record I still keep. The Act is content with clerical work much less elaborate than the financial accounting of which it has relieved me. With this part of the change I am well satisfied.

2. Do we love the regulation which prevents an insured person paying his panel doctor a sum commensurate with the service rendered? I do. The insured person is not supposed to pay the doctor for the services rendered to him. The doctor is paid a sum contributed in part by a number of insured persons, in part by their employers and in part by the State, to give his services to those of that number of insured persons who need his services. If at the end of an attendance on any one patient he says that 7s. is the remuneration he gets for it he is inaccurate in his accounting. The regulation is meant to prevent this inaccuracy; in my opinion the regulation is not unnecessary.

3. Do we want what Dr. Greenwood calls the tyranny of writing all prescriptions in full? I do. But I think he is wrong in calling it tyranny; for (1) I think it is selfish to try to shift from our own fingers the trouble of writing what we mean, and to put on the chemist far more bother than we should be saved; and (2) I think that the repeat prescription leads to carelessness. If a prescription is written afresh it ensures at least that the doctor thinks he knows what he means. A repeat prescription does not ensure that the doctor thinks anything. The general public think it theoretically possible that some medical men may be slipshod in practice. This of course is quite a wrong idea, which I have the misfortune to share.

Dr. Sheahan's closing words are: "A self-respecting, noble, and unfettered profession." The word profession may be used as a collective or as an abstract noun. Used as a collective noun it means the same as the phrase "trade union." If we use it thus, it is not in good taste that we should prefix the adjective "noble." Self-respecting members of a trade union would not. If we use the word in the abstract sense, our profession is expressed in the Hippocratic oath for which we may humbly claim nobility. There is nothing in the Act or our agreement inconsistent with this noble profession. In neither sense is our profession unfettered; in the collective sense it is bound by etiquette, in the abstract by ethics, and these are different the one from the other.

The lines seem to have fallen to me in pleasant places. The war, not the will of the Government nor of the Insurance Committee, has hurt me, and will further hurt me, in health and pocket. But I find that my insured people treat me well. Generally they send their messages in the morning, they visit my surgery when they are fit to do so, and usually come at the hours I have set. Over and over again I have had to chide them for reluctance to cause me trouble. I have found the Insurance Committee just and considerate; at its meetings I have crossed swords vigorously with the representatives of friendly societies on matters of general rule, but in the application of rules to special cases I have found these "society bosses" very friendly to our profession in whatever sense the word is used. No attempt is made to compel me to use stock mixtures or a cheap grade of drugs. My attention is drawn to the use of proprietary medicines, but if I prescribe these they are dispensed. Dr. Alexander Fraser (Manchester) is not so fortunate, but his difficulty seems to be with the Panel Committee. This, it must be remembered, is not a "local lay committee." Dr. Fraser's letter elicits my sympathy with him, but his masters are of his own house, as Dr. Sheahan contends they ought to be.

Before I had experience of it, I was strongly and honestly opposed to the Insurance Act. If we have grievances, let us state them without exaggeration. Let us not try to rid ourselves of burdens by putting them on others: this is what the repeat prescription does. And at the present time, when the country needs our money and other men's blood, let us try not to whine.

SURCHARGES AND DEFERRED PAYMENTS.

DR. D. ROBERTS (Swadlincote) writes: In the report of the annual meeting of the Medical Defence Union (SUPPLEMENT, October 7th, p. 98) we get a repetition of the legal aspect of the matter such as has been expressed by various authorities since the commencement of last year. I should very much like to know what a court of equity would say if the other side of the shield were presented, namely:

1. Does the administration of the Act conform with the promoter's verbal and written "prospectus" during the period of the flotation of the Act?

2. Lists are overhauled each quarter and passed as correct by Insurance Committees. This is proof of acceptance of responsibility for the payment for the numbers on such lists.

3. An authoritative circular is issued by an Insurance Committee as follows: "In Clause 6 of the agreement . . . and in the second schedule the remuneration is 1s. 7½d. and 1½d. *per head per quarter*."

4. In statement of account we have this: "Herewith I send you cheque on general account of the amount *due* to you from my committee for the quarter ending September 30th, 1916."

I think it would carry weight at any rate if this aspect were presented.

Association Notices.

MEETING OF COUNCIL.

THE next meeting of Council will be held on Wednesday, October 25th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.—By order,

GUY ELLISTON,

Oct. 12th, 1916. *Financial Secretary and Business Manager.*

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified by the Admiralty: Fleet Surgeon J. C. G. Read to the *Thunderer*, vice Garde; Surgeon A. C. Rusack, M.B., to the *Fearless*, vice Hill; temporary Surgeons E. O. Morrison to the *Talbot*, vice Bell; J. B. Crawford, M.B., to the *Pembroke*, additional; J. A. M. Alcock, to the *Vivid*, additional, for Plymouth Hospital. To be temporary Surgeon: T. W. Robbins.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. H. Bleadon, to the *Blake*, vice Blair. Surgeon Probationers J. N. Gale to the *Mastiff*; W. G. Robertson to the *Meteor*; A. G. Ord to the *Forester*; A. P. Bertwistle to the *Llewellyn*; G. J. Moore to the *Hornet*; J. S. Westwater to the *Swift* To be Surgeon Probationers: C. E. Scott, H. A. Ross, A. W. P. Haine, J. Hetherington, G. P. Waller, G. C. Thornton, E. E. Carter, R. Fletcher, G. A. Sinclair, J. P. McMillan, F. McDonald, W. L. Balfour.

ARMY MEDICAL SERVICE.

Temporary Colonel W. V. Low, C.B., M.D., F.R.C.S. (Captain R.A.M.C.T.F.), relinquishes his temporary commission.

Temporary Colonel H. A. Thomson, C.M.G., M.D., F.R.C.S.E. (Captain R.A.M.C.T.F.), relinquishes his temporary commission.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) F. S. Irvine, D.S.O., M.B., to be Lieutenant-Colonel, vice Lieutenant-Colonel A. Kennedy, promoted.

Major E. E. E. Powell, from supernumerary list, to be Lieutenant-Colonel, vice Lieutenant-Colonel J. S. Green, placed on retired pay. (Substituted for notification in the *London Gazette* of September 28th.)

Majors to be temporary Lieutenant-Colonels whilst in command of stationary hospitals: N. E. J. Harding, M.B., J. R. McMunn, C.M.G., W. L. Steele, J. H. Campbell, D.S.O., W. J. Taylor, , M.B., M. Boyle, M.B., A. E. Smithson, M.B., J. W. H. Houghton, M.B., A. R. Greenwood, R. L. V. Foster, M.B., S. W. M. Meadows, C. R. L. Ronayne, M.B., W. J. P. Adye Curran, A. J. Hull, F.R.C.S., A. W. Gater, P. J. Marett, D. L. Harding, G. G. Tabuteau, H. C. Sidgwick, M.B.

Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: H. B. Connell, H. Stewart, M.B., E. B. Knox, M.D. (Substituted for notice in the *London Gazette* of March 18th, 1916.)

Temporary Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: E. L. Gowland, M.B., W. B. Edwards.

The undermentioned are granted temporary rank whilst employed at the Manor (County of London) War Hospital. As Lieutenant-Colonel: W. I. Donaldson, M.D. As Major: S. C. Elgee.

Majors to be temporary Lieutenant-Colonels whilst in command of casualty clearing stations: H. Rogers, M.B., J. W. Leake, C.M.G., S. L. Pallant, A. W. Gibson, H. T. Wilson, D.S.O., C. D. Myles, M.B., W. R. P. Goodwin, R. J. Cahill, M.B., W. Benson, M.B., R. J. C. Thompson, D.S.O., J. M. B. Rahilly, M.B., R. B. Hole, M.B., A. E. Hamerton, D.S.O.

Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: M. MacG. Rattray, M.B., E. C. Hayes, S. A. Archer, J. H. R. Winder, M.D., E. W. Bliss, R. P. Lewis, R. A. Bryden, M. J. Cromie, W. Bennett, M.B., A. J. Williamson, M.B., R. C. Wilmot, G. J. Houghton, H. W. Long, M.B., R. J. C. Thompson D.S.O., F. E. Rowan-Robinson, M.B., R. N. Hunt, M.B., N. E. Dunkerton, J. Matthews, D. Ahern, C. W. Holden, T. J. Wright, H. C. Hildreth, F.R.C.S., G. E. Ferguson, B. B. Burke, D.S.O., G. A. Kempthorne, T. E. Hardy

Captains to be temporary Majors whilst in command of field ambulances: G. P. Taylor, M.B., D. T. McCarthy, M.B., G. B. Edwards, A. D. O'Carroll, M.B., G. H. Stevenson, M.B., P. S. Tomlinson, B. Johnson, M.B., W. J. E. Bell, D.S.O., M.B., E. J. Kavanagh, M.B., C. R. M. Morris, M.B., F. H. Bradley, M.B., E. D. Cadell, M.B., D. F. Mackenzie, M.B., W. H. Forsyth, M.B., F. L. Bradish, R. Hemphill, M.B., W. B. Purdon, M.B., G. T. Rudkin, P. G. M. Elvery, H. Gibson, T. B. Nicholls, M.B., T. S. Eves, M.B., J. D. Bowie, M.B.

Temporary Captain F. G. W. Deane, F.R.C.S.E., to be temporary Major whilst in charge of the Springburn and Woodside War Hospital.

Captain (temporary Major) V. C. Honeybourne relinquishes his temporary rank on reposting.

Captain J. A. Manifold, M.B., to be temporary Major whilst in command of a stationary hospital.

Temporary Captains to be temporary Majors whilst in command of field ambulances: C. V. Bulstrode, J. R. C. Greenlees, D.S.O., M.B.

Temporary Captain K. F. Sonntag, M.B., relinquishes his commission on account of ill health (substituted for notification in the *London Gazette* of August 29th, 1916).

To be temporary Captains: S. K. Adams, M.B., late Captain Army Medical Reserve, T. Redmayne, M.B., F.R.C.S., H. Fraser, M.D.

Temporary Captain A. M. Fisher, M.D., relinquishes his commission on account of ill health (substituted for notification in the *London Gazette* of September 18th, 1916).

Temporary Captains relinquish their commissions: H. J. Hutchens, A. G. Mossop, G. M. W. Hodges, M.B., A. D. Haydon, P. Northcote, M.B., T. G. Moorhead, M.D., F.R.C.P.

Lieutenant R. L. Williams, from Welsh Regiment (T.F.) to be temporary Lieutenant (substituted for notification in the *London Gazette* of September 18th, 1916).

Temporary Lieutenants to be temporary Captains: J. Pirie, M.D., F. McE. Sinclair, M.B., W. J. Hicks, M.B., J. W. Riddock, M.B., A. L. Badcock, M.B., D. A. Evans, J. C. Hindley, M.B., J. S. Gilchrist, M.B., J. D. Watson, M.B., J. M. Macfie, M.B., W. G. D. McCall, J. V. Grant, M.B., W. Cunningham, M.B., J. A. Leiper, M.B., P. C. Davie, M.B., J. C. Knox, M.B., F. G. Cross, F.R.C.S., T. H. Sarsfield, N. B. Laughton, M.B., F. R. Sturridge, J. P. Lusk, M.B., H. R. W. Husbands, J. T. Mackenzie, T. J. Gilmore, M.B., M. S. Bryce, M.B., J. Campbell, M.B., C. C. B. Gilmour, M.B., D. M. R. Crighton, M.B., R. F. Linton, M.B., A. L. Anderson, M.D., F. J. Hathaway, M.D., G. B. McTavish, M.D., G. Walker, M.D., A. W. P. Todd, M.B., A. H. Coleman, M.B., T. Pretsell, M.B., J. Beatty, M.D., G. F. Gill, T. J. Buckley, M.B., J. C. Boyd, M.D., J. M. McKie, M.B., E. J. Storer, L. C. Martin, M. Sommerville, M.B., J. S. Findlay, P. C. Litchfield, J. Watson, M.B., R. A. Fuller, J. Philp, E. G. B. Calvert, M.B., P. Sturrock, J. E. Taylor, J. B. Thackeray, A. G. Winter, H. H. Mathias, L. M. Ingle, J. A. Liley, M.C., J. L. Graham-Jones, M.B., H. P. Newsholme, M.D., J. K. Morton, M.B., V. G. Williams, M.D., G. Marshall, M.B., R. L. Norman, F. L. Pelly, M.B., H. J. Bell, T. F. Shackleton, C. G. A. Chislett, M.B., G. F. Oldershaw, M.D., W. Shanks, M.B., G. O. Connell, F. W. Joynes, F. J. Kirkness, M.B., A. G. Mowat, M.B., A. A. Miller, M.D., H. P. Crampton, M.D., R. W. Shegog, M.B., J. F. Hoare, A. C. T. Woodward, M.B., F.R.C.S., J. L. Hendry, G. W. Charsley, M.B., W. Fairclough, M.B., W. B. Thompson, M.B., T. B. Riddall, M.B., J. R. Dobbin, M.B., J. MacKinnon M.B., C. C. Irvine, L. M. Rowlette, D.S.O., C. S. Van R. Harwood, M.B., J. D. O'Connor, M.B., A. G. Naismith, M.B., E. G. Fenton, F.R.C.S.I., R. L. Ley, M.B., O. J. N. Muriset, M.B., T. Kelly, S. Bryson, M.B., H. J. Flanigan, F.R.C.S.I., W. W. Uttley, M.B., G. H. Powell, M. Davidson, M.D., J. F. Bullar, M.B., F.R.C.S., G. M. Grant, M.B., C. S. Pantin, M.D., F.R.C.S., W. H. Best, J. M. Anderson, M.B., W. Warburton, M.B., A. Stodart-Walker, M.B., F.R.C.P., C. M. Stubbs, M.B., G. F. Fawn, B. Park, M.D., W. N. Gilmour, M.D., A. E. Huckett, M.B., F. G. Martin, W. Core, M.B., J. H. C. Gatchell, E. T. Jones, F. B. Manser, M.B., J. E. McCartney, M.B., W. E. A. Buchanan, M.B., R. P. Kennedy, R. J. Aherne, R. N. Farrer, W. Herbertson, M.B., E. W. Craig, M.B., A. H. Murch, M.B., E. C. Mackay, M.D., A. S. Hendrie, M.B., A. G. Hamilton, M.D., F.R.C.S.E., P. Gettleson, M.D., J. Joule, R. J. Cane, W. Stanwell, D. J. McAfee, M.B., G. Coates, E. G. Evans, F. R. Snell, M.B., R. Felton, M.D., E. Brown, V. M. Fisher, M.B., W. Millerick, D. F. Macdonald, M.B., R. A. Fawcus, M.B., S. R. Lane, M.D., G. L. Parsons, F. Dixon, M.B., O. A. Beaumont

To be temporary Lieutenants: Lieutenants S. G. Kean, M.D., W. S. Wallace, B. H. Thomas, and G. H. Ensing, Canadian A.M.C.; D. E. Scott, M.D., C. M. Keillor, M.D., T. E. B. Branch, M.B., R. W. S. Christmas, G. L. Crimp, M.B., W. J. H. Hepworth, F. H. Wolfe, J. Longworth, M.B., R. S. Kennedy, J. C. Nixon, M.B., J. F. Elliott, R. W. S. Walker, M.D., J. L. Gregory, M.B.; temporary honorary Lieutenants W. Farquharson and A. R. Fuller; L. H. Taylor, M.B., P. C. E. d'Erf Wheeler, M.D., F.R.C.S.E., J. W. Turner, W. Arnott, M.B., J. F. Carroll, M.B., A. C. B. Biggs, F. Rogerson, M.B., F. W. Waterworth, M.B., A. L. Home, M.B., F.R.C.S., G. Fleming, M.B., F. W. M. Palmer, M.D., C. H. L. Rixon, J. G. Fraser, M.B., L. Bathurst, E. A. W. English, M.B. C. Murphy, M.B., J. MacC. Gibson, M.B., A. Binning, M.D., A. T. Cooper, A. I. Miller, M.B., E. G. D. Menzies, M.B., J. Robertson, M.B., R. Edwards, M.B., G. J. Meldon, M.D., F. S. Pooie, J. J. Harty, F.R.C.S.I., G. H. Randolph, E. H. Drake, P. C. C. Smith, M.D., W. S. Darby, M.B., C. E. A. Wilson, M.B., R. J. B. Leney, A. B. Rendel, M.B., A. Reid, M.B., C. W. Emlyn, A. Boothroyd, M.B., C. A. Birts, M.B., R. J. Harley-Mason, J. B. Cook, M.D., H. H. Weir, M.B., W. C. Sharpe, M.D., A. J. Kearney, J. B. Thompson, M.B., T. W. Pattinson, W. Lessey, M.D., H. Blyth, M.B., J. B. Wall, E. A. C. Beard, M.B., R. B. Martin, A. J. McNair, M.B., A. B. Lindsay, M.D., B. B. Sapwell, jun., M.B., W. E. Glover, M.B., K. W. D. MacRae, M.B., H. T. Evans, M.D., W. Brennan, W. W. Dempster, G. Saporti, M.D., J. Leach, M.B., Temporary honorary Lieutenant R. Curle, J. Robertson, M.B., H. W. Whitehouse, M.D., C. E. O'Keefe, J. C. Murray.

The notifications in the *London Gazette* of June 10th and 12th, 1916, regarding temporary Lieutenants E. V. Frederick, M.B., and W. J. M. Marcy, respectively, are cancelled.

Temporary Captain W. Templeman, M.D., and temporary Lieutenant A. C. Johnston relinquish their commissions on account of ill health.

The surname of temporary Lieutenant Thomas E. Mulvany is as now described and not as in the *London Gazette* of October 16th, 1915.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: B. O. Kinney, G. L. Gall, M.D., C. M. Anderson, M.D., F. G. Pedley, M.D., W. C. Brown, M. A. Harrington, M.B., J. W. MacKie, M.B., F. J. Colling, M.B.

J. McMurray to be temporary Lieutenant whilst employed with the Cape Labour Corps.

Temporary honorary Lieutenant W. E. Coe to be temporary honorary Captain whilst employed with the St. John Ambulance Brigade Hospital.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Wessex Casualty Clearing Station. Lieutenant C. A. Raison, M.B., to be Captain: Lieutenant A. C. Smith, from London Field Ambulance, to be Lieutenant.

Welsh Border Mounted Brigade Field Ambulance.—Lieutenant J. Derham Reid, to be Captain.

Home Counties Field Ambulance.—Captain C. E. M. Hey relinquishes his commission on account of ill health. To be Captains: Captains J. R. Chalmers, M.B., from T.F.R., and A. E. Huxtable, from Wessex Casualty Clearing Station.

London Sanitary Company.—Lieutenants to be Captains: J. A. Andrewes, A. E. Jury.

South Midland Field Ambulance.—Major F. J. Warwick, M.B., from T. F. Reserve, to be Major (substituted for announcement in the *London Gazette* of June 21st, 1916).

Northumbrian Field Ambulance.—H. Evers, M.B., to be Lieutenant.

West Lancashire Field Ambulance.—Major R. Coffey to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Attached to Units other than Medical Units.—R. E. Pitts to be Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL ROYAL INFIRMARY.—House-Physican. Salary, £120 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer. Salary, £200 per annum, increasing to £250.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon. Salary, £150 per annum.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House-Surgeon.

DUDLEY GUEST HOSPITAL.—(1) Senior Resident Medical Officer. (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Honorary Physician. Salary, £100 per annum.

HOSPITAL FRANÇAIS, Shaftesbury Avenue, W.C.—Surgeon to the Throat, Nose and Ear Department.

HUDDERSFIELD COUNTY BORO., O.H.—Assistant School Medical Officer. Salary, £300 per annum.

HULL: CITY AND COUNTY OF KINGSTON-UPON-HULL.—Resident Medical Officer for the Infectious Diseases Hospital.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—Bacteriologist.

LITTLE BROMWICH FEVER HOSPITAL, Birmingham.—Lady Assistant Medical Officer. Salary, £150 per annum, rising to £160.

LONDON LOCK HOSPITAL, Dean Street, W.—House-Surgeon. Salary, £100 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer at the Cancer Pavilion Hospital, Crumpsall. Salary, £175 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—(1) Four House-Physicians. (2) Four House-Surgeons. (3) Accident Room House-Surgeon. (4) House-Surgeons to departments (*a*) Aural and Ophthalmic; (*b*) Skin and Gynaecological; (*c*) Out-patient Dressing.

NOTTINGHAM GENERAL HOSPITAL.—(1) Two House-Physicians. (2) Assistant House Surgeon. Salary, £250 per annum each.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant in the *X*-Ray and Finsen Light Department.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary £60, rising to £80 on appointment as Senior.

RHONDDA URBAN DISTRICT COUNCIL.—Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £150 per annum.

SCOTTISH WOMEN'S HOSPITALS.—Medical Women and Radiographer Women for Serbian Unit in Russia. Honorarium, £200 per annum.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—(1) Temporary Assistant Physician to the Children's Department. (2) House-Physician. (3) House-Surgeon. Salary at the rate of £100 per annum for (2) and (3).

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Clacton-on-Sea (Essex).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

SLATTERY, J. B., M.D., R.U.I., District and Workhouse Medical Officer of the Bishop Stortford Union.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physicians: James M. Tyrrel (final year student), to Sir R. W. Philip; A. L. M'Ilwaine (final year student), to Professor Russell; R. P. R. Galloway (final year student), to Professor Gulland; J. M. Norman (final year student), to Dr. Harry Rainy; C. R. C. Moon (final year student), to Dr. Chalmers Watson. Resident Surgeons: R. W. N. Miller, M.B., Ch.B., to Professor Alexis Thomson; C. Witherington Stump (final year student), to Mr. Miles; H. P. Winsbury White, M.B., Ch.B., to Mr. Dowden. J. Arthur Hadfield (final year student), to Mr. Jardine, S.O.P.D.; J. Laurie Lamont (final year student), to Mr. Jardine, S.O.P.D.; W. Richard Mathewson (final year student), to Dr. A. H. F. Barbour. Clinical Assistants: W. T. Garretson, M.D., to Dr. Logan Turner; E. R. Holborow, M.B., B.S., to Dr. Logan Turner.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5*s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

DEATHS.

BREW.—On October 12th, at Rouen, from wounds received in action, September 15th, Cyril Huleatt, Lieutenant Irish Guards, younger son of Dr. and Mrs Brew, Chew Magna, aged 22.

GARNER.—On the 16th inst., at 225, Mary Street, Balsall Heath, Birmingham, John Garner, M.R.C.S., L.S.A., in his 81st year.

HICKMAN.—On the 16th inst., at "The Hollies," Wanstead, Herbert Vigers Hickman, M.B.Lond., aged 54.

WATERS.—On the 14th inst., at 107, Dorset Road, Bexhill-on-Sea, Avery Clough Waters, M.B., J.P., late of Whitegates, Southend-on-Sea, aged 54 years. Interred on Thursday at 2.15 at Sutton Church, near Southend-on-Sea.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Demonstration of Cases illustrating Orthopaedic Principles and Methods in Military Surgery by Mr. D. McCrae Aitken, F.R.C.S.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE, 5 p.m.—Presidential Address by Dr. Raymond Crawfurd on Legends and Lore of the Genesis of the Healing Art.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF NEUROLOGY, 8.30 p.m.—Presidential Address by Professor W. D. Halliburton, F.R.S., on The Possible Functions of the Cerebro-spinal Fluid.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Cases.
SECTION OF EPIDEMIOLOGY AND STATE MEDICINE, 8.30 p.m.—Captain C. G. Moor: Work of a Sanitary Section at a Base.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		OCTOBER.
20	Fri.	London: Central Medical War Committee, 2 p.m.
25	Wed.	London: Council Meeting, 11 a.m.

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CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

London, Thursday, October 19th, 1916.

A CONFERENCE of representatives of Local Medical and Panel Committees, called by the British Medical Association, was held at the Connaught Rooms, Great Queen Street, W.C., on October 19th. Dr. J. A. MACDONALD, LL.D., presided, and 140 representatives attended in addition to members of the Insurance Acts Committee of the Association.

Standing orders for the conduct of the meeting were adopted, and an amendment by Dr. W. HODGSON (Cheshire) that the time limit for speeches should be suspended was lost, but it was agreed that a speaker should be allowed to continue if the meeting approved. Dr. RATCLIFF-GAYLARD thought it undesirable that representatives of the Insurance Commission (who were to attend during the afternoon to answer questions on remuneration) should be present at any part of their discussions, but his proposal, seconded by Mr. J. R. M. BRENNAN (Stockport), that they be not present during the discussion on the question of the present method of remuneration of insurance practitioners, was lost.

ACTION TAKEN BY INSURANCE ACTS COMMITTEE ARISING OUT OF RESOLUTIONS OF LAST CONFERENCE.

After a motion by Captain E. R. FOTHERGILL that the new regulations should be first considered had been put to the meeting and lost,

The CHAIRMAN moved the reception of the report of action taken by the Insurance Acts Committee as a result of the resolutions of the 1915 Conference, together with any recommendations arising therefrom; and, on this being agreed to, he moved that the document be approved, with the exception of paragraph 16, which was the subject of a separate motion. The report was then discussed page by page.

Mr. E. B. TURNER said, with regard to the section dealing with venereal diseases and sickness benefit, that it was the desire of the previous Conference that action should be taken to secure that patients incapacitated for work by venereal disease should not for that reason be refused sickness benefit, and now practically all the friendly societies had come into line with them on this matter. The Conference had in this respect obtained what it wanted, and there was hardly a single friendly society left which would retain the rule refusing sickness benefit in such cases.

Dr. CANDLER-HOPE (Yorks, N. Riding) having drawn attention to certain weak points in the medical card system as instanced in his own experience, and Dr. W. R. MARTINE (Haddington) to lapses which occurred more particularly at the changing time for farm servants in the rural areas of Scotland, the CHAIRMAN begged that all such concrete instances might be brought to the attention of the Committee. Definite cases and not vague complaints were wanted.

Dr. H. J. CARDALE (London) regretted that the deputation which approached the Insurance Commissioners with the resolutions of the last Conference did not familiarize itself with the question of the delay in the issue of the medical cards, and returned an unsatisfactory answer to the Commissioners' inquiry on this point. Most panel men on active practice could have supplied the deputation with information on this point that would have kept the Commissioners busy for twenty-four hours.

Captain E. R. FOTHERGILL said that the deputation did not go to the Commissioners on one point, but on a number of points, some of which were of great urgency. It desired to concentrate on the vital points, and with regard to this less urgent matter said that it had not got at hand the material required.

Dr. T. MARTIN CUTHBERT (Salop) drew attention to the question of the onus of tracing removals, and Dr. J. R. DREVER (Glasgow) thought that a great deal could be done by an arrangement between the Panel and Insurance Committees of a given area.

Dr. B. A. RICHMOND said that this was all a matter of local arrangement, and a Panel Committee was asleep if it allowed the negligence in the system of tracing removals to go on. A person ought not to be removed from a doctor's list until the committee had got a fresh acceptance.

Dr. CARDALE drew attention to the resolution of the last Conference favouring the amendment of the Acts so as to allow of the certification of insured persons as being "unfit to follow their usual occupation." The statement made by the deputation that there was no special distinction between the word "unfit" and the word "incapable" was in direct contradiction to the resolution passed by the Conference. A person might be unfit to follow his usual occupation, and yet not be incapable of work. There seemed to be a lack of grasp as to the work

done by the Conference, and a false idea as to its conclusions.

The Chairman said that the fact was, as Captain Fothergill had already stated, that a great many matters had to be brought before the Commissioners, and this was one which required an alteration of the Act to make it effective. It had been suggested that no definite proposals should be made during the war which would require the alteration of the Act.

Dr. John Adams said that the important part of the phrasing was neither the word "unfit" nor the word "incapable," but the words "to follow their usual occupation." A man might be fit for work, and yet unable to carry on his usual occupation.

Dr. G. G. Genge (Croydon) pointed out that a man might be unfit for work though still capable of it. A man with aortic aneurysm might still be capable of wielding a heavy hammer.

Dr. Major Greenwood said the whole issue turned upon a man's usual occupation.

Mr. E. Burchell (Brighton), on the subject of new regulations, asked whether the Insurance Acts Committee were satisfied that there was no chance of any further alteration of regulations during the war. The Chairman said that he was quite satisfied that the Commissioners were not going to make any regulations save emergency ones arising out of the war.

Dr. Genge (Croydon) asked whether the Commissioners endorsed the view of the Conference with regard to claims on the drug fund arising out of the visit to a consultant. The Chairman pointed out that the report was an agreed one; and on Dr. Genge asking whether it was the practitioner who was to judge as to the reasonable necessity of the medicine prescribed, the Chairman said that this was so, although, of course, the insured person had the right of appeal to the Commissioners against the action of the practitioner.

Dr. F. Radcliffe (Oldham) said that when, at the last Conference, he moved his resolution as to sickness benefit in venereal cases it was treated as a pious hope, but the pious resolution had become a thing accomplished, and he thought it was a victory for the Conference. The Chairman said that the result of this action was largely due to the late Dr. Olive Claydon, who was at the Conference last year.

The report was then approved, with the exception of paragraph 16 relating to the balancing of the General Medical Benefit Fund; the recommendations in this paragraph were made the subject of a motion by the Chairman at a later stage in the proceedings when considering the present method of remuneration.

Suspension from Medical Benefit.

Dr. James Melvin (Rochdale) said that his committee felt strongly that something ought to be done in the case of those societies which failed to give notice of suspension from medical benefit, and he moved:

> That the British Medical Association press upon the Insurance Commissioners that a more punctual notice of suspension from medical benefit be given by the approved societies to the Insurance Committee.

Dr. B. A. Richmond said that some areas had been very much concerned with this matter. In London cases had been notified which had been suspended apparently for as long a period as two or three years. They were told by the Commissioners that some of the cases were those arising out of the primary inflation of the register, which meant that they arose as a result of the way in which, in response to the touts of the approved societies, persons put themselves on more than one society. The point the Commissioners made was that some of these primary inflations were now being checked and corrected, but they hoped in time to devise machinery which would be independent of the approved societies, so that nothing could interfere with the doctor getting notice of the suspension of the patient.

Dr. F. Radcliffe (Oldham) said that in the case of one approved society in Oldham, for eighteen months at least these suspended persons had been allowed to be on somebody's register, and during that time the doctor was liable for treating some of them.

Mr. J. H. M. Brennan (Stockport) said that he had been instructed to support the Rochdale motion in every possible way. He had known cases of quite recent occurrence (September, 1916) in which the people in respect of whom the notification was then given had been taken off the list at the beginning of 1913.

Dr. H. B. Brackenbury (Chairman of the Insurance Acts Committee) said that he believed everybody in the room was agreed upon this important matter. There were two classes of cases to be considered. The first included the very old cases, extending over from eighteen months to three years, in which it was not quite true to say, in the majority of instances, that the doctor was actually under a liability to attend the patient during the whole of that period. Most of these were duplicate cases belonging to more than one society. The more important cases were those of more recent removal in which the doctors knew that actually they had attended persons during the period when, according to the subsequent intimation, those persons were not entitled to benefit because they had been suspended therefrom. All those present would agree with the Rochdale motion if they could not do anything better. The Commissioners and everybody else were aware that this was an important grievance, and one in which the doctors had absolute right on their side. There was first the legal question as to the individual doctor's remedy in order to obtain payment, and next the administrative difficulty as to how these things could be overcome and prevented. So far as the former was concerned, the Solicitor's opinion was before the meeting in the memorandum reporting the action taken by the Committee on the resolutions of the last Conference. The legal remedy for the doctor was against the Insurance Committee, and if the doctor were to sue the Insurance Committee for the fees, the committee would have to pay and would have the remedy against the approved society. But if this legal remedy were taken, it would be clearly open to the Insurance Committee to insist that the doctor should show exactly how much they were entitled to, and this would be a most complicated matter. With regard to the administrative difficulty, which was the one actually referred to in the Rochdale resolution, he did not believe this could be overcome to any considerable extent in the way Rochdale suggested. They might worry the approved societies till doomsday without result. The Insurance Commissioners were devising machinery to meet the case, and the Committee had secured a promise that they were going to do something better than hurry up the approved societies—namely, deal with the whole matter from the bottom upwards.

The Chairman said that as panel practitioners they had no dealings with individual patients in a matter of this sort; any action must lie against the Insurance Committee.

Captain Fothergill suggested that the Rochdale motion should be put in more general terms. He moved an amendment, which was seconded by Dr. J. McCrea (Berkshire), to omit the words after "given," and substitute the words "to panel practitioners." The effect was to place the onus on the Insurance Committees.

Dr. McGowan (Manchester) suggested that the Commissioners might be asked whether they would not be willing to penalize approved societies for failure in this respect.

Dr. Major Greenwood thought that the Rochdale resolution, and even Dr. Fothergill's amendment, was an example of going for the less instead of the more important. The resolution should aim at securing for the doctor payment for the mistakes which occurred.

Dr. E. H. M. Stancomb (Southampton) thought it advisable that the original motion should stand. Dr. Brackenbury had said that the approved societies could not be hustled or hurried; but apparently the panel practitioner could. He was not at all optimistic with regard to Dr. Brackenbury's announcement that some new machinery was to be invented to meet the cases. There was no harm, at least in allowing the Rochdale resolution to stand.

Dr. D. A. Sheahan (Portsmouth) thought the Conference ought to insist that the doctor should be paid for every name on his list for as long as it was on his list. The matter then became very simple. If the approved societies knew that the doctors were being paid for every name on the list it might lead them to revise their unbusinesslike methods.

Captain Fothergill's amendment was carried, and subsequently adopted as a substantive motion as follows:

> That the British Medical Association press upon the Insurance Commissioners that a more punctual notice o

suspension from medical benefit be given to panel practitioners.

Correction of Registers.

Dr. R. H. Dix (Sunderland) moved:

That the Conference reiterate resolution 40 of the minutes of the Conference, 1915. (The resolution urging the Commissioners to take immediate steps to revise and correct the registers of Insurance Committees.)

Mr. Brennan (Stockport) thought it advisable to go one step further, and to ask that the method by which this should be carried out should be a clearing house. A clearing house was mentioned at the last Conference. He proceeded to give some examples of financial chaos from his own constituency. He believed the clearing house was the secret of reform in this business, and that it would be very easy to set it up if they were really in earnest. He suggested that the clerks at present engaged in dealing with record cards and collecting statistics therefrom should be turned to do the work of a clearing house.

Dr. Alfred Banks (Wallasey) supported the motion, but took exception to the words "immediate steps," which involved the creation of machinery and much trouble and expense for which the time was not opportune. If there was likely to be a big gain from the setting up of a new system he would agree to it at once and risk the expense, but he did not think that they should press at the present time for a receiving bureau, especially as the staffs of the societies were greatly depleted.

The Chairman said that the Commissioners were just as anxious as themselves to establish this clearing house, but they could not get it carried out until the war was over. It was well to keep impressing its necessity, however, until the thing was accomplished.

The motion was adopted unanimously.

Notices of Removal.

Dr. T. Martin Cuthbert (Salop) moved:

That when a practitioner is notified of the removal from his list of an insured person it shall be the duty of the Insurance Committee to state on the notification the address to which the insured person has removed.

Mr. E. Burchell (Brighton) moved, and Captain Fothergill seconded, to add at the end the words "with a statement that a new doctor has been chosen, and giving such doctor's name," but the amendment was lost and the original motion carried.

Notice as to Intended Alterations of Regulations.

Major John Orton (Warwickshire) moved on behalf of the Coventry Local Medical and Panel Committee:

That this Conference recommends the British Medical Association to do all in its power to obtain three months' notice of any intended alterations in agreements so as to give adequate time for consideration.

He said that they were told, on the one hand, that not many alterations had been embodied in the agreement for next year, but the provisions as to the calling in of consultants were rather vague and might have far-reaching results. Proper notice should be given with regard to these alterations, and three months seemed a reasonable time. The notice should be to the Panel Committees.

The Chairman said that if notice was sent to the Panel Committees three months before the agreement had to be signed, it meant that the Insurance Acts Committee would require to have notice some time earlier.

Mr. Brennan (Stockport) supported the motion and thought that the present arrangement was inconsistent with the collective bargaining for which the British Medical Association asked. The Panel Committees should have three months' notice in order to see what was ahead of them.

Dr. P. Macdonald (York) said that his committee regarded it as of extreme importance that they should have this period of notice if at any time it should be necessary to fight a regulation.

Dr. W. M. Branson (Halifax) wished the motion was not quite so vague. The British Medical Association already had three months' notice, and that was all the motion appeared to ask.

Dr. Brackenbury said that they were all agreed with the spirit of this resolution. They wanted as long a notice as they could get. At present what the Commissioners did was to give three months' notice to the central bargaining body, which was now the British Medical Association, and for a while negotiations went on, the central bargaining body trying to get such modifications of the draft regulations as appeared to be advisable. When these were accepted, notice was sent to the Panel Committees and the individual practitioners. If the three months' notice asked for in the motion were given, it would tend to stereotype at that time the form of the regulation. Notice to the central bargaining body would have to be given two or three months earlier still, and he did not think that was a reasonable proposition to put before a Government department. If it was insisted, as the motion in its present wording seemed to insist, that three months' notice should be guaranteed to the central body which was negotiating on behalf of the profession, then, under their machinery for collective bargaining, they could so arrange that that three months' notice should be made effective.

Dr. G. G. Genge (Croydon) thought that if the Panel Committees had been consulted earlier the Committee would have given different advice to them with regard to some of the regulations than that which had been sent down.

Dr. E. H. M. Stancomb (Southampton) protested against the present undemocratic procedure. He had no objection to a central body acting for them, but he thought that body should act from start to finish subject to the consent of the local medical men whose bread and butter was concerned in the matter. If it was decided that the motion referred to three months' notice to be given to the British Medical Association, he would like to add "and that they shall transmit such knowledge to the Panel Committees."

Dr. H. G. Dain (Birmingham) said that they were going over the same ground as that which was covered at the last Conference; they were getting now much more than Coventry asked for.

Dr. James Holmes (Bury) thought that the regulations ought to have over twelve months' trial.

Dr. Brackenbury, in reply to a question as to whether it would be consistent with the confidential nature of the communications to communicate to the Panel Committees a sort of general notion as to what was going forward, said that in the early stages the negotiations were confidential. They must necessarily be confidential, seeing that they were conducted with a Government department which was in the process of forming its own mind on these matters. The whole gist of the matter was that the central negotiating body should be a body which had the confidence of and was representative of the panel profession. If the Insurance Acts Committee was not representative, then let them make it so, or choose something else. The preliminary negotiations proceeding between a Government department and that central body could not at the very beginning be distributed broadcast to Panel Committees.

A Member said that the whole point of the motion was that there should be some safeguard against any policy on the part of the Commissioners which might take the form of "rushing" the profession.

Major Orton said that his interpretation of the motion was that the Panel Committees should have three months' notice in order that they could consider any alterations, which might or might not be fundamental ones. They should have three months' notice to define their position with regard to them. The time had been whittled down to two weeks for the ordinary practitioner, and he thought it well to place on record their appreciation of the fact that the minimum of time for notice locally should be three months. Surely the negotiators would be very much helped in their negotiations with the Commissioners if they were furnished in the meantime with any comments from local bodies. He asked for three months' notice to the Panel Committees, and amended his motion by the insertion after "notice" of the words "to Panel Committees."

The motion was carried, and similar motions standing in the names of the Shropshire, Warwickshire, and York Committees, being covered by the Coventry motion, were withdrawn.

Other Action taken by Insurance Acts Committee.

The Conference having received the report of action taken during the past session by the Association, through its Insurance Acts Committee, on behalf of insurance

practitioners, apart from action relating to the subject matter of resolutions of the 1915 Conference, the Chairman moved that it be approved.

Dr. F. Coke (Kent), speaking with regard to the paragraph on the drug tariff in the report, expressed some dissatisfaction at the manner in which the "floating sixpence" had been dealt with. Actually, there were two different tariffs in operation, and the result of the arrangement was that the proceeds of sixpence were smaller then they should be.

The Chairman said that it was definitely explained last year that there were going to be two tariffs, one a commercial tariff on which chemists would be paid, and the other the old tariff on which the doctors would be paid. The doctors said they must have their 7s. secure, and when this was secured the pricing was left in the hands of the chemists and the Commissioners to make the best bargain they could. The doctors must stick to the bargain they deliberately made.

Dr. McCrea (Glamorganshire), on the paragraph dealing with surcharges for overprescribing, said that in large industrial areas the sum allocated for drugs and appliances was not sufficient. Whatever might have been the case before the war, it was not possible, in view of the enormous increase in the price of drugs, for the 2s. to cover the necessary expenditure; and that being so, was it fair that a man with 2,000 panel patients should be mulcted in £250 by surcharging out of the £450 which was his income from panel practice?

Dr. Brackenbury said that he could speak with regard to the specific case mentioned in the report. It was a case of surcharge, not to the extent of £250, but to £323, and he thought that if a Panel Committee was of opinion that a particular practitioner had been so extravagant as either of these amounts implied, that Committee should be supported in any action it took in the matter.

The Chairman pointed out that, whatever the special circumstances of various areas, it was the practitioner's own neighbours in panel practice who decided whether he was wrong or not.

Dr. A. Forbes (Sheffield), referring to the statement in the report that the Association had approached the Commissioners upon the question of rural practitioners and the increased cost of drugs, but without effect, asked whether some of the arguments used when the Commissioners were approached could be given to the meeting. In reply to other questions,

Dr. Brackenbury said that, as he understood it, there was no question of the cost of drugs involved in the extra grant of 0.3d. just promised to the chemists; it was made to meet establishment charges. The chemists had convinced Mr. Roberts that the 0.8d. at present allowed in order to cover establishment charges was not enough under war conditions in view of the enlistment of assistants and the increase of expenses in many directions. The cost of the drugs did not enter into this matter at all.

Dr. Forbes asked where the 0.3d. was to come from.

Dr. Brackenbury said that it was in essence a payment by the Treasury, but the Commissioners had probably found that the risk which panel practitioners refused to take last year had proved so profitable to them that they would be able to make this payment without drawing on the Treasury at all.

Dr. Candler-Hoyle (Yorks, N. Riding) said that he had had the opportunity, together with the secretary of his committee, of talking with Mr. Roberts as to the position of doctors dispensing medicines under the new tariff. Mr. Roberts said that it had never been considered so far as he knew.

The Chairman said that he could not give further information on this point than that contained in the report. No general complaints from the rural practitioners with regard to this matter had been received. There was an overwhelming number of general practitioners on the Insurance Acts Committee, and if particulars of cases were sent to them they could take action in the matter. The fact that a Panel Committee, by urging care and economy in prescribing, had brought down the average cost of drugs per insured person in one area from 2s. 6d. to 1s. 7d. in successive years proved what a large amount of extravagant prescribing had occurred.

Dr. R. Hanbidge (Radnor) said that he practised in what was essentially a rural area, and very often questions relating to rural practitioners had been referred to him. He had never yet heard of one case in the three counties with which he was associated in which the increase in the price of drugs had made any difference worth speaking of in dispensing.

Dr. A. E. Larking (Bucks) said that the experience in his area had not been that of the last speaker.

The Solicitor to the Association, in reply to a question as to whether the panel practitioner could cease to dispense for his patients at the end of the year, said that as governed by the present regulations it appeared to him that it was within the province of the practitioner to decline to do this after the end of the year. In reply to a further question, he said that there was nothing prescribed in point of notice, and the usual condition of things recognized was that the notice should be reasonable. They should apply their minds to the circumstances and fix a period. He expressed the opinion that a six weeks' notice would be counted ample.

Major Orton (Warwickshire) said that he was astounded to hear Dr. Harding say that rural practitioners had made no difference at all in their dispensing. Many interesting economies had been effected in other areas, notably in Coventry, at the suggestion of the Panel Committee.

The Chairman ruled out as not a practicable proposition a suggestion that temporary residents should be made to apply to the local Insurance Committee and satisfy that Committee that they were proper persons to be treated before receiving treatment.

The motion approving the report was then carried *nemine contradicente*.

Delays in Settlement.

Dr. McCrea (Glamorganshire) raised the question of delays in settlement, and described the position in his own area, where it was insisted that before settlement all prescriptions should be gone through by the Panel Committee and checked.

The Chairman said that this appeared to be a local controversy. It was quite possible for the local Insurance Committee to say that there had been such an amount of extravagant prescribing that there must be a thorough scrutiny before settlement.

Dr. T. Wood Locket (Wiltshire) suggested that the two reports on action taken on behalf of panel practitioners which had been considered that morning should be circulated among panel practitioners.

The Chairman said that all the matter of the reports had been published in the British Medical Journal. Some practitioners, of course, were foolish enough not to read the Journal, but his own impression was that members of the profession were becoming much more alert than formerly, and understood the necessity of keeping themselves informed.

The proposal to distribute copies of the reports was pressed by several members, one of whom urged that if these reports could be generally circulated it would be an evidence of the activity of the central body, and inspire more confidence in its decisions.

The Chairman said that every secretary of Panel and Local Medical Committees had received copies, and had been told that he could have copies if he desired it for distribution to all members of his committee. He begged those present to remember that the funds of the British Medical Association were not unlimited. He would undertake, however, that if any Panel Committee would like a number of copies these could be printed and forwarded at cost price.

In reply to Dr. H. H. Tomkins (Essex), the Chairman said the Insurance Acts Committee did the work quite gratuitously.

Dr. F. Coke (Kent) said that some of them had come to the Conference in a pugnacious mood, but the reports they had before them obviously involved so great an amount of work that he would like to propose a hearty vote of thanks to those who had had a hand in them. The vote of thanks was carried by acclamation.

New Regulations—1917 Agreement.

The report of the Insurance Acts Committee on the proposed modifications of the 1917 Agreement—New Regulations—having been received,

Dr. Brackenbury moved that it be approved. The profession, the Insurance Acts Committee, and the Commissioners were, he said, agreed that there should be on

alterations in the regulations during the war, the only proviso being—and it was an absolutely necessary one for the Government to make—that if circumstances arising directly out of the war necessitated an alteration of the regulations the Commissioners should be able to put such alterations before them; the contention of the Commissioners was that the particular alteration suggested was entirely a war emergency alteration. Some of those present might not agree, but if the Local Government Board said, from information at its disposal, that a very strong case was made out for certain action, it was entitled to take all necessary steps to further it. In this instance it was stated that, arising out of the war, there was a danger of great increase in the havoc wrought among the population by venereal disease. The Local Government Board claimed that this was a war emergency, and that was the reason why the alteration in the regulations was put forward. It did not open the question or give away their contention that there should be no alteration of the regulations during war time, except in so far as the actual circumstances of the war necessitated. What was the position that they as panel practitioners were to take up? They had to deal with and were amenable as practitioners to whatever scheme the Local Government Board might set up with reference to this matter, but as insurance practitioners they were only answerable to the Commissioners, and he would like to make the point that the Insurance Commission offered an absolute protection to them against the unlimited activities of the Local Government Board. But the Insurance Acts Committee said first of all—and it was still of that opinion—that they might very well do without any regulation whatever, not because what was laid down in the regulation was unreasonable, but because it was so reasonable that every decent practitioner would do all he could to forward the object intended, no matter whether it was framed in a regulation or not. The Insurance Acts Committee unanimously regarded this as part of the duty of panel practitioners to their insured patients, and thought that people who did not take that view of what a decent practitioner should do might very well be left to public opinion and to the general disciplinary powers of the profession itself. The Insurance Commissioners took up the position that if they did not put in some regulation it might be taken that the panel practitioner had no duties in this matter. They had a considerable amount of communication with the Commissioners before the present form of the regulations was arrived at. There was a tendency for the Commissioners to try and define more exactly what the duties of the practitioner were in these cases. The Committee had at last got it down to this—that there should be no duties with reference to any scheme on which the Local Medical Committee had not been consulted. If after consulting the Local Medical Committee a scheme was framed then the insurance practitioner was bound by regulation—not to all the details of the scheme, but to take such steps as appeared to him reasonably necessary to enable the patient to have full advantage of the provision. That was the interpretation which was accepted without demur by the Insurance Commissioners. If the consultant chose to prescribe a form of treatment for the patient for whom the practitioner was responsible, and if the latter did not think it necessary himself, he was not bound under these regulations or under any law or custom of the profession to give that treatment; responsibility rested entirely with him, with this qualification, of course, that the insured person had the right of appeal if he thought that the practitioner was not doing the right thing for him. A complaint on this matter as on any matter would go to the Medical Service Subcommittee, and it would be then entirely for the practitioner to satisfy the subcommittee that he had done everything that was reasonable. That was the nature of the regulation, and the Insurance Acts Committee was of opinion that the regulation laid down nothing but what almost every one among them was prepared to undertake. They went further and said that a willingness to undertake this work would place practitioners in a favourable position, when the method of remuneration came up for review, to maintain the remuneration they were at present receiving. There was an amendment on the paper in the name of the Birkenhead Committee which attempted to define more strictly what was to be considered reasonable for the practitioner to undertake, but the Insurance Acts Committee thought that most Panel Committees would prefer to have the word "reasonable." He would like to remind the Conference that the State had taken and would continue to take an interest in the health of the population. This might be furthered either by a completed panel system or by a whole-time State-paid service. He did not know which of these those present were out for; he knew which he was out for. He was out for the maintenance, amendment, and dignification of the panel system under proper conditions. If they refused the reasonable requirement laid down for them, then as far as their refusal could be used against them, it would be used to the damnation of the panel system and to further the set made in some quarters for the establishment of a State medical service.

Captain E. R. Fothergill asked who eventually defined the words "reasonably necessary." He suggested that the Insurance Commissioners were the people who would decide what was reasonably necessary. Every practitioner would say what he thought was necessary, but the determining power would rest with the Commissioners.

Dr. J. W. Pridmore (Isle of Wight) asked whether Dr. Brackenbury considered that a State medical service was a practicable thing at present. If not, at what subsequent time would it become practicable?

The Solicitor, in reply to Dr. Fothergill's question, said that it appeared to him that the method by which the whole defining of these words would come about would be by it being alleged against the practitioner that he had failed to observe the provisions of these new regulations, and that his conduct was called in question in consequence. That would be dealt with by the Medical Service Subcommittee. The practitioner would have the right of appeal from that body, and the ultimate decision would rest with the Insurance Commissioners through their court of inquiry. A court of inquiry would sit to inquire into this matter as a court of appeal from the finding of the Medical Service Subcommittee. The Commissioners would be the final court of appeal.

Dr. H. G. Dain (Birmingham) said that there was another method which might be applied in the interpretation of what was reasonably necessary—namely, that when any question arose it might be referred to the Local Medical Committee to decide, its decision being subject to revision by the Commissioners. A professional body should be better able to decide what was reasonably necessary than a semi-lay body such as the Medical Service Subcommittee.

Captain Fothergill asked whether he understood the Solicitor aright that the interpretation of the words "reasonably necessary" would refer to the Commission, and that the Commission would be the final court of appeal.

The Chairman said that the Commissioners would be the ultimate court of appeal as to whether the practitioner was correct in his judgement as to what was reasonably necessary.

Captain Fothergill said that before this draft was submitted the Commissioners had already defined in a document what they thought was reasonably necessary. He asked that the press might be excluded, and that portion of the document or its general tenor given.

The Chairman said that it was a confidential document, and although it concealed nothing which was extraordinary, it would be breaking faith with the Commissioners to produce it.

Dr. Brackenbury said that it was a document definitely withdrawn by the Commissioners. In reply to a question by Dr. Ratcliff-Gaylard, he explained that if a county borough drew up a scheme for dealing with venereal disease, they as practitioners, whether on or off the panel, would work under that scheme with reference to the whole of their patients. But as panel practitioners that scheme as such had nothing to do with them at all; the details of that scheme were not necessarily binding upon them, they being bound to the Commissioners.

In reply to Dr. Radcliffe (Oldham), the Chairman said that the new regulation was not restricted to venereal diseases, and could not be.

Mr. E. Burchell (Brighton) said that if this was so it was not a war emergency arrangement. He would agree that a scheme of treatment of venereal disease was a war emergency measure, but it was because this regulation was not entirely confined to that particular scheme and might

have wide issues in the future that he would oppose the motion.

Dr. BRACKENBURY said that the regulation as drawn did not refer specifically and entirely to venereal disease, but, in his view, it would be a breach of faith if, without opportunity of new revision, it were applied to any scheme not arising out of war emergency. The only other scheme he could conceive it applying to would be the case of disabled sailors and soldiers. This regulation was specifically brought forward at the present time as a war emergency.

Dr. W. KINGDON (Insurance Acts Committee) asked whether it would not be possible or probable that these regulations and this scheme generally might be made to apply to pregnant women, that it might be twisted round to work in ideas as to the notification of pregnancy.

The CHAIRMAN said that the Commissioners were reasonable men. The reason why he called this a new emergency regulation, and the reason for its present introduction, was because the thing had been forced upon the country through the exigencies of the war. It was a war emergency measure to that extent, and the hands of the Commissioners had been forced by the Local Government Board.

[At this point the Conference adjourned for lunch, and the discussion on this matter was not resumed until late in the afternoon.]

THE SYSTEM OF REMUNERATION.

After the interval Sir Robert Morant and Mr. J. Smith Whitaker attended to answer questions relating to Memorandum 229/I.C., published in full in the SUPPLEMENT of October 14th, explanatory of the system of remunerating medical practitioners. Accompanying the Commissioners were Mr. J. Anderson and Mr. S. P. Vivian. It was understood that there could be no general discussion, but Mr. J. Anderson, the Secretary of the English Commission, replied to questions addressed to him from various parts of the room.

Mr. ANDERSON, answering the first question, said that it was perfectly true that a regulation had been framed under which the penalty of suspension from medical benefit which was imposed on insured persons in the ordinary course when their contributions fell below a certain specified limit was not to be enforced against discharged sailors and soldiers. The obligation of the Government, discharged through the Commissioners, was to throw into a central pool of remuneration of panel practitioners an agreed sum of so much per annum—8s. 6d. if drugs were included and the domiciliary 6d. excluded—and a correspondingly smaller amount for persons entitled to benefit for less than a year. The real point of the questioner was as to whether the method of calculation adopted would be such as to take into account the extra responsibility and duties thrown upon doctors in respect of those people who, under previous regulations, were not entitled to benefit, and under the new regulations would be entitled to benefit contemporaneously. The answer to that question was Yes. The formula would have to be modified in respect to these persons, but the answer to the specific point was quite definitely in the affirmative. So far as doctors' responsibilities increased, and the number of people whom they were liable to attend increased, there would be a corresponding increase in the sum allotted for remuneration, and the calculations must be modified to take that increase into account. The appropriate additional amount must be brought into the pool in respect of this additional responsibility.

Asked as to what was meant by capitation basis, whether it meant that for every responsibility undertaken by a doctor there was a corresponding sum going into the pool, or that for every responsibility undertaken collectively by the profession a sum went into the pool, Mr. ANDERSON said that there was no special magic in the term "capitation basis." The term was simply used to distinguish the method from payment by attendance. Asked further as to whether, if a doctor had on his list a certain number of patients as indicated by the index slips, he was to expect to receive payment for each one of them, Mr. Anderson said that it was difficult to give an adequate answer to that question without going into the whole theory. The capitation basis did not mean that the individual doctor would get as many sums of 8s. 6d., or whatever the amount might be, as there were persons on his list; it meant that he received a sum calculated with reference to the responsibility he assumed, and not a sum calculated with reference to the work he actually did. The point was, How was the responsibility he assumed to be calculated? The number of index slips was taken as the basis of his responsibility; this entitled him to a certain credit, but the actual amount he received depended upon the ratio of his credit to the collective credits in his area.

Asked whether any method of checking had been devised with regard to the central pool which would assure them of the accuracy so far as the total amount of the central pool was concerned, Mr. ANDERSON said that the Commissioners had got to take as their basis the cards surrendered by societies, and the object of the questioner apparently was to discover what steps were taken to satisfy the Commissioners that the cards which ought to be brought into the reckoning were in fact received. What it really amounted to was this: Were the Commissioners satisfied that the approved societies were claiming the credits to which they were entitled? They had absolutely no reason for thinking that they did not do so. The societies' resources depended entirely on the cards they surrendered, and there was every reason to believe that the societies sent in, in course of time, all the cards they received. Insured persons would not get any of their benefits unless the cards they surrendered were entered in the society's register, and the auditor had to satisfy himself that the total of the cards received by the Commissioners tallied with the total of the society's register.

In reply to a question as to the relation which the amount paid for insurance stamps bore to the stamps on the cards surrendered, Mr. ANDERSON said that he could not say precisely. The receipts for insurance stamps exceeded in amount the contributions on cards surrendered, owing to stamps lost or destroyed, and the floating balance of stamps in the hands of employers; but the doctors' remuneration did not depend on the number of stamps on the cards, it depended on the number of stamped cards.

Answering questions with regard to inflation, Mr. ANDERSON said that if he was asked whether any useful purpose would be served by an attempt on the part of doctors to purge their lists, all he could say was that it would be an interesting experiment. Their experience in the Commission was that in order to secure a really valuable result it was necessary to deal with the matter on a much broader basis and to purge the index registers at some centre, where the registers of the various committees could be checked against each other.

Several questions were asked with regard to the procedure in special areas or among special classes, as, for example, in munition areas, and among men of the mercantile marine and fishermen, and Mr. ANDERSON asked to be informed of exact particulars. In respect to several of the questions asked, he said that the matters at issue were subject to local arrangement. The questions with regard to munition areas were extremely difficult and complicated. The matter was purely one of the distribution of the available funds, and any readjustment would simply mean that if more money was allocated to one area there would be less for other areas. The Commissioners had tested the contentions put forward with regard to munition areas by information at their disposal, and, so far as they had gone, they came to the conclusion that no sufficient case for redistribution had been made out; at the same time, any information which could be given would be very carefully scrutinized. A point to be remembered in connexion with munition areas was the extent to which persons whose contributions were paid in one area were on the list of doctors in an adjacent area. Then, again, in a munition area there were doubtless many entirely new entrants into insurance. It was exceedingly difficult to base conclusions on any isolated set of facts, but where they had applied the test it went to show that the burden falling upon panel practitioners in these areas was not substantially greater than in the same area under peace conditions or in other areas under war conditions.

Explaining what was meant by "case value" basis, Mr. ANDERSON said that this was primarily a method of calculating the appropriate rate of remuneration for temporary residents, but it was also a measure of the work done by the doctors in the area in return for the remuneration received. The case value was calculated as a result of the analysis of the record cards sent in by the doctors. The record cards of each area were very carefully analysed, and the case value was simply the result of dividing the fund for the area by the number of "cases" recorded in the

area. If a particular munition area had an enormous influx of new insured persons, and therefore a considerable increase of cases treated, without any corresponding increase in funds, one would expect to find the case value for that area show a sudden drop. The question of temporary residence depended upon the person's intention. If a person intended to be more than three months in an area he was not treated as a temporary resident.

In reply to other questions, Mr. ANDERSON said that each contribution card returned for the first half of the year attracted the full Exchequer half-crown. All the cards for the half of the year were taken into account whenever they were received, but they had to draw a line somewhere, and therefore they fixed quite a remote date by which all but an insignificant minority of the cards must be in hand, any small number of cards left over being brought into the next year's calculation. One member pointing out that if the calculation was based on the first half of the year, no allowance was made for the natural increase of population in the second half, Mr. ANDERSON said that he had no doubt that the chief actuary, who was responsible for these calculations, had the point before him, and his assurance was that under normal conditions the method of calculation gave a result which did not differ materially from the theoretical result. As to the increase of disablement, he admitted that while the formula they had adopted was right and proper for normal times, it might not give true results under the present exceptional circumstances. In 1915 the calculation for the purpose of the emergency settlement took account of that fact, and the more precise calculation which was now being made would, in fact, make due allowance for it. They proposed to obtain from societies a separate return of men wholly and of men partially disabled. He added that the Navy and Army Fund might be regarded as an approved society so far as the doctors were concerned.

In reply to a question about lost cards, he said that no insured person could get his credits unless he produced his stamped card. If the card was lost and the insured person could show that it was stamped, there was a machinery for giving him credit by stamping a fresh card, but the whole problem of lost cards was enormously exaggerated. Replying further, he said that the full yearly charge was paid for the cards surrendered for the first half of the year. Each card so surrendered attracted the full contribution. Asked for a little more information as to how the Government actuary arrived at his figures, and whether proper account was taken of lapses owing to death or any other cause, he said that he had seen the calculations of the actuary on the subject. The actuary based his conclusions on a vast body of statistical information. On the return to peace conditions there might have to be an adjustment in a contrary direction to that which had taken place during the war years, and if the bulk of discharges from military service occurred in the second half of the year, they would have to get a special return from the societies and adjust the balance in respect of the inflow of the new people.

Asked as to the meaning of the figures in paragraph 46 of the Memorandum, he said that the number 10,654,854 of insured persons entitled to medical benefit in 1913, was deduced by a mere process of arithmetic from the earlier calculations. There was no special virtue in the figure; it afforded no independent proof of the validity of the Commissioners' formula. This number was, in fact, the number of persons for whom they had paid to the medical profession the sum of 7s. per head. By comparing this figure with the total of the index registers they got the precise degree of inflation. The problem of inflation was one which the Commissioners had intended to deal with before the war, and they greatly regretted that they had not been able to do so. Asked whether each index slip had a corresponding contribution card, Mr. ANDERSON replied in the negative, saying that there was no necessary connexion between the two things. Asked whether the "reserve contributions" might not account for something like 10 per cent. of the inflation, he said that this did not affect the problem. Asked if it was not a fact that many married women continued their contributions but did no work after marriage, he said that this might be so, but in that case the doctors would be paid for their responsibility in regard to them. Asked whether the Commissioners had no power to deal with the societies at fault in the matter of inflation, he said that the inflation evil was the result of the system, and it was of no use trying to brand people as having been at fault. In answer to another question, he said that the Panel Committee had no legal right to require the Insurance Committee to give information about index slips, but the Insurance Committee would not be acting reasonably in refusing any information. In answer to representatives who inquired with regard to the provisions for temporary residents, he said that in the case of a temporary resident there was a special machinery for allocating funds. The doctor was, in fact, paid for work done in the case of a temporary resident. Asked how the doctor was paid for the supply of drugs to unallocated persons, he said that there were two forms of agreement, as he understood it, with regard to the supply of drugs by a practitioner. One form provided for the payment of two shillings, and if that was the particular form of agreement adopted, the doctor got his two shillings and nothing more. There was also an alternative form in which the doctor might be paid for his drugs at the tariff rate. Asked whether the Commissioners had any objection to penalizing the societies for not carrying out their obligations, he said that if they began discussing penalties for every fault of commission or omission, however excusable, and by whomsoever committed, they would get into a difficult region. For their own credit, and in the interests of good administration, the Commissioners would do everything that they could to secure smooth and equitable working. A few other questions on small points of detail were asked and answered.

The CHAIRMAN said that the question of munition areas was a question for the medical profession. The Commissioners were perfectly sympathetic and desirous of adjusting matters on a fair basis. It was up to the practitioners to devise some scheme, and the Commissioners were quite willing to receive a small deputation to discuss that question.

A vote of thanks was accorded to Mr. Anderson by acclamation, and the Commissioners then withdrew.

PAYMENTS TO INSURANCE PRACTITIONERS.

The Conference formally agreed to the reception of the Memorandum 229/I.C., which had been the subject of the Commissioners' visit earlier in the day, and also to the reception of a memorandum by Mr. C. E. S. Flemming (Wiltshire) as to a suggested alteration in the method of payment. Arising out of the latter,

Dr. T. WOOD LOCKET (Wiltshire) moved:

> That, in calculating payment to medical practitioners for any given year, the basis on which it shall be distributed shall be the numbers on the Index Register on the last month of the year before, and the fund to be distributed shall be that of two years before.

He said that one of the most frequent causes of complaint from panel practitioners was with regard to the method of remuneration. They could not understand how the sums they received were arrived at. They felt in Wiltshire that if some method could be devised by which this irritation could be removed it would be a very desirable thing. They did not suggest that they had touched the root of the difficulty of the Index Register, but they did feel that by adopting some scheme such as that suggested in the Memorandum the medical men at the beginning of the year would be in a position to know what their income was going to be. In 1915 they had no final settlement, and this year they had had two final settlements, and this was perplexing to the medical man.

Dr. DAIN (Birmingham) inquired whether there was any reason to suppose that, if the Conference adopted the scheme, the Insurance Commissioners would be prepared to pay them in full as they went along, even on the basis of the old year's figures, and Dr. STANCOMB asked what became of the interest on the money which the Commissioners were deducting at the present time.

The CHAIRMAN said the argument was that the money paid to the practitioners was only a payment on account.

Dr. GENGE (Croydon) suggested that as the proposed scheme could not be put into action at present it was rather a waste of time to discuss it.

Captain FOTHERGILL criticized some details of the Wiltshire memorandum, and the CHAIRMAN said that the matter was not yet capable of being threshed out in discussion. A motion to proceed to the next business was agreed to.

Dr. P. MACDONALD (York) moved:

That a clause should be embodied in the agreement to the effect that the final credit shall be paid to practitioners on the basis of the index slips as supplied by the Insurance Committees.

He admitted that the proposal was not likely perhaps to meet the acceptance of the Commissioners until the practitioners created a suitable organization, but he thought, nevertheless, that it was a thing which ought to be pressed. It really came back to the question of the original bargain. Payment on a capitation basis was not a payment for attendance or for work done but for responsibilities undertaken. In the old club days, for every name upon his list the doctor had a payment, but they were now told that the lists they were receiving were inflated. If the Commissioners could not keep their books in order he saw no reason why medical men should be penalized in consequence. Even though they might make no impression on the Commissioners at present, they should pass the resolution, the intention of which was that for every responsibility undertaken by a medical man he should receive adequate payment. It was no answer to say that two index slips were given to one person, for this only meant that two doctors had each undertaken the responsibility.

The CHAIRMAN asked whether it was worth while pressing this now, especially in view of the four or five millions of enlistments, 90 per cent. or more of them insured persons. When the war was over the Commissioners were keen on setting up the proposed clearing house.

Dr. P. MACDONALD expressed the view that a large part of the inflation was due, not to enlistments, but to bad book-keeping, but the CHAIRMAN said that the extreme inflation at the present time was undoubtedly due to enlistments.

Dr. R. HARDING (Radnor) said that the percentage of suspense slips was very small in some counties and in others very large. This rather suggested error and want of care in the register, and they ought to insist that the clerks did their duty. He hoped the matter would not be slurred over.

On the suggestion of Dr. STANCOMB, Dr. MACDONALD agreed to incorporate the words, "as soon as practicable" after the word "That" in the first line, and thus amended the motion was agreed to.

Inaccuracy of Register.

The CHAIRMAN, on behalf of the Buckinghamshire Committees, moved:

That the Conference calls attention to the fact that the Register of insured persons is not properly kept and is of opinion that panel practitioners suffer a considerable pecuniary loss in consequence. The Conference is of opinion that societies or (and) individual members should be penalized for not furnishing the proper returns or taking the necessary steps which would enable the Register to be kept more accurately up to date; and that insured persons who neglect to choose a doctor directly they receive a medical card should also be penalized.

Dr. CANDLER-HOPE (Yorks, N. Riding), who supported the motion, said that in the whole of the Act there was not a penal clause with regard to the insured person. Had such a clause been introduced much trouble would have been averted.

The motion was lost.

Calculation of Medical Benefit Credits.

Dr. J. R. SKINNER (East Sussex) moved:

That the British Medical Association be requested to ask the National Health Insurance Commissioners to furnish to the respective Insurance Committees and Panel Committees particulars of the method and details of the figures on which they have calculated the respective medical benefit credits for 1915 and similar particulars for subsequent years.

He described the discrepancy in his own area between the figures calculated on the basis of the index slips and the final credits; the one set of figures for 1915 were £1,942, and the other £7,352, a discrepancy of 4,530, involving the sum of over £2,000 in the year. They wanted to know how the Commissioners got at their figures, for they felt that the discrepancy worked out very much to their disadvantage.

The motion was agreed to, as was also a motion proposed from the chair on behalf of the Sunderland Committees:

That the Conference urges on the Commissioners the desirability of Insurance Committees forwarding each year to Panel Committees the data on which the case value of the area is estimated.

Payments.

The CHAIRMAN also moved, on behalf of the Insurance Acts Committee, and it was agreed:

That at the appropriate time the Insurance Acts Committee of the Association should, on behalf of panel practitioners, press for the carrying out of the suggestion made by the Commissioners to the deputation from the Insurance Acts Committee on July 9th, 1915, namely, that on or before the 30th of April of each year a definite percentage of the amounts due to practitioners be paid (not less than 95 per cent.), and that

(i) Any sums that accrue to the General Medical Benefit Fund subsequent to that date be excluded from that year's accounts, and carried forward to the next year's accounts; and

(ii) Any accounts not received by a fixed date anterior to the above-mentioned settlement date be liable, at the discretion of the Commissioners, to exclusion altogether unless reasonable cause can be shown for delay in their receipt.

A motion by the York Committees that a definite date in the agreement should be provided for the annual settlement in lieu of the present clause "as soon as may be" was withdrawn.

Dr. MCCREA (Glamorgan) proposed, and Mr. VERITY (Monmouthshire) seconded:

That this Conference considers no system of payment on a capitation basis to be satisfactory unless it assures to each panel practitioner, in agreement with an Insurance Committee, the full 1s. 9d. per quarter for each insured person whose name is on that doctor's list on the first day of each quarter, and that printed lists of these persons should be sent to each doctor, with all particulars relating to them, within fourteen days from the commencement of the quarter.

The motion was lost, and another motion by Glamorgan urging compulsion upon approved societies with regard to index slips was ruled out of order, as a similar motion had already been negatived.

NEW REGULATIONS—1917 AGREEMENT (*Resumed*).

An amendment by the Monmouthshire Committee, "that the medical profession declines to further work the Act," having been withdrawn,

Major ORTON, on behalf of the Coventry Committee, moved:

That no changes be made in the agreements between Insurance Committees and panel practitioners until the termination of hostilities.

He said that in spite of the excellent arguments which had been put forward earlier in the discussion, he would proceed with his amendment, for the reason that he did not think the proposed changes were all brought about by the war. He could not see, for instance, how the different regulation with regard to tuberculosis could have been brought about in the least by the war. Moreover, he did not think that acquiescence in these changes would be fair to their colleagues who were away at the front.

The CHAIRMAN said that the amendment refused to accept any alterations in the regulations, and asked whether, if the Commissioners stuck to the regulations, practitioners were prepared to fight. He was quite in accord with many of those present in thinking that there was no necessity for altering the regulation in regard to this matter, and that point of view was impressed upon the Commissioners, but the Commissioners wanted to get at the men who might not consider what was the right thing for the decent practitioner to do, and accordingly the regulation stood.

Dr. STANCOMB (Southampton) hoped that colleagues would not take up an attitude of factious opposition. It would be strategically a mistake. This was a war emergency, and therefore it was beside the mark to say that it should be put off during the war. Seeing that this had to do with national service at the present time, a refusal on their part would be very unwise. He believed that the changes proposed would seem much less formidable in actual working than they appeared to some in anticipation.

Dr. DAIN (Birmingham) asked why, if the Commissioners assured them that these new regulations were intended to apply solely to war emergencies, this could not be embodied in the regulations themselves.

Dr. GENGE (Croydon) thought that under this scheme the Local Government Board could add any notifiable disease they liked to make an order about.

The CHAIRMAN said that the Local Government Board could not impose any duties on panel practitioners as such save through the Insurance Commissioners.

Captain FOTHERGILL maintained that the draft regulation was worded in such a way that it could cover any scheme elaborated by the Local Government Board if the Commissioners approved it. The Local Government Board could from time to time schedule any disease it wished. The whole tendency of the Local Government Board was to develop ultimately a public health service under its own control, and when this came about the Board would come to loggerheads with the Commissioners. Anybody who had watched the *Times* during the last few months must be aware of what was happening. The medical correspondent of that journal had been constantly advocating a public medical service. If the Commissioners would agree to put in the words "venereal diseases" and "disabled soldiers and sailors," and that the term "reasonably necessary" should be settled by them in collaboration with the Association, the whole of the Conference would be united in support of the regulations. But, unless they were modified by those limitations, he and others would be in active opposition. The Association was dangerously placed, having private information which, if it were known, would alter the views of many present.

Dr. CARDALE (London) thought it was unfair to the Insurance Acts Committee and to the Conference that any speaker should be referring to private documents and trying to influence the meeting by vague suggestions as to what they might contain. He thought they could very well settle what their action was to be strictly on the merits of the case. At first, he admitted, he thought that extra duties were going to be put upon their shoulders, but that was not the case. The only thing they could be compelled to do was that which was reasonably necessary for their patients. If there were certain members of the profession who were not prepared to do that, it was only reasonable that the Commissioners should rope them in and make them do their duty. What would follow if these regulations were not accepted? Either the Commissioners would insist upon them, or would withdraw them. If they insisted, the practitioners would have to fight, and was the subject worth fighting about? If they were going to fight they should select a better battlefield. On the other hand, if the Commissioners withdrew the regulations, it would be marked to the discredit of the profession, and might mean the absolute destruction of the whole future of the panel service.

The CHAIRMAN, in reply to a question as to payment for consultants, said that a fund was being formed 75 per cent. of which was subscribed by the Government and 25 per cent. by the local authority, and out of that fund all these payments would be made. Not only would the consultations be paid for, but the men in charge of the clinics would also get a reasonable fee.

The amendment was put to the meeting and lost, and on this decision similar amendments by the Warwickshire and Buckinghamshire and Kent Committees and portions of an amendment by the Cheshire Committee were withdrawn.

Contracts.

Dr. HODGSON (Cheshire) moved:

(*a*) That whenever any change is made in the agreement between Insurance Committees and medical practitioners, provision should be made for an actual legal contract being entered into between the parties, so that fulfilment of the terms of the contract may be assured.

(*b*) That this meeting protests against the iniquitous arrangement existing at present by which medical men are deprived of any legal remedy for the enforcement of their just rights.

He affirmed that panel practitioners had no legal position in the eye of the law; the Insurance Commissioners were in absolute control when any alteration was made.

The SOLICITOR, in reply to a question by Dr. BUIST (Dundee), said that Dr. Hodgson was in error in stating that the panel practitioners had no legal rights under this agreement. The agreement had to be read in conjunction with the regulations made from time to time. He instanced the cases of Dr. Salter and of Dr. Moore of Leicester, in both of which the courts found in favour of the practitioner. Dr. Hodgson's statement was in excess of what was really the case when he said that panel practitioners had no rights which they could enforce. Even if the agreement were one-sided, nevertheless it existed as a contract between two parties, and the law would exercise its rights with regard to the terms and conditions.

Dr. R. R. W. LOGAN (Leicestershire) wished to emphasize the fact that their only possible action, other than accepting these regulations, was to resign. By signing the continuing agreement they had "sold their souls." The continuing agreement was a very bad arrangement for the profession. They were advised to accept it by the British Medical Association, and on that account the Association had lost their confidence. ("No.")

The CHAIRMAN pointed out that the British Medical Association had never taken any action in regard to these matters without consultation with the practitioners throughout the country.

Dr. STANCOMB (Southampton) said that Dr. Hodgson had implied that they had not got a legal contract. But it was a legal contract, although a unilateral one, and unfair in every sense of the word.

Dr. HODGSON withdrew the second portion of his amendment, and after a further brief discussion the Conference adopted a motion by Mr. BURCHELL (Brighton) to proceed to the next business.

Duties Imposed by the New Regulations.

Dr. JAMES GARDNER (Burnley) had an amendment on the agenda disapproving of the action of the Insurance Acts Committee with regard to the new regulation, but he said that since coming to London he had learnt that a different construction was to be placed upon the action than the one which might be inferred from the leading article on the subject in the BRITISH MEDICAL JOURNAL. This article appeared to have been erroneous to some extent, and to have contained unwarranted assumptions. This being the case, he withdrew the motion, as also another amendment protesting against any alterations to the existing regulations save such as might be imperatively necessary for the treatment of disabled soldiers and sailors, Mr. TURNER stating that he would have some information to give at a later stage.

Dr. LAIRD PEARSON (Birkenhead) moved an amendment which he described as an honest attempt to define the duties which would be imposed upon them by the regulations:

That in the opinion of this Conference Article 3 of the Provisional Regulations dated September 14th, 1916, should be amended as follows:

After the words "take such other steps" delete the words "as may be reasonably necessary," and insert the words "as are herein specified, namely:

(i) Furnish to any consultant or other medical officer designated for the purpose particulars of his diagnosis of the case, of the treatment given by him, and of the previous history of the case so far as known to him;

(ii) To prepare and dispatch to the proper person or authority specimens for the purpose of any necessary laboratory examination;

(iii) Attend consultations, when reasonably necessary, with any consultants or medical officers acting under the scheme."

Captain FOTHERGILL asked that the amendment should be withdrawn in favour of a subsequent motion on the agenda in the name of the Brighton Panel Committee, and Dr. BRACKENBURY gave an undertaking that the Insurance Acts Committee would have the suggestions under consideration in the preparation of a model scheme. On this understanding the amendment was withdrawn.

Dr. J. MCCREA (Berkshire) suggested that the Insurance Acts Committee might endeavour to get some form of payment for the practitioner for accompanying the patient to a consultant.

Defects in the Old Agreement.

Mr. BRENNAN (Stockport) moved a long amendment, which, however, he modified from its original form on the agenda. As altered it ran:

That this Conference requests the Insurance Acts Committee to press for the following amendments of the existing practitioners' agreements and regulations, namely:

(*a*) No alterations to existing regulations should be made or new regulations adopted until practitioners have had at least *three months'* notice of the proposed change (in substitution for the present period of *two weeks*, which renders a proper consideration of such changes practically impossible).

(*b*) The establishment of a central clearing house whereby a correct register would be in operation, and practitioners instead of receiving payments on account

based upon local figures (which are said to be inflated and therefore unreliable) would have some definite knowledge as to the number of insured persons actually on the register. (Note: This clearing house was promised by the Commissioners "at the earliest practicable date" so long ago as December, 1914, but is not yet inaugurated.)

(*c*) The provision of a definite date in the agreement for the annual settlement, in lieu of the present elastic clause "as soon as may be," under which payment may be postponed indefinitely. (Note: It has been suggested that the final payment should be made within a period of three months from the expiration of the year.)

(*d*) The provision of a clause relegating all alleged breaches of the agreement to an independent party of judicial experience in substitution for the present method of making the Commissioners (who are for all practical purposes parties to the agreement) the final court of appeal.

(*e*) If the present system of penalizing practitioners is to be continued, then approved societies should also be required to observe the regulations, and in cases of default be penalized. (Note: It is most unjust that practitioners should be mulcted, whereas the societies are immune from penalties.)

Dr. Major Greenwood suggested that this was *ultra vires* so far as anything that could be done by the Conference was concerned. It would necessitate an alteration of the Insurance Act.

Dr. Brackenbury said that clause (*d*) dealt with a matter on which the profession had expressed themselves very strongly to the Commissioners and on which they thought they had secured a very considerable victory. He hoped the meeting would consider whether the arrangement they had now—namely, trial by two doctors and a lawyer, was not preferable to (*d*) of the amendment.

The Solicitor said that he wished to put a question to Mr. Brennan. It was necessary to bear in mind the express provision which was contained in the agreement. There was a clause (No. 14) in the agreement which prevailed between the practitioner and the Insurance Committee, providing that any dispute or question arising between the Committee and the practitioner should be referred to the Commissioners. That stood quite apart from the provisions in reference to the inquiries into the conduct of a medical man. Although their claim would be against the Insurance Committee, nevertheless, the decision as to whether the claim was well founded or not would rest with the Commissioners. Did Mr. Brennan realize this in proposing his clause (*d*)?

The Chairman said there was a difference of opinion as to what was intended in (*d*). Mr. Brennan said that what was intended was that in the case of an alleged breach in the agreement there should be constituted an independent tribunal, which might consist of two doctors or two doctors and a lawyer, who would decide the case.

The Chairman said that what was asked in the amendment was not an alteration in the terms of the agreement, but an alteration of the regulations. Did the Stockport representative want to press for that in the new agreement of 1917?

Mr. Brennan: To press for reforms as far as possible.

Dr. Stancomb (Southampton) referred to the difference between the original form of the amendment and the form in which it now appeared. The preamble originally stated that the new regulations could not be accepted unless the defects in the old agreement were remedied; while at the end it was stated, in the original amendment, that if these terms were not granted the panels would be advised to resign in November next. He congratulated Stockport on having decapitated and decaudated their proposition, which showed that the deliberations of the Conference had not been without effect. He would like to ask whether the Commissioners had any right to use, for the penalization of doctors, funds which had been publicly and nationally contributed.

The Solicitor said that he would like a test case on this question carried to the highest court.

Clauses (*a*), (*b*), and (*c*) of the Stockport amendment were agreed to, and on (*d*)

Dr. Brackenbury said that the Insurance Acts Committee had before them pages on pages of alterations to the agreements, which would require an Act of Parliament to become effective. The alterations suggested in the amendment were by no means the only ones which the Committee was considering.

Clauses (*d*) and (*e*) were agreed to, and on a further clause (*f*), which proposed the abolition of the present system of altering from time to time the quarterly rate of deduction from practitioners' accounts and the substitution of a fixed rate per quarter, the Chairman said that this was purely a question of local option, and the clause was withdrawn.

The final result of the discussion was as follows:

Resolved: That the report of the Insurance Acts Committee on the proposed modification of the 1917 Agreement—New Regulations be approved, but that the Conference is of opinion that for the year 1917 the new part of Article 3 should be confined to the case of provision for treatment of venereal diseases and treatment of disabled soldiers.

(*To be continued.*)

NOTIFICATION OF INFECTIOUS DISEASES.

When the Council of the British Medical Association in April last repeated its protest to the Local Government Board against the reduction of fees for the notification of infectious diseases, it suggested the unification so far as possible of the forms for such notification and urged that practitioners should be supplied with franked envelopes for returning the forms to the authorities.

The President, in his reply, dated April 19th, 1916, expressed his agreement with the suggestion that the doctor should not be required to bear the cost of postage of notification forms, and said that, although it was too late to give effect to it in the Local Government (Emergency Provisions) Bill, he would endeavour to meet the point in some other way.

Later a communication was received from the Local Government Board intimating that the Treasury would not agree to the concession proposed. To this the Deputy Medical Secretary, Dr. Neal, replied, pointing out that even if the actual work of notification were not such as to warrant payment of any higher amount than 1s. in each instance, which view the British Medical Association does not admit and has already protested against, that amount will not in fact be paid if the doctor sending in the notification is required to pay postage on it. Apart from the many services which the medical profession is now rendering to the State, common justice demands that it shall not be penalized to an extent to which no other section of the community is required to submit, and it is a matter for sincere regret that an opportunity of removing at a comparatively small cost a cause of much irritation and a sense of injustice has been allowed to pass owing to the divergent views of the Government departments concerned.

Sir John William Moore has addressed a letter to the Dublin press calling attention to the effect of the reduction in Ireland. He points out that a medical practitioner who makes a mistake in his diagnosis, or innocently certifies in error, may be exposed to the danger of having an action for damages brought against him in the civil courts by the patient or the relatives thereof, and continues as follows: "The duty of notification is compulsory, one of grave responsibility, and one which may be attended by unpleasant and serious consequences to members of the medical profession. Surely, for a medical certificate issued amid such surroundings, a fee of 2s. 6d. is poor remuneration at the best. And yet, under the Local Government (Emergency Provisions) Act, 1916, this totally inadequate sum is whittled down to 1s., which practically amounts to a war tax on notification fees of 60 per cent.

"Notification has now been in operation since 1889, a period of twenty-seven years, and—no matter what the public may think of its value—sanitarians have no doubt that it is a powerful agent for good in the attempt to control the prevalence of acute infectious diseases.

"Will the effectiveness of notification as a measure of preventive medicine be increased by taxing the medical profession, already ready—perhaps too ready—to place their services at the disposal and for the benefit of the community, to the extent of 60 per cent. in this matter of medical certificates under the Notification Acts? Is it not a fact that members of the House of Commons, through which the Emergency Provisions Act, 1916, passed a few months ago, are still drawing their salary of £400 a year without any deduction whatever?"

INSURANCE.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

CONSULTATIONS.

THE President of the Local Government Board has issued a new Order, dated September 19th, 1916, rescinding the provisions of the Order of July 26th, 1912, whereby a medical practitioner carrying out the domiciliary treatment of insured persons suffering from tuberculosis was required to keep a continuous record of the clinical history and particulars of the treatment, and to submit the card or sheet concerning the record periodically to the Consulting Officer. The new Order prescribes the form in which a medical practitioner shall make his periodical reports to the Consulting Officer in regard to each of the patients under his care, and provides that the medical practitioner shall make arrangements with the Consulting Officer for each of his patients to be examined by the Consulting Officer not less than once in every twelve months. The Order defines a consulting officer to mean the tuberculosis officer of a dispensary area, or such other medical officer as the Local Government Board may from time to time approve. The operative part of the Order is contained in Article II, as follows:

ARTICLE II.—The treatment shall be carried out under the care and direction of a Medical Practitioner, subject to the following conditions, and to such other conditions as We may in any case from time to time approve; that is to say:

(1) That the Medical Practitioner attend each patient at such intervals as may be necessary in the interest of the patient.

(2) That the Medical Practitioner give the patient such instructions as are required as to his mode of living, diet, rest and work, and as to precautions necessary to protect the patient against reinfection.

(3) That the Medical Practitioner prepare and transmit to the Consulting Officer at such reasonable intervals, not being less often than once in every three months, as may be arranged between them, a report in regard to each patient in the Form set forth in the Schedule to these Regulations.

(4) That the Medical Practitioner make arrangements with the Consulting Officer for each patient to be examined by the Consulting Officer not less often than once in every twelve months.

(5) That the Medical Practitioner confer with the Consulting Officer at such times and in such circumstances as may be arranged between them in regard to patients under the care of the Medical Practitioner.

(6) That the Medical Practitioner from time to time inform the Medical Officer of Health of the Sanitary District in which the patient resides, of any circumstances known to the Medical Practitioner which may affect adversely the sanitary conditions under which the patient is living, and in respect to which action by the Medical Officer of Health or of the Sanitary Authority would, in the opinion of the Medical Practitioner, be necessary or desirable.

The schedule contains spaces for a record of the progress of the patient since the last report, on the general condition of the patient, an account of the general line of treatment followed since the last report, a statement as to whether the conditions under which a patient is living and receiving treatment are satisfactory, and the behaviour of the patient in carrying out instructions as to treatment and to precautionary measures. The practitioner is also required to state whether any form of treatment such as sanatorium, hospital, or dispensary has become desirable. The regulations come into operation on January 1st, 1917. They do not apply to Wales and Monmouthshire.

Meetings of Branches and Divisions.

GLASGOW AND WEST OF SCOTLAND BRANCH:

GLASGOW CENTRAL DIVISION.

A MEETING of the Division was held on October 12th, when Dr. JOHN ADAMS was in the chair.

Medical Referees under the Insurance Acts.—The resolutions of the Representative Meeting with reference to the appointment and payment of temporary medical referees under the Insurance Acts were approved. A communication from the Scottish Committee enclosing a letter from the Scottish National Conference of Friendly Societies offering a fee of 5s. a case referred to the medical referee, whether it actually comes to examination or not, was considered, and it was agreed that the rate of remuneration was not satisfactory, and that the fee fixed should apply only to those cases actually examined.

Annual Representative Meeting.—The Representative submitted his report of the Representative Meeting.

WILTSHIRE BRANCH.

A MEETING of the Branch was held at the Council Chamber, Salisbury, on September 27th, when the President, Dr. J. TUBB THOMAS, was in the chair. There were seventy-eight members of the profession present, of whom forty-eight were members of the Association and thirty-nine were officers of the R.A.M.C.

Treatment of Syphilis by Salvarsan.—Lieutenant-Colonel HARRISON, R.A.M.C., of the Military Hospital, Rochester Row, gave an address and demonstration on specimen taking, mixing, and administration of salvarsan, and made some remarks on the treatment of syphilis by salvarsan. He explained and demonstrated the methods of obtaining serum from suspected syphilitic sores for microscopical examination, and blood for the Wassermann test, and the method of administration and dosage of salvarsan and allied products. Colonel Harrison replied to a number of questions put by members present, and a hearty vote of thanks was accorded to him.

Tea.—At the close of the meeting afternoon tea was served, at the invitation of the President.

Association Notices.

CHANGES OF BOUNDARIES.

DIVISIONS OF METROPOLITAN COUNTIES BRANCH.

THE following changes have been made in accordance with the Articles and By-laws, and take effect as from the date of publication of this notice:

1. Incorporation of Islington borough in City Division. The City Division will thus consist of the City of London, and the boroughs of Bethnal Green, Finsbury, Hackney, Islington, Shoreditch, and Stoke Newington.

2. Incorporation of St. Pancras borough in Hampstead Division. The Hampstead Division will thus consist of the boroughs of Hampstead and St. Pancras.

3. Incorporation of Lewisham borough in Woolwich Division. The Woolwich and Lewisham Division will thus consist of the boroughs of Lewisham and Woolwich, together with, in Kent, the parish of Mottingham.

Representation in Representative Body.—Unaffected.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons E. Arkwright, M.B., and J. S. Dudding to the *Victory*, additional, for disposal. Staff Surgeons R. Connell, M.B., to the *Sappho*; A. B. Cox, M.B., to Devonport Dockyard, temporary; C. E. C. Stanford, M.B., and T. W. Myles, M.D., to the *Europa*, additional; J. H. McDowall, M.B., to the *Sapphire*; P. E. Egan, M.D., to the *Indus*. Surgeon R. J. G. Parnell to Haslar Hospital, Surgeon W. J. Stitt (emergency) to the *Wars*. Temporary Surgeons W. D. Galloway to the *Egmont*, additional for Malta Hospital; J. A. M. Alcock, R. A. Barlow, M.B., H. E. Hall, M.B., and C. McDonald, M.B., to the *Vivid*, additional, for Plymouth Hospital; N. A. Sprott, M.B., to the *Marlborough*; H. V. Deakin to the *Cornwallis*; G. W. Pool to the *St. George*; C. H. S. Taylor, M.D., and E. G. Schlesinger, M.B., to the *Europa*, additional; O. J. M. Kerrigan, J. Brumwell, J. J. Carroll, G. E. S. Ward, and C. P. Tatton to the *Victory*, additional, for Haslar Hospital; J. F. M. Campbell, M.B., to the *Impérieuse*; C. P. Barber to the *Pembroke*, additional, for Chatham Hospital; J. C. H. Allen to the *Virginian*; N. Parry-Price to the *Victory*, for disposal. To be temporary Surgeon: Surgeon Probationer J. M. Harrison (R.N.V.R.), G. P. Burr, M.B., W. B. Heywood-Waddington, C. H. Terry.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Captains relinquishing their commissions: R. M. Allan, M.B., E. C. Lindsay, M.B., F.R.C.S., E. C. Black, M.B., H. A. Lunn, S. Ritson, F.R.C.S., W. W. Waller, M.B., R. W. Russell-Jones, M.B., A. A. Hudson, M.D., F.R.C.S.E., A. W. McArthur, M.D., E. T. C. Milligan, M.D., S. E. Humphreys, M.B.

Temporary Lieutenants relinquish their commissions: J. Macnamara, A. S. Robinson, M.B., M. M. Adams, M.B., J. L. Wilson, M.B., A. Todrick, M.B., J. S. Doyle, M.B., W. A. Costain, E. R. Holborow, M.B., A. W. Cassie, M.B., J. Bain, M.B., H. G. Ward, M.D., H. A. Bodkin, R. V. Howell, M.B., H. J. Foote, M.B., J. Wyper, M.B., N. Bradley, M.D., C. D. Halcomb, M.B., R. E. B. Yelf, M.B., A. Gardner, M.B., F. MacRae, M.B., R. Fox, J. MacM. Watson, R. A. Wilson, M.B., H. I. G. Rutherford, M.B., E. Doherty, M.B., G. E. Lloyd, M.D., M. E. H. Wale, N. Leonard, M.D., J. B. J. L. Dalby, J. H. Potter, W. A. Stuart, M.B., A. R. Munroe, W. A. Twigg, R. O. Whyte, M.B., J. A. Proudfoot, M.D., C. A. Everest, J. O. Baker, M.D., W. P. Taylor, G. Adam, M.B., H. F. Sheldon, J. R. Irwin, M.C., M.B., R. Maclean, C. R. Learn, M.D., O. E. Ward, J. McKail, M.B., McW. Henry, F.R.C.S.E., J. Malloch, M.B., H. Tipping, M.D., A. J. Ferguson, M.B., J. Walker, M.D., L. S. H. Glanville, M.D., F. Simpson, A. R. Hobbs, M.D., A. G. Faulds, M.B., C. Robertson, M.B., A. L. Robinson, C. B. Gervis, M.D., N. McFarlane, M.B., H. M. Robertson, M.B., J. Gardner, M.D., E. F. Milton, M.D., W. C. Downs, M.B., J. M. Lang, M.B., W. E. Ainley.

INDIAN MEDICAL SERVICE.

Major H. C. Brown appointed permanently to the Bacteriological Department, with effect from February 14th, 1914.

Lieutenants to be Captains (July 26th, 1916): S. S. Sokhey, M.B., A. K. Sinha, M.B., S. Doraisany, A. Seddon, M.B., J. Findlay, M.B., W. C. Spackman, M.B. (prisoner of war), J. C. De, M.B., N. M. Mehta, R. M. Easton, M.B., C. H. P. Allen, R. V. Martin (prisoner of war).

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major A. E. Snell to be A.D.M.S., and to be temporary Colonel whilst so employed. Captain T. R. E. Hays-Hicks is dismissed the service by sentence of a general court-martial. Captains resign their temporary commissions: G. L. Cockburn, C. E. Wilson. To be temporary Captains: T. F. Graham. Lieutenant W. A. Costain, Hon. Major N. C. Wallace, A. R. Munroe, late Lieutenant R.A.M.C.

SOUTH AFRICAN MEDICAL CORPS.

M. M. Adams, M.B., to be Captain.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel (temporary Colonel) G. F. Gubbin relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Highland Field Ambulance.—Officers seconded for duty with a stationary hospital: Major (temp rary Lieutenant-Colonel) A. E. Kidd, M.B; Captains A. B. Jamieson, G. McConnel, M.B., A. R. Moodie, M.B., and C. G. Skinner; Lieutenants B. L. Davis, A. G. Reid, M.B., and J. Steele, M.B.

Northumbrian Field Ambulance.—Major (temporary Lieutenant-Colonel) J. McD. Nicoll, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

West Lancashire Field Ambulance.—Lieutenant A. S. Parkinson, M.D., to be Captain.

West Riding Field Ambulance.—Captain G. E. St C. Stockwell, M.B., West Yorkshire Regiment, to be Captain (temporary) with precedence in the Unit as from March 31st, 1915. (Substituted for notification in the *London Gazette* of September 24th, 1915.) Lieutenant J. M. Pringle, M.B., to be Captain.

London General Hospital.—Captain P. H. Mitchiner, M.B., F.R.C.S., is seconded for duty with a stationary hospital.

London Sanitary Company.—Lieutenant C. N. Atlee to be Captain. M. Wilson to be Lieutenant.

Wessex Field Ambulance.—Captain W. A. Valentine, M.D., is seconded for duty with a stationary hospital.

Wessex Casualty Clearing Station.—Officers seconded for duty with a stationary hospital: Captain (temporary Major) A. G. Alport, M.B., Captains J. Fenton, M.D., and C. A. Raison, M.B., Lieutenant A. C. Smith.

Attached to Units other than Medical Units.—Captain A. G. Lovett-Campbell, M.B., to be Major; Captain J. Owen, M.D., to be seconded whilst holding a temporary commission in the R.A.M.C.; Lieutenant J. S. Hopwood, M.B., to be Captain.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

To be Captains: Captain M. A. Archdale, M.B., from Northumbrian Field Ambulance; Captain H. Drummond, from Attached to Units other than Medical Units.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.—House-Surgeon. Salary, £100 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer. Salary, £200 per annum, increasing to £250.

DUBLIN: CITY OF DUBLIN HOSPITAL.—(1) Senior Resident Medical Officer. (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, £50 for one year.

LINCOLN: ROYAL INFIRMARY.—(1) Pathologist to the Infirmary and the Venereal Diseases Section. (2) Medical Officer in charge of Isolation and Beds for Venereal Diseases. (3) Vacancy on Resident Medical Staff. Salary for (1), £150 per annum; (2), £200 for males and £150 for females, and (3), £100 per annum.

LONDON LOCK HOSPITAL, Dean Street, W.—House-Surgeon at the Male Hospital. Salary, £150 per annum.

NEWCASTLE-UPON-TYNE AND NORTHUMBERLAND SANATORIUM FOR CONSUMPTIVES, Barrasford.—Resident Medical Officer.

NOTTINGHAM GENERAL HOSPITAL.—(1) Two House Physicians, (2) Assistant House-Surgeon. Salary, £50 per annum each.

ROCHDALE INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £100 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Dental Surgeon.

SALFORD ROYAL INFIRMARY.—Assistant Resident Medical Officer (Female). Salary, £150 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Assistant Medical Officer. Salary, £400 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—(1) Temporary Assistant Physician to the Children's Department. (2) House-Physician. (3) House-Surgeon. Salary at the rate of £100 per annum for (2) and (3).

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Rathmore (Kerry), Valencia (Kerry).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CROSS, W. Foster, M.R.C.S. and L.R.C.P., Senior Administrator of Anaesthetics at St. Bartholomew's Hospital, vice Richard Gill, M.B Lond., resigned.

HASLUCK, E. P., L.R.C.P. and S.Edin., L.F.P.S.Glasg., District Medical Officer of the Upton-upon-Severn Union.

HILL, Miss S. E., M.D., Assistant Medical Officer to the South Infirmary, etc., of the Parish of St. Pancras.

MOORE, E. W., M.B., District Medical Officer of the Hungerford and Ramsbury Union.

PANTING, J., M.D.Camb., District Medical Officer of the Swaffham Union.

RHODES, F. S., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Fylde Union.

STARKEY, William, M.B., B.Ch., B.A.O.R.U.I., to be Superintendent of the Plymouth Borough Asylum.

THOMAS, W. E., L.R.C.P. and S.Edin., L.F.P.S.Glasg., Medical Officer of the Workhouse, District and Cottage Homes of the Bridgend and Cowbridge Union.

WILLIAMS, W. M., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Clwtybont District, co. Carnarvon.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

BARNES.—On October 24th, at Hill House, Eye, Suffolk, the wife of Lieutenant H. E. Barnes, M.D., R.A.M.C., of a son.

DEATH.

EDMUNDS.—On the 4th October, at Western Infirmary, Glasgow, Surgeon W. H. Edmunds, R.N., husband of Dorothy Edmunds, *née* Brown, 3, Valentine Road, King's Heath.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PSYCHIATRY, 8.30 p.m.—Presidential Address:—Dr. R. Percy Smith: Mental Disorders in Civilians Arising in Connexion with the War.

SECTION OF SURGERY, 5 p.m.—Dr. Sherman (Pittsburg, U.S.A.): The Sterilization of Wounds by the Method of Carrel; with epidiascope demonstration.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OPHTHALMOLOGY, 8.30 p.m.—Lieutenant-Colonel and Mrs. R. H. Elliot: The Photography of Macroscopic and Microscopic Eye Specimens. Dr. Frank Taylor and Mr Fleming: Bilateral Glioma of the Retina with Multiple Metastases. Mr. Arnold Lawson: Notes on Cases of Recurrent Glioma of the Retina, and on Fur Infection of the Conjunctiva.

THURSDAY

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Bradshaw Lecture by Dr. Hector Mackenzie: Exophthalmic Goitre.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OBSTETRICS AND GYNAECOLOGY, 8 p.m.—Discussion on The Need for Improvement in the Care of Pregnant Women, to be introduced by Dr. S. G. Moore (Huddersfield), Dr. Amand Routh, Dr. Comyns Berkeley, and Lady Barrett.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF LARYNGOLOGY, 4 p.m.—Cases and Specimens.

SECTION OF ANAESTHETICS, 8.30 p.m.—Mr. W. M. Mollison: Heart Massage following Heart Failure under an Anaesthetic. Dr. M. S. Pembrey and Dr. F. E. Shipway: The Composition of Air under Masks during Ether Anaesthesia.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith, W.—8 p.m., Cases; 9 p.m., Clinical Meeting.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	OCTOBER.
31 Tues.	London: Contract Practice Subcommittee, 2 p.m.
	NOVEMBER.
2 Thurs.	London: Insurance Acts Committee, 2 p.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 4TH, 1916.

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CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

London, Thursday, October 19th, 1916.

(Concluded from page 122.)

NEW REGULATIONS—1917 AGREEMENT.

THE CHAIRMAN said that the motion before the meeting was the approval of the report of the Insurance Acts Committee on the proposed modification of the 1917 Agreement —New Regulations.

VENEREAL DISEASES.

Captain FOTHERGILL moved an amendment, which was seconded by Dr. GENGE (Croydon):

> That this Conference is willing to accept Article 3 of the proposed draft regulations for inclusion in the agreement for 1917, provided that it is made to apply exclusively to the services to be given under the scheme of the Local Government Board for attendance on those suffering from venereal diseases.

Captain Fothergill said that the term "reasonably necessary" should be defined by the Insurance Acts Committee and the Commissioners together, with the concurrence of the Panel Committees. With regard to the treatment of discharged soldiers, he said that under the new Army Orders very few men would now come out of the army until the war was over.

Mr. E. B. TURNER said that at this point he would like to say some words on the subject of venereal diseases and of the discharged disabled soldier. To take the latter first, the fate of that man at the present time was in the hands of the Statutory Pensions Committee appointed by an Act of Parliament. That Committee had a Disablement Subcommittee, on which sat only one medical man (Sir Alfred Pearce Gould), who was greatly absorbed in other activities, to look after this big business. The Statutory Pensions Committee had started 270 local committees all over the country, and he believed he was right in saying that on hardly any of these committees was there a single doctor. This matter had come to the knowledge of the Central Medical War Committee, and the Insurance Acts Committee of the Association was also taking action, as they were well entitled to do seeing that about 90 per cent. of the disabled soldiers were insured persons. There had been a great deal of discussion as to whether these men were to be discharged from the army, and the greatest possible pressure had been brought to bear upon the authorities that these men should not be discharged, but should be kept under a certain amount of discipline until they were re-established in health so far as that was possible, and made capable of earning a living. He was glad to learn, from what Captain Fothergill had just said, that this view was being accepted by the authorities. That being so, the men would not come to be treated by the panel practitioner. It was well for the men that they should not be discharged on their pensions and have various people "stand drinks" to them as heroes of the war, but that they should remain under some degree of discipline, and should be looked after by the army medical authorities. When, eventually, these men were discharged, they would again come under the treatment of the panel practitioner, and it was very probable that these regulations would be used in order that these discharged soldiers might be able to get special treatment to help them as much as possible. Very great pressure was being brought to bear upon the authorities to take a reasonable and sensible view with regard to these men, and to appoint medical men to the Disablement and Statutory Pensions Committees. With regard to venereal diseases also, it was most important that the profession should be represented on the local committees—at any rate in an advisory capacity—and that was the reason why a letter was sent to all the Local Medical Committees from the Insurance Acts Committee begging them to do everything possible in the district to see that men from the local profession were co-opted while these schemes were still fluid. Mr. Long had also sent a circular letter giving the strongest advice to the Local Committees to invite the attendance of medical men. It was of the greatest importance that the profession all over the country should influence these local committees, and should do so before the schemes they projected became stereotyped. There was going to be nothing of the "wait and see" business on the part of the Government in this matter. The Royal Commission had awakened public opinion, and there was a great agitation, which would grow still further, to have the recommendations of the Royal Commission put into force. This was going to be dealt with as a matter of war emergency because of the enormous amount of venereal disease in the army at the front and at home, and because it was anticipated that when the war was over there might be such a spread of disease as to cause a material degeneration among the general population. There was going to be the fullest provision made in every district for the purposes of

diagnosis. Salvarsan was going to be provided at the public expense, though not given indiscriminately to every man who asked for it. Demonstrations on the use of salvarsan were already being given in London. There, again, the Local Medical Committees had got to get a footing, and to see that the thing was done properly. The publication and advertisement of this scheme must not be left to nondescript committees. These things were not in a state of suspended activity; they were going forward at once. Measures were also being taken to bring a bill into the House of Commons to prevent the advertisement of quack remedies and the treatment of these diseases by unqualified practitioners. This was being brought in by the advice and counsel of Lord Sydenham. Much opposition had to be overcome and many interests to be placated, but there was going to be a great campaign in support of the action he had sketched. A motion, to come on later, in the name of the Hertfordshire Committees, would supply some powder with regard to this last question. He believed that the result of the whole campaign would register a big success in the scotching of this horrible disease, and he wanted the profession to have a great and honourable part in it.

Speaking on Captain Fothergill's amendment,

Dr. B. A. Richmond thought it a little contradictory to put such a limiting clause into the regulations. Was the Conference prepared to consider the developments of the panel system in the light of this new regulation? Personally he was not afraid that it would involve such an additional burden that they would not be glad to undertake it, and he thought the effect of the proposed amendments would be to make the regulation not quite consistent.

Dr. R. C. Buist (Dundee) hoped that the amendment would not be accepted, for by limiting this draft regulation to special services they forfeited the privileges which the profession got under the rest of the regulation, namely, of being called into consultation with regard to the local schemes at their very inception. It was important that they should be called in before the schemes became stereotyped.

Dr. Burchell controverted Dr. Buist's suggestion. He said that the whole matter had been brought before the profession as a war emergency. This point had to do with schemes proposed by the local authorities. He did not think that anything with regard to the treatment of soldiers and sailors was likely to be local; it would be made universal. He for one would like to consider his attitude to these other schemes when they were prepared. He thought it very necessary to limit the regulation.

Dr. Stancomb (Southampton) protested against a suspicious attitude. He agreed, on the general principle, with all that Mr. Turner had said. In Southampton the point Mr. Turner had made had already been recognized, and there would be no fewer than five medical men on the local committee. He thought the administration which was to be set up was one in which the profession should take part.

After some discussion on Captain Fothergill's amendment, it was withdrawn in favour of an amendment by Dr. Burchell (Brighton):

> That the following words, "but that as regards the year 1917 the words 'in the case of venereal diseases'" be inserted after the word "where" in the fifth line of Article 3.

Dr. Brackenbury said that the amendment was an amendment to his own motion approving the modifications, and as such he could not accept it. He believed the Conference would be making a mistake if it did not endorse the report of the Insurance Acts Committee. He was, however, very anxious that they should come to an agreement, and was willing, as a sort of compromise, to add the following words to his motion accepting the regulation:

> but that the Conference is of opinion that for the year 1917 the new part of Regulation 3 should be confined to the case of provision for treatment of venereal diseases and treatment of disabled soldiers.

The previous amendment was withdrawn in favour of this, which was then carried, and afterwards agreed to as a substantive motion, with two dissentients, as follows:

> That the report of the Insurance Acts Committee on the proposed modification of the 1917 agreement—New Regulations, be approved, but that the Conference is of opinion that for the year 1917 the new part of Article 3 should be confined to the case of provision for treatment of venereal diseases and treatment of disabled soldiers.

Schemes under Regulation 3.

Dr. Burchell (Brighton) moved:

> That the Insurance Acts Committee of the British Medical Association be requested to prepare and issue to Panel and Local Medical Committees schemes for adoption under the third clause of the practitioners' agreement for 1917, which shall include all steps reasonably necessary to be taken by a panel practitioner in order that insured persons may derive full advantage from any service which may be provided, and which is considered to be covered by this clause.

Dr. Brackenbury said that he was prepared on behalf of the Committee to accept the motion, which was then agreed to.

Dr. Dain (Birmingham) moved:

> That the Conference requests the Insurance Acts Committee to draft a model scheme for a complete medical service for insured persons, as suggested in Article 3 of the New Regulations, and to submit this as soon as possible to all Panel and Local Medical Committees.

Dr. Dain said that his object in the motion was to show that the Conference was capable of constructive work as well as destructive criticism. It was quite obvious that when the war was over the service must be amplified, and it was time for the profession to set its own hands to work in this matter.

Dr. Brackenbury said that he did not wish to accept on behalf of the Insurance Committee too great an amount of work, but he knew that the Committee had it in mind to frame a constructive policy for use after the war, and the attempt would be made to construct some model scheme, as was suggested in this proposal, by which the panel service could be completed, improved, and dignified.

Dr. Richmond said that in London they had suggested to the Commissioners that before entering into any scheme for the provision of consultants they should consult the Panel Committees. The reply was that if the profession in London would frame a scheme, which, of course, would only come into operation after the war, they would be glad to consider it.

The motion was accepted, as was also the following further motion, proposed by Dr. Dain (Birmingham):

> That the Conference wishes to impress upon all Panel and Local Medical Committees the supreme importance of preserving the initiative in their own hands.

The Chairman said that the following motion by the Coventry and Warwickshire Committees was in contradiction to the motion just agreed to, as well as to a motion passed last year, which urged panel practitioners not to allow the direction of domiciliary treatment to escape from their hands:

> That the work of arranging for the periodical examination of tuberculous patients be done by the tuberculosis officer and not by the panel practitioner.

The motion was lost.

Diagnosis and Treatment of Venereal Disease.

Dr. W. Hodgson (Cheshire) moved:

> That the following be referred to the Insurance Acts Committee:
>
> (*a*) That this meeting is of opinion that all county and county borough authorities should provide facilities for diagnosis, and that such facilities should extend to *all* diseases. That the diagnostic outfits should be kept at the offices of the local medical officer of health.
>
> (*b*) That salvarsan or its substitutes should be provided at the public expense, as is done largely throughout the country in the case of antidiphtheritic serum. The drug and outfits should be kept at the offices of the local medical officer of health.
>
> (*c*) That whenever it is considered desirable, demonstrations in the use of salvarsan or its substitutes should be given at the various hospitals within the area of the local authority or adjacent thereto.
>
> (*d*) That these demonstrations should be arranged by the medical officers of health with the secretaries of the hospitals and of the district medical committees adjacent, and the neighbouring members of the medical profession should be invited to attend. This would ensure that the medical officer of health would know of the eligibility of the largest possible number of medical men available for the use of salvarsan and its substitutes.
>
> (*e*) That the publication of the "scheme" should be left in the hands of the medical profession, who would communicate with those patients who needed its assistance.

(*f*) That the proposals for the collective and individual education of young people in sex hygiene, etc., are objectionable and harmful.

The Chairman pointed out that the scheme for the treatment of venereal diseases covered every one, not insurance patients alone, and the scheme evolved by each local authority must be adopted. All that they could do was to get medical opinion brought to bear upon it.

The motion was agreed to.

Two motions on this subject by the Gloucester Committees having been withdrawn,

Dr. P. Macdonald (York) moved:

That the proposed system of diagnosis and treatment of venereal diseases through existing charitable institutions be only supported on the definite understanding that any practitioner undertaking such work shall receive adequate remuneration for it.

He said that the York Committee were entirely in sympathy with schemes for the treatment of venereal diseases, but noted that the treatment was to be provided generally through hospitals, and the lay members of hospital committees were rather nervous of having paid men to do work previously carried out by honorary men.

Dr. J. H. Cox (Nottingham) suggested that a general scheme in outline be drawn up defining the duties of the practitioner under the scheme for the treatment of venereal diseases.

Dr. Radcliffe (Oldham) moved, and Lieutenant-Colonel D. G. Thomson (Norfolk) seconded, an amendment to delete the last ten words of the motion, and to insert in their place the words "professional services so rendered be adequately remunerated."

The Chairman said that the intention was, as he understood it, that any money allocated to a hospital for the treatment of these venereal diseases should not belong to the individual practitioner, but to the medical staff of the hospital to devote to any channel they wished. Dr. P. Macdonald said that the object of his motion was that there should be no charitable element at all.

Dr. Radcliffe's amendment was carried, and subsequently adopted as the substantive motion as follows:

That the proposed system of diagnosis and treatment of venereal diseases through existing charitable institutions be only supported on the definite understanding that any professional services so rendered be adequately remunerated.

Dr. F. C. Evill (Hertfordshire) moved:

That this Conference is of opinion that no scheme for the diagnosis and treatment of venereal diseases will have the desired effect upon the public health unless measures be taken to prevent the treatment of these diseases being undertaken by unqualified persons, whose advice is at the present time sought by a very large proportion of those suffering from the primary stages, and hereby directs that this resolution be brought to the notice of the Local Government Board.

The Chairman said that this would be accepted at once, and action was already being taken along the lines indicated. The motion was agreed to, and it was also agreed that a copy should be sent to the Local Government Board.

Discharged Sailors and Soldiers.

Dr. H. L. Pearson (Birkenhead) moved:

That in the opinion of this Conference—

(*a*) The question of wounded and disabled discharged sailors and soldiers—whether insured or not—is one to be dealt with by the State as a special national problem; and cannot be considered to be covered by the terms and conditions of service of panel practitioners.

(*b*) The rate of payment at present accepted by panel practitioners, for insured persons, is totally inadequate to meet the needs of these discharged persons.

(*c*) It is preferable that these persons should be retained for treatment under military or naval discipline until such time as they are considered (*a*) to be fit to earn their own living, or (*b*) as unlikely to benefit any further from treatment obtainable.

(*d*) When returned to civil life, each such person should be entitled to free choice of doctor, subject to consent of doctor to accept.

(*e*) Payment for medical attendance should be made for each person, to the doctor accepting him, on a scale agreed upon between the British Medical Association and the Government.

(*f*) That the Insurance Acts Committee of the British Medical Association be requested to take the necessary steps in order to obtain the immediate recognition of these principles by the Government; and the adoption of satisfactory terms and conditions for the treatment of each of these persons from the time of his discharge.

Dr. Stancomb said that the motion was somewhat covered by the statement that the Commissioners had decided that the exceptional question of the disabled soldiers was to receive their consideration. He did not think this particular motion need be pursued.

Dr. S. W. Swindells (Grimsby) asked if the committees could be informed that there was to be an extra payment for the treatment of disabled soldiers.

The Chairman: No; we said that we should give them every facility for receiving special treatment.

Captain Fothergill said that what Mr. Anderson had stated was that if the war ended in the second half of the year they would have to revise their arrangements, but there was no suggestion that under this new calculation the practitioners would get more than the ordinary capitation grant.

Dr. Brackenbury said that Captain Fothergill was right. It was merely a question of calculating how much money ought to be in the central pool on a given date. A new formula had to be brought forward which would make the calculation for the first half of the year equable over the whole year. It was never contemplated when their remuneration was calculated that there would be this immense number of wounded men on their hands. That introduced a new element in the insurance risk they had taken on, and ought to be considered as a separate national problem. It was desirable in the interests of the men themselves that they should be under some form of military or naval discipline until they could be discharged in a fair way to earning a living.

Dr. Holmes (Bury) said that wounded soldiers and sailors ought to have the very best that they could give, and it was the duty of the State to see that they got it.

Dr. Ratcliff-Gaylard compared the position of the panel practitioners in this matter to that of a fire insurance company which had accepted the risk of fire in a number of stone or brick-built buildings and then found its risk transferred to a number of buildings in wood. That was a very fair simile; and it was a big thing to ask of panel practitioners that they deal with these individuals at the same rate of premium as obtained before the war. The extra risk should be borne by the Government.

Clauses (*a*), (*b*), and (*c*) of the motion were agreed to. As to (*d*),

The Chairman said that a resolution passed last year by the Conference was an attempt to get the man automatically returned to his former doctor by means of a regulation, but the Commissioners expressed the view that the object could be secured by arrangement between Panel and Insurance Committees. The Renfrew scheme had since been largely adopted.

Dr. Holmes (Bury) desired that clause (*d*) should read: "each such person not previously insured . . ."

Dr. Pearson said that he was quite content to leave (*d*) and (*e*) to the Insurance Acts Committee for consideration, and these were withdrawn on that understanding, and (*f*) was agreed to. A motion by the Stockport Panel Committee covering part of the same ground was thereupon ruled out of order, and a motion by the Portsmouth Committees dealing with inaccuracies in the calculation of remuneration was withdrawn, while a further motion by Dr. Drever (Glasgow), seconded by Captain Foster (Leicester):

That this Conference is of opinion that the accounts of the National Health Insurance Commission in so far as these deal with the formation and distribution of the medical pool should be investigated by an auditor acting on behalf of the profession,

was negatived.

Insured Persons in Munition Areas.

Dr. Pearson (Birkenhead) moved:

That in the opinion of this Conference the influx of insured persons to munition areas demands the consideration of the Commissioners with a view to such equitable distribution of funds available for practitioners as will secure to munition areas credits commensurate with their insurance liabilities.

He said that doctors in busy munition areas, although more occupied than they had ever been before, and at greater risk, were not receiving correspondingly extra remuneration.

Dr. Ratcliff-Gaylard thought that the Commissioners had prejudiced the case of munition areas in their

explanatory pamphlet on remuneration. They had assumed that the case value basis was a fair one on which to determine whether the amount of work done was adequately remunerated. They had not the data available to determine that. The case value depended not only upon a knowledge of the amount of sickness, but of the number of people in a given area for whom the practitioners in that area were at risk. The argument of the Commissioners was vitiated by the fact that in munition areas workers had come from all parts of the country, who had never put their names on any doctor's list. Thus the Commissioners were basing their ideas as to munition areas upon the work actually done, whereas panel practitioners were paid not upon the work actually done, but upon an insurance basis, which took account of the number of individuals for whom the practitioner was at risk. The munition areas were asking not for sympathetic but for equitable treatment.

Dr. Genge (Croydon) said that munition workers, if ill and able to move, very often went back home and came under their former doctor.

Dr. Buist (Dundee) thought that in any case there was no reason for not having an inquiry.

A Member said that if every district in which the conditions were at all special was going to make a claim for extra remuneration, there would be nothing left for the general body of panel practitioners. Dr. Martine (Haddington) thought that all that was wanted was the enforcement by the Commissioners of the regulations which they had made—namely, Nos. 28 and 29. Dr. Harper (Barrow) dwelt upon the difficulties of doctors in busy munition areas with regard to keeping their record cards in order.

Dr. Brackenbury said that the chief impression he had gathered from the speeches was as to the extraordinary difficulty attending this subject. Whatever was done for the practitioners in munition areas meant that the extra money payable to them would come, not from outside sources, but from other areas, which accordingly would have to do with less. All of them would want to make that new apportionment if it were proved to be equitable, but they had yet to be quite satisfied that it was equitable. No one of them was free from doubt as to some aspect of this subject, and the best way to thrash out the matter would be to have a deputation to the Commissioners composed largely, but not entirely, of representatives from munition areas.

Dr. Stancomb (Southampton) said that one of the difficulties was the casual manner of the munition worker in regard to the "B" form. Fortunately, however, the munition workers were a highly organized class in the trade union movement, and in Southampton the panel practitioners had managed to get at the munition workers through the local trades and labour council, and had laid before the council the desirability of seeing as far as possible that all the men under their control transferred themselves to a doctor.

The motion was carried.

Practitioners and the Increased Cost of Living.

Dr. James Gardner (Burnley) moved:

> That on account of the increased cost of living, the increased cost of petrol, etc., the British Medical Association be urged to agitate for an increase of 25 per cent. in the remuneration paid to panel practitioners.

He maintained that panel practitioners ought to have an increased allowance in one way or another from the Government, but there was another consideration to be kept in mind; shortly after the war there would probably be a big slump in prices, and if they made no protest now the Government would be able to say to them afterwards that apparently they managed perfectly well during the era of high prices, and would thus counter any demand on their part for a revision of the rates of remuneration.

Dr. Brackenbury, as representing the Middlesex Panel Committee, moved the following amendment, which was seconded by Dr. Swindells (Grimsby):

> That this Conference is of opinion that, owing to the great increase in the cost of living, insurance practitioners have a claim to an increase of remuneration, and that if such claim is not pressed at the present time this must be considered to be a contribution to the national cause and without prejudice to the consideration of remuneration after the war.

Dr. Brackenbury said that his purpose was to counter in advance any such argument as that which, according to the last speaker, might be urged against them after the war. He thought it important to put this on record, especially if, as had been urged, though he personally did not agree, they were in the position of employees.

Dr. Cleasby Taylor (Northumberland) said that if this was important for Burnley and Middlesex, how much more important was it for practitioners in rural areas, who, whatever the town men might be able to do, could not manage without their cars.

Dr. Brackenbury's amendment was agreed to, and accepted as the substantive motion.

Collective Bargaining by the British Medical Association.

The Memorandum on Collective Bargaining as regards Agreements between Panel Practitioners and Insurance Committees, and a further Memorandum by the Insurance Acts Committee on the Kent Scheme of Future Policy and Organization having been received, Dr. Brackenbury moved the approval of the principles underlying the first of these Memorandums.

Dr. J. W. Pridmore (Isle of Wight) moved as an amendment:

> That the Kent Scheme of Future Policy and Organization of Local Medical and Panel Committees be universally adopted by this Conference and recommended to all Local Medical and Panel Committees.

The amendment, he said, was in direct opposition to the system of the British Medical Association. He thought, however, that many of those present would agree that there could be too much centralization. There must be local as well as central bargaining. The course of action suggested in his amendment was very necessary, because practitioners were liable to be entangled in a net, and the end would certainly be a State medical service unless they stood together and refused to be coerced.

Dr. F. Coke (Kent), who had several further amendments on the paper, supported the Isle of Wight amendment, and said that the object of the Kent scheme was the organization of the whole profession as quickly as possible; if it were universally adopted, a central organization became essential; but there were so many points of local import which must be met by local means, that the Kent scheme as it stood should be the more important part of the two. The Kent scheme originated in what was done last year, and they got 100 resignations on the "Rep. mist." question, which was comparatively a feeble thing to get resignations on. The scheme was criticized in the memorandum which had been circulated by the Insurance Acts Committee, in part because of the stress which was laid on the importance of the fortnight transpiring between the eight weeks' notice given by the Commissioners of alteration of terms of service, and the six weeks' notice which practitioners must give of their intention to withdraw from the panel, but he wished to reaffirm the enormous importance of that fortnight. The scheme was also criticized because it raised the question of trade union organization, but he held that trade union organization was absolutely essential for the profession. Whether the trade union was formed locally or centrally was unimportant, but the necessity of having a trade union was very important if they wished to protect themselves and to be at liberty to take certain action. The only way for them to get what they wanted was to "go the whole hog."

Dr. Brackenbury said that there were three propositions underlying the two speeches: First, that the British Medical Association had failed; secondly, that under the leadership of Kent the profession could do better—("No")—well, by policy in accordance with the Kent scheme; and, thirdly, that trade unionism was an essential thing, both in central and local organization. Had the British Medical Association failed? At any rate, it put 1¾ million into their pockets which they would not have got without central bargaining. Dr. Coke had spoken of a hundred resignations, but the British Medical Association collected 28,000 resignations from friendly society appointments, and kept them, and it was because the Association got the 28,000 resignations that they got the 1¾ million. It was the greatest success in organization of the profession they ever had. And was not the British Medical Association an

instance of organization from the centre? The Association sent down to every Panel Committee, collected their opinions, did exactly what they wanted, and obtained exactly what they asked for. Had there been a failure in central bargaining hitherto? That very day they had passed two resolutions approving of everything the central organization had done since last year. He knew that most of the matters concerned were comparatively small points of detail, but they were all the points they had to deal with; and now the supporters of this amendment were going to scrap the British Medical Association. What evidence had they that under the leadership of Kent they would do any better? Kent said that unless they had trade union organization they could not do certain things. If they were a trade union, they would, it was true, have a protection in taking certain action, but it would involve picketing their fellows and denying all sorts of fellowship to those whom they would have to consider "blacklegs." He could not conceive the medical profession doing this. It did not matter, for the purpose of this argument, whether the trade union was a bad or a good thing. He was absolutely certain that they could not get every Panel Committee to register itself as a trade union. The British Medical Association had been a success in central bargaining, and he did not believe that the Kent people would improve upon it, and therefore he hoped that the Association would continue to be trusted.

Dr. Stancomb (Southampton) thought that the speech made by Dr. Brackenbury was a clever piece of special pleading. He (the speaker) had been loyal to the British Medical Association, and had no wish to raise any contentious matter; nevertheless, he traversed entirely the position taken up by Dr. Brackenbury. He admitted that they got all their resignations, but how did they get them? They did it at a time when there was no legal contract. He repeated that what the British Medical Association did for them in connexion with the last great strike movement, the Association could not have done except for the fact that the whole question was then in suspense. He was not going to cavil at the success which the British Medical Association had achieved, but the conditions now were different. From the time that the short notice of suspense was passed over their heads, no organization that was not registered under the Trade Union Act could advise them to any effect that would tend to make them break their contract. In view of the fact that there was again talk of resignations they were called upon most seriously to consider the question. The fact was that the British Medical Association could not move hand or foot to advise them with regard to an impending strike after the legal period was over. He would like to ask Dr. Brackenbury if there was any reasonable prospect of the British Medical Association doing for them in the future what he admitted the Association had done for them in the past. With regard to the Kent scheme, one objection to be thought carefully about was as to whether the Local Medical Committees could ever register themselves as trade unions. He was entirely in agreement with their having autonomy and bargaining powers, but in matters involving the handing in of resignations he was not so confident. The great thing was for them to decide to enrol themselves in a form of organization which could give them advice without fear of penalty, and therefore he hoped that they would decide that night on the principle apart from the details.

Captain Fothergill asked the supporters of trade unionism to press the matter to its ultimate conclusion. What did they come up against? They would have in certain circumstances to picket the doors of patients, and what was going to happen to the man whom they picketed? His private practice would go up by leaps and bounds. The public would not stand trade union business in the medical profession—not for a moment. As to the Kent scheme, he thought this would work out in such a manner as to bring about a flood of suggested alterations from all the different areas concerned. The whole energy of the profession would be split up and disorganized. Was that collective bargaining?

The Chairman said that he could speak as one who went through the whole fight over the Insurance Act, and there was no matter in connexion with the whole of that fight that was more thoroughly threshed out than the proposal that they should become a trade union. The British Medical Association came to the conclusion that everything that could be done by a trade union could be done by ordinary combination of the profession, save for two things, namely, peaceful picketing and a universal strike. Neither of these things was possible in a profession such as theirs. Upon what did the success of a trade union organization depend? On the ultimate union of its members when it came to the final clash. If one could not get such a union among medical practitioners by moral suasion, one could not get it by means of a trade union. He had no fault to find with trade unionism; it was susceptible to abuses, but when carried out properly it was an excellent thing. But he could see no respect whatever in which it was going to be an advantage to medical practitioners. As to the contention of Dr. Stancomb that a trade union could get men to break their contracts whereas the British Medical Association could not, it was quite certain that no medical organization would ever get its members to break contracts. What any organization would do would be to secure that men did not renew their contracts unless they were satisfied with the conditions.

Dr. A. G. S. Mahomed (Bournemouth) thought the British Medical Association was worthy of their support and adherence in every way possible.

The amendment was then put to the meeting, and lost by a very large majority, carrying with it four amendments in the name of the Kent Committees, a motion in the name of the York Committee, and a rider to the Isle of Wight amendment by the Herefordshire Committees.

Terms of Notice.

Dr. Radcliffe (Oldham), speaking with regard to the fortnight's difference in the terms of notice, suggested that instead of confining them to the fortnight the Association should draw up some provisional kind of regulation which could be circulated long before any possible resignations need be signed.

Dr. Brackenbury thought the fortnight sufficiently long if the whole scheme were taken into consideration. The memorandum in such details as these must not be considered as presenting a final scheme of organization. There were, no doubt, matters in which it could be perfected, and in practice one might take it that the time would always be longer than that actually specified, and it would soon be known whether any of the regulations were likely to cause acute controversy.

Dr. Stancomb said that in his speech on the Isle of Wight amendment Dr. Brackenbury claimed that the Conference had practically approved all the action of the Insurance Acts Committee by passing the records of what they had done. But that was done in courtesy, and for his own part he bitterly regretted now that he did not express himself more freely. He knew that no object would be served by raising up an acrimonious discussion, but he wished to be recorded definitely as against the acceptance of Dr. Brackenbury's motion approving the British Medical Association memorandum on collective bargaining, so that he might clear himself from compliance. He had hoped that a direct issue on the question of the trade union basis might have been obtained.

Dr. Pridmore (Isle of Wight) and Dr. Macdonald (York) associated themselves with Dr. Stancomb, and wished their names recorded as non-compliants. The motion was then put to the meeting and carried with a few dissentients.

Dr. Coke asked whether the Insurance Acts Committee believed in the weapon of wholesale resignation or not. The Chairman said that it certainly did when it got a suitable ground for it.

A motion by the Staffordshire Panel Committee reaffirming the position taken by the 1915 Conference in regard to the British Medical Association, recognizing it as the central mouthpiece of the Local Medical and Panel Committees, and placing on record the appreciation of the work of the Association, was then agreed to.

Questions of Representation.

Dr. Brackenbury, as representing Middlesex, moved that the larger insurance areas should have the right to nominate more than one representative to future Conferences. He instanced the injustice to London of having only one representative. In response to a suggestion by Captain Fothergill, he substituted the word "certain" for "larger," and in this form the motion was carried.

Dr. H. R. CRAN (Surrey), who said that the whole success of collective bargaining depended upon the Panel Committees having confidence in those who were doing the bargaining for them, moved that the direct representation of the Local Medical and Panel Committees on the Insurance Acts Committee should be not less than two-thirds of the whole committee.

Dr. BRACKENBURY appealed to Surrey to accept a modification. Surrey was asking for rather much, but he would be prepared to give his personal support to a proposal that, apart from the four *ex officio* members, one half of the other members should be directly elected by that Conference.

The MEDICAL SECRETARY gave some details of the present composition of the Committee, pointing out that all the members elected by that Conference were panel practitioners, and with one exception all the twelve elected by the Representative Meeting were on the panel, and the exception was the secretary of a Panel Committee. Therefore the Committee was overwhelmingly representative of the profession on the panel.

Dr. CRAN having refused to accept Dr. BRACKENBURY'S suggestion, this suggestion was proposed in the form of an amendment by Dr. HOLMES (Bury), seconded by Dr. BONE (Bedfordshire), and agreed to, and subsequently adopted as the substantive motion.

Dr. DREVER (Glasgow) moved, and Dr. MARTINE (Haddington) seconded, that the Scottish Committee of the Association be reconstituted on the same basis. Another suggestion was that a subcommittee of the Insurance Acts Committee should be appointed to deal with the Scottish Commissioners. Dr. Drever's motion was withdrawn on the understanding that the Council of the British Medical Association would consider the subject.

Dr. A. LINNELL (Northamptonshire) moved:

> That it is desirable that rural panel practitioners should have direct representation on the Insurance Acts Committee of the Association.

He felt that the rural members did not get quite the encouragement from the Insurance Acts Committee they were entitled to. It would strengthen the whole Association to gain the support of the rural practitioners.

Dr. BRACKENBURY, while sympathizing with the suggestion, expressed the opinion that the only way was for the Committee to appoint a rural subcommittee, on which members who were really representative could be co-opted.

Dr. R. HARDING (Radnor) moved as an amendment that the Insurance Acts Committee be recommended to appoint such a subcommittee, consisting of five rural practitioners. Dr. HOLMES (Bury) seconded, and Dr. CANDLER-HOPE pointed out some of the difficulties of the rural practitioner in the matter of dispensing. The amendment was carried and accepted as the substantive motion.

Dr. CRAN (Surrey) withdrew a motion dealing with contributions by Local Medical and Panel Committees to the expenses of the Insurance Acts Committee, the CHAIRMAN suggesting that the best way in which the British Medical Association could be recompensed would be by the accession of new members.

Mr. HARDING TOMKINS (Essex) moved that the Insurance Commissioners be requested to take steps to allow the statutory allotment under Section 33 (2) to be used for defraying travelling expenses of members of Panel Committees attending meetings of their committees and authorized central conferences, and this was agreed to. A motion by Monmouthshire that record cards be dispensed with was withdrawn. Dr. DIX (Sunderland) had a motion expressing disapproval of any official of an Insurance Committee holding office with a Panel Committee, Local Medical Committee, or any committee of the British Medical Association; but an amendment by Renfrew was carried, declining to express any opinion on this general question, and leaving it to each committee to decide for itself, having regard to the whole of the circumstances. A motion by Warwickshire, asking that approved societies be penalized for frivolous complaints and for neglect in issuing index slips, was met with a motion to proceed to the next business, which was carried.

STATE MEDICAL SERVICE.

The following motion, moved on behalf of the Buckinghamshire Committee, was carried:

> That this Conference, representing the practitioners who are working the Insurance Act, hereby affirms that the formation of a State Medical Service will meet with their strongest opposition.

MINUTES.

It was resolved that it be left to the Chairman and Medical Secretary to settle the form of the minutes, and that the resolutions of the Conference should be referred to the Insurance Acts Committee to be dealt with as promptly as possible, the Commissioners to be approached by deputation on such points as required to be dealt with in that way.

The proceedings closed at 11.20 p.m., with votes of thanks to the British Medical Association and to Dr. Macdonald, who had occupied the chair throughout the day.

CORRESPONDENCE WITH THE COMMISSIONERS.

ON October 23rd the Medical Secretary of the British Medical Association addressed a letter to the Insurance Commissioners transmitting a copy of the final resolution of the Conference of Local Medical and Panel Committees with reference to the new Regulations, which was as follows:

> That the report of the Insurance Acts Committee on the proposed modification of the 1917 Agreement—New Regulations be approved, but that the Conference is of opinion that for the year 1917 the new part of Article 3 should be confined to the case of provision for treatment of venereal diseases and treatment of disabled soldiers.

The report referred to is the letter signed by the Medical Secretary, and published in the SUPPLEMENT to the JOURNAL of September 30th. The Medical Secretary concluded his letter to the Commissioners (October 23rd) by saying that he was instructed to ask the Commissioners to favour the Insurance Acts Committee with an early reply, and to add that, should it be thought desirable, a deputation from the Insurance Acts Committee would wait upon the Commissioners.

The following reply, dated October 27th, has been received from the private secretary of Mr. Roberts, Chairman of the Joint Committee of Insurance Commissioners:

I am desired by Mr. Roberts to acknowledge the receipt of your letter of the 23rd instant with regard to the draft Amending Medical Benefit Regulations for 1917, and to state that very careful consideration has been given to the suggestion put forward by the Conference that the operation of the new part of Article 3 should be confined to the case of provision for the treatment of venereal diseases and the treatment of disabled soldiers.

If your suggestion is to be interpreted as a proposal that the Article should be amended by the insertion of words explicitly limiting the operation of the new part of Article 3, I am to explain that for the reasons stated below it would be a matter of difficulty for the Commissioners to accede to that proposal.

It will be appreciated that the object of the new Regulation is not to impose a new kind of obligation upon practitioners, but to provide for the more precise definition in practice of an obligation which is already in existence, being, it is understood, generally recognized by practitioners as incumbent upon them in the discharge of their professional duty to the patients to whom they have undertaken under their agreements to give adequate medical attendance. A limitation in terms of the Article would not only limit the sphere of that more precise definition which is the object of the Article, but it would also, by implication, narrow the range of the professional duty already incumbent upon practitioners, thus resulting in a positive lowering of the standard of adequate medical attendance which is already obligatory. In these circumstances it is not possible to assent to the insertion of words expressly limiting the operation of the new part of the Article (if this is the intention of the resolution quoted in your letter), in view of the incidental consequences which such an amendment would involve.

If, however, the intention of the resolution is that the operation of the new part of Article 3 should, as a matter of actual fact and practice, have effect during 1917 in respect of the treatment of venereal diseases and the treatment of disabled sailors and soldiers only, I am desired to state that the Commissioners have no knowledge or present expectation of any provision being made to which the Article would apply other than the provision above mentioned.

In any event it will be recognized that no important general provision by public authorities (other than that under the two heads above mentioned) could become established without a period of preparation. This would afford ample notice to the medical profession; but, in addition, Mr. Roberts is prepared to give an assurance

that, in the event of any new proposals being mooted for the establishment of any such new provision during 1917, he would at once take the profession into consultation through the recognized channels in order that it might be considered whether such new provision was one to which the obligations of the panel practitioners under Article 3 of the Regulation in respect of specialist services would properly and conveniently be applicable; or whether the position thus arising was such as to call for an amendment of the Medical Benefit Regulations in that respect.

The matter was considered at its meeting on November 2nd by the Insurance Acts Committee which will immediately address a communication on the subject to Local Medical and Panel Committees.

The Power of Bargaining.

Dr. Samuel Crawshaw (Ashton-under-Lyne) writes: In any ordinary business transaction where a contract is involved there are always two responsible parties, either of whom could be sued by the other in case of any breach. The terms of the contract would be the result of bargaining between the two, and the work to be done would be specific and fixed. If either party during the course of the contract wanted some alterations, a special payment would be involved, and so arises the bill for extras so beloved of our building contractors. Should the contract be renewable periodically any proposed change in its terms on renewal would be a matter for further bargaining.

I think the above is fairly applicable to most contracts in ordinary business life. But how does our agreement under the Insurance Acts compare with it? In the first instance there is really only one responsible party (ourselves) to the agreement. We can be sued. The other party (the Insurance Committee) can *only* be sued in case it withholds any money from us which the Insurance Commissioners have given them to pay to us, while it has no power to bargain with us as to the conditions of our work, except in minor matters. While our agreement has strictly preserved to us the privilege of being sued, we have actually, under it, signed away our right to bargain. The Commissioners would be a responsible party if they were in the agreement, as they hold the power of the purse and could be sued. But at present they are the final court of appeal in case of dispute, and have the power to alter the terms of our work without consulting us. These powers would automatically disappear if they were made a party to our agreement, and it was made specifically and definitely a contract. I do not think there is anything in the Act, though I am not a lawyer, to prevent them coming in, as I believe they have power to make other arrangements, failing agreement between the Insurance Committees and the profession. If we declined to make an agreement with the Committees, they would have to make other arrangements. It has been suggested that the Insurance Committees should be given greater powers at the expense of the Commissioners, and make each county a self-contained unit. But I think this would involve a new Act of Parliament, and could hardly be got through by the middle of November, when the agreements for 1917 are due to be signed. If the profession concentrated on the plan of making the Commissioners themselves a party to a contract I feel sure it could be done in time, but it involves immediate action on the part of Local Medical and Panel Committees. I have drafted a series of resolutions which I think embody the alterations immediately necessary and others embodying a plan of campaign to secure them. These are as follows:

Resolutions suggested to be proposed at meetings of Local Medical and Panel Committees of Counties and County Boroughs.

1. That it be a recommendation to each doctor on the panel of the County of —— to refuse to sign the agreement for 1917 unless the following points be conceded by the Commissioners:

   (*a*) That the agreement be directly with the Commissioners and not with Insurance Committees.

   (*b*) That in future no alterations in the agreement or regulations embodied in it shall take effect during the course of the year then current.

   (*c*) That notice of any alterations in the agreement or regulations intended to take effect on its renewal shall be given to panel practitioners at least three months before the last date for signing the agreement.

   (*d*) That provision shall be made in future agreements to secure that all disputes between the parties to the agreement shall be referred to arbitration, and, failing that, to a court of law.

2. That every panel practitioner in the county (county borough) of —— be advised to send to the secretary of the Local Medical and Panel Committee of his area his resignation from the panel with the proviso that it shall not be used unless at least 75 per cent. of the panel practitioners in that area comply (and then only in accordance with the directions of a general meeting called for the purpose).

3. That a special committee be formed in each panel area with powers to negotiate with the Commissioners on the basis of the first resolution, and that steps be taken to secure co-operation between neighbouring committees.

INSURANCE COMMITTEES.

Reckless Accusations.

At the last meeting of the Birmingham Insurance Committee, Mr. Teall, a representative of an approved society, called attention to a letter in a London newspaper signed "A Member of the Birmingham Insurance Committee," criticizing the services rendered to panel patients, and stating that "so many complaints of this nature have come to the notice of my particular insurance committee, that there is a very strong and determined intention, whenever the time comes to inquire into the working of the Act, to do all that can be done to bring about a State medical service." Mr. Teall said this was the first intimation he had had that any such opinion was entertained by the committee. When he was a member of the subcommittee last year it was found that in the majority of cases the occasional complaints made were groundless. Dr. F. A. L. Burges, one of the representatives of the medical profession on the Insurance Committee, described the letter as a gross calumny on the medical profession. The Rev. A. L. Chattaway said that, speaking generally, the medical panel service in Birmingham was entirely satisfactory. The matter had never been before the committee in the form suggested by the writer of the letter, and no such resolution as that indicated had ever been passed.

County of London.

Payments to Medical Practitioners.—At the meeting of the London Insurance Committee, on October 26th, it was stated by the Finance Subcommittee that the reason for the holding back of part of the payment to panel practitioners for the last quarter of 1916 (Supplement, October 7th) was that it had been found that a large proportion of the practitioners on the panel had been overpaid for the year 1914. It was decided to make no further advance to practitioners beyond that agreed upon for the middle of the present quarter until it had been ascertained that no overpayment was likely to result from the proposed advances for this year.

Administration of Medical Benefit, 1917.—The opinion was expressed that the Insurance Committee should be consulted, in addition to the Local Medical Committee, with regard to the provision of special treatment by the public authority for the area under Clause 3 of the new Regulations relating to the establishment of a consultative service, and it was arranged that the Committee's views on this point should be submitted to the Commissioners.

Sanatorium Benefit.—It was reported that the number of insured persons suffering from tuberculosis who were receiving treatment on September 30th under Section 16 of the Act was 3,934, but of this number only 356 were receiving treatment in institutions. The number of patients awaiting institutional treatment on the same date was 330. The waiting list was due to insufficiency of funds in the hands of the Committee and not to insufficiency of accommodation.

LOCAL MEDICAL AND PANEL COMMITTEES.

County of London.

Provisional Medical Benefit Regulations, 1916 (No. 2).—At the meeting of the London Panel Committee on October 24th a deputation which had been appointed to interview the Insurance Commissioners on the Provisional

Medical Benefit Regulations, 1916, reported that, as a result of the interview, they were convinced that the Commissioners were conversant with the anxiety expressed by practitioners as to the obligations which it would be possible to impose on them under the regulations, and intend to safeguard the practitioners. With regard to Clause 3, the Commissioners stated that it could be assumed that in London there would be one scheme only, drawn up by the London County Council, and not twenty-nine different schemes formulated by as many boroughs. The Panel Committee, acting on the suggestion of the Commissioners, appointed a special section to deal with the whole question of the setting up of a consultative service, the dangers to be avoided in connexion therewith, and the advantages and disadvantages of the formation of local treatment centres (clinics). A resolution was passed accepting the alterations in the conditions of service, and determining to watch the provision for the treatment of venereal diseases and of disabled soldiers, and, if found desirable, to formulate schemes defining and limiting the duties of practitioners in this connexion.

Examination by Medical Referees.—The Panel Committee has also conferred with the representatives of the leading approved societies with regard to the suggested formation of a temporary scheme for the examination of insured persons by medical referees. It was stated that although there was no inclination on the part of the representatives of the societies to adopt a new scheme, the suggestion was made that it would be a great advantage if some printed form of report could be devised in respect of all cases referred by the various societies to their referees, and that it should ultimately be recommended for adoption by the referees appointed by the Commissioners. At present there is a great variety in the forms of reference in use, and a subcommittee was instructed to consider and report on the matter.

Surrey.

At a meeting of the Panel Committee on October 13th it was resolved that, while cordially welcoming the provision of means by which panel patients can obtain expert assistance when necessary, it is inequitable that such far-reaching changes as might be involved by the alteration of Article 3 should be made in the agreements at the present time when so many panel practitioners are away serving their country. It was decided to send a notice to all practitioners on the panel in the county urging them to attend the general meeting on October 26th, to express their views and to decide what united action should be taken in the county.

Berks County.

At a meeting of the Local Medical and Panel Committees on September 21st it was reported that the Insurance Committee had received a letter from the Commissioners stating that a settlement should for the present be deferred in the case of certain doctors who had failed to furnish records in the prescribed form for the year 1915. The secretary reported that he had written to all the doctors concerned, and that in most cases they had replied stating that the record cards had been sent to the Commissioners properly filled up. The matter was referred to a subcommittee consisting of Drs. Napier-Jones, Joy, and May.

Ten stock mixtures were selected for use in the county. It was decided that in the case of an urgent prescription, the word "urgent" must either be written in the doctor's handwriting or be initialled by him.

Gloucestershire.

At a meeting of the Local Medical and Panel Committee on September 25th it was decided to protest against the proposed form of "Record of Progress" of domiciliary treatment of cases of tuberculosis as being cumbrous and in some items practically impossible to carry out.

The committee resolved to deprecate any scheme which removed from the general practitioners the treatment of venereal diseases and the treatment of these cases in institutions irrespective of the means of the patients.

Rochdale.

At a special meeting of the whole of the practitioners on the panel in the Rochdale area, held on October 9th, it was decided that the time was inopportune for a general resignation of men under the panel. At the same time a formal protest was expressed against the Commissioners' conduct towards the profession, while owing to the war everything else was in abeyance, in adding new regulations, thus increasing the practitioners' discontent and dissatisfaction with work under the Insurance Acts.

West Riding of Yorkshire.

The representatives appointed to meet the subcommittee of the Insurance Committee and the Pharmaceutical Committee have reported that the Conference recommended as follows:

> That it be recommended to the constituent bodies represented that doctors procure at their own cost, and from such source as they think proper, a supply of dressings and appliances for use in emergency cases, and that they be paid 6d. for each first supply used therefrom, and that the subsequent requisite dressings or appliances be ordered by prescription from a panel chemist.

It was decided that the scheme was unworkable and would lead to extravagance and waste.

York.

At a meeting of the Local Medical and Panel Committee on September 25th the proposed new regulations under the Insurance Acts were considered. It was decided (*a*) that no alterations to existing regulations should be made or new regulations adopted until practitioners have had at least three months' notice of the proposed change previous to a reply being required; (*b*) that a clause should be embodied in the agreement to the effect that the final credit shall be paid to practitioners on the basis of the index slips as supplied by Insurance Committees; (*c*) that a definite date in the agreement should be provided for the annual settlement in lieu of the present clause "as soon as may be" (three months after the expiration of the year is suggested); and (*d*) that a clause should be provided relegating all alleged breaches of the agreement to an independent party of judicial experience in substitution for the present method of making the Commissioners (who for all practical purposes are parties to the agreement) the final court of appeal.

At a meeting of the Local Medical and Panel Committee on October 21st Drs. Evelyn and Lyth were elected to represent the Committee on the Local Propaganda Committee for Campaign against Venereal Diseases. It was decided to inform the medical officer of health that, in the opinion of the Committee, the York Medical Defence Association, as representing a much larger area than York only should be adequately represented, and to suggest that two medical practitioners should be so appointed, one to represent the York members of that Association, and one the country members.

It was decided to ask the representatives of the Committee on the Insurance Committee to draft a resolution for issue with the medical cards or otherwise, whereby the attention of insured persons might be drawn to the inadvisability in cases in which neglect by their doctor is alleged, of calling in a fresh doctor without first notifying their own doctor of their intention to do so.

Renfrew County.

At a recent meeting of the Panel Committee it was reported that the Insurance Committee had received information from the Commissioners of a revised credit for medical benefit for the year 1914, from which it appeared that an additional sum of £383 2s. 1d. would be available for distribution among practitioners. This further credit was considered satisfactory.

County Wexford.

At a meeting at Enniscorthy of the medical practitioners of the County Wexford, when Dr. T. J. Kelly was in the chair, the following resolutions were unanimously passed:

1. That all future payments for certification under the Insurance Act be made in accordance with the signed agreement, taking the dispensary district as the unit for distribution in the scheduled areas.
2. That the application of any portion of the grant for certification towards defraying the cost of temporary medical referees appointed by the approved societies is a breach of the arrangement arrived at between the Commissioners and the Irish Medical Committee, and that we regard as most unjust that the State should aid by a grant of public

money approved societies to appoint medical referees whose chief qualifications, in many instances, for holding these appointments will be their readiness to save the funds of their employers, the approved societies, irrespective of the just claims of the insured.

The proposed extension of the Midwives Registration Act to Ireland was discusssed, and it was resolved:

That we consider an increased number of diploma-qualified midwives necessary, but we do not approve of the class of midwife for Irish practice which the contemplated Midwives Act for Ireland proposes to legalize.

A vote of condolence was passed to Dr. T. J. Dowse of Wexford on the death of his son, Lieutenant Dowse, killed in action in France.

INSURANCE NOTES.

Answers.

The Dating of Certificates.

I.

Dr. Percy C. Bushnell (Chiddingfold, Surrey), who is not a panel doctor but is at present doing work for a panel doctor, writes complaining that a divisional secretary of an approved society has refused to accept some certificates given by him to an insured person, who is thus for the time deprived of sickness benefit. It appears that Dr. Bushnell had been visiting about once a week a panel patient in a village about five miles away, and he says: "Five weeks ago I changed the day of my visit, and in order that the certificates should continue the week's interval and run as before, I stroked out the words 'to-day,' making the sentence of the certificate run 'I hereby certify that I have examined you.'" After an interval of over a month, four of these certificates were returned by the secretary of the club to the patient with a note to the effect that the State would not pass them unless dated the same day as the patient was examined.

*** The Commissioners are constantly insisting that the rules of certification should be strictly carried out, and ordinarily the certificate must be signed and dated on the day when the examination is made. Rule 9 (2) reads as follows:

The practitioner shall sign the certificate and append the date on which he signs it; and where this date is not the date on which he examined the insured person, he shall so alter the wording of the certificate as to show both the date on which the examination was made and the date of signing.

It is clear from this that it is not sufficient to cross out the words "to-day," but both the date of the examination and the date of signing must be stated on the certificate, and, as apparently the two dates were not so stated, the secretary of the society was strictly within his rights in refusing to accept the certificates, but in that case there ought not to have been the long delay in returning the rejected certificates. It is also to be remembered that doctors are under no compulsion to arrange their dates of visits to suit any arrangements of societies, and societies have no right to demand that certificates shall be dated on any particular day of the week in order to fall in with their pay days, but they can require that intermediate certificates shall be given at intervals of not more than eight days.

II.

Dr. F. Hone Moore, of St. Ives, says he has repeatedly received communications from officials of societies saying that an insured person under his care who has been ill for some weeks has missed sending in a certificate for a particular week, and the doctor is asked to send one for that week.

*** A panel doctor is under no compulsion, if he has given a certificate for that week, to give a second one to replace one which the patient may have lost or neglected to send in, or which may have been lost by a society agent, as not infrequently happens. It is the patient's business to ask for each weekly intermediate certificate, and, if he omits to do so, it is his own fault if he loses his sick pay for that week. If the doctor receives a request for a certificate at a later date, he will need to look up his record of visits or consultations, and if he then finds that he saw the patient during that week and is satisfied that he was then incapable of work but simply omitted to ask for a certificate, the doctor would be justified in giving a certificate for that week at a later date, provided that he crossed out the words "to-day" on the certificate and put in both the date when he saw the patient in that particular week and the date of signing. If on looking up his record he finds that he did not see the patient during that week, he should refuse to give a certificate, as it is quite possible that the patient, perhaps feeling a little better, went to his work for that one week's interval without declaring off. It is not allowable to give the ordinary form of insurance certificate, even to a disabled soldier, for any week during which the doctor has not actually attended the patient.

The London Panel Committee "Gazette."

In the September issue of the London Panel Committee *Gazette* the panel practitioners of the area are informed that in accordance with a suggestion of the Insurance Committee acceptances should be forwarded to the Insurance Committee before the 2nd day of January, April, July, and October, as any received after that date will not be paid for until the succeeding quarter. It appears that sixteen practitioners of the London panel have been surcharged on account of their failure to furnish an adequate number of record cards for the year 1914. The Committee reminds practitioners that the proper keeping of record cards is one of the conditions of the Treasury grant of 2s. 6d. per insured person, and any laxity may be used as an argument for the reduction of the grant. Attention is also called to the necessity of carrying out all the conditions imposed by the Commissioners on the use of the term "Rep. mist," as the Commissioners state that if they are satisfied that the conditions are disregarded by practitioners to any substantial extent, the permission to use the term may be withdrawn at the end of the year.

The Committee notifies its intention thoroughly to revise and enlarge the London Insurance Pharmacopoeia so as to include all the stock mixtures at present in use, and suggestions for additions or emendations are invited. The statistics for the third quarter of 1916 show that on July 1st the index register for the London area contained 1,597,893 names, while after all the proper corrections the medical register count was 1,524,121. The number of persons allowed to make their own arrangements was 1,500, and 1,472 received their treatment through the Post Office medical system. It is stated that at the end of the third quarter of the year practitioners would have received payments in advance at the rate of 3s. 9d. in respect of each person on their lists, but as the Insurance Committee announces that the advances have slightly exceeded the amount available, the advance payment for the fourth quarter would be reduced to 1s. 2d. instead of 1s. 3d., while those practitioners who have limited the number of persons for whose treatment they are prepared to accept liability, will only receive payment at the rate of 1s. per insured person. Notice is given of courses of lectures and demonstrations in the diagnosis and treatment of venereal diseases at the Military Hospital, Rochester Row, and applications for tickets for the courses are invited.

INSURANCE ACT IN PARLIAMENT.

Agreements.

On October 26th Sir Philip Magnus asked whether, under the medical panel system as administered by the Commissioners and committees, no injury or injustice for alleged breach of agreement could be submitted to a court of law for redress or compensation; whether dissatisfaction existed among medical panel practitioners on account of the privilege which is apparently enjoyed by the Commissioners of acting as judges in their own cause; and whether steps would be taken to remove this reason for dissatisfaction, by legislation or otherwise, which tended to impede the satisfactory discharge of the responsible duties undertaken by panel doctors. Mr. Roberts replied as follows: "The hon. member is under some misapprehension. Insurance Committees can, in appropriate circumstances, be sued by doctors who have entered into agreements with them. It is true that on certain matters, at the request of the medical profession itself, the Insurance Commissioners have accepted the responsibility of adjudicating between committees and doctors, and I have every reason to believe that this procedure has given general satisfaction." In reply to a further question Mr. Roberts said that he had no evidence that strong dissatisfaction was felt by nearly the whole body of panel practitioners, but that he would consider any evidence brought forward.

Payments for 1915.

In a written reply to Mr. Chancellor, on October 31st, Mr. Roberts, Chairman of the Joint Committee of Insurance Commissioners, stated that figures enabling the final settlement for 1915 to be made had been furnished to all Insurance Committees in England, and in Scotland and Wales figures enabling further or final payments to be made had been, or would shortly be, furnished to Insurance Committees in those countries. He was unable to state which Insurance Committees had distributed the moneys, or when the practitioners who had not yet received the moneys due to them might expect payment without obtaining a return from all Insurance Committees. He expressed his willingness to inquire into any particular case of delay.

Association Notices.

CONSTITUENCIES IN REPRESENTATIVE BODY, 1917–18.

(*a*) Provisional Home Constituencies.

The Council has provisionally grouped the Home Divisions in Constituencies for election of Representatives in the Representative Body, 1917–18, in the same way as for 1916–17, except that the Constituency comprised in the South-Eastern of Ireland Branch shall consist of the two present Divisions of that Branch—namely, Carlow and Kilkenny, and Waterford. A list of the Constituencies as they at present stand was published in the Supplement of July 3rd, 1915, p. 9. It is requested that any Division objecting, as regards itself, to the proposed scheme of Constituencies, 1917–18, will forward to the Medical Secretary, 429, Strand, W.C., not later than January 2nd, 1917, a note of such objection, together with a statement of the reasons therefor, and a definite proposal as to what change the Division desires should be made. Final decision rests with the Council.

(*b*) Oversea Constituencies.

It has been decided by the Council that each Oversea Division and Division-Branch having an Honorary Secretary and the necessary organization shall have the right of independent representation in the Representative Body, 1917–18, which comes into office at the commencement of the Annual Representative Meeting, July, 1917, to return one Representative.

Alfred Cox,
October 28th, 1916. *Medical Secretary.*

CHANGES OF BOUNDARIES.

Divisions of Metropolitan Counties Branch.

The following changes have been made in accordance with the Articles and By-laws, and take effect as from the date of publication of this notice:

1. That Ealing M.B., and Acton, Brentford, Chiswick, Greenford, Hanwell, Hayes, and Southall Norwood U.D.s be incorporated in the South Middlesex Division. The Division will thus consist of Ealing M.B.; Acton, Brentford, Chiswick, Feltham, Greenford, Hampton, Hampton Wick, Hanwell, Hayes, Heston and Isleworth, Southall Norwood, Staines, Sunbury, Teddington, and Twickenham U.D.s; and Staines R.D.
2. That Willesden U.D. be incorporated in the Harrow Division. The Division will thus consist of Harrow, Kingsbury, Ruislip-Northwood, Uxbridge, Wealdstone, Wembley, Yiewsley, and Willesden U.D.s; and Hendon and Uxbridge R.D.s.

Representation in Representative Body.—Unaffected.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH.

The autumn meeting of the Branch was held at Bournemouth on October 18th, when the President, Mr. W. H. L. Marshall, was in the chair.

Election of Officers for 1917.—The following were elected:

President: Dr. T. Howard.
Vice-Presidents: Dr. [illegible] Forster, Dr. B. S. Hollick.
Honorary Secretaries: Dr. F. Fowler, Mr. P. A. Ross.

Annual Meeting.—It was decided to hold the annual meeting, 1917, at Blandford, on the third Wednesday in May.

Scientific Proceedings.—Dr. C. Grey Edwards, Vice-President, opened a discussion on the prevention of tuberculosis, in which the President, Dr. E. Robinson, Dr. Moorhead, Dr. Ransom, and Dr. Hyla Greves took part. Dr. W. Johnson Smyth read a paper on the baths and remedial resources of Bournemouth, and Dr. C. Girling read notes and showed photographs of a case of recurrent cartilaginous growth of the shoulder of unusual size.

Luncheon.—Members were entertained to luncheon and tea by the practitioners of the Bournemouth district at the Hotel Metropole.

SOUTH-EASTERN OF IRELAND BRANCH.

An ordinary meeting of the Branch was held on October 4th, when Dr. A. B. Stephenson occupied the chair.

Vote of Condolence.—A resolution was unanimously passed that a vote of condolence be sent to Dr. R. R. O'Brien (Clonmel) on the death from wounds of his son Captain H. O'Brien, R.A.M.C.

Medical Referees under the Insurance Act.—A resolution was unanimously adopted protesting against the appointment to the position of medical referee of any man who has earned for himself the title of late medical certifier by action contrary to the wishes of the profession. At a meeting of the Branch Council held subsequently it was unanimously resolved, on the recommendation of the Kilkenny Division:

> That no member of the South-Eastern of Ireland Branch shall accept a less fee than one guinea for acting as medical referee in disputed cases under the Insurance Act.

The Honorary Secretary was directed to circulate voting papers to every member of the Branch for the purpose of obtaining their opinion upon the resolution.

SOUTH MIDLAND BRANCH:

Bedford Division.

The following officers have been elected for the year 1916–17:

Chairman: Dr. Waugh.
Vice-Chairman: Dr. J. Rollings.
Representative: Dr. J. W. Bone.
Secretary and Treasurer: Dr. G. T. Birks.
Representatives on the Branch Council: Dr. G. F. Dixon, Dr. A. E. Street, Dr. W. A. Sharpin, Dr. C. Charnock Smith.
Executive Committee: Dr. G. Butters, Dr. S. J. Ross, Dr. F. S. Lloyd, Dr. W. A. Sharpin.

REMUNERATION FOR CLINICAL POSTS IN CONNEXION WITH VENEREAL DISEASES.

The following letter has been addressed to the Honorary Secretaries of Divisions and Branches of the British Medical Association:

Sir,—As the Association is continually receiving inquiries from various parts of the country as to the appropriate remuneration of whole-time and part-time medical officers of clinics established under the schemes now being put into operation for the diagnosis and treatment of venereal diseases, the Council has not felt it possible to await the replies of the Divisions to the questions submitted in circular letter D 1, and has decided to recommend the following rates of remuneration for adoption by the next Representative Meeting:

> *Resolved:* That it be recommended to the Representative Body that whole-time senior medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases should only be appointed in country areas, where the work cannot be distributed among the members of the local profession.
>
> *Resolved:* That it be recommended to the Representative Body that the remuneration of part-time clinical assistants of clinics set up under schemes for the diagnosis and treatment of venereal diseases should not be less than £1 1s. per session, not exceeding two and a half hours.
>
> *Resolved:* That it be recommended to the Representative Body that the following scale of remuneration for part-time senior medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases be approved:

	London (per session).	Provinces (per session).
For one or two sessions per week, not exceeding 2½ hours each ...	£3 3 0	£2 2 0
For three or more sessions per week, not exceeding 2½ hours each ...	£2 12 6	£1 11 6

> *Resolved:* That the commencing salaries of whole-time senior medical officers of clinics set up under schemes for

the diagnosis and treatment of venereal diseases should not be less than £750 per annum, exclusive of travelling expenses, clerical assistance, cost of stationery, postage, etc.

Resolved: That as regards clinics set up for the diagnosis and treatment of venereal diseases, in exceptional areas where a whole-time assistant is necessary to a part-time senior medical officer, he should, if non-resident, be paid not less than £350 per annum, exclusive of travelling expenses, clerical assistance, cost of stationery, postage, etc.

In the meantime these resolutions are submitted to the Divisions for their guidance in connexion with the establishment of local schemes, though it must be understood that the terms recommended by the Council are not yet "decisions of the Association," and are open to amendment by the Representative Meeting in accordance with any other views that may be expressed by any Division if such a course be thought desirable.

Yours faithfully,

ALFRED COX,
Medical Secretary.

THE MEDICAL PROFESSION AND FRIENDLY SOCIETIES IN NEW ZEALAND.

IN the JOURNAL of June 17th, 1916, page 860, attention was drawn to the unsatisfactory relations between the lodge doctors and the friendly societies at Wellington, New Zealand, where matters had been brought to a crisis by the resignation of the lodge doctors at the end of 1915 in consequence of the refusal of the lodges to grant better terms. At the joint conference of representatives of the British Medical Association and the friendly societies, which was held at the end of last April, under the presidency of the Hon. G. W. Russell, Minister of Public Health, an agreement was reached on all points except payment, which remained unsettled. The doctors who, in consideration of the war conditions, had agreed to accept 21s. from three of the lodges felt that they could not make any further sacrifices, and the lodge delegates, who said they had no power to promise, stated that they would recommend their lodges to go as far as 20s. The fact remains, however, that nothing better than 15s. has been offered in writing to the Wellington doctors.

After the Conference, the Wellington Division of the British Medical Association on April 30th passed the following resolutions:

1. That this Division cannot recede from its offer of the reduced rate of 21s. per member per annum for the period of the war and six months after the declaration of peace.
2. That this Division will not abide by this decision unless the offer be accepted by May 11th, 1916.
3. If the said offer of 21s. be not accepted by that date, we would advise our members to decline to do lodge work at a lower rate than 24s.
4. That we have decided to attend at the old rate of 15s. the wives and children of lodge members who have gone to the war.

These resolutions were forwarded with a covering letter to Mr. Russell, who replied on May 1st suggesting that the doctors should make an agreement on the basis of a fixed payment per visit in place of a system of an annual rate per lodge member. In reply, the committee of the Wellington Division submitted the following resolutions:

1. That as the question of payment on a visit basis introduces an absolutely new principle in contract work, we as a Division could not conclude any such arrangement without consulting the Branch; that this principle is not conducive to wide application and universal adoption, and consequently we have no faith that this Branch would entertain the proposal even if it were referred to it.
2. That the principle of payment per visit basis is unthinkable so long as an income limit is not in vogue.
3. That the only per visit scale of fees that we would consider would be the usual scale of fees of the British Medical Association. Any variation we consider would tend to reduce fees generally and prove unsatisfactory.
4. That the principle would entail considerable bookkeeping, the absence of the need of which in the present system is a very strong recommendation.
5. That the present practice, since the rupture, of sifting the cases at the dispensary, would probably continue, and, without commenting on the obvious danger and evils of this state of things, only the more difficult and serious cases would be sent to the doctor, making any reduced fee unreasonable.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Surgeon J. M. Horan to the *Pembroke*. Temporary Surgeons A. Viney, S. R. Johnston, and J. R. B. Robb to the *Pembroke*, additional, for Chatham Hospital; J. E. Phillips, and A. H. Flannery, M.B., to the *Victory*, additional, for Haslar Hospital; A. P. Barrett, to the *Pembroke*, additional; G. P. Burr, M.B., E. J. Lloyd, and B. H. Pidcock to Haslar Hospital; W. H. W. Cheyne to the *Dreadnought*, vice Horan; D. J. Max, M.B., to the *Vivid*. To be temporary Surgeons: A. H. Richardson, H. D. Lander, G. E. Burton, S. N. Scott.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon E. J. Steegmann to the *Skirmisher*. Surgeon F. P. Nicholas to Haslar Hospital. Surgeon Probationers J. Baird to the *Lysander*, T. J. Lane to the *Hardy*, H. A. Ross to the *Look-out*. To be Surgeon Probationers: T. V. Carey, J. L. Lamond, J. P. Hope, F. C. Jones, W. J. Payne, J. L. Dooley, A. J. Cronin, W. S. Allardyce, R. A. Forsyth, R. W. Power, F. D. Gillespie, J. H. B. Crosbie, B. W. Roffey, D. Reid, C. F. McLean, E. F. Brown, A. Campbell, V. G. Walker, K. R. Chapple, A. M. Horsey.

ARMY MEDICAL SERVICE.

Lieutenant-Colonels to be temporary Colonels whilst Assistant-Directors of Medical Services of Divisions: O. L. Robinson, C.M.G., B. Watts.

Lieutenant-Colonel (temporary Colonel) G. S. McLoughlin, C.M.G., D.S.O., M.B., relinquishes the rank of temporary Colonel on reposting.

Temporary Colonel H. M. Rigby, M.B., F.R.C.S. (Captain R.A.M.C. T.F.), having resigned his appointment as Consulting Surgeon, relinquishes his temporary commission.

ROYAL ARMY MEDICAL CORPS.

Major J. D. Richmond, M.B., to be temporary Lieutenant-Colonel whilst in command of a field ambulance.

Majors (temporary Lieutenant-Colonels) relinquishing their temporary rank on reposting: E. G. Anthonisz, E. Ryan, D.S.O., W. Wiley, M.B.

Major R. Storrs to be temporary Lieutenant-Colonel whilst in command of a casualty clearing station.

Captain (temporary Major) C. H. Denyer relinquishes the rank of temporary Major on reposting.

To be temporary Majors whilst in command of a field ambulance: Temporary Captain H. Faulkner, M.D., Captain C. L. Franklin, M.B.

Captain A. B. H. Bridges is seconded as Surgeon to the Commander-in-Chief in India.

Temporary Lieutenant J. B. Stephens, M.B., to be temporary Major (substituted for notification in the *London Gazette* of October 3rd).

To be temporary Captains: J. M. Browne, M.B., E. R. Hunt, M.D., J. D. Barris, M.B., F.R.C.S.; temporary Lieutenants N. C. Wallis, H. G. Kilner, M.B., C. R. M. Patison, W. Martin, M.B., V. T. W. Eagles. H. Stokes, J. R. B. Dobson, M.B., G. C. Ramsay, M.B., J. T. Mackenzie, R. M. Hume, M.B., D. C. McCabe-Dallas, J. Henderson, M.D., J. F. Adamson, M.D., S. A. McSwiney, M.B., J. Crowley, P. T. T. Macdonald, M.B., J. G. Cronyn, J. N. Macdonald, W. B. Thompson, M.B., C. R. B. Eyre, J. Donald, M.D., J. C. Bawden, C. H. W. Page, M.D., J. E. Rees, A. C. Falkiner, M.B., M. Polson, M.B., H. H. Stones, M.B., L. W. Crowe, M.D., W. H. Anderson, M.D., J. P. E. Henery, T. E. Mulvany, A. F. G. Kerr, M.D., E. H. Sheehan, M.B., D. Welsh, H. M. Green, M.D., S. S. Rendall, M.B., J. Tod, M.D., D. R. MacGregor, M.B., A. E. Staffurth, S. W. Fisher, M.B., W. W. Wells, M.B., J. B. Binns, D. D. Rosewarne, H. Cross, W. E. A. Worley, N. Elrington, J. Burke, G. D. Latimer, M.B., C. W. Chaplin, M.D., W. O. Arnold, M.B., J. Elliott, W. Rolland, M.D., A. Thompson, A. E. W. Irdis, J. Braithwaite, M.B., H. Davies-Colley, F.R.C.S., A. E. Stevens, M.D., J. Ferguson, M.B., S. Alexander, M.D., J. Brereton-Barry, J. T. Carson, M.B., W. E. S. Scott, M.D., E. McCulloch, M.B., T. B. Watson, M.B., J. Healey, M.B., St. G. E. Harris, M.D., J. C. King, T. W. Heywood, H. E. Jones, M.B., L. L. Phillips, H. C. Will, L. A. Moore, M.B., G. E. Stephenson, M.B., C. Thompson, M.B., T. G. Copestake, M.B., J. M. Biggs, R. A. Eastmond, M.B., G. A. Williams, C. M. Stallard, M.B., D. W. Ritchie, M.B., C. E. P. Husband, M.B., W. J. Rutherford, M.D., A. G. C. Irvine, A. Girvan, M.D., F.R.C.S.E., A. H. Rentoul, M.B., F. Dugon, R. P. Marshall, A. F. Hewat, M.B., F.R.C.P.E., W. Shipton, M.B., C. J. Marsh, F. L. Sessions, O. Pitt, J. G. M. Sloane, M.B., N. Macphail, M.B., R. Svennson, M.B., H. Richmond, M.B., M. Turnbull, M.B., W. Landsborough, M.B., T. B. Dakin, G. MacK. Miller, M.B., W. Austin, M.B., W. E. R. Dimond, W. H. Fleetwood, A. Naismith, M.B., G. C. Neilson, M.B., R. D. Buchanan, M.D., H. C. Smyth, R. C. McMillan, M.B., J. H. Morris-Jones, S. S. Depree, M.B., J. L. Davies, A. H. Little, S. W. Davies, M.B., R. A. C. Rigby, F. J. McGlade, M.B., C. S. Kingston, A. M. Webber, F.R.C.S., A. W. C. Drake, M.B., R. C. Thomas, W. R. Wilson, F.R.C.S.I., P. Donald, M.B., W. G. B. Gunn, M.B., C. G. McClymont, H. R. Ramsbotham, M.B., B. H. Palmer, M.B., J. N. L. Thoseby, M.B., A. B. Porteous, M.B., G. Unsworth, M.B., J. F. Strickland, M.B., A. Dingwall, M.B., B. P. Young, C. A. Keegan, M.B., J. A. Jones, M.B., F.R.C.S.E., B. E. A. Batt, M.B., F. J. A. Keane, M.D., R. Frew, M.B., F. A. Anderson, M.B., W. F. Wilson, M.B., G. Bateman, M.B., W. E. C. Musson, G. C. Wells-Cole, G. D. East, M.B., H. J. Bower, A. Dennison, M.D., D. F. Dobson, M.B., J. C. Smith, M.B., A. J. Partridge, M.B., W. J. McKeand, M.B., R. E. Smith, W. Eardley, M.B., T. M. Anderson, M.D., G. C. Gell, J. E. Thompson, M.B., W. G. P. Hepplewhite, M.D., E. J. Maxwell, M.B., F. W. Watkyn-Thomas, H. T. Douglas, M.D.

Officers relinquishing their commissions on account of ill health: Temporary Lieutenant-Colonel E. A. Hanly, M.D. Temporary Captains D. G. Tait, M.B., and E. H. G. Duncan. Temporary Lieutenant M. McL. Morrison, M.B.

Temporary Captains relinquishing their commissions: R. A. Jones, W. S. Fox, M.D., A. T. Patterson, M.D., F.R.C.S.E., G. R. Lawless, F.R.C.S.I., C. E. Lea, M.D., F. B. Dreyer, M.B., A. C. Renwick, M.B.

Temporary Lieutenant J. A. Creighton relinquishes his commission.

To be Lieutenants: J. H. Thornley, M.B., W. J. Morrish, M.D., A. B. Ferguson, M.B., E. Howe, M.B., J. Langwill, M.D., G. E. Kinnersley, G. J. Farie, M.B., C. C. Kerby, M.B., T. W. Walker, M.D., L. Leslie, M.D., W. T. Morton, F. H. P. Wills, E. F. R. Alford, G. de Bec Turtle, M.D., A. Spong, M.D., F.R.C.S., T. M. Bellew, G. E. Macvie, M.D., J. R. Bunett, M.B., W. F. Addey, J. G. Shanklin, M.B., A. J. Hutton, M.B., G. M. B. Liddle, M.B., F.R.C.S.E., H. S. Jones, M.B., R. Franklin, A. M. Barlow, W. B. Harris, A. A. Murison, R. C. H. Francis, M.D., S. F. Cheesman, H. W. Ogle-Skan, J. E. Frere, M.B., N. Purcell, M.B.,

R. H. Beardsley, R. McAllister, M.D., G. W. Harrison, J. H. P. Vivian, J. G. G. Pigott, H. E. Girdlestone, J. Naylor, Surgeon Lieutenant R. G. Griffin, Assam Valley Light Horse; W. G. McAfee, M.B., A. S. Ransome, M.B., H. G. Westropp, C. E. H. Paley, J. D. Pearson, H. P. W. Lincoln, J. Whitehead, M.B. M Jenkins, A. G Carment, M.D., E. R. Thompson, M.B., D. L. Carmichael, M.B., R. Brookes, L. Cairns, M.D., J. Paterson, M.B , M. J. Loftus. D. MacKinnon, M.B., E. T. Jameson, L. E. Fannin, W. J. Thomas, G. A. Crowe.

Temporary Lieutenant Walter J. Murphy is dismissed the service by sentence of a general court-martial.

INDIAN MEDICAL SERVICE.

Major J. W. D. Megaw, M.B., Professor of Pathology at King George's Medical College, Lucknow, has been appointed to hold charge temporarily of the office of the Principal in the College in addition to his own duties.

To be Lieutenants permanently (August 1st, 1916): C. C. Mecredy, C. W. W. Baxter.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major H. P. Graham to be temporary Lieutenant-Colonel whilst in command of a general hospital.

Captains to be temporary Majors whilst in command of a field ambulance: W. Darling, M.B., F.R.C.S., J. Adams, M.B., K. D. Murchison, M.B., D. C. Barron, M.B., M. R. Taylor, M.B., M. W. Paterson.

Captains (temporary Majors) relinquish their temporary rank on reposting: W Darling, M.B., F.R.C.S., M. W. Paterson.

Lieutenants to be Captains: J. M. Watt, M.B., J. F. W. Meenan, D. H. Paterson, M ..G. Irving, M.B., C. A. Whittingham, G. C L. Woodroffe.

To be Lieutenants: Temporary Lieutenant G. H. Barry, M.B., from Lancashire Fusiliers; H. Chadwick, M.B., T. O'Mahoney, M.B., G. G. Drummond, and L. P. Johns, from University of London Contingent O.T.C.; T. Crisp, M.B., from Edinburgh University Contingent O.T.C.; A. L. Giblin, A. L. V. Davin, M.B.

Lieutenant R. R. S. Weatherson, M.B., relinquishes his commission on account of ill health.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Majors to be temporary Lieutenant Colonels: A. B. Osborne, C. H. Gilmour. Captains to be temporary Majors G. P. Howlett, H Smith. To be temporary Captains: H. K. Groff (late Lieutenant R.A.M.C.), Lieutenants G. E. Learmont and A. D. Dyas. Honorary Major C. J. Stewart.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Mounted Brigade Field Ambulance. Captain T. H. Chittenden, M.D., to be temporary Major.

London Sanitary Company.—Lieutenant J. Griffiths to be Captain.

1st London Sanitary Company.—Lieutenant D. J. Peebles, M.B., to be Captain.

Home Counties Field Ambulance.—Lieutenant C. C. Robinson, M.B., to be Captain.

Southern General Hospital.—Captain E. W. H. Groves, M.D., F.R.C.S., is seconded for duty with a war hospital. Captain C. A. Moore, M.D., is restored to the establishment.

Welsh Border Mounted Brigade Field Ambulance.—Lieutenant H. A. Higginson to be Captain.

West Riding Field Ambulance.—Captain (temporary Major) H. N. Green, M.B., F.R.C.S., relinquishes his temporary rank on ceasing to command a field ambulance. Major F. Whalley M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance. Captain T. H. Kenworthy from attached to units other than medical units to be Captain.

West Lancashire Field Ambulance.—N. J. Allan, M.B., to be Lieutenant.

Highland Casualty Clearing Station.—Lieutenant F. G. Stuart, M.B., to be Captain.

Attached to Units other than Medical Units.—R. O. Knowles, M.D., to be Lieutenant.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

To be Captains: Captains K. S. Storrs, M.B., and B. N. Ash from Attached to Units other than Medical Units.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £200 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—Junior House-Surgeon. Salary, £80 per annum and war bonus at the rate of £40 per annum.

BRISTOL: GENERAL HOSPITAL.—Casualty House Surgeon. Salary, £100 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

DUDLEY: GUEST HOSPITAL.—(1) Senior Resident Medical Officer. (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Surgeon.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Temporary Assistant Surgeon; (2) House-Physician; (3) Two House-Surgeons; (4) Obstetric Assistant; (5) Anaesthetist; (6) Clinical Assistant for Ophthalmic Department. Salary for (2), (3), and (4), £50 per annum, and (5) honorarium of £10 10s.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Dental Surgeon.

SALFORD UNION INFIRMARY.—Assistant Resident Medical Officer (female). Salary, £250 per annum.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary, £100 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Physician. Salary, £200 per annum.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £175 per annum.

WELSH HOSPITAL, Netley.—Medical Officer. Salary, £400 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Crossgar (Down), Lytham (Lancaster).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COLCLOUGH, W. F., M.D.Camb., Certifying Factory Surgeon for the Sidmouth District, co. Devon.

EVANS, A., M.R.C.S., L.R.C.P., District Medical Officer of the Huddersfield Union.

LAWRENSON, H. F., M.B., B.Ch.Dubl., District Medical Officer of the Lutterworth Union.

MOORE, S. B. W., M.B., B.Ch., R.U.I., District Medical Officer of the Northwich Union.

WILSON, J., M.D.Glasg., Certifying Factory Surgeon for the Irvine District, co. Ayr.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—The following appointments have been made:—House-Physicians: Miss M. M. Mackay, M.B., B.S.; Miss A. M. Matland, M.R.C.S., L.R.C.P. House-Surgeons: Miss K. H. Parkinson, M.R.C.S., L.R.C.P. Miss M. Glen-Bott, M.R.C.S., L.R.C.P. Senior Obstetric Assistant: Miss Miall Smith, M.R.C.S., L.R.C.P. Assistant Anaesthetist: Madame Kruk, M.D.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATHS.

HICKMAN.—On October 16th, at The Hollies, Wanstead, Essex, Herbert V. Hickman, M.B.Lond., aged 54 years.

KNOWLES-JONES.—On October 25th, at Ridgemount, Bournemouth, John Thomas Knowles-Jones, M.D., M.R.C.P.

MOORHEAD.—October 25th, at The Priory, Weston Zoyland, Thomas Hamilton Moorhead, M.D., of Errigle, Cootehill, Ireland.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Horace Dobell Lecture by Dr. H. R. Dean: The Mechanism of the Serum Reactions.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF BALNEOLOGY, 5 p.m.—Discussion on the Treatment by Physical Methods of Medical Disabilities Induced by War. The members will dine together at Pagani's Restaurant, Great Portland Street, W., at 7.30 p.m.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

CLINICAL SECTION, 8 p.m.—Cases.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	NOVEMBER.
4 Sat.	Scottish Committee, Caledonian Station Hotel, Princes Street, Edinburgh, 12.30 p.m.
8 Wed.	London: Central Medical War Committee, 2 p.m.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 11TH, 1916.

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Association Intelligence.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held on October 25th, 1916, Dr. J. A. MACDONALD in the chair. There were also present:

Sir T. CLIFFORD ALLBUTT, K.C.B., M.D., F.R.S., Cambridge, President
Mr. E. B. TURNER, London, Chairman of Representative Meetings
Dr. G. E. HASLIP, London, Treasurer
Dr. JOHN ADAMS, Glasgow
Lieut.-Colonel Sir JAMES BARR, M.D., LL.D., Liverpool
Surgeon-General P. H. BENSON (Indian Medical Service)
Dr. M. G. BIGGS, London
Lieut.-Colonel R. A. BOLAM, Newcastle-on-Tyne
Mr. H. B. BRACKENBURY, London
Dr. H. J. CAMPBELL, Bradford
Dr. FRANCIS W. CLARK, (Hong Kong, China, and Malaya Branches)
Major RUSSELL COOMBE, Netley
Dr. J. SINGLETON DARLING, Lurgan
Mr. EDWARD J. DOMVILLE, Exeter
Captain E. ROWLAND FOTHERGILL, Hove
Dr. ADAM FULTON, Old Basford
Mr. T. W. H. GARSTANG, Altrincham
Dr. J. GIUSANI, Cork
Dr. JOHN GORDON, Aberdeen
Mr. JAMES GREEN, Portsmouth
Dr. MAJOR GREENWOOD, London
Mr. N. BISHOP HARMAN, London
Lieut.-Colonel W. T. HAYWARD, London (Australasian Grouped Branches)
Dr. I. W. JOHNSON, Bury
Major ALBERT LUCAS, Birmingham
Fleet Surgeon F. D. LUMLEY, R.N. (Royal Navy Medical Service)
Dr. H. C. MACTIER, Wolverhampton
Colonel C. H. MILBURN, Hull
Dr. E. N. NASON, Nuneaton
Major GEORGE PARKER, Bristol
Dr. EDWIN RAYNER, Stockport
Dr. F. J. SMITH, London
Dr. W. JOHNSON SMYTH, Bournemouth
Dr. JOHN STEVENS, Edinburgh
Mr. T. JENNER VERRALL, LL.D., Bath
Dr. O. R. M. WOOD, Woolpit

APOLOGIES.

Major A. C. Farquharson, Major T. Duncan Greenlees, Colonel Munro Moir, and Dr. Claude Wilson were unavoidably prevented from attending.

NEW MEMBERS.

The CHAIRMAN welcomed Dr. Francis W. Clark, representing the Hong Kong Branch, and Dr. E. Noël Nason, Birmingham Branch, upon their attending for the first time.

DEATHS.

The CHAIRMAN reported the deaths of Dr. J. R. Hamilton, of Hawick, and Dr. St. Clair B. Shadwell, London, former members of the Council, and was requested to convey to the respective families the sympathy of the Council in their bereavement.

FINANCE.

The TREASURER presented the minutes of the Finance Committee, when the accounts for the period June 4th to September 30th, 1916, amounting to £12,929 1s. 10d., were received and approved, and he was empowered to pay those remaining unpaid.

LOAN FUND.

The question of the formation of a fund for the assistance of medical practitioners who have suffered financially through taking naval and military service during the war was carefully considered, together with much valuable data collected by Mr. Bishop Harman and a memorandum by the Financial Secretary and Business Manager.

The Council came to the conclusion that a case has been made out for the formation of a fund to assist by loans those medical practitioners who have suffered, and appointed a committee to take all necessary steps to create such a fund.

The Committee will consist of the President of the British Medical Association, the Chairman of Representative Meetings, the Chairman of Council, the Treasurer, the Chairman of the Central Medical War Committee, Lieutenant-Colonel R. A. Bolam, Dr. Wm. Collier, Mr. Bishop Harman, Dr. C. O. Hawthorne, and Dr. R. McKenzie Johnston; and the Royal College of Physicians of London, Royal College of Surgeons of England, Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, Royal Medical Benevolent Fund, Epsom College, Scottish Committee of the British Medical Association, Irish Committee of the British Medical Association, have been invited to appoint representatives.

A meeting of this Committee will be held on November 15th.

CANDIDATES.

The twenty candidates whose names appeared on the notice convening the meeting were duly elected members of the British Medical Association.

JOINT COMMITTEE WITH BRITISH SCIENCE GUILD.

The CHAIRMAN OF REPRESENTATIVE MEETINGS reported (*a*) that the Joint Committee with the British Science Guild had held one meeting, on September 20th last, when it was decided to prepare and issue a circular letter to British universities, etc., employing medical men engaged in scientific research with a view to obtaining information as to their salaries, pensions, security of tenure, etc.; (*b*) that the information obtained in reply to such letter would be collated and considered at a further meeting of the Joint Committee; (*c*) that the Joint Committee had also passed the following resolutions:

1. That the British Science Guild and the British Medical Association be advised to proceed with the matter of the payment of scientific experts, regarding which the Guild circulated a letter to the heads of Government and to municipal bodies two years ago; and would suggest that the British Medical Association and the Guild should propose to the Secretary of State for the Colonies and to the Chairman of the London County Council that they should receive deputations from the British Medical Association and the Guild in order to discuss the proposals of the Guild which the Colonial Office and the London County Council at that time rejected; and
2. That Lord Rayleigh's Committee be invited to receive the conjoint Committees with a view to discussing the question of the recompense or compensation of medical scientific workers whose researches have been of benefit to the country without being remunerative to themselves.

The action taken and that proposed to be taken was approved, and the Association's representatives on the

Joint Committee were authorized to represent the Association in any deputations that might be arranged by the Joint Committee.

ORGANIZATION COMMITTEE.

Capitation Grants.

A grant for 1916 of £17 18s. was made to the Edinburgh Branch, a supplementary grant of £75 to the Bath and Bristol Branch, and a supplementary grant of £68 15s. 1d. to the North of England Branch.

Substitutes for Representatives.

The Council instructed the Organization Committee to prepare and place before the Council, with a view to submission to the Divisions and Representative Body, an amended form of By-law 37 under which it will be possible for constituencies to elect in advance substitutes for their Representatives, so as to provide for the whole year against the possible contingency of a Representative being unable or unwilling to attend a Representative Meeting.

Representation of Divisions in Representative Body, 1917–18.

Home Divisions.

The Home Divisions are provisionally grouped in constituencies for election of Representatives for 1917–18 in the same way as for 1916–17, except that the constituency comprised in the South-Eastern of Ireland Branch consist of the two present Divisions—namely, Carlow and Kilkenny, and Waterford. If any proposals for alteration are received by January 2nd, 1917, the constituencies affected by these proposals will be reconsidered at the January meeting of the Council.

Oversea Divisions.

Each Oversea Division and Division Branch which has a honorary secretary and the necessary organization is granted independent representation in the Representative Body, 1917–18.

Proposed Changes in Divisions of Metropolitan Counties Branch.

The Organization Committee was authorized to carry into effect, if considered desirable, the proposals of the Metropolitan Counties Branch Council for incorporation of the Ealing Division in the South Middlesex Division, and incorporation of the Willesden Division in the Harrow Division.

JOURNAL COMMITTEE.

The report of the Journal Committee was considered, and the recommendation as to the appointment of an Assistant Editor to the Journal was approved.

Ministry of Munitions and Medical Certificates.

A communication, dated October 24th, 1916, from the Ministry of Munitions was read; it was referred to on page 628 of the Journal of November 4th.

The Council has urged on all medical practitioners the necessity for the greatest care being exercised by members of the profession in dealing with applications from workers in munition factories for leaving certificates. The Minister of Munitions has been informed of the action taken.

CENTRAL ETHICAL COMMITTEE.

Question of Medical Referee or Inspector informing Medical Attendant of Modification of Treatment of a Case.

The Council decided to recommend the Representative Body to approve a memorandum on the question of whether a medical referee or inspector should inform the medical attendant of any modification in the treatment of a case which he finds it necessary to recommend to his employer as desirable.

The Representative Body will also be recommended to add the following rule to those already approved by the Representative Meeting in respect of the position of medical practitioners called upon to examine (otherwise than by request of the patient or persons acting upon his behalf) patients who are under the care of other practitioners:

> If the medical inspector finds it necessary to report to his employer that any modification in the treatment which is being carried out is in his opinion necessary to the more rapid recovery of the case, he shall so inform the medical attendant.

MEDICO-POLITICAL COMMITTEE.

Payment of Medical Officers of Clinics set up under Schemes for the Treatment and Diagnosis of Venereal Diseases.

Certain decisions as to the payment of medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases were adopted for report to the Divisions and Branches. These were detailed on page 134 of the Supplement for November 4th, 1916.

Central Committee for the State Registration of Trained Nurses.

It was agreed that although for the present the negotiations with the College of Nursing are interrupted, the representatives of the Association on the Central Committee for the State Registration of Nurses be instructed to join with the other bodies represented on that Committee in any further attempts which may be made to construct an agreed bill, and meanwhile to aid in the present policy of the Central Committee in introducing a bill into Parliament on its own account.

Care will be taken that the representatives of the medical profession to be appointed upon the Provisional and Permanent Councils set up under any bill shall be nominated by the British Medical Association.

Payment of Medical Practitioners in connexion with Maternity and Child Welfare Centres.

The Medico-Political Committee was authorized to issue a circular letter to all County Councils and Sanitary Authorities in England, Scotland and Wales, drawing attention to the resolutions of the Annual Representative Meeting, 1916, as to the payment of medical practitioners for work in connexion with Maternity and Child Welfare Centres.

INSURANCE ACTS COMMITTEE.

Conference of Representatives of Local Medical and Panel Committees.

The Committee was authorized to consider the resolutions of the Conference of Local Medical and Panel Committees, to take what action thereon it considers necessary, and to report the recommendations on behalf of the Council to the Representative Body.

Medical Referees.

The Committee was authorized to approve any scheme consistent with the provisions of the Minutes 183 and 189 of the Annual Representative Meeting, 1916.

The Committee reported that it had already had submitted for its remarks a draft scheme for the appointment of medical referees, prepared by a Scottish Insurance Committee, which, however, quite apart from any other provision, it was unable to approve because it was proposed to obtain part of the funds required to finance the scheme from moneys available for medical benefit.

CENTRAL MEDICAL WAR COMMITTEE.

Protection of Practices of Men who are on Active Service.

A circular letter on protection of practices of men on service is to be issued to every practitioner in England and Wales.

Treatment of Discharged Disabled Soldiers.

The question of the treatment of discharged disabled soldiers was referred to the Medico-Political, Insurance Acts, and Hospitals Committees for consideration and report, and to the Hospitals Committee to take into consideration the question of the action of the Statutory Pensions Committee in endeavouring to place on voluntary hospitals the care and maintenance of permanently discharged disabled soldiers.

SPECIAL COMMITTEE ON RECONSTRUCTION AFTER THE WAR.

The report of the Committee appointed to consider and report as to the best method of dealing with Minute 47 of the Annual Representative Meeting, 1916, was approved, and the following recommendation adopted:

> That a Special Committee be appointed, consisting of the Chairmen of the Finance, Journal, Organization,

Central Ethical, Central Medical War, Science, Medico-Political, Public Health, Insurance Acts, Hospitals, Naval and Military, Dominions, Scottish and Irish Committees of the Association, together with the Officers of the Association and Captain E. R. Fothergill:

(i) To consider what steps should be taken to organize public opinion, as also the medical profession, for the advancement of medical and allied sciences, and to maintain the honour and interests of the profession in view of the obligations and other consequences likely to result from the war;

(ii) To report on the policy of teaching the principles of hygiene, elementary physiology, and homecraft to elementary school children at the age of puberty, as the best means to be adopted for the success of proposals for child welfare, notification of pregnancy, and similar schemes;

(iii) To delegate to the appropriate Committees of the Association the consideration of the various sections of the national problems involved in the changes following the war, and co-ordinate their reports;

(iv) To confer and exchange ideas, if possible, with representatives of all other recognized medical bodies;

(v) To take such steps as may be necessary through the JOURNAL and otherwise to let other societies know that the Association is considering these matters, and to foreshadow the future dangers and possibilities;

(vi) To reply to the communication, dated August 9th, 1916, received from Mr. Vaughan Nash, Secretary of the Reconstruction Committee of the Government; and

(vii) To take action and report to the Council and Representative Body.

EXECUTIVE PROCEDURE OF THE ASSOCIATION.

In view of the fact that after the war the position of every practitioner, in whatsoever class of practice he may be engaged, may be gravely affected by legislation or social schemes which will be then brought forward, it was referred to the same Committee to consider what, if any, change should be made in the executive procedure of the British Medical Association so that it may be possible to take earlier and more effective action in cases of medical or political urgency, whether by extension of the powers of the Council, or by the appointment of an executive committee either of and from the Council or by the Representative Meeting, and to report to the next meeting of the Council.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

METROPOLITAN COUNTIES BRANCH: WOOLWICH DIVISION.—Dr. B. Lacey (Honorary Secretary, 196, Burrage Road, Plumstead, S.E.) gives notice that at a meeting to held on November 14th, at 3.15 p.m., at the clinic, 63, Brewer Street, Woolwich, Major P. S. O'Reilly, R.A.M.C., P.M.O. Woolwich Arsenal, will read a paper on diseases arising among workers in explosives attributable to their employment. Members of the profession in the district are requested to make a special effort to attend. Tea will be provided.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that a special meeting of the Branch will be held at the Keppel's Head Hotel, Common Hard, Portsea, on Thursday, November 23rd, at 3.15 p.m., for the following purpose, namely: To substitute for the last line of (Organization) Rule 7 the following—namely, "The quorum of the Branch Council during the continuance of the war and for one year after its conclusion shall be 6; subsequently it shall be 8." After the conclusion of the special business the meeting will become the autumn general meeting and the routine business of the Branch will be transacted. Subsequently papers will be read and cases of clinical interest and specimens will be shown. Mr. George Cooper Franklin, F.R.C.S., ex-President of the Association, will read a paper on syphilis. Dr. Inman: Notes on the etiology of iritis and other observations on ophthalmic cases. Dr. Valentine will show eye cases. Mr. C. P. Childe, F.R.C.S., will contribute the following: (1) Abscess in temporo-sphenoidal lobe—removal of bullet; (2) Removal of bullet from spinal canal; (3) Endo-aneurysmorrhaphy after resection of aneurysmal varix of femoral artery and vein. Dr. Cole-Baker will contribute notes on four cases of foreign body and one case of puerperal septicaemia. Information of any other contributions should be sent to the Honorary Secretary before November 18th. Tea will be served during, or after, the meeting.

INSURANCE.

THE MEDICAL BENEFIT REGULATIONS, 1917.

THE following reply has been addressed to the chairman of the National Health Insurance (Joint) Commission in answer to his letter of October 27th (SUPPLEMENT, November 4th, p. 130):

November 7th, 1916.

Sir,

I am instructed to state that the Insurance Acts Committee of the British Medical Association has given very careful consideration to your letter of the 27th ultimo in reply to mine of the 23rd ultimo, in regard to the draft Amending Medical Benefit Regulations, 1917.

The Committee, guided by the resolution of the recent Conference of Representatives of Local Medical and Panel Committees and on behalf of those Committees, accepts the assurance conveyed in the penultimate paragraph of your letter that the Commissioners have no knowledge or present expectation of any provision being made to which Article 3 of the new Regulations would apply other than in making provision for the treatment of venereal diseases and the treatment of disabled sailors and soldiers; and also your assurance that, in the event of any new proposals being mooted for the establishment of any new general provision by public authorities during 1917, you will at once take the profession into consultation through the recognized channels in order that it might be considered whether such new provision was one to which the obligations of the panel practitioners under Article 3 of the Regulations in respect of specialist services would properly and conveniently be applicable; or whether the position thus arising was such as to call for an amendment of the Medical Benefit Regulations in that respect.

In view of Sir Robert Morant's letter to me of March 17th, 1915, and of paragraphs 5 and 6 in Memorandum 201/I.C., the Committee assumes that there could be no question of any new proposals being put forward during the war unless they are rendered necessary by the war, or are rendered necessary or desirable in the view of all concerned.

I am, Sir, your obedient servant,

(Signed) ALFRED COX,
Medical Secretary.

The Chairman,
National Health Insurance (Joint) Commission,
Buckingham Gate, S.W.

INSURANCE NOTES.

ANSWERS.

The Dating of Certificates.

SUPPLEMENTING the reply given last week (p. 133) to Dr. F. Hone Moore as to whether he ought to send a medical certificate to an approved society in the circumstances mentioned, it should be stated that on no account should certificates be sent directly by the panel doctor to any society. Even in the circumstances recorded by Dr. Moore, any later certificate should only be given to the patient personally. This is important to protect the doctor against any charge of breach of professional secrecy, as the patient is then responsible for any use made of the certificate.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeons J. K. Raymond, M.B., to the *Ajax*; C. C. Macmillan, M.B., D.S.O., to the *Victory*, additional, for disposal. Staff Surgeons H. D. Drennan, M.B., to the *Pembroke*, additional; W. N. L. Cherry to the *Victory*, additional, for disposal. Surgeons to be Staff Surgeons: F. G. Hitch (acting), T. R. L. Jones, J. H. Burdett, F. G. H. R. Black (acting), A. V. J. Richardson, M.B., W. Bradbury (acting), and G. R. McCowen, M.D. Surgeons C. F. O. Sankey, M.B., to the hospital ship *Soudan*; A. Simpson, M.B., to the *Victory*, additional, for disposal; G. E. D. Ellis, to the *Wildfire*, for Sheerness Barracks and Yard; W. E. Lloyd, to the *Diamond*. Temporary Surgeons R. C. P. Whitecombe and S. H. M. Johns to the *Vivid*, additional, for Plymouth Hospital; J. F. Haynes to Haslar Hospital; W. B. Gabriel to the *Pembroke*, additional, for Chatham Hospital; W. H. Coldwell and F. M. Allchin to the *Victory*, additional, for Haslar Hospital. To be temporary Surgeons: W. H. Blackburn, W. J. Colborne.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers A. D. Wall to the *Liberty*; A. Campbell to the *Goshawk*; A. M. Horsey to the *Milne*; K. R. Chapple to the *Sandfly*; V. G. Walker to the *Porpoise*.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel William Pasteur, M.D., F.R.C.P., R.A.M.C.(T.F.), to be temporary Colonel.

Lieutenant-Colonel M. MacG. Rattray, M.B., to be temporary Colonel whilst Assistant Director of Medical Services of a Division.

W. Taylor, M.B., F.R.C.S.I., to be temporary Lieutenant-Colonel.

ROYAL ARMY MEDICAL CORPS.

Temporary Captain D. D. Logan, M.D., to be temporary Lieutenant-Colonel.

Temporary Captains relinquish their commissions: W. N. Kingsbury, L. C. Smith, W. H. Anderson, W. G. Brett, T. F. Keenan, M.B., J. A. Turner, C.I.E., M.B.

Temporary Lieutenants to be temporary Captains: T. D. Miller, M.B., T. H. Harker, M.D., W. H. Whitehouse, M.D., R. Brookes, M. W. Stewart-Smith, M.B., F. P. Grove, M.D., L. Cairns, M.D., D. R. Alexander, C. A. Verge, M.B., J. C. Rawden, G. W. Elder, M.B., R. M. Hume, M.B., R. W. Harper, M.B., A. C. Dickson, A. G. Bisset, M.B., M. W. Robertson, M.B., E. J. Tyrrell, M.D., J. W. Burns, M.D., T. Woodman, M.D., I. W. Jones, M.B., H. D. N. Mackenzie, M.D., H. M. Brown, M.B., E. T. Willans, T. MacHardy, M.B., W. F. L. Day, M.B., J. A. R. Wells, W. L. Partridge.

B. H. Campbell, M.B., F.R.C.S., to be temporary honorary Captain whilst employed at the British Red Cross Hospital, Netley.

Temporary honorary Lieutenant R. Marshall, M.D., to be temporary honorary Captain.

E. G. Grove to be temporary Lieutenant whilst employed at the Lord Derby Hospital.

The names of temporary Captain Arthur G. Troup, M.D., and temporary Lieutenant Walter Joseph Murphy, are as now described and not as in the *London Gazette* of September 16th and October 17th, respectively.

Temporary Lieutenants relinquish their commissions: W. Somerville, M.D., J. F. Blackett, M.D., J. G. Ivers, A. B. Brown, A. C. Brown, M.D., W. Colquhoun, M.B., G. R. Hannon, H. S. Roberts, M.D., F. W. Mason, E. H. Barrett, M.B., J. D. Smith, M.B., H. W. Haydon, M.D., W. Craig, M.B., D. MacKay, M.B., A. Semple, M.B., J. Templeton, J. H. Dies, M.B., J. W. Miller, M.B., F. C. Merrall, M.B., G. J. M. Fraser, J. F. [illegible], M.D., A. Ross, M.D., P. N. Allman, J. J. M. Dowzer, A. W. Wakefield.

To be temporary Lieutenants: H. Bowring, A. P. Piggot, T. G. Fenton, F.R.C.S., C. Duncan, M.B., F. J. Lennan, S. W. H. Stuart, M.B., R. A. Smith, M.B., R. Calleya, M.D., T. Clapperton, M.B., J. Geoghegan, M.B., J. Rickards, M.B., J. S. Strachan, C. T. MacL. Flowright, M.B., W. McAlpine, A. J. Macvie, M.B., D. N. Anton, M.B., G. W. Bury, M.D., F.R.C.S.E., H. J. Simson, M.B., J. L. Scott, M.B., E. J. McFeeters, M.B., T. Waterhouse, M.B., D. F. Riddell, M.B., M. F. Tylor, M.B., M. H. Laslett, C. Hackney, W. J. Smyth, M.B., W. H. Canter, M.B., C. R. Brown, M.B., H. Goodale, C. C. Fissette, M.D., J. R. Anderson, M.B., F. B. Macdonald, M.D., P. A. Storey, R. J. Gordon, M.D., H. Heathcote, M.D., S. H. Ryan, M.B., R. W. Nairn, M.B., S. A. Owen, M.D., T. B. Sellors, W. S. Wildman, F.R.C.S., F. J. Spilsbury, J. M. Christie, M.B., F.R.C.S.E., J. S. Young, M.D., D. C. P. Taylor, T. E. Flitcroft, J. F. H. Stallman, C. J. N. Longridge, M.D., F.R.C.S., A. I. Simey, M.D., temporary honorary Lieutenants G. C. Hartley, M.B., W. A. Holson.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major T. J. F. Murphy to be temporary Lieutenant-Colonel. Captain L. J. Violette relinquishes his temporary commission on account of ill health. To be temporary Captains: J. R. Irwin (late Lieutenant, R.A.M.C.), J. D. Bruce, C. J. S. Stewart from honorary Major. Lance-Corporal C. Bourget to be temporary Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: W. Richards, M.B., from Edinburgh University O.T.C., D. Clyde, M.B., from Glasgow University O.T.C.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Casualty Clearing Station.—Brevet Major C. H. S. Frankau, M.B., F.R.C.S., to be temporary Lieutenant-Colonel whilst commanding a casualty clearing station.

London General Hospital.—Lieutenant-Colonel W. Pasteur, M.D., is seconded whilst holding a commission as temporary Colonel, A.M.S.

London Fit'd Ambulance.—Lieutenant O. Gleeson to be Captain.

London Sanitary Company.—Lieutenant J. Inglis to be Captain.

[illegible] Lancashire Field Ambulance.—To be Captains: Lieutenants [illegible], M.B., and F. W. Schofield, M.B.

[illegible] Lancashire Field Ambulance.—Captain A. T. Sissons, M.B., to be Major.

Highland Field Ambulance.—Lieutenant B. L. Davies to be Captain.

Attached to Units other than Medical Units.—Captain C. B. [illegible], M.B., to be Major. To be Captains: Captain H. A. [illegible], M.B., from West Riding Field Ambulance, Lieutenant J. F. [illegible].

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

To be Captains: Captains J. D. Allen, M.B., from North Midland Field Ambulance, A. Dick, from Attached to Units other than Medical Units, S. Atkinson, from North Midland Mounted Brigade Field Ambulance.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon. Salary, £125 per annum.

[illegible]: GENERAL HOSPITAL.—Casualty House-Surgeon. Salary, £70 per annum.

[illegible]: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CHESTER ROYAL INFIRMARY.—House-Surgeon and House-Physician. Salary, £180 and £160 respectively.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House-Physician. Honorarium, 30 guineas for six months.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £200 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Temporary Assistant Surgeon; (2) House-Physician; (3) Two House-Surgeons; (4) Obstetric Assistant; (5) Anaesthetist; (6) Clinical Assistant for Ophthalmic Department. Salary for (2), (3), and (4), £50 per annum, and (5) honorarium of £10 10s.

NORDRACH-UPON-MENDIP SANATORIUM.—Assistant Medical Officer. Salary, £200 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—Temporary Pathologist. Salary, £125 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

SOUTHAMPTON PARISH INFIRMARY.—Resident Assistant Medical Officer. Salary, £250 per annum.

VENTNOR ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Physician. Salary, £200 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Ballindine (Mayo), Lewes (Sussex), Slievereagh (Cork).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

MITCHELL, Alexander Philp, F.R.C.S.Edin., M.Ch., M.D., interim Surgeon to the Hospital for Sick Children, Edinburgh.

MITCHELL, G. A. C., M.B., Ch.B.Leeds, District Medical Officer of the Ripon Union.

SCOTT, F. G. L., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer of the Bermondsey Parish Infirmary.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—A discussion on Epidemic Nephritis, to be opened by Captain Langdon Brown, R.A.M.C.(T.), M.D., to be followed by Sir W. Osler, Bt., and others.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—First FitzPatrick Lecture by Dr. W. H. R. Rivers: Medicine, Magic, and Religion (Part II).

ROYAL SOCIETY OF MEDICINE:

SECTION OF PATHOLOGY, 5 p.m.—Dr. E. W. Scripture: Pathology of Speech. Dr. Cresswell Shearer, F.R.S., and Dr. H. Warren Crowe: The Phagocyte in Cerebro-Spinal Fever.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF HISTORY OF MEDICINE.—4.30 p.m., Mr. Macleod Yearsley: The King's Evil, and other exhibits. 5 p.m., Mr. D'Arcy Power: William Harvey. Dr. James Rae: The Medical History of the Exiled Stuarts.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Second Fitzpatrick Lecture by Dr. W. H. R. Rivers.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, 3 p.m.—Annual Meeting of Fellows and Members.

ROYAL SOCIETY OF MEDICINE:

SECTION OF DERMATOLOGY.—Exhibition of Cases at 4.30 p.m.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OTOLOGY, 5 p.m.—Cases and Specimens.

SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Discussion: The Treatment of War Injuries by Electrical Methods.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.—Dr. H. Bayon: The Development of Pathogenic Properties in Protozoa, with Special Reference to the Herpetomonad Group. Dr. C. H. Treadgold: Note on the Ova of the Liver Fluke, *Clonorchis sinensis*, var. *Minor*, Verdun and Bruyant, 1908.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	NOVEMBER.
14 Tues.	Woolwich Division, 63, Brewer Street, Woolwich, 3.15 p.m.
23 Thurs.	Southern Branch, Common Hard, Portsea, 3.15 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 18TH, 1916.

141

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British Medical Association.

CENTRAL MEDICAL WAR COMMITTEE.

SAFEGUARDING THE PRACTICES OF MEN ON ACTIVE SERVICE.

THE following circular letter has been addressed by the Central Medical War Committee to all members of the medical profession:

A number of complaints have reached the Central Medical War Committee that some practitioners are not recognizing as fully as they should do their moral obligations to professional brethren who have undertaken military service. The Committee desires to express the opinion that these obligations should be cheerfully and generously discharged as a privilege as well as a duty.

Many medical men, especially territorial officers, have made and are making very great sacrifices for their country, and the Central Medical War Committee feels that only thoughtlessness can account for the fact that some of those who remain at home are profiting unduly by their neighbours' patriotism. There is, however, much evidence to show that the private practices of many men on active service have almost disappeared, and that this is mainly because practitioners do not take the trouble to ascertain whether new patients were or were not in the habit of consulting doctors now on active service.

The Committee would therefore invite attention to the following procedure, which if carried out would minimize the loss which must in any case fall on those who leave their practices for any considerable period.

1. On a new patient presenting himself he should be asked the name of the doctor who last attended him. If his doctor is absent on service and has left a locum tenens an attempt should be made to induce the patient to go to the locum tenens.

2. If the last doctor who attended be on military service it should be explained to the patient that attendance will willingly be given *on behalf of that practitioner* and on no other terms.

3. Any attendances on behalf of such patients should be carefully and separately recorded, and a list of such attendances sent at regular intervals to the representative of the absentee.

4. An attempt should be made to ascertain the fees charged by the absentee, and a charge not less than this should be made on his behalf.

5. Accounts rendered on behalf of the absentee (if sent in by the deputy) should mention the absentee's name, and moneys received should be divided according to the scheme adopted by the Local Medical War Committee.

6. The rule of dividing the fees should apply to all kinds of work. No exception, for example, should be made as regards operations, inquests, consultations, and anaesthetics, unless some special arrangement has been arrived at as regards particular services by the Local Medical War Committee after consulting the local profession.

7. New patients introduced by the patient of an absentee should be regarded as belonging to the absentee's practice.

8. In cases in which the patient's frequent change of doctor leads to doubt as to who should be regarded as the regular attendant, the absentee should be given the benefit of the doubt.

9. No patient attended on behalf of an absentee should be attended by the deputy for at least one year after the absentee's return.

10. The greatest discretion should be used as to the introduction of a partner or assistant or in commencing a new practice in an area from which men are absent on service.

11. Great care should be taken in the buying and selling of practices. Newcomers to a district should be doubly scrupulous in regard to the practices of absentees and should at once ascertain and join in any arrangements that have been made for the protection of absent practitioners.

12. The honour of the profession is specially involved where a vacancy occurs through the death of a practitioner on service. Definite arrangements have been made to meet such a contingency in some areas and should be made in all. Every assistance should be given in enabling the successor to the practice to have such a fair start as will entitle the dependants on the practice to expect a fair price for it. The local practitioners should carry out the same procedure with regard to the successor as they had undertaken with regard to the man who has fallen while on service—namely, refuse to attend the patients of the practice, except on behalf of the successor, for a period of at least a year after the practice has been taken over.

13. In all cases of doubt as to what is the right course of action as regards an absentee the practitioner should consider what he would like his neighbours to do if he were absent on military service. The Local Medical War Committee or the Central Medical War Committee will always be glad to advise.

429, Strand, London, W.C.

IRISH MEDICAL COMMITTEE.

A MEETING of the Irish Medical Committee was held in the Royal College of Surgeons, Dublin, on November 1st. Mr. R. J. JOHNSTONE was in the chair and the following members were present: Drs. R. M. Blake, T. A. Davidson, W. F. Delany, W. Doolin, S. Gawn, P. Hamilton, G. Hickey, Captain King, R.A.M.C., Kathleen Lynn, P. McKenna, M. J. McQuaid, T. G. McGrath, W. W. Murphy, J. O'Connor, W. J. O'Sullivan, B. C. Powell, R. J. Rowlette, D. Walshe, H. T. Warnock. Dr. T. Hennessy, Medical Secretary, and Mr. C. H. Gick, Secretary, were also in attendance.

Medical Referees.

Resolutions were read from several Local Medical Committees protesting against the action of the Insurance Commissioners in providing a grant out of the certification funds for the payment of temporary medical referees and allowing their appointments to be in the hands of the approved societies as (1) a violation of the undertaking given by the Commissioners to the Irish Medical Committee when the settlement of the certification question was arrived at; (2) that the choice and appointment of a referee by one of the parties in a dispute is most unfair to

the insured, and should not be financed out of funds set aside for the appointment of medical referees who were to hold their appointments independent of the approved societies, and who were to be of high professional standing and acceptable to the profesion. After the question had been fully discussed, the following resolutions, for the guidance of the Local Medical Committees and the profession in general, were passed unanimously:

1. Complaints having reached the Irish Medical Committee from various parts of Ireland that the Insurance Commissioners have permitted approved societies to appoint their own medical referees and to pay them out of the balance of the certification funds set aside for the salaries of whole-time medical referees; that the approved societies have in most instances appointed medical referees in whom the local doctors have no confidence, with the result that they have declined to work with them; that the Commissioners be reminded that their sanction of such appointments made by the approved societies is a distinct breach of their undertaking with the Irish Medical Committee and is bound to cause great friction.
2. That no doctor should receive the appointment of temporary or permanent medical referee who has not the approval of the Local Medical Committee of the area in which he is intended to visit.
3. That the fee or salary of the medical referee should meet with the approval of the Local Medical Committee.

Area of the Distribution of the Grant for Medical Certificati n.

A letter, dated October 7th, 1916, was received from the Commissioners in reply to one addressed to them on behalf of the Irish Medical Committee, pointing out the injustice done to several doctors by altering, contrary to the signed agreements, the area for distribution of the grant for certification from the dispensary district to the county. The Commissioners in their letter stated (1) that as regards the complaints received from certain doctors of inequality in particular areas of the distribution of the accounts available for medical certification, they have decided, with the assistance they hope to receive from the Irish Medical Committee, to investigate these special cases with a view to adjustment in respect of past quarters being made in the amounts for the last quarter of the present year where such adjustment is proved necessary as a matter of equity; (2) the system of payment on the dispensary district basis comes into force as from the quarter commencing on January 1st next.

Treatment of Tuberculosis.

Arising out of a complaint that the North Tipperary County Council had ordered the tuberculosis medical officer to afford domiciliary treatment to non-insured persons in the vicinity of his residence, the following resolution was unanimously passed:

That the Medical Secretary be instructed to bring to the notice of the Local Government Board that the tuberculosis medical officer of North Tipperary has been ordered by his county council to afford domiciliary treatment to non-insured persons in the locality in which he resides, and that the Irish Medical Committee consider such an order, by which the ordinary medical attendant is excluded from the treatment of tuberculous patients, unsatisfactory and not calculated to effect the purposes for which the Tuberculosis Act was passed.

Poor Law Subcommittee.

A meeting of the Poor Law Subcommittee, held on the same day, was attended by the following members: Dr. R. M. Blake (in the chair), Drs. S. Gawn, P. Hamilton, G. Hickey, Captain King, R.A.M.C., P. McKenna, M. J. McQuaid, T. G. McGrath, W. W. Murphy, J. O'Connor, R. C. Powell, D. Walshe, H. T. Warnock; Dr. T. Hennessy, Medical Secretary, and Mr. C. H. Cuck, Secretary.

The Chairman and some members of the committee having briefly discussed the report on Poor Law medical reform made by the Conjoint Committee of the British Medical Association and the Irish Medical Association in 1910 and approved by over 90 per cent. of the medical profession in Ireland, the following resolutions were unanimously passed:

1. For the purpose of united action the members of the Poor Law Committee of the Irish Medical Association, appointed at the annual meeting, 1916, be co-opted on this Committee, and that the Irish Committee of the British Medical Association be also asked to send representatives.
2. That it be a special instruction to the Committee to avail of the first opportunity that arises to put forward the claims of the Poor Law medical officers to superannuation allowance as a right.
3. That the Local Government Board be requested to bring pressure on those unions which have not adopted graded scales of salaries for the Poor Law medical officers to proceed at once to adopt such a scheme, and come into uniformity with the majority of Irish boards of guardians.
4. (*a*) That the present method of conducting sworn inquiries in connexion with complaints against Poor Law medical officers is intolerable and should be altered.
   (*b*) That complaints might be investigated by a Complaints Committee on the lines of the Complaints Committee under the National Insurance regulations.

INSURANCE.

THE MEDICAL BENEFIT REGULATIONS, 1917.

The Medical Secretary has received the following reply to his communication (Supplement, November 11th, p. 139) addressed to the Chairman of the National Health Insurance (Joint) Commission:

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.,
November 13th, 1916.

Dear Sir,

I am directed by Mr. Roberts to acknowledge receipt of your letter of the 7th instant and to say that it correctly states the intentions of the Joint Committee and the Commissioners in regard to the new Regulations in question.

I am at the same time to point out that in the concluding paragraph of your letter there would seem to be some misapprehension on the part of your Committee—a misapprehension which appeared also in the published account of your Conference of the 19th ultimo—upon a point which has been somewhat widely misinterpreted, and which the Commissioners have already had occasion to correct more than once. The point is not one which will in practice affect the subject matter of your letter, or the new Regulations; but it is obviously desirable that the correction should be made so as to prevent further misunderstandings.

If you will read the second paragraph of the letter of March 17th, 1915, to which you refer in your letter under reply (I append a copy for convenience), you will see that the question whether any particular changes are "rendered necessary by the war," or are "necessary or desirable in view of all concerned" was made the criterion for proposals of changes to become operative *during the currency of any medical year* (under the power newly taken in the 1915 Regulations) as distinct from changes to take effect *after the close of any year* under the ordinary procedure.

Mr. Roberts directs me to state that the Joint Committee and the Commissioners fully realize the desirability of avoiding all needless changes, whilst war continues, and so many members of the profession are abroad and all are heavily occupied, even under the regular procedure at the end of any year, and they will of course act in accordance with that view. But, as some suggestions have been made that certain changes would be contrary to pledges given and would be regarded as a breach of faith, Mr. Roberts thinks it desirable to remind you that in the statements in this matter made earlier on behalf of the Commissioners which have since come to be spoken of as "pledges" the reference was to the exercise of the new power to change *during the currency of the medical year* (as is explicitly shown in the paragraph quoted below), and not to such changes as those here in question made at the close of the year.—I am, yours faithfully,

(Signed) W. L. Rind,
Private Secretary.

A. Cox, Esq.

The following is the paragraph in the letter of March 17th, 1915:

Normally, as you know, changes in the Medical Benefit Regulations are made only at the end of a calendar year, and are mooted and discussed some three or four months before the close of the year. Power was taken under the Regulations for 1915 to make changes *during the year* instead of waiting till the end of the year; but it was carefully explained in our memorandum 201-I.C. issued in September last (and also noted in the British Medical Journal Supplement of October 16th) that there was no intention of using this power during the war except in order to meet any entirely unforeseen contingency that might arise rendering "necessary or desirable in the view of all concerned" some immediate changes.

CORRESPONDENCE.

Post Bellum Agreement.

Dr. Denis A. Sheahan (Portsmouth) writes: Dr. A. J. Campbell states that the interest on our fees "earned and yet unpaid" is not handed back to our contract patients. I assert that it is, and that the Commissioners admit that

it is; and, further, that this handing over of profit on our contract fees is contrary to a "generally recognized principle" of our Association—an act which "the Association has always fought against." I did not say the friendly societies "touched the money," but that the interest obtained on our contract fees is credited to funds for the benefit of insured persons. It does not "swell the coffers of the Treasury." The principal Act says (Section 54):

All sums received in respect of contributions . . . and all sums paid by Parliament . . . shall be paid into a fund called the National Health Insurance Fund, under the control and management of the Insurance Commissioners, and the sums required to meet expenditure . . . shall be paid out of that fund.

Doctors' remuneration comes out of that fund. Now when insured patients stamp their cards weekly they have paid $\frac{5}{52}$ of 4s. 6d. of our fees; this then becomes controlled by the Commissioners; it is placed on current account, and as the amount of this is enormous, they get, especially now, very good interest. It follows that if that part of our remuneration were paid monthly, as it might be (because our patients have paid) there would still be a sum earned as interest which we would not receive. It remains in the National Health Insurance Fund. What happens to this? It, with other moneys not required to pay "expenditure properly incurred," "shall be carried to a separate account called the investment account." This is for investment on behalf of insured persons. The investment is done by the National Debt Commissioners, but the Treasury has nothing to do with it except to interpret the will of Parliament as to what securities it may be invested in. Certainly Dr. Campbell does not contend that this investment fund or its interest is appropriated for imperial purposes as a tax on the insured. Then if the investment fund be, as it is, for the benefit of our contract patients and the interest on our fees (when earned) is in it, in plain English it is equivalent to handing back a profit derived from our fees to our patients. The insured make and appropriate a profit on our fees. A letter from Dr. Neal (Deputy Medical Secretary) of July 19th, 1916, which is before me, states that "where a profit on the doctor's fee is retained by the society it is one of the principal features of medical aid and *contract work* which the Association has always fought against." Yet apparently, where the Government and the Insurance Act are concerned, the Association is prepared to swallow its principles, with perhaps a slight attack of dyspepsia.

One Insurance Committee that I know earned over £40 last year on its current account (part on doctors' fees), and this was handed over to the sanatorium account—that is, handed back to our contract patients. Minute 24 of the Panel Practitioners' Conference (1915) demanded that interest earned on their money held over after the termination of the insurance year should go to the practitioners' fund. The Insurance Committee report says: "It was pointed out on behalf of the Commissioners that in principle the sums paid to doctors for medical benefit were the subject of bargain. . . . And that being so, it was immaterial whether the bargain was for the payment of a net sum without interest or for a smaller sum with interest." The interest is admitted.

There is an important matter involved here. By the acquiescence of the Insurance Acts Committee in the Commissioners' contention they admit that 7s. a year is too much *if paid at once when earned*. The doctors' "bargain" was for 7s. to be paid when earned, as contract patients always had done; £100 at the end of the insurance year would in sixteen months, when paid, have grown to £106 15s. at 5 per cent. There would have been a profit of £6 15s. per cent. on the doctors' money; or, putting it another way, if the doctors be paid only £100 sixteen or eighteen months after the end of the insurance year, it is equivalent to paying when the money is earned and subtracting a discount of perhaps £7 or £8 per cent. This is the effect of the Insurance Committee s action.

Dr. Campbell admits that our professional conduct is in part supervised by a "local committee," but thinks it is all right because there is a minority of medical men. It is not all right. Professional conduct is often supervised contrary to the medical advice. In this area we have had an example, when five men were surcharged—one as much as £106—for doing for his patients what Mr George said he had a perfect right to do—namely, give the medicine he thought best. "For the first time in the history of the country," said Mr. George, "15,000,000 workers can secure as pure and potent a medicine as the richest duke." Yes, and the doctor be surcharged to pay for it! These surcharges were against the decision of the Panel Committee. Professional conduct was supervised by "a local *lay* committee."

"We have always been supervised by parson, squire, etc." Bad enough. Why add a legal lay supervisory body? Two wrongs do not make a right.

Health is the greatest human asset and joy. Its preservation and restoration should therefore be the first call on one's purse. If he can afford 7s. 6d. dog tax, or £3 for tobacco, or £5 for alcoholic drink, then he can pay without hardship, and perhaps with benefit, more than 7s. for his health.

Dr. Campbell is not satisfied with the clerical work; neither am I. He does not wish a patient to pay a sum commensurate with the services rendered. I do. Payment should be for work done. Many insured persons, too, wish it. There is an almost universal distrust of contract practice. Patients know that ordinary contract work without careful supervision is often defective, and they think that proper supervision of the doctor, who is human like themselves, is impossible.

Dr. Campbell—I wonder by whose bushel he measures—thinks that "some medical men may be slipshod in practice." Punish them. Why punish others? If a pickpocket steal one's purse, catch him and punish him. But why pass a law that one shall not have a pocket or carry a purse.

Many diseases may require the continuance of a good prescription for weeks. Consultants act thus. It is done in private practice. Why put a doctor to more trouble for a contract than for a private patient? Ah, yes, I know. It is a means of forcing the doctor to prescribe cheap and nasty stock mixtures. One may say "Rep. mist. tuss.," but not "Mist. rep." This and surcharging, and the present cost of drugs, are amongst the forces bearing on crude and cheap drugs.

"A repeat prescription does not ensure that the doctor thinks. If a prescription is written afresh it ensures at least that the doctor thinks he knows what he means." Lovely conundrum. What a high opinion the author has of panel doctors. Dr. Campbell refers to the Hippocratic oath. It may have been well for him and for me that it was not operating when we were boys, as perhaps both of us might have been excluded from his art. There was nothing in it to suggest that the physician was not entitled to his fee, and if we must resort to trade-unionism to prevent the State from enslaving us, I do not see that this is ignoble. On the contrary, it is our bounden duty to maintain our social status which impoverishment would destroy. If the Association will not or cannot help us, we must seek other means. We do not know much of our "agreement." We signed through duress, and what it may be depends on the caprice of the Commissioners. Etiquette and ethics are fetters light as gossamer for a gentleman, not so the enactments of State servants.

I regret the war may hurt Dr. Campbell in health. It does hurt us all—and very unequally—in pocket. I would, however, like to congratulate him on the voyage of the slave dhow, *Insurance Act*. It seems to have disembarked him in Utopia. The crew and the slaves were all bonny fellows—

Their greatest fault is leaving few to find.

"Messages in time"; "visit when fit" (often for work); "they come when told; Insurance Committee just and considerate"; even Lady Bountiful, the parson, and the squire have ceased to annoy him. His only shadow is that he has to "chide insured persons for reluctance to give him trouble." Little wonder he should cease to whine. It is, however, still inexplicable to me why so many medical Scots emigrate south of the Tweed, and tradition says they rarely return.

Practitioner's Agreement.

Dr. Adam Fox (Stalybridge) writes: I have been very much interested in reading Dr. Crawshaw's letter *re* the practitioner's agreement, in the Supplement of November 4th, p. 131.

I should like to point out to him that neither party can sue the other within the agreement *intra vires*.

In the event of the Committee doing something *ultra vires* (say, for instance, withholding money given to them

to pass on to the practitioner) the practitioner could then bring the Committee into a court of law.

It might also be possible perhaps to bring the Commissioners into court on an implied contract, but not the Committee in this case. The law can deal with implied contracts but cannot deal with this agreement.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

STAFFORDSHIRE BRANCH.—Dr. William Webster, Honorary General Secretary (Newcastle, Staffs) gives notice that the first general meeting of the session will be held at the North Stafford Hotel, Stoke-on-Trent, on Thursday, November 23rd, 1916. The President, Dr. H. Malet, will take the chair at 4 p.m. Business: Exhibition of living cases. Papers:—(1) Dr. F. Shufflebotham: Neurasthenia. (2) Dr. Allardice: The wounded as we see them. (3) Dr. John Priestley: The influence of sex and age on the incidence of rickets. Exhibition of pathological specimens, skiagrams, etc., by Mr. R. H. Dickson, Mr. F. N. Cookson, and Mr. G. A. Carter. Dinner at 6.30 p.m.; charge 5s.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that a special meeting of the Branch will be held at the Keppel's Head Hotel, Common Hard, Portsea, on Thursday, November 23rd, at 3.15 p.m., for the following purpose, namely: To substitute for the last line of (Organization) Rule 7 the following—namely, "The quorum of the Branch Council during the continuance of the war and for one year after its conclusion shall be 6; subsequently it shall be 8." After the conclusion of the special business the meeting will become the autumn general meeting and the routine business of the Branch will be transacted. Subsequently papers will be read and cases of clinical interest and specimens will be shown. Mr. George Cooper Franklin, F.R.C.S., ex-President of the Association, will read a paper on syphilis. Dr. Inman: Notes on the etiology of iritis and other observations on ophthalmic cases. Dr. Valentine will show eye cases. Mr. C. P. Childe, F.R.C.S., will contribute the following: (1) Abscess in temporo-sphenoidal lobe—removal of bullet; (2) Removal of bullet from spinal canal; (3) Endo-aneurysmorrhaphy after resection of aneurysmal varix of femoral artery and vein. Dr. Cole-Baker will contribute notes on four cases of foreign body and one case of puerperal septicaemia. Information of any other contributions should be sent to the Honorary Secretary before November 18th. Tea will be served during, or after, the meeting.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Fleet Surgeon J. Mackwee, M.D., is placed on the retired list with rank of Deputy Surgeon-General. Fleet Surgeon G. T. Collingwood, M.V.O., to be Deputy Surgeon-General. Staff Surgeon C. H. Fetch to the *Bristol*. Surgeons to rank as Staff Surgeons: J. S. Orwin, M.B. (retired), H. W. Nicholls. Temporary Surgeons R. M. Barrow, M.B., to Chatham Hospital; D. L. Lees to Haslar Hospital, C. C. Chance and R. G. Dean to the *Zealandia*, F. H. Vey to the *Ariel*, additional, for Plymouth Hospital; A. M. Harty to the *Lord Nelson*. To be temporary Surgeon: C. N. Carter.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon H. Rush, M.B., to the *Crescent* additional. Surgeon Probationer D. C. Clark to the *Pembroke*, additional, for disposal. To be Surgeon probationers: J. Black, F. W. Robertson.

ARMY MEDICAL SERVICE.

Colonel S. Hickson, C.B., M.B., K.H.S., is retained on the active list and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Major E. Ryan, D.S.O., to be temporary Lieutenant-Colonel whilst specially employed.

Temporary Captain J. R. Bibby, M.D., to be temporary Major.

To be temporary Captains: H. Stokes, M.D., F.R.C.S.I., B. W. Hingston, F.R.C.S., A. M. Fisher, M.D., A. E. Giles, M.D., F.R.C.S.E., E. H. Durham, F.R.C.S., to be temporary honorary Lieutenant whilst employed with the Welsh Hospital, Netley.

The name of temporary Lieutenant George Henry Rodolph is as now described, and not as in the *London Gazette* of October 13th.

VACANCIES.

POINTS REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements) "Important Points to Appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

HALIFAX INFIRMARY.—House-Surgeon. Salary, £200 per annum.

BIRMINGHAM CITY.—Assistant Medical Officer for the Yardley Road Sanatorium and Tuberculosis Dispensary. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CAMBRIDGE TOWN WOMEN'S SETTLEMENT HOSPITAL, Balaam Street, E.—Assistant Resident Medical Officer.

CHESTER ROYAL INFIRMARY.—House-Surgeon and House-Physician. Salary, £150 and £100 per annum respectively.

DARLINGTON HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary, £100 per annum.

LIVERPOOL HIGHFIELD MILITARY HOSPITAL.—Assistant Resident Medical Officer. Salary, £300 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—House-Surgeon. Salary £120 per annum.

MANCHESTER: ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Resident Surgical Officer. Salary, £150 per annum.

NORTHERN HOSPITAL, Winchmore Hill, N.—Resident Assistant Medical Officer. Salary, 7 guineas a week.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—Temporary Pathologist. Salary, £125 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, N.E.—Clinical Assistants.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SALISBURY GENERAL INFIRMARY.—House-Surgeon, Salary, £150 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Dental Surgeon.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Ballyhaise (Cavan), City of London, Hathersage (Derby), Ringwood (Hants).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

STEVEN, W., M.B., C.M.Edin., District Medical Officer of the Pontefract Union.

SYQUIA, R. R., M.R.C.S., L.R.C.P., House-Surgeon to the Ear, Nose, and Throat Hospital, Great Portland Street, W.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

DEATH.

GREEN.—On November 11th, suddenly, at his surgery, Higher Hillgate, Stockport, James Howard Green, M.B., beloved husband of Ellen Green, of Overdale, Dean Row, near Wilmslow, and only son of the late Robert Green, J.P., of Stockport, aged 51 years. Interred at Woodford Church on Wednesday last, the 15th inst.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE.—5 p.m., General Meeting of Fellows.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—9 p.m., Dr. Otto May: The Medical Profession and the Campaign against Venereal Disease.

THURSDAY.

HARVEIAN SOCIETY, Stafford Room, Tichborne Street, Edgware Road, W.—8.30 p.m., Discussion on the Treatment of Fractures—Mr. Robert Jones and others.

LONDON HOSPITAL, E.—11 a.m., Lecture by Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis.

ROYAL SOCIETY OF MEDICINE:
SECTION OF NEUROLOGY, 8 p.m.—Clinical Evening.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m., Exhibition of Cases. Dr. E. W. Scripture: Inscriptions of Speech in Cerebral Diplegia with Indications as to Treatment.

ROYAL SOCIETY OF MEDICINE:
SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.—8.30 p.m., Dr. W. H. Hamer: Epidemiology of Cerebro-spinal Fever. Captain M. Greenwood: The Outbreak of Cerebro-spinal Fever at Salisbury in 1914-15.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	NOVEMBER.
22 Wed.	London: Central Medical War Committee, 2 p.m.
23 Thurs.	London: Propaganda Subcommittee, 3.45 p.m. Southern Branch, Common Hard, Portsea, 3.15 p.m. Staffordshire Branch, Stoke-on-Trent, 4 p.m.; Dinner, 6.30 p.m.

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SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

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British Medical Association.

WORK OF COMMITTEES

FOR QUARTER ENDING OCTOBER 25TH, 1916.

IN the report of the Proceedings of Council which appeared in the SUPPLEMENT of November 11th the chief recommendations of the various committees were set out, but space did not allow of any account being given of other activities of the committees which were reported to the Council. The following further report of the work of the Insurance Acts Committee will, it is hoped, prove interesting:

INSURANCE ACTS COMMITTEE.

Composition of Committee.

In view of the erroneous statements that are frequently made as to the constitution of the Committee, the following statement may be useful. There are 27 members when the Committee is complete, classified as follows:

- 4 *ex officio*, of whom the Chairman of Council is an insurance practitioner, and the Treasurer is a member of the London Local Medical Committee.
- 12 elected by the Representative Body—one vacancy (Irish) not filled—of whom 9 are insurance practitioners in England, Scotland, and Wales. Of the other 2, one is secretary of a panel committee in Scotland, and the other comes from Ireland, and is engaged in insurance work so far as it affects that country.
- 6 elected by the Conference of Local Medical and Panel Committees—all insurance practitioners.
- 1 elected by the Society of Poor Law Medical Officers—an insurance practitioner.
- 1 elected by the Society of Medical Officers of Health.
- 1 elected by the Association of Registered Medical Women. This position is at present vacant, owing to the death of Dr. Olive Claydon, who was an insurance practitioner.
- 2 non-panel practitioners.

Thus, out of a total of 25, 18 are actually engaged in insurance practice, and of the remaining 7, two are taking an active part in local Insurance Act administration.

Conference of Local Medical and Panel Committees.

A full report of this Conference has already appeared. The following analysis of the attendance of the Representatives is interesting.

England:			
Counties	47	out of a possible	50
County Boroughs	67	,, ,,	76
Scotland:			
Counties	10	,, ,,	31
Burghs	8	,, ,,	25
Wales:			
Counties	10	,, ,,	13
County Boroughs	4	,, ,,	4

being a total of 146 out of a possible 199, of whom 140 actually attended.

Much of the work of the Committee was dealt with at the Conference, and therefore is not repeated here.

Payment of 1915 Accounts.

The Committee was informed by the Commissioners (August 26th) that with the exception of a few cases, less than ten in number, in which certain data were wanting from the Insurance Committees concerned, all Insurance Committees in England had been supplied with the information necessary to enable them to proceed with a settlement for the year 1915. The intervention of the Association in this matter has, therefore, secured a settlement of doctors' accounts many months earlier than would otherwise have been possible.

Communications between Commissioners and Panel Committees.

The Committee inquired of the Commissioners whether it was their usual practice to communicate direct with Panel Committees on matters directly affecting those Committees or through Local Insurance Committees, and if the former, whether it was an oversight that the Draft Regulations as to extension of office of Panel Committees were forwarded to Insurance Committees and not direct to Panel Committees. To which the Commissioners replied that their practice depended on the nature of the subject matter under reference. The Committee has now informed the Commissioners of its opinion that any communications from them concerning Panel Committees only should be forwarded direct to Panel Committees and not through Insurance Committees.

Mileage Grant.

The Committee has had forwarded details of a scheme for the distribution of the mileage grant in two Welsh areas, which appears to the Committee to be an admirable one. Copies of the scheme have been made, and Local Medical and Panel Committees have been informed that copies are available on application. Already a number of Committees have been supplied with copies at their request.

Grant from Central Insurance Defence Fund.

The Committee has made a grant of £100 to the widow of a late subscriber to the fund, whose practice had suffered considerably owing to his adherence to the policy of the Association in connexion with the Insurance Act.

Visits of Representatives of Insurance Acts Committee.

In continuance of the policy of the Committee, members have addressed meetings of insurance practitioners, or Panel Committees, on the work of the Association in support of insurance practitioners, at the following places: Maidstone, Ipswich, St. Boswells, Halifax, Coventry, Norwich; and arrangements are under way for attendance of members of the Committee at meetings in various other parts of the country.

The Central Office will be pleased to hear from Secretaries who desire members of the Committee or of the medical staff to address meetings of the profession in their area.

Questions under Consideration.

Among the subjects under the consideration of the Committee as to which no report is yet possible are the following: Delay in issue of medical cards; effects of the war on the medical side of the Insurance Acts; the position created by discharge of disabled soldiers; temporary resident system; pensions for panel practitioners.

(*To be continued.*)

IRISH COMMITTEE.

A MEETING of the Irish Committee was held at the Irish Offices, 16, South Frederick Street, Dublin, on November 1st, 1916, Mr. R. J. JOHNSTONE, F.R.C.S., in the chair. There were also present: Dr. J. Craig, Dr. P. Grace, Dr. J. V. Ryan, Dr. W. L. Story, Dr. Denis Walshe, Dr. H. T. Warnock, Dr. T. Hennessy, Irish Medical Secretary.

Election of Officers. — The following officers were appointed: *Chairman:* Dr. J. Giusani, Cork. *Vice-Chairman:* Dr. J. S. Darling. *Co-opted Members:* Dr. W. W. Murphy, Dr. J. Power, Dr. H. T. Warnock.

Special Drugs for Workhouse Hospitals and Dispensaries.—In connexion with the delay and difficulty in getting special medical preparations, not on the official list, for workhouse hospitals and dispensaries, the Irish Medical Secretary was instructed to wait upon the Local Government Board and to report to the Committee at its next meeting whether any change can be carried out as regards supplying these drugs, and the extra and useless labour imposed on medical officers since the new dietary scheme came into force in workhouse hospitals.

Employment of Part-time and Whole-time Civil Surgeons in the Army.—The Committee received complaints of efforts being made to cut down the fees and increase the duties of part-time and whole-time civil surgeons engaged in Ireland. It was unanimously resolved:

> That the Irish Committee, British Medical Association, considering the lessened value of money and increased cost of living generally, regards the present attempt of the Deputy Director-General Army Medical Service for Ireland to cut down the fees and increase the duties of part-time and whole-time civil surgeons acting in Ireland as most unjustifiable, and warns the War Office that it is certain to arouse discontent among the members of the medical profession, and probably to prejudice the recruitment of practitioners for the service of the army, whether as civil surgeons or surgeons seeking temporary commissions.

Midwives Act for Ireland.—The CHAIRMAN expressed the opinion, which was approved by the Committee, that before presenting the Irish Midwives Bill to Parliament it should be submitted for the consideration of the different medical organizations in Ireland.

Meetings of Branches and Divisions.

ABERDEEN BRANCH.

AT the annual meeting of the Branch held on October 24th, Sir Alexander Ogston, K.C.V.O., and the other office-bearers, were re-elected for the ensuing year, and Dr. Skinner (Skene) was temporarily co-opted a member of the Branch Council until such time as the absent members return.

INSURANCE.

INSURANCE COMMITTEES.

LANCASHIRE COUNTY.

THE Lancashire Insurance Committee sent out on October 31st to the panel practitioners of the area cheques for the balances owing to complete the settlement for the year 1915. The accompanying circular shows that the total sum credited to the practitioners' fund was £191,842, which, if the rate of 7s. a head be assumed, would represent 548,121 insured persons. But the mean of the doctors' quarterly counts was 595,717, showing that the doctors' lists were considerably inflated, so that the amount a head credited on the doctors' lists was only 6s. 5.28d.

This settlement compares rather unfavourably with the settlement for 1914 which was made on April 29th, 1916. In 1914 the total sum credited to the practitioners' fund was £203,056, which included £14,470 from the sanatorium benefit fund. The mean of the doctors' quarterly counts was 610,068, which allowed a credit of 6s. 7.48d. per person on the lists. In explanation of this the committee stated that the year 1914 was eleven days short of a full calendar year, and a proportionate reduction in the credits equal to 2.15d. per name was necessary. Also the sum of £807 19s. had to be taken off for the treatment of temporary residents belonging to the committee's area which represents a deduction of 0.24d. per insured person. Further, the doctors' lists included names of persons who were also on other insurance committees' registers, and the names of men who had enlisted in the forces but whose enlistment had not been notified to the Committee when the accounts were made up. This means a considerable inflation of the registers and accounts for a deduction of 1.75d. Adding these three deductions to the credit of 6s. 7.48d., brings the amount up to 7s. per actual insured person. The statement sent out with the 1915 settlement does not enter into details similar to that for 1914, but it is practically certain that the deductions for the inflation of the registers and for names not removed for enlistment were considerably greater than in 1914. The Committee makes a special stipulation in the circular that the present payment of a balance is without prejudice to the right of the Insurance Committee to recover the amount, if any, that may be surcharged under Regulation 40 of the Medical Benefit Regulations of 1913 for excessive ordering of drugs.

COUNTY OF LANARK.

It was reported at a meeting of the Committee held in Glasgow on November 8th, that in spite of the fact that the income of the Committee had been considerably reduced by enlistments, it was anticipated that the income to meet the cost of administration for 1917 would be sufficient without encroaching upon the substantial balance in hand. From the minutes of the Medical Benefit Committee it appeared that complaints against doctors received by the Medical Service Subcommittee were few in number and not serious in character. The Panel Committee had itself taken action to check excessive prescribing.

LOCAL MEDICAL AND PANEL COMMITTEES.

EDINBURGH.

AT a meeting of insurance practitioners practising in the Edinburgh area, held on November 2nd, when Dr. DEWAR, Chairman of the Panel Committee, presided, Article 3 of the New Regulations was unanimously approved. The following resolution was also adopted unanimously:

> That a Scottish Insurance Acts Committee composed of Scottish panel practitioners, having its residence and meetings in Scotland, be formed to deal with Scottish insurance business.

INSURANCE NOTES.

COUNTY OF LANARK.

AT a meeting of medical practitioners from the county of Lanark and the burghs of Hamilton, Motherwell, Wishaw, Rutherglen, Coatbridge, and Airdrie on November 1st, Dr. Adams, a member of the Insurance Acts Committee of the British Medical Association, summarized the work done by that Committee, and gave strong reasons why general practitioners should take a close interest in its work. He impressed upon the meeting the importance of keeping correct records, and of furnishing the Insurance Acts Committee with facts material to any question affecting medical practitioners, so that it should have correct data to go upon when meeting the authorities on any question affecting the development of the Insurance Act. In advocating a closer union with the British Medical Association, he alluded to many points in which action of the Association had been most beneficial to the profession, referring particularly to the democratic constitution of the Association. Dr. Drever, also a member of the Insurance Acts Committee, emphasized the points raised by Dr. Adams, and specially impressed upon the meeting the importance of collecting and placing before the Insurance Acts Committee incontrovertible facts relating to specific cases rather than supplying vague generalities upon which no action could be taken. He strongly urged the necessity of unanimity in the profession, and of the minority conforming with the majority after any question had been considered and decided upon. After several questions had been asked and answered, a very interesting meeting was brought to a close by a vote of thanks to Drs. Adams and Drever.

DISCHARGED SOLDIERS AND INSURANCE.

It was mentioned a fortnight ago that the Insurance Commissioners had issued a leaflet to discharged soldiers who had been insured during their service. The Insurance Commissioners for England, Scotland, Ireland, and Wales have now issued a circular defining the conditions under which continued payments for sickness or disablement may be made to persons who have become permanently incapable of following their ordinary occupations, with particular reference to the case of soldiers discharged with pensions.

Rural Practitioners and the Cost of Drugs.

We are informed by the Acting Secretary that at a meeting of the East Suffolk Panel Committee held at Saxmundham on November 14th, a resolution was unanimously passed expressing the strongest disapproval of Dr. K. Harding's statement at the recent Conference of Representatives of Panel and Local Medical Committees (Supplement, October 28th, p. 116) in connexion with those doctors who were obliged to dispense. His assertion that the increase in the price of drugs had made no difference worth speaking of was considered to be palpably absurd and contrary to common sense.

Answers.

Repetition of Prescriptions of Other Practitioners.

H.E.B. states that panel patients frequently bring him prescriptions which they have received from a consultant or from some non-panel doctor, and ask him to order them the same prescription at the cost of the insurance drug fund. There can be no doubt that it is competent for H.E.B. to refuse to follow the advice of any other doctor as suggested in the proferred prescriptions. He has simply to give the treatment which he himself considers best for his patient, and to be satisfied in his own mind after proper consideration that his own treatment is equal to or better than that suggested in the prescription presented to him. He may perhaps be assisted by a second opinion such as the prescription suggests, and might then, if he thought fit, order it, even though it contained drugs not in the ordinary insurance tariff, provided that they were not proprietary remedies; but he is under no compulsion to do so if he is not convinced that it would be the best thing for his patient.

The Dating of Certificates.

Dr. W. F. Grant of Sydenham, referring to the statement in a reply to Dr. P. C. Bushnell, that panel doctors are under no compulsion to arrange their visits to suit arrangements of societies nor to give certificates on any particular day of the week so as to fall in with pay-days of societies, points out that societies do, as a matter of fact, require certificates dated for certain days.

Not only is this quite usual, but patients are often compelled to wait a week for their sick pay if they miss sending in a certificate for a certain day. When the patient is attending at the surgery the difficulty is easily got over, as the patient simply attends on the proper day, and the doctor will probably gladly facilitate the work of the society officials so far as he conveniently can; but the statement is nevertheless strictly correct that the doctor is in no way bound to accommodate his visits to suit arrangements of societies.

The Doctor must Suffer.

A correspondent informs us that in July, 1914, he received notice from the Insurance Committee of the West Riding of Yorkshire that the name of a certain insured person had been taken off his panel list as the person had removed to another area, but it is now found out that the Insurance Committee was in error, and the name ought never to have been removed from the list. The error has been brought to the notice of the Committee, and the clerk replies that if the Committee had been informed at the time the matter could have been adjusted; but as the final settlement for 1914 has already been made, and the figures for the final settlement of 1915 have been worked out so that the settlement is ready to be made in a few days, it is now too late to adjust the matter for 1914 and 1915, but, as regards 1916, the clerk promises to put the name on the doctor's list for the whole of the year. Thus, though payment will be made for the present year, the doctor will have to lose what he is rightly entitled to for 1915 and part of 1914.

On the facts as stated there can be no doubt that a gross injustice has been inflicted. The amount in question may not be very great, but apparently the error was only found by accident after about two years, and there may quite easily be other cases which have not been found out. The clerk's statement that if the Committee had heard from the doctor at the time when he received the notice of the removal of the name, the matter could have been adjusted, is little short of an attempt to throw on the doctor the onus of checking the accuracy of any notice he may receive from the Committee. In other words, it appears to be expected that the panel doctor must institute special inquiries to verify the Committee's list of removals, enlistments, suspensions, etc., or, if not, must take the consequence, which may be financial loss. The law does not appear to afford any means of redress, and the only remedy open seems to be by way of a special appeal to the Commissioners. It would be the barest justice to require the person or body responsible for any such error to make up to the doctor any loss which he may sustain in consequence of such an error whether the fault of the officials of the Insurance Committee or those of the approved society of which the person was a member.

CORRESPONDENCE.

Medical Remuneration under the Insurance Acts.

Dr. J. A. Magee (Clown, near Chesterfield) writes: The Derbyshire Insurance Committee have issued their final statement of account for 1915 and have informed the Derbyshire panel doctors that they will only be paid at the rate of 5s. 8¼d. a head. In addition all the men I know have been asked to refund a portion of that already paid. One doctor has been asked to return £200, another £50, and so on.

I wrote asking if it was a fact that we were promised a minimum fee of 7s. how it was that only 5s. 8¼d. was paid. I received the following reply:

Derby Insurance Committee.

I have no information in this office that you were guaranteed 7s. per head certain. That was the amount which would have been payable to you according to the regulations, which also provided that if the Central Medical Benefit Fund did not permit of such an amount being paid, the sums paid to doctors should be proportionately reduced according to the capital sum in the Central Pool.

I shall be glad to give you any further information, but you may take it from me that the figures as supplied to you are worked out exactly according to the regulations incorporated in your agreement, and which govern the actions of the Commissioners and my Committee.

Yours faithfully,
A. J. Cash.

If this is correct the agreement we have signed binds us to work for 6d. a head or less. Can anything be done?

*** The rate of 5s. 8¼d. a head mentioned by Dr. Magee probably means a head of the persons on the doctors' lists. But the recent Memorandum of the Commissioners on the method of medical remuneration shows that the doctors' lists are greatly inflated, many persons' names being probably on several doctors' lists in perhaps different areas, while some may have removed altogether from the Derby area, or may be dead, and the Derby doctor on whose list their names remain may even for a full year never have been at risk for them. The Commissioners assure the profession that, apart from the "domiciliary sixpence," the full sum of 8s. 6d. is credited to the central medical benefit pool for the doctors and chemists in respect of every single individual who is entitled to medical benefit for a year so far as it is possible to ascertain the number. The Memo. 229/I.C. (Supplement, October 14th, p. 101) explains the position more fully and accurately than the above letter from the Derby Insurance Committee.

Naval and Military Appointments.

Royal Naval Medical Service.

The following announcements are notified by the Admiralty: Deputy Surgeon-General G. T. Collingwood, M.V.O., to Chatham Hospital, vice Doyne. Fleet Surgeon H. J. Chater to the *Victory*, for disposal; W. H. O. Garde, to the *Pembroke*, for disposal. Surgeons H. W. Fitzroy-Williams, M.B., to the *Tamar*, additional, for Royal Naval Hospital, Hong Kong; H. White, to the *Dryad*; F. C. Hunot, to Royal Naval Hospital, Cape. Temporary Surgeons H. D. Lander, W. H. Sarra, J. E. Scanlan, and I. H. Beattie, to the *Vivid*, additional, for Plymouth Hospital; R. Creasy, to the *Crescent*, additional, for Royal Naval Sick Quarters, Queensferry; R. G. Lyster, to the *Crescent*, additional, for East Pilton, Edinburgh Royal Naval Hospital; A. H. Richardson, B. D. Neagle, and W. P. Starforth, M.B., to the *Pembroke*, additional, for Chatham Hospital; J. G. Bailey, to the *Victory*.

Royal Naval Volunteer Reserve.

To be Surgeon Probationer: G. FitzMaurice Keatinge.

Army Medical Service.

Lieutenant-Colonel J. C. Connor, M.B., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a base.

Temporary honorary Lieutenant-Colonel C. G. Watson, C.M.G., F.R.C.S., to be temporary Colonel whilst employed as consulting surgeon.

Royal Army Medical Corps.

Temporary Major A. G. P. Gipps, F.R.C.S., to be temporary Lieutenant-Colonel whilst commanding troops on a hospital ship.

W. K. Darew to be temporary honorary Major whilst employed at the Dublin Castle Red Cross Hospital.

Temporary Major H. Lett, M.B., F.R.C.S., relinquishes his commission.

Temporary Captains to be temporary Majors whilst commanding troops on a hospital ship: W. H. Allen, M.D., N. Duggan, M.B., F.R.C.S., J. D. Gimlette, W. J. Gow, M.D., F.R.C.P. J. H. Jones, R. H. Jones, M.B., H. R. L. Joy, M.D., G. W. Milne, M.D., C. C. Morrell, M.D. A. E. Seller.

Temporary honorary Captain P. T. Crymble, M.B., F.R.C.S., having ceased to be employed with the St. John Ambulance Brigade Hospital, relinquishes his commission.

Temporary Captains relinquish their commissions: H. L. Hatch, M.B., M. Murphy, J. H. C. Green, M.B., D. Wainwright, J. A. Glover, M.D., J. Henderson, M.B., C. R. Smith, F. E. Daunt, M.B., A. Gibson, M.B., F.R.C.S., J. F. J. Herbert, M.B., D. W. Woodruff, E. H. Lawson.

Officers relinquish commissions on account of ill health: Temporary Captains D. R. Mitchell, M.B., Bruce A. West, M.D., A. C. D. Firth; temporary Lieutenants J. Elliot, H. C. Wimble.

Temporary Lieutenants to be temporary Captains: M. E. Willcock, M.B., E. Bromley, M.B., N. McGowan, R. H. Oliver, F.R.C.S.I., H. P. Heisham, T. J. Simpson, M.B., A. Darlow, H. C. Addison, J. C. Pounden, M.D., A. G. Bryce, M.D., C. H. H. Coetzee, M.B., J. W. B. Thornburn, M.B., C. L. S. James, E. Caudwell, H. Mitchell, M.B., C. A. Dottridge, M.B., R. S. Ellis, M.B., S. P. Moore, M.B., J. C. Mackwood, J. J. Reynolds, W. F. Moore, M.D., J. R. Tibbles, G. Morris, M.D., E. C. Girling, M.B., T. W. Sweetnam, M.B., J. D. Evans, M.B., F. Morres, A. Neilson, M.B., R. D. Attwood, R. L. Thornley, M.D., A. W. Frew, F. H. Bromhead, M.B., E. Boyers,

M.B., H. A. L. Banham, A. W. Holthusen, M.B., C. S. Dodson, W. N. H. Bell, D. Sims, W. H. Welsh, M.D., H. T. Wilkins, W. Mercer, M.B., F. J. Cleminson, F.R.C.S., C. H. Graham, M.D., F.R.C.S.E., S. A. Forbes, H. A. Ash, A. B. Blomfield, T. F. Lumb, E. J. Primrose, M.D., A. H. Spicer, M.B., H. Spong, M. McNiff, M.B., V. M. Coates, C. A. R. Gatley, R. B. Lothian, M.B., G. S. Murray, M.D., K. N. Maclean, M.B., A. C. E. Gray, M.D., R. P. N. B. Bluett, M.C., E. O. Gilkes, A. B. Simpson, M.B., A. P. Gray, M.B., B. M. Bennett, M.B., A. W. Propert, W. MacDermott, M.B., A. R. Elliott, M.B., H. E. S. Stiven, M.D., J. G. Morrin, W. J. Olivey, R. Heaton, R. MacGill, R. H. Simpson, M.B., C. C. O'Kell, M.C., S. L. Hinde, R. Burges, D. H. Pennant, R. R. Elworthy, A. M. Kennedy, M.D., W. A. Higgins, M.B., G. T. Walker, M.B., J. P. McGreehin, M.B., D. J. Macdougall, M.B., J. H. Murray, M.B., R. K. H. Gillespie, M.B., A. Dick, M.B., H. L. McCormick, M.B., N. W. Gilchrist, M.B., C. R. Edwards, J. Rigby, M.B., K. McA. Ross, J. K. Muir, E. L. Ivens, A. J. Dunlop, M.B., E. M. Litchfield, P. M. Bagg, M.B., H. A. Forrester, M.B., A. E. F. F. Huntsman, T. G. Wakeling, A. Burns, M.B., F. E. Marshall, M.B., J. W. Burns, H. Barr, W. Hamilton, J. L. Gregory, A. J. Brock, T. W. Jackson, R. J. Gordon, M.D.

Temporary Lieutenants relinquish their commissions: R. Butterworth, M.B., T. B. Newman, C. H. F. Johnston, M.D., C. E. Durrant, C. M. Roberts, M.B., T. McC. Sellar, M.B., R. R. Kirwan, M.B., A. H. Mansfield, W. G. McConnell, G. B. Wiswell, M.C., M.D., A. Wight, M.B., H. M. Hardy, W. S. Hart, M.B., D. T. Price, M.B., W. M. Christie, M.B., W. O'Donnell, A. Dixon, G. Henderson, M.B., F. J. Morrin, M.B., S. G. J. Dowling, M.B., R. D. Hodge, T. J. Lloyd, J. P. Scatchard, M.B., H. D. Wyatt, W. L. Scott, M.D., R. R. Kilpatrick, M.B., J. W. Methie, M.D., W. R. Burton, J. F. W. Waters, G. Blair, M.B., F.R.C.S.E., C. W. Sharp.

To be temporary Lieutenants: R. Semple, M.D., C. Watson, L. W. Davies, M.D., P. Maguire, M.B., A. McCredie, W. H. Kirk, M.B., A. J. Macleod, M.B., W. Laird, J. R. Fleming, A. L. Saunders, H. O'H. May, M.D., M. J. Walsh, M.B., F. A. Juler, M.B., F.R.C.S., W. A. Loxton, M.B., F.R.C.S.E., J. B. Wood, M.B.

W. H. Thomas, F.R.C.S.E., to be temporary honorary Lieutenant whilst serving with the British Red Cross Society in France.

Temporary honorary Lieutenant A. B. Jones, M.B., having ceased to be employed with the Welsh Hospital, relinquishes his commission.

W. P. Matthews to be temporary honorary Lieutenant whilst employed at the St. John Ambulance Brigade Hospital.

Temporary honorary Lieutenant R. J. C. Douty to be temporary honorary Captain whilst employed with No. 2 British Red Cross Hospital.

C. G. Hitchcock to be temporary honorary Lieutenant whilst serving with the British Red Cross Hospital, Netley.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains to be temporary Majors whilst commanding troops on hospital ships: R. M. Beath, M.B., H. C. Sinderson, M.B.

Lieutenants to be Captains: R. D. Lawrence, M.B., H. S. Evans.

Lieutenant (on probation) J. A. C. Kidd, M.B., is confirmed in his rank.

To be Lieutenants: O. C. L. Hughes, O. Williams; G. K. E. Inman, M.B., from Sheffield University Contingent O.T.C.; A. B. Dummers, J. A. Hill, J. W. Hyatt, H. D. Gardner, E. B. Hickson, R. T. Lewis, C. V. Bainbridge, and C. Y. Roberts from the University of London Contingent O.T.C.; A. G. Anderson, M.B., E. Chapelle, M.B., F. J. C. Johnstone, M.B., J. Ratcliffe, M.B., and J. Sellar, M.B., from the Edinburgh University Contingent O.T.C.; C. E. Hopwood from Manchester University Contingent O.T.C.; W. Agar from Birmingham University Contingent O.T.C.; N. B. B. Fleming, M.B., from St. Andrews University Contingent O.T.C.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain S. J. Fielding, M.B., East Anglian Field Ambulance, to be Deputy Assistant Director of Medical Services, East Anglian Division.

ROYAL ARMY MEDICAL CORPS.

Eastern Mounted Brigade Field Ambulance.—Lieutenant P. J. Smyth, M.B., to be Captain.

London Sanitary Company.—Lieutenant J. Chalmers, M.B., to be Captain.

Home Counties Field Ambulance.—Captain T. H. Chittenden to be temporary Major.

West Riding Field Ambulance.—Captain H. H. Emmerson resigns his commission.

Northern General Hospital.—Captain W. E. F. Tinley to be Major on the permanent personnel.

East Lancashire Field Ambulance.—Lieutenant R. J. Chapman, M.D., to be Captain.

Welsh Field Ambulance.—Lieutenant J. T. Samuel to be Captain.

Attached to Units other than Medical Units.—Captain F. Philip, M.B., to be temporary Major whilst acting as Registrar of a general hospital. Captains to be temporary Majors whilst commanding troops on hospital ships: D. Dickie, M.B., H. M. Wilson, M.D. Lieutenants to be Captains: F. N. Walsh, H. Jacques, W. Taylor, M.B.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ASHTON-UNDER-LYNE DISTRICT INFIRMARY.—Assistant House-Surgeon. Salary, £120 per annum.

BATTERSEA BOROUGH COUNCIL.—Medical Consultant for the Maternity and Child Welfare Centre. Remuneration, £1 1s. for each attendance.

BIRMINGHAM CITY.—Assistant Medical Officer for the Yardley Road Sanatorium and Tuberculosis Dispensary. Salary, £300 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Plaistow, E.—Assistant Physician (female).

CHESTER ROYAL INFIRMARY.—House-Physician. Salary, £160 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—(1) House-Physician; (2) House-Surgeon. Salary, £80 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Assistant Resident Medical Officer.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SALISBURY GENERAL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Registrar.

SHEFFIELD ROYAL HOSPITAL.—(1) Ophthalmic and Aural House-Surgeon; (2) Casualty Officer; (3) Assistant House-Surgeon. Salary, £135, £130, and £120 respectively.

STOCKPORT EDUCATION COMMITTEE.—School Medical Officer. Salary, £300 per annum, increasing to £350.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Dental Surgeon.

YORKSHIRE: WEST RIDING COUNTY COUNCIL.—Two School Medical Inspectors. Salary, £325, rising to £400.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Tipperary (Tipperary).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BERRY, P. N., M.B., Ch.B.Edin., Resident Assistant Medical Officer of the Workhouse and Medical Officer of the Cottage Homes of the Wolverhampton Union.

DORNFORD, A. C., L.S.A., District and Workhouse Medical Officer of the Faringdon Union.

ELLIOTT, G. C., M.D.Edin., Certifying Factory Surgeon for the No. 2 Stafford District, co. Stafford.

FERGUSON, J. D., L.M.S.S.A., District Medical Officer of the Scarborough Union.

HOLLICK, H. H., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Ashbourne Union.

MCKENDRICK, G. B., L.R.C.P.and S.Edin., L.R.F.P.S.Glas., Certifying Factory Surgeon for the Pollokshaws District, co. Lanark.

MCKENZIE, Dan, M.D.Glasg., F.R.C.S.E., Oto-Laryngologist to the French Hospital, London.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

PATE.—At 15, Clarendon Place, Stirling, on 12th inst., the wife of Captain J. Roberts Pate, R.A.M.C.(T.), of a son.

DEATHS.

ARBLASTER.—On the 22nd ult., killed in action, Cyril, the dearly loved eldest son of Charles and Clara Arblaster, of "Briar's Hey," Stechford, Birmingham, aged 27.

BOYS.—Killed in action on November 14th in France, Richard Harvey Boys, youngest son of A. H. Boys, L.R.C.P., of St. Albans, Herts.

TURNER.—On October 27th, George Albert Turner, M.B., D.P.H., of Johannesburg, South Africa, son of the late Sir George Turner, M.D. By cable.

DIARY FOR THE WEEK.

MONDAY.

LONDON HOSPITAL, E.—4 p.m., Lecture by Mr. Frank Kidd: Diseases of the Male Urethra.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ODONTOLOGY, 8 p.m.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF MEDICINE.—5.30 p.m., Dr. H. Batty Shaw and Dr. Woo: Six Cases of Oesophagectasia. Dr. F. Parkes Weber: Acquired Syphilis of the Lungs.

THURSDAY.

LONDON HOSPITAL, E.—11 a.m., Lecture by Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF LARYNGOLOGY, 4 p.m.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	NOVEMBER.
25 Sat.	Chairman's Subcommittee of the Scottish Committee, North British Station Hotel, Glasgow, 2.30 p.m.
30 Thurs.	London: Insurance Acts Executive Subcommittee.

Printed and published for the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 2ND, 1916.

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GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION, 1916.

Tuesday, November 28th, 1916.

Sir DONALD MACALISTER, K.C.B., President, in the Chair.

THE one hundred and fourth session of the General Council of Medical Education and Registration began at the offices of the Council, 44, Hallam Street, W., on Tuesday, November 28th, 1916, at 2 p.m.

PRESIDENT'S ADDRESS.

Gentlemen,—The stress of the great war continues to bear heavily on the profession and on the Council. The profession, like the nation it serves, is called to endure resolutely ever greater burdens of duty and self-denial. Many of our brethren have sacrificed their hopes and prospects, their sons, or their lives, in response to the call. We who are left at home owe it to them, and to the country, that we should stand fast under trial; that we should loyally support those who have given so much; and that we should fulfil to the utmost the other obligations laid upon us, until the great cause of our Empire and its Allies shall issue in victory and peace. When that day comes, the medical services of this country, at home and in the field, will be credited with a share in the final result, of which the Council will not need to be other than proud. By statute the Council is invested with the ultimate responsibility for the efficiency of those practitioners whom it places on its *Register*, and the State accepts our guarantee with confidence. It is ours to see that the confidence is not misplaced; and that our functions, educational and disciplinary, are performed with unceasing diligence and care.

Postponement of Election of Direct Representatives.

In order that we, and the practitioners of the United Kingdom, may not be diverted from our urgent concerns by the formalities of an election, the Privy Council has deemed it expedient to apply to the Council the provisions of the Parliament and Local Elections Act, 1916. It has issued an Order, prolonging the tenure of our present Direct Representatives until December 31st, 1917, and providing that no new election shall be required until this time next year. The Council will be gratified to know that the services of these valued colleagues are thus secured to us for a further period. No other changes have yet occurred in the actual membership of the Council.

Deceased Members.

But two former members, each of great eminence in his special field of work, have been removed by death. Sir William Henry Power, K.C.B., died in peaceful retirement, after a lifetime of beneficent and self-effacing public service. Sir Victor Horsley, C.B., died on the field of honour, in the prime of his unresting activity as a scientific surgeon, while zealously striving to better the unhappy lot of our sick and wounded in Mesopotamia.

The Pharmacopoeia Committee.

We have also to record, with a sense of personal bereavement, the loss of Sir Lauder Brunton, who formerly helped the Council as a referee in pharmacology in connexion with the last *Pharmacopoeia*. The Pharmacopoeia Committee and the Council will heartily join with me in congratulating Sir Nestor Tirard, medical editor of the present *Pharmacopoeia*, on the distinction conferred upon him by the King, in recognition of his professional merit and service, and of his able endeavours on our behalf.

Registrar's Office.

Lieutenant-Colonel King, our Registrar, is still on duty with his battalion; but we hope to see him for a short time during the present session. The Acting Registrar, Mr. Cockington, though the office staff has again been depleted by the claims of the army, continues to carry on our administrative work with devotion. We are trying to find a means of relieving the strain upon his strength.

Medical Students.

The maintenance of the supply of male students, in training for medical commissions in His Majesty's Forces, has been under serious consideration during the summer recess. I explained last May that, at the instance of the Director-General of Recruiting, I had instituted a census of the students in attendance on professional instruction in the schools of the United Kingdom. The figures were then incomplete; but a few weeks afterwards I was able to submit to the Army Council and to your Emergency Committee an analysis which gave the following results:

	Men.	Women.	Total.
First year students	1,422	636	2,058
Second year students	783	295	1,078
Third year students	519	163	682
Fourth year students	1,078	145	1,223
Final year students	922	140	1,062

Of the first and second years about 500 were men under 18 years of age in May, 1916. In the other years all were over 18. Fourth and final year students had already been directed by the Army Council to pursue their studies; the others, at the schools of Great Britain, were or would soon become subject to recruitment under the Military Service Act. On behalf of the Committee I called the attention of the military authorities to the shortage of students in the second and third years; and suggested that, in the interest of the State, certain steps should be taken to diminish the apprehended danger from further depletion. The Army Council carefully considered these suggestions, and before the beginning of the present medical session issued orders to the effect that registered medical students, not classed as "fit for general service," were to be relegated to the Reserve, on condition that, while left to pursue their professional studies, they enrolled themselves in an Officers' Training Corps, and attended therein a prescribed course of military instruction. The result is that registered medical students, called to the ranks otherwise than as combatants for service abroad, will receive their military training under conditions not incompatible with professional study at home. They will thus be enabled to prepare themselves without delay for higher duty in the medical service of the country. Similar representations were made to the Admiralty and received due attention. I am not permitted to make public all the steps that have been taken, but the Council may be assured that the Admiralty and the Army Council are fully informed as to the importance of the problem to be solved, and that they are endeavouring, so far as existing conditions permit, to adjust in a satisfactory manner the respective claims of the combatant and the medical services upon the youth of the nation.

Supply of Doctors for the War.

The call for fresh supplies of trained and qualified practitioners, to meet the needs of our ever-growing forces, is more insistent now than when last we met. Only this morning I received a letter from the War Office which concludes: "The War Office would gladly engage 400 more medical practitioners to-morrow if they were forthcoming." The Central Committees established in England and Scotland, for the purpose of assisting the profession and the Government in securing a proper allocation of the available medical men, having regard to the respective requirements of the military and of the civilian services, have now been officially recognized as statutory Professional Committees under the Military Service Act. Under that Act every practitioner, of military age and fit for service, is liable to be called to the combatant ranks, unless he receives a commission as a medical officer in the King's forces, or is otherwise conditionally exempted after inquiry by one of the Professional Committees. Members of this Council are taking a leading part in the work of each committee, and these will bear me out in saying that the tasks thus added to its other functions are often both arduous and delicate. They have to decide what men can be spared from civil practice for military service. They have also to protect the interests of those who are absent on duty with the forces. With the aid of local committees in every district, schemes have been devised under which the remaining local practitioners may co-operate for these purposes, and in many areas every member of the profession has joined to further them. Some, I am informed, have in certain districts declined to take part in the local scheme of co-operation. They must blame themselves if they are suspected by their brethren of unworthy motives. I trust that the few, who have not yet realized the duty and privilege of sharing the burdens of those who are bearing so much for us, will speedily reconsider their present position and all that it involves. If the voluntary organization of the profession, which has attained so gratifying a measure of success in this country, should by reason of their defection fail to meet all the requirements of the medical services, we may have to face some form of legislative compulsion for districts that are backward in their response to the calls of patriotism. It may even be that increased disciplinary powers may be conferred on the Council, in order that it may be the better able to deal with individual cases of unfaithfulness to the special duty imposed upon medical practitioners by the present national emergency.

Work of Women Practitioners.

I cannot pass from this subject without referring to the admirable services rendered by women practitioners, both at home and abroad. They have abundantly justified their admission to the *Register*, and it is plain that they will, as time goes on, take an increasing share in professional life and work. The large augmentation in the number of women students preparing for medical qualification, which I have already reported, sufficiently indicates that women appreciate the opportunity for national service that is now open to them. Those who have attained qualification, if they cannot serve with the ambulances at the front, can and do liberate men who are wanted there by serving in the military hospitals at the bases both here and on the Continent. The military authorities are specially desirous to employ more of them in hospitals for the troops at home, and are willing to give them considerable freedom of choice with respect to the command to which they are attached. I commend the appeal to all women practitioners who are physically fit for such duty, and I feel certain that they will gallantly respond to it.

Medical Certificates for Recruits and War Workers.

The vast increase in our military and industrial activities has added in another way to the special responsibilities of the civil profession. In connexion with the organization of the resources of the nation for recruiting and for combatant service generally, for the supply of munitions, for the mobilization of labour, for relief, pensions, and insurance, and for the conservation of life and health, arise a host of fresh occasions on which medical men are required to give certificates of fitness or unfitness to persons under their care. Such medical certificates, to be valid, must by law be subscribed by registered practitioners only. The limitation implies a trust, on the part of the State, in the registered practitioner's skill and good faith. The trust carries with it an obligation of which, however little he may have sought or welcomed it, the practitioner cannot divest himself. Until he shows that he is unworthy of its confidence, the State is entitled to assume that a registered practitioner's certificate may be accepted as evidence of fact, ascertained by an expert and attested by a man of honour. There can be no doubt that, speaking for the profession as a whole, the obligation has been faithfully observed; the trust has been fully justified. But the existing war conditions, which have removed many capable and trusted practitioners from civil life, and thrown a double or treble burden of labour and responsibility on those that remain, would appear to have induced some of the latter to relax their usual vigilance in the matter of certificates. From several important Government departments communications have been received which make it clear that in some parts of the country an impression of this nature exists among public authorities. Without bringing formal charges of actual bad faith against individuals, these authorities assert that medical certificates come before them in the course of their official duty which, from the practitioner's want of care in examination, or in verifying the patient's own assertions, are of little value as evidence of his actual condition of health or capacity for work.

On this subject the Council has issued a Warning Notice expressing its view of the mischief caused by dereliction of the kind. Let me repeat the substance of the notice:

> Registered practitioners are in certain cases bound by law to give, or may be from time to time called upon or requested to give, certificates, notifications, reports, and other documents of a kindred character, signed by them in their professional capacity, for subsequent use either in courts of justice or for administrative purposes. . . . Any registered practitioner who shall be shown to have signed or given under his name and authority any such certificate [etc.] which is untrue, misleading, or improper, is liable to have his name removed from the *Register*.

If any specific charge against a practitioner, supported by prima facie evidence of culpable laxity, had been brought to our notice, it would have been submitted to the Council for judicial inquiry, at the instance of the Penal Cases Committee, and the Council would have dealt with the charge under a full sense of its gravity, in the interest alike of the State and of the good name of the medical

profession. A statement to this effect has been made on your behalf to the Government departments concerned, and we await their further action. Meanwhile the Penal Cases Committee agrees with me in thinking that a useful purpose may be served by the reference I have made to the Council's Notice, and to the imperative duty of every practitioner to safeguard the trust confided to him by the law, to treat the certificates he issues as declarations made on honour and conscience, and to ensure that the evidence it purports to afford is not just defensible merely, but above suspicion of carelessness either in its contents or in the manner of its attestation of his signature. The Penal Cases Committee will not hesitate to advise a judicial investigation by the Council in any case where it is credibly alleged that a practitioner's certificates or notifications are "untrue, misleading, or improper."

Relation of Doctors to Midwives.

The giving of improper certificates is a count in some of the charges against practitioners which will be dealt with at this session. The charges relate to the alleged "covering" of uncertified women who are practising midwifery contrary to the law. In pursuance of your instructions the Executive Committee, with the help of the legal advisers, have prepared for consideration a special Warning Notice on the subject. The essence of the offence specified therein is that it connotes a false pretence on the part of the practitioner under which the uncertified woman is, with his aid and connivance, enabled to frustrate the statute made for the protection of parturient women and their infants. The alleged scarcity of midwives, or the duty of rendering assistance in cases of emergency, cannot be urged in condonation of a false pretence, or the issuing of a certificate intended to conceal the actual facts from the public authority concerned. It is proper that the Council should warn practitioners, who may be ignorant or regardless of their responsibility under the Midwives Acts, that wilfully to abuse their position by abetting the evasion of the law by uncertified women amounts to professional misconduct, and will be dealt with as such misconduct deserves.

The Local Government Board has taken up the question of the scarcity of certified midwives in certain districts, and has issued regulations for affording a liberal subsidy to local authorities and organizations which undertake to increase the supply. The regulations further provide for grants towards the remuneration of the practitioner who may be called in by the midwife in difficult cases. Medical practitioners can do much to further, in their own districts, the establishment of satisfactory local schemes for seconding the efforts made by the Local Government Board and the Central Midwives Board to protect the lives of mothers and children. They will thus help to maintain the good repute of the profession, as being, in a very special sense, the guardians of the public health.

The Central Midwives Board for Scotland is now in active operation. The Executive Committee, which under the Scottish Midwives Act is charged with the duty, had the opportunity of examining its rules, and had the satisfaction of reporting to the Privy Council that they were deserving of approval.

Venereal Diseases.

The Government has under its consideration the important report of the recent Royal Commission on Venereal Diseases. Some preliminary steps, chiefly educational and administrative, have already been taken in accordance with its recommendations. But in order to meet effectively the grave evils disclosed in the report, it appears certain that fresh legislation will be needed. Dr. Langley Browne, by a motion appearing in the programme of business, proposes to ask the Council to affirm that such legislation, to be effective, must include provisions restraining the treatment of venereal diseases by unqualified persons; and also provisions giving effect to the recommendations of the Select Committee on Patent Medicines, which the Council has already approved.

Amendment of the Dentists Act.

The Council is persuaded that fresh legislation is also required, in the public interest, to remedy the deficiencies of the Dentists Act, 1878. On your behalf I have communicated this opinion to the Lord President, and have received a reply which I shall submit for your information. The Dental Education and Examination Committee, under the guidance of Mr. Tomes, has given careful consideration to the revision of the curriculum for dental qualification in the United Kingdom, and to the present state of dental legislation in the British Dominions overseas. Reports on both subjects will be presented to you during the session.

The anomalies of the existing situation in the United Kingdom have been forcibly brought to the notice of Government and Parliament, in connexion with the attempts made to protect our Forces and the public against danger through the indiscriminate use of drugs like cocaine. As long as any unregistered and unqualified person may call himself a "person practising dentistry," or call his shop a "dental surgery," and in virtue of this assumption claim to be supplied with the drug from the nation's stock, so long will the best-intentioned efforts to regulate the supply, or to restrict its use to instructed and responsible practitioners, encounter difficulties that may prove insuperable.

Overseas Legislation.

Temporary measures for the regulation of professional practice during the war have been adopted by the Legislatures of Victoria, Nova Scotia, and Grenada. They have been duly reported to the Council through the courtesy of the Colonial Office, and will be found in the minutes of the Executive Committee.

Japan.

Intimation has also been received, through the Privy Council, that the new law regulating medical qualifications and practice in the Empire of Japan, to which I alluded last May, became operative in October, 1916. The preparations instituted by the Japanese Government ten years ago, for the State direction and supervision of the medical colleges other than those of the Imperial universities, are now complete and effective. They enable that Government to guarantee that the college degrees specified by it are granted under the authority of the State, and are of the same professional standard as the corresponding degrees of the universities. The Executive Committee, on the evidence before it, is satisfied that these qualifications are conferred after a course of study and examinations that is unexceptionable, and it has resolved to recognize them for registration in the Foreign List of the *Register*. Japan has from the outset granted recognition to all the qualifications that are registrable in this country. We may well feel gratified that we are now in a position to extend our reciprocal recognition in the direction desired by our loyal and efficient ally in the East.

Straits Settlements.

Part II of the Medical Act, 1886, has, by an Order of His Majesty in Council, been applied to the colony of the Straits Settlements. We understand that in this region there are many capable Japanese practitioners, who will doubtless seek local registration under the new arrangements. The qualification in medicine, surgery, and midwifery, granted by the King Edward VII College of Medicine in Singapore, fulfils the requirements of the Council, and has been recognized by the Executive Committee for purposes of registration in the Colonial List.

Alberta and British Columbia.

Negotiations with the Canadian provinces of Alberta and British Columbia are still proceeding. The present difficulties of communication, and the long intervals between successive sessions of the respective official authorities, are in some measure accountable for the delay in reaching a satisfactory conclusion, and completing our scheme of reciprocity with the Dominion of Canada.

Reports from Standing Committees.

Reports will probably reach you from the several Standing Committees. The Education Committee has been considering the attitude the Council should take up in relation to senior or higher grade leaving certificates, and matriculation certificates of corresponding standard, with regard to the question of Latin as a compulsory subject. The Examination Committee has received an assurance from the Apothecaries' Hall, Dublin, that it accepts all the recommendations transmitted on behalf of the Council for the improvement of its course of professional study and examinations, and a detailed report from

our deputy on the examinations of this body he has visited. The Public Health Committee has had under review the results of recent examinations for diplomas and degrees in public health.

These reports may raise important questions for your discussion, and the judicial inquiries which have to be completed or entered upon will occupy your time and thought, but I am hopeful that the business in hand can be efficiently compassed within the present week, and that by the end of it we shall be able with a good conscience to return to the many urgent duties that await us elsewhere.

COVERING OF UNCERTIFIED WOMEN PRACTISING AS MIDWIVES.

The Council, on May 27th, 1916, requested the President, in consultation with the legal advisers of the Council, to draw up for submission to it a Warning Notice with regard to the covering by medical practitioners of uncertified women practising as midwives. The President now reported that the Executive Committee, with the assistance of Sir Francis Champneys and Dr. Newsholme, had considered the draft notice and covering letter prepared by him in consultation with the legal advisers, and had approved them as follows:

General Council of Medical Education and
Registration of the United Kingdom,
44, Hallam Street, Portland Place, W.

Dear Sir,—As President of the General Medical Council I have been requested by that body to bring to your special attention the provisions of the Midwives Act, 1902, and the Midwives (Scotland) Act, 1915, which (in Great Britain) prohibit any woman who is not certified under one or other of these Acts from habitually and for gain attending women in childbirth, *otherwise than under the direction of a qualified medical practitioner*. The importance to the public welfare of the effective administration of these Acts of Parliament cannot be over-estimated.

In certain disciplinary cases which the General Medical Council have recently had to consider, it has been shown that, notwithstanding the salutary provisions of the above-mentioned Acts, uncertified women have been in effect enabled to defy the law through the countenance, assistance, or connivance of qualified medical practitioners. This has been done either by practitioners paying perfunctory visits to confinement cases (attended by an uncertified woman), and signing certificates and kindred documents required by certain Acts of Parliament—for example, in relation to National Health Insurance or Notification of Births—or by their countenancing in other ways the false pretence that the uncertified woman was acting under the direction of a qualified medical practitioner.

Conduct of this character is, in the opinion of the Council, discreditable in that it directly tends to defeat the due working of Acts of Parliament which are of the utmost importance to the welfare of the poorer classes, and therefore of the nation, particularly at the present time. The Council accordingly have issued a *Warning Notice* upon the subject, of which I beg leave to enclose a copy.

Your attention is called to the fact that the penal provisions of the Acts do not apply "to any one rendering assistance in a case of emergency."

I am to add that the General Medical Council regard it as the duty of registered medical practitioners to co-operate with the constituted authorities in helping to secure the strict and effective administration of the Midwives Acts.

I am, yours faithfully,
Donald Macalister,
President.

Warning Notice.

Whereas it is provided in the Midwives Act, 1902, and in the Midwives (Scotland) Act, 1915, that "no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner unless she be certified under this Act."

And whereas it has been made to appear to the General Medical Council that certain qualified medical practitioners have, from time to time, by their countenance or assistance or by issuing certificates, notifications, or other documents of a kindred character, knowingly enabled uncertified women, on pretence that such women were under their direction, to attend women in childbirth, contrary to the law;

And whereas such conduct is, in the opinion of the Council, discreditable to the profession of medicine, and calculated to defeat the purpose of the Statutes made in the public interest for the protection of mothers and infants;

Notice is hereby given that any registered practitioner who is proved to have so offended will be liable to have his name removed from the *Medical Register*.

Sir Francis Champneys thought the purpose of the notice was well set forth. The Midwives Act was passed in order to protect women and newborn children, and had had the effect of lowering mortality and morbidity in a very remarkable way. The Act had been administered with varying intensity in various parts of the country. It appeared that there were a large number of uncertified women who had all along been in practice, and that some of them had not only been employed by doctors, which was wrong, but had also employed doctors and made them their servants. That was altogether wrong. In some districts objection had been raised to the too strict administration of the Act on the ground of the shortage of midwives, but at the present time the lives of women and children were more valuable than ever, and it was the duty of the Council to see that they were safeguarded in every possible way. The difficulty in certain country places had been provided for to a very great extent. The Local Government Board had made it possible for every local authority to obtain the services of a properly qualified midwife for its district. The remedy for the evil which undoubtedly at present existed was in the hands of the local authorities.

Dr. Newsholme said the economic objection had been removed by the action of the Local Government Board in promising to find one-half of the total cost of engaging municipal and county midwives where they were required. The Board had also promised to pay one-half of any fees of a medical man called in by such midwives where necessity arose.

Dr. Macdonald considered that in many cases the reason why the Act was not carried out effectively was the crass ignorance on the part of the medical man. If the Council could devise some means of making the general practitioner aware of the meaning of the Warning Notice it would have much to do with the effective carrying out of the Act.

The President said it was proposed that the covering letter should be the explanation of the strict terms of the Warning Notice, and that the two should be sent out together. A copy of both might also be sent to local authorities as well as to medical men.

The Council approved the Warning Notice and covering letter and their issue.

Venereal Diseases.

Dr. Langley Browne moved:

> That the President be requested to inform the Lord President that, in the opinion of this Council (*a*) any legislative measures dealing with the prevention and cure of venereal diseases, to be effective in protecting the public health, must include provisions for restraining the treatment of such diseases by unqualified persons; and (*b*) the recommendations of the Select Committee of the House of Commons on Patent Medicines, which have now been endorsed by the Royal Commission on Venereal Diseases, should forthwith be adopted, and embodied in the proposed legislative measures.

If the Council was to have any voice in this matter at all, it must act at once, or it would be too late. The recommendations of the Select Committee on Patent Medicines, which had been endorsed by the Royal Commission on Venereal Diseases, with regard to the sale of secret remedies and other matters, might do a great deal, but unless the Legislature was prepared to stop altogether the treatment of venereal disease by unqualified persons he did not think the diseases would be stamped out. How that could be best effected he would leave for discussion on a future occasion, but at least the Council should urge that it should be made a penal offence for any unqualified person to treat venereal disease.

Dr. Norman Moore seconded.

The President thought it opportune for the Council to pass some such resolution, because he had reason to believe that legislation was actually contemplated at the present moment.

Dr. Latimer said that a cause of despair to those who wished to treat venereal diseases successfully was the fact that many who suffered from them sought relief from quacks. If the Government could be persuaded to see that one of the most efficacious means of dealing with these diseases was that the patient should consult a

qualified practitioner, that would necessitate immediate disclosure and effectual treatment.

The motion was carried unanimously.

The PRESIDENT stated that the Lord President of the Privy Council would be requested to forward a copy of the resolution to the Home Office and to the Local Government Board.

INSTRUCTION IN VACCINATION.

Sir JOHN MOORE moved:

> That it be remitted to the Education Committee to investigate how the inclusion of vaccination as a special and separate requirement in the curriculum is affecting the time at the disposal of medical students, and especially the teaching of clinical medicine and surgery, at all events in some of the centres of medical education in the United Kingdom. And that the Committee be asked to report whether the teaching of vaccination cannot be sufficiently provided for in connexion with instruction under the general headings of medicine and surgery.

In doing so he hoped no member of the Council would imagine that he was in any way against the practice of vaccination; there was considerable feeling amongst teachers in Dublin that, as at present organized, the teaching of vaccination interfered with the proper teaching of clinical medicine and surgery, which, of course, included vaccination. His motion simply proposed to refer the matter to the Education Committee to inquire as to how the requirement for practical demonstration in vaccination worked in different parts of the United Kingdom. It might then very well make such representations to the Local Government Board in Ireland as would prevent it from interfering in future with clinical teaching in the Dublin hospitals.

Sir ARTHUR CHANCE seconded.

Dr. NORMAN MOORE hoped the matter would not be referred to the Education Committee, as it would be asking it to settle the time table of the students in Dublin.

Dr. NEWSHOLME concurred, and added that such teaching was of great importance; to interfere with it would be against the public interest.

Dr. MACKAY agreed, and after some further discussion, on the suggestion of Dr. LANGLEY BROWNE, by leave of the Council, Sir JOHN MOORE withdrew the motion.

RESTORATION TO THE REGISTER.

The Council having sat *in camera*, the President announced that the Acting Registrar had been directed to restore to the *Medical Register* the names Ulrick Joseph Burke and Maurice Edmund Arnold Wallis.

(To be continued.)

PRESENT AND FUTURE POLICY.

MEETING AT TUNBRIDGE WELLS.

ON the invitation of the Tunbridge Wells District Medical Committee, the Medical Secretary of the British Medical Association addressed a meeting on November 25th, to which all the local practitioners had been invited, and about twenty-five were present. Dr. H. J. M. WATTS, of Tonbridge, took the chair, and the arrangements were made by Dr. F. A. Routch, the Hon. Secretary.

The subject of the address was the present and future policy of the Association, particularly in regard to National Insurance. Dr. Cox gave a summary of the action taken by the Association when the Insurance Bill was before Parliament; a lengthy period of education and consultation of the profession before the Act was introduced had, he said, enabled the Association to have a clear idea of what the profession did not want, and some idea of what it did want. He pointed out that, though opinion inside the profession was divided as to the results of that fight, members of the outside public and many of the opponents of the profession during the fight were of the opinion that a very substantial victory had been achieved. The present policy of the Association towards those working the Insurance Act might be summed up as follows:

1. That State-aided insurance would be a permanent system.

2. That the great majority of the general practitioners of the country were working the Act and must continue to work any State-aided system.

3. That it was the duty of the Association to give these practitioners all the help and protection it could, particularly as

4. Developments of National Insurance were bound to include the employment of more doctors, and not only general practitioners.

The Insurance Act had thrown greatly increased work upon the Association, and it had increased its expenditure and its staff to meet that work. It was now fully recognized by the great majority of panel practitioners and by the Government as the only authorized spokesman of insurance practitioners, having been adopted as such by the Panel Committees throughout the country. He then dealt with the composition of the Insurance Acts Committee of the British Medical Association and its work, and showed that the Committee was thoroughly representative of insurance practitioners. Dealing with the achievements of the Committee since the Act came into operation, he pointed out that no one interest concerned in the working of the Act could always get its own way, because the Commissioners had to meet the demands, not only of doctors, but of approved societies, Insurance Committees, and insured persons, but a review of the work accomplished by the Committee would show that it had been able to achieve much for the benefit of insurance practitioners. This was entirely due to the fact that the Committee believed—and the Commissioners believed—that the Committee had the confidence of Local Medical and Panel Committees as a whole, and that the Association was in a position, if necessary, to fight any new regulations to which the large majority of those Committees were opposed. The plan of the Association for collective bargaining would place insurance practitioners in a very strong position in striving for any reasonable demands they might make if the Panel Committees were prepared to act as a body, using the Association as its mouthpiece, as they had agreed to do. Everybody recognized that after the war great changes might be expected, and the profession must be prepared to state its requirements. The Association was prepared to find out what the profession wished in regard to any alterations in the present system, and would do so by a process of education and consultation of the profession similar to that adopted before 1912. He alluded to some of the criticisms of the Association, and pointed out that if the critics would use the same amount of energy in pressing for what they wanted through the Association as they were expending in trying to set up other organizations, it would be very much better for the profession as a whole. To use the energies and the money of the profession in setting up new organizations was bad business, because the Association was already recognized by the public and the Government as the fighting organization of the profession, because it was already recognized as the central organization by the great majority of the Panel Committees, and because it represented the profession generally and not merely men at present working the Act. He laid great stress on this last point, and went on to show that the probable developments of National Insurance would involve every section of the profession, and that it was impossible to think that when the Government attempted to modify or reorganize the existing system it would be content to take the opinions merely of those men at present working the system. If National Insurance was to be a permanency, it was essential that the medical attendance given under it should be satisfactory to insured persons and to the members of the profession generally. This could only be brought about if some organization representative of all classes of the profession were successful in finding out what modifications of the system would induce men who had hitherto stood out to enter it, and to induce the Government to accept these modifications. He then dealt with the three commonly expressed objections against the Association being authorized to act as the spokesman of the profession in dealing with insurance matters: (1) Because it failed before; (2) because panel business should be dealt with by a purely panel body; (3) because only a trade union could effectively protect those engaged in insurance practice. As regards the first point, he again referred to what had been gained in the last fight, and to the opinion of impartial outsiders on the result of that fight. With reference to the second objection, he was very strongly of opinion that those who held it did not look far enough ahead, and did not realize that National Insurance was only in its infancy, and was bound to affect the whole profession even more profoundly than it had already.

Dealing with the question of trade unionism, he pointed out that this question had been threshed out on many occasions always with the same result, that Representative Meetings of the Association and conferences of Local Medical and Panel Committees had come to the conclusion that there were no steps a trade union could take, which the profession were prepared to take, that the Association could not take and indeed had not taken. When the great power of some of the trade unions, as, for example, the miners and engineers, was spoken of it was sometimes forgotten that that power rested essentially on the fact that these men worked together in mines and workshops, and that by refusing to work with men who did not belong to their union or who had offended against its laws, they brought work to a standstill. This power could not be exercised by medical men. He had never known any medical man who believed that it would be possible for medical men to cease attendance on the public or to boycott offending practitioners by the methods of "peaceful persuasion" and picketing. What the profession could do and what the Association would certainly advise them to do in certain circumstances would be to refuse to enter into or to renew contracts with the State or other bodies if the conditions were not satisfactory, and that was all that a trade union of the profession could do. The desire of certain members of the profession to have a trade union was, in his opinion, based on a supposed analogy between medical practice and the conditions of workmen which did not exist.

In reply to questions, the Medical Secretary pointed out that many of the misconceptions in the minds of those present were due to the fact that they had not followed the action of the Association, and that this particularly applied to the "nibblings" of various Government departments on the work formerly done by general practitioners. He showed that the Association had on many occasions warned the profession against this, and gave specific instances, such as the treatment of school children and maternity and child welfare centres. The result of these warnings had, generally speaking, been disappointing, as the profession locally was in most cases indifferent. No voluntary organization could do more than collect the views of the profession, form a policy after consultation with it, and press that policy upon the profession, individually and collectively. The rest lay with the body of the profession in the various localities. No voluntary organization—and a trade union was such—could force the profession to do anything. He urged those present to strengthen the hands of the Association by joining it if they were not members, and by taking a more active interest in its work if they were.

The meeting closed with a vote of thanks to Dr. Cox.

INSURANCE.

DISCHARGED SOLDIERS AND INSURANCE.

Attention was called in these columns on November 11th to a leaflet issued by the Insurance Commissioners addressed to discharged soldiers who have been insured during their service, giving full particulars as to the steps to be taken in order to obtain the benefit to which they are entitled. The Commissioners have followed this up by a circular, A.S. 183, addressed apparently to approved societies and laying down conditions for the payment of sickness and disablement benefits.

As some of the views expressed by the Commissioners affect to some degree panel practitioners, it is well to note that the Commissioners take the view that an insured person who, though incapable of following his ordinary employment, is still physically capable of doing work of some kind, cannot be regarded as incapable of work, and so satisfying the statutory requirements for sickness or disablement benefit, if such work is reasonably available to him, due regard being had to his training, aptitude, and other circumstances. But if, on the contrary, such work is not reasonably available, he should be considered as incapable of work. Thus, where an insured person is unfit to follow his ordinary occupation but it is apparent from the nature of his illness that he will be able to return to it within a reasonable time, he should in general be treated as incapable of work. Where, however, it is unlikely, owing to the nature of his illness, that he will ever, or at and rate within a reasonable time, be able to follow his former occupation, then, if he is capable of other work which is reasonably available to him, he should not be regarded as entitled to benefit, and in cases of this kind societies may well inform the member that after a specified period reasonably sufficient for the purpose, benefit will cease if he has not taken steps to fit himself for, and endeavoured to obtain, some other form of work. Thus it may be expected that a man with a total disablement pension will be entitled to benefit reduced in accordance with the Act of 1915, but a man with a partial disablement pension will not have a claim for benefit unless incapacitated by some disease or disablement other than that for which he was discharged from military service. In both classes, of course, exceptions will occur which societies must deal with on their merits.

Societies are reminded that a medical certificate is not a conclusive title to benefit, and this fact is specially important when it appears probable that the doctor in giving the certificate has had in mind no more than the inability of the man to resume the employment by which he gained his livelihood before his period of military service. Two distinct types of cases are mentioned:

1. Where a man with a partial disablement pension so deteriorates in health as to become incapable of work. If the society considers the deterioration purely temporary, benefit should be paid, but if it appears not to be temporary the society should communicate with the Pensions authorities with a view to a reconsideration of the pension. Pending this, the society should pay benefit, and if a total disablement pension is subsequently granted the society would be entitled to recover to the extent of 5s. a week any benefit paid in respect of any time subsequent to the date as from which the total disablement pension is granted.

2. Where a member's health is substantially the same as when the partial disablement pension was granted, the claim will usually be based on inability to follow his usual occupation, and the principles first laid down above should be applied, benefit being refused if the society is satisfied that there is some other occupation reasonably open to the member. In many such cases the society may well submit the case for reconsideration to the Pensions authorities, but it should satisfy itself first on medical evidence that the man's present incapacity is due to an injury or disease definitely attributable to his war service.

The circular then gives particulars as to the proper authorities to which societies should submit cases, but points out that benefit should not be paid indiscriminately from mere sympathy, as it is important that the man should be prevented from drifting into habits of idleness and so deteriorating until he reaches the class of the chronic unemployable. When a society considers that a member has become fit for work, but cannot find suitable employment, the case should be brought to the notice of the local War Pensions Committee, which will endeavour to find work for the man or to make arrangements for his training. Finally, the Commissioners point out that discharged soldiers, like the rest of the insured, are bound to comply with the rules for behaviour during sickness and if they neglect to avail themselves of the medical treatment to which they are entitled, benefit should be refused.

LOCAL MEDICAL AND PANEL COMMITTEES.

County of London.

The Conference of Local Medical and Panel Committees.—At the meeting of the London Panel Committee on November 21st the General Purposes Subcommittee brought forward a recommendation that the Commissioners be requested to take steps to secure that in all cases where it was necessary to obtain the views of the panel profession a body directly representative of the Panel and Local Medical Committees throughout the country should be consulted. The proposal had been held over until after the conference of October 19th, and, as a result of discussion, the recommendation was again postponed.

Earlier Evening Surgery Hours.—The Committee considered the recent order with regard to the earlier closing of shops and its effect on the supply of drugs and appliances to insured persons. It was agreed, however, that it was inadvisable for practitioners to alter their evening hours of consultation in consequence of the order, having regard to the clause in the agreements relative to hours of attendance, and to the conditions under which the insured population are employed at present.

Final Settlement for 1915.—A communication was received from the Insurance Committee stating that the

total amount available for distribution in the practitioners' fund for 1915 was £450,572. This amount is greater by £63,194 than the advance payments already made during the year, so that this latter sum is available for distribution by way of a final settlement. It was pointed out that if a sum of 7s. is regarded as being available in respect of each effective insured person, the mean number of insured persons in the county for 1915 was about 1,287,207.

Practitioners on War Service.—The number of practitioners absent on war service who had availed themselves of the Committee's war emergency scheme in the third quarter of the present year was forty-two and the number of insured persons for whom the Committee was responsible under this scheme was 57,259.

COUNTY OF SOMERSET.

At a meeting of the Local Medical and Panel Committees on November 8th the Chairman and Honorary Secretary were appointed to confer with two representatives of the county council with regard to the scheme for the treatment of venereal disease.

It was resolved that it is the duty of the State to continue the treatment of disabled or invalided soldiers in military institutions at the public expense so long as they are capable of benefiting thereby instead of discharging them from the army as soon as they are well enough to go to their own home.

INSURANCE NOTES.

ANSWERS.

Change of Panel Doctor.

J. A. C. asks whether a panel doctor can demand that an insured patient on his list should change his panel doctor at the end of the year?

*** The point is met by Section 30 (2) of the Medical Benefit Regulations, 1913, which reads:

> A practitioner may, not later than six weeks before the end of any year, give notice to the Insurance Committee that he does not desire to undertake the treatment in the succeeding year of any insured person whose name is, on the date on which notice is given, included in his list, and the Committee shall thereupon give notice to the insured person and shall remove his name from the list of the practitioner as from the end of the current year.

The only difficulty that may arise is that if the insured person notified as above is unable to find any other panel doctor willing to accept him, the Insurance Committee, acting under an arrangement with the Panel Committee which the Commissioners must have approved (Regulation 21 (4)), may assign the patient to any doctor, and it might conceivably happen, unless there were good reasons to the contrary, that the patient might be re-assigned to the original doctor.

INSURANCE ACT IN PARLIAMENT.

PAYMENTS FOR 1915.

MR. ALDEN asked whether it was true that the London Insurance Committee declined to pay the balance due to practitioners under their agreements in respect of the year 1915 unless a special form of receipt was signed relinquishing their legal rights under the regulations and otherwise, and whether he would take action to remedy this state of affairs, which was causing irritation and dissatisfaction to the doctors. Mr. Roberts, Chairman of the Joint Committee of Insurance Commissioners, replied as follows: "An approved society, before paying sickness benefit, must be satisfied that the benefit is properly payable. I have no reason to think that there is any serious delay on the part of societies in dealing with current benefit work in cases where the claims are supported by the necessary evidence, but if my hon. friend has the case of any particular society in mind, and will let me have particulars, I will make inquiries and take such steps as may be necessary. It should be borne in mind that societies are at present working at a serious disadvantage by reason of the withdrawal for military service of the greater part, and in some cases the whole, of their experienced staff, and that the necessary inquiries into a member's claim for benefit may, therefore, be less expeditiously completed than is the case under normal conditions."

NATIONAL INSURANCE (TEMPORARY EMPLOYMENT IN AGRICULTURE) BILL.

On November 22nd Mr. Charles Roberts, Chairman of the Joint Committee of Insurance Commissioners, in moving the second reading of the National Insurance (Temporary Employment in Agriculture) Bill, said that it was intended to remove a discouragement to the temporary employment of women and others as war workers in agriculture. The experience of last year had shown that the services of women could be utilized in many agricultural districts, and the Board of Agriculture had asked the Insurance Commissioners for some relaxation of the provisions of the Insurance Act on this point. The bill proposed to enable persons normally non-insurable who took up agricultural work as a war occupation to remain outside the scope of compulsory insurance if they wished. Many of the women could only spare part of their time for such work, but the farmer had now to pay an extra 3d. a week for each unit who did any kind of work during the week. This doubtless interfered with the employment of women on farms. Again, many of the women were technically exempt persons, so that the farmer had to contribute his 3d. a week for them while they themselves are exempt from contributing. The bill gave power to make special orders to exclude the class of workers who are normally non-insurable from the provisions of the Insurance Act unless they wished to enter into insurance. The bill was strictly an emergency measure only for the duration of the war, and did not apply to any persons who were normally insurable. In spite of some opposition, the bill was read a second time. It passed through Committee on November 23rd, the only amendment being to limit the operation of an order to six months after the end of the war. It was read a third time on the same day and passed.

MEDICAL CERTIFICATES.

Mr. O'Grady asked whether, having regard to the scarcity of qualified doctors owing to the war, senior students in their final year would be allowed to sign medical insurance certificates on behalf of their principals. Mr. Roberts said that certificates of incapacity would be of little value to approved societies if the responsibility for giving them were in any way divorced from the responsibility for diagnosis, a responsibility a medical practitioner was professionally debarred from delegating to, or sharing with, an unqualified man.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeons G. E. Duncan to the *Vivid*, additional, for disposal; H. J. Chater, lent to Dartmouth Hospital. Staff Surgeon A. R. Schofield has been specially promoted to the rank of Fleet Surgeon for war service. Staff Surgeons A. G. Phipps to the *Yarmouth*, F. G. Hitch to the *Vivid*. B. S. Robson, M.B., to the *Victory*, W. W. D. Chilcott, M.D., to the *Pembroke*. Surgeon E. MacEwen to the *Pembroke*, additional, for disposal. Temporary Surgeons A. G. Holman to the *President*, additional, for R.N.A.S.; E. H. Heaton to the *Collingwood*, vice Holman; W. L. Coullie to the *Victory*; C. N. Ratcliffe to Chatham Hospital; F. O. Febrsen to Plymouth Hospital; H. W. Davies, M.B., to the *Vivid*, additional, for disposal; J. G. A. Fairbank, M.B. to the *Vivid*, additional, for Plymouth Hospital. To be temporary Surgeons: S. Wilson, R. B. Adams.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers C. N. Armstrong to the *Petrel*, J. P. Hope to the *Lucifer*, J. Hetherington to the *Hind*, D. C. Clarke to the *Porpoise*.

ARMY MEDICAL SERVICE.

Colonel (temporary Surgeon-General) C. E. Nichol, C.M.G., D.S.O., relinquishes his temporary rank on reposting.

Colonel H. E. Cree is retained on the active list and to be supernumerary.

Temporary honorary Lieutenant-Colonel C. G. Watson, C.M.G., F.R.C.S., to be temporary Colonel whilst employed as consulting surgeon.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. Holyoake is retained on the active list and to be supernumerary.

To be temporary Majors: Fleet Surgeon G. E. Macleod, R.N., retired; H. J. Shirley, M.D., F.R.C.S.; R. E. Crosse.

Temporary Captains relinquish their commissions: W. M. Crofton, M.D., G. D. Laing, M.D., J. Spence, M.B., T. A. Rothwell, M.D., H. Meade, F.R.C.S.I., C. H. Treadgold, M.D., S. H. Gibson, P. C. Raiment, W. S. Milne, M.B., B. N. Murphy, A. de W. Snowden, M.D., A. G. Beach, W. W. Mackarell, M.D., R. F. Yencken, C. N. Le Brocq, M.D., J. C. Watson, M.B., H. B. Elton, M.B., C. W. B. Littlejohn, M.B., J. H. Dancy, C. H. H. Coetzee, M.B.

To be temporary Captains: Sir Vincent Nash, J. H. Parsons, M.B., F.R.C.S., Captain J. Hendry, M.B., from Glasgow University Contingent O.T.C.; temporary Lieutenant J. A. Matson, M.D., F.R.C.P.I., F. A. Anderson, M.D., C. H. Denham, M.B.

Officers relinquishing their commissions on account of ill health: Temporary Captain W. A. Russell, M.B.; temporary Lieutenant E. D. Fountain.

Temporary Lieutenants to be temporary Captains: M. Eager, A. Budd, M.B., M. J. Casserley, M.D., R. M. Wright, M.B., J. H. Legge, M.B., A. Muir, M.B., W. J. Macdonald, M.B., J. W. Frew, M.B., R. W. Stocks, F. Ritchie, M.B., T. M. Crawford, M.B., W. Hounsby, M.B., D. G. McRae, B. McDermott, F. Vanse, M.B., W. G. S. Neely, J. St.P. Knight, M.B., G. S. Marshall, J. McMillan, M.B., A. Dick, M.B., A. R. Snowdon, J. K. F. MacLeod, M.B., W. P. Ker, J. F. Robertson, T. F. O'Kell, J. N. Meade, J. W. Bride, M.D., W. S. Edmond, F.R.C.S., D. Vil esid; W. M. Shepherd, M.B., D. Mann, M.B., F.R.C.S.E., A. F. Elliott, M.B., F. J. Ayre, D. R. Pike, M.B., J. McA. Scott, M.D., F. L. Matthew, W. A. Rees, M.D., F.R.C.S., R. S. Dickie, M.B., R. Forbes, M.B., D. S. Jones, H. K.

Macdonald, M.B., C. C. Lord, C. C. Vigurs, M.D., W. Jameson, C. Bannigan, M.B., W. A. Ferguson, J. MacRae, T. H. Edey, W. D. Newland, C. E. Wilson, M.B., F. B. Julian, M.B., J. A. R. Thompson, M.B., W. G. F. Johnson, A. C. Taylor, R. E. Thomas, M.D., E. P. Titterton, P. C. H. Ryan, M.D., M. L. Loveless, R. W. P. Jackson, R. T. Todd, M.B., W. R. P. McNeight, M.D., J. Ogilvie, A. E. Schokman, E. W. N. Wooler, M.B., A. G. H. Moore, S. McNair, J. Crawford, W. F. Walker, R. W. Macpherson, M.D., J. M. Ryan, M.B., L. S. C. Roche, A. Rutherford, M.B., T. C. Routley, M.B., D. W. F. Jones, M.B., L. T. Burrs, M.D., C. G. Brewis, C. O. Jones, M.D., H. D. Woodroffe, M.D., G. Elmsworth, G. H. H. Russell, M.B., L. M. Webber, V. H. L. MacSwiney, A. R. Oram, M.B., A. B. Cardew, M.B., F.R.C.S.E., C. D. Walker, M.B., T. J. Ryan, A. E. Sutton, M.B., T. F. Saunders, M.D., D. McE. Kilgour, M.B., A. E. McKibbin, D. A. Warren, W. A. McLeod, M.D., C. R. Young, M.B., E. Bryceson, L. M. Breton, J. R. R. Ritchie, M.B., H. Tomlin, M.D., T. B. Williams, M.B., G. A. McLarty, M.B., W. S. Seaton, M.B., R. Home, M.B. H. Bourne, M.B., R. S. Jenkins, A. H. Morley, L. J. H. Oldmeadow, M.D., F.R.C.S.E., P. M. Turnbull, M.C., M.B., E. F. Reeve, M.B., R. E. H. Leach, M.D., G. W. Beresford, F.R.C.S., J. E. R. Orchard, M.B., E. D. Lindow, W. Bainbridge, M.B., E. R. Barton, R. G. Gordon, M.D., F. J. Lidderdale, M.B., J. R. Christian, M.C., M.B., A. Montgomery, M.B., W. D. Rose, M.B., D. F. O'Flynn, J. F. Dods, M.D., I. Flack, H. D. Haworth, M.D.

The name of temporary Lieutenant Thomas Walter Melhuish is as now described and not as in the *London Gazette* of December 14th, 1915

The notification in the *London Gazette* of August 7th regarding temporary Lieutenant A. F. Bell, M.B., is cancelled.

To be temporary Lieutenants: H. T. H. Butt, P. A. Creux, T. Gardner, M.D., F. N. Marsh, M.B., W. P. Morgan, M.B., H. Ainscow, M.B., H. C. Burbidge, V. F. Kroenig-Ryan, M. F. Hession, T. St.C. Smith, M.B., J. L. Rubidge, M.B., J. C. Lee, M.D., D. K. Parkes, M.B., F. Denison, E. V. Dunkley, M.D., P. A. Hall, M.B., C. L. McDonogh, M.B., E. Lachopelle, M.B., W. J. Weaver, M.D. J. T. Bowman, M.D., R. Peterson, M.B., M. H. Cane, W. Craig, M.B., A. G. Wilkins, M.B., J. F. Adamson, M.D., B. S. Hyslop, M.B., H. T. Howell, H. G. K. Young, T. S. Robson, E. A. Donaldson Sim, L. C. G. Bacon, W. J. Greehy, S. W. Fisk, temporary honorary Lieutenant D. O. Richards, M.B., A. H. Burnett, S. J. M. Bradshaw, M.D., C. G. T. Mosse, W. C. P. Barrett, M.B., R. Paul, M.B., J. T. W. Stewart, M.B., P. C. Prince, H. R. Grellet, A. H. Porter, M.D., I. Clarke, D. Cogan, B. H. Moore, M.B., T. F. Campbell, M.B., C. M. Roberts, M.B., W. L. Walker, M.B., temporary honorary Lieutenant J. Fanstone, M.B., J. B. Ferguson, M.B., H. Kirkland-Whittaker, M.B., J. Bain, M.B., T. B. Stedman, M.D., temporary honorary Lieutenant G. E. Spicer, F. O. Spensley, H. E. M. Baylis, M.B., H. D. Pollard, M.B., F.R.C.S., A. Neville.

H. Archer to be temporary honorary Lieutenant.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

To be Lieutenant-Colonels: C. L. Starr. Majors G. R. Philip and D. K. Smith.

Captains to be temporary Majors: C. Hunter, T. D. Archibald, T. A. Lonner.

Captains to be acting Majors: T. H. McKillip, P. Poisson.

To be temporary Captains: C. W. Anderson, Captain A. Arthur, H. W. Kerfoot, late Lieutenant R.A.M.C., G. W. Grant, M.B.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel A. M. McIntosh, M.B., from Deputy Assistant Director of Medical Services, to be Assistant Director of Medical Services (temporary).

ROYAL ARMY MEDICAL CORPS.

Southern General Hospital.—Lieutenant-Colonel G. M. Smith relinquishes his commission on account of ill health.

Home Counties Casualty Clearing Station.—Lieutenant A. Wilson, M.D., to be Captain.

London Casualty Clearing Station.—Major F. W. Higgs, M.D., to be Lieutenant-Colonel.

London Field Ambulance.—Captain (temporary Major) J. H. Dixon to be Major.

York Mounted Brigade Field Ambulance.—Major G. H. L. Hammerton to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Northumberland Field Ambulance.—Lieutenant V. J. White to be Captain.

Highland Casualty Clearing Station.—Lieutenants to be Captains: W. Alexander, M.B., A. A. McKenzie, M.B.

Attached to Units other than Medical Units.—Captain H. Drummond, M.B., from T.F. Reserve, to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM: EAR AND THROAT HOSPITAL.—Clinical Assistant for Out-patient Department. Salary, £50 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £100 per annum.

BRADFORD ROYAL EYE AND EAR HOSPITAL.—Non-resident House Surgeon, or Paid Clinical Assistant.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £100 per annum.

ECCLESHALL, BIERLOW UNION.—Assistant Medical Officer. Salary, £100 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Surgeon.

MELBOURNE: WALTER AND ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE.—Medical Research Director. Salary, £800, and yearly premium of £75 for retirement.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—(1) Physician-in-Charge of Infant Consultations. (2) Pathologist and Registrar. Remuneration, £80 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—(1) House-Physician; (2) House-Surgeon. Salary, £80 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SHEFFIELD ROYAL HOSPITAL. (1) Ophthalmic and Aural House-Surgeon; (2) Casualty Officer; (3) Assistant House-Surgeon. Salary, £135, £130, and £120 respectively.

SHREWSBURY: SALOP COUNTY ASYLUM.—Assistant Medical Officer. Salary, £6 6s. a week and all found, or £300 per annum with unfurnished quarters, etc.

SHREWSBURY: SHIRLETT SANATORIUM.—Medical Superintendent.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.

YORKSHIRE: WEST RIDING COUNTY COUNCIL.—Two School Medical Inspectors. Salary £325, rising to £400.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BLAIR, J., M.D., Certifying Factory Surgeon for the St. Annes-on-the-Sea District, co. Lancaster.

HOLLOWAY-OLIVER, S., L.D.S.R.C.S.Eng., Dental Clinical Assistant to King George Hospital.

HUXLEY, Miss Frances, M.D.Vict.(Manch.), Physician to the Ante-natal Department of Queen Charlotte's Lying-in Hospital.

MILLS, John, M.B., Resident Medical Superintendent to the District Asylum, Ballinasloe.

VILVANDRE, George, M.R.C.S., L.R.C.P., Captain R.A.M.C., War Office Radiographer to the Guildford War Hospital.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

DICKSON.—At "The Chesnuts," Longlevens, Gloucester, on November 23rd, 1916, the wife of W. Arnott Dickson, M.D., F.R.C.S.Edin., of a daughter.

WILDMAN.—On November 22nd, at College Road, Rotherham, the wife of W. Stanley Wildman, F.R.C.S., temporary Lieutenant R.A.M.C., of a daughter.

MARRIAGE.

CAMERON—WRAY.—November 28th, 1916, at the Crosby Congregational Church, by the Rev. T. H. Martin, M.A., Lyle John Cameron, M.D., M.R.C.S., L.R.C.P., second son of Mr. and Mrs John McEwen Cameron, Shoal Lake, Manitoba, Canada, to Margaret, eldest daughter of Mr. and Mrs. Tom Wray, Blundellsands.

DEATHS.

ADLER.—On November 27th, 1916, at 10, Bryanston Street, W., James Elrick Adler, F.R.C.S.Eng., aged 35, only son of the late Rev. James Alexander Adler. Greatly beloved by all who knew him. Interment at Abney Park Cemetery, Friday, December 1st, at 1.30. Service at 12.15 at the Church of the Annunciation, Bryanston Street. No flowers. Colonial papers please copy.

GUNN.—At 22, Fife Street, Dufftown, on November 19th, Norman Gunn, M.B., C.M., aged 43 years.

JOHNSON.—November 26th, 1916, at 17, York Road, Harrogate, aged 75 years, Thomas Mason Johnson, M.D., J.P., late of Oakfield, Pendleton. Interred at St. John's Church, Easingwold, on Thursday at 2.30.

DIARY FOR THE WEEK.

MONDAY.

LONDON HOSPITAL, E.—4 p.m., Lecture by Mr. Frank Kidd: Diseases of the Male Urethra.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.—8.15 p.m., Dr. Levy and Mr. Stenning: Paatilles.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PATHOLOGY. 5 p.m., Captain Alfred R. Friel: *Amoeba Urinae Granulata* Calls. Dr. Christopherson: Salivary Calculus. Mr. S. G. Shattock: Pseudotuberculoma Silicotium of Lip. Mr. S. G. Shattock and Dr. L. S. Dudgeon: Attempts to Produce a Mixed Tumour.

THURSDAY.

LONDON HOSPITAL, E.—11 a.m., Lecture by Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 9TH, 1916.

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GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION, 1916.

Sir Donald MacAlister, K.C.B., President, in the Chair.

COMPULSORY LATIN.

The Education Committee presented a report upon the compulsory inclusion of Latin in the preliminary examination in general knowledge for medical students. The report was adopted at a meeting of the Committee on November 28th, 1916, when all the members were present, namely, Dr. Mackay (Chairman), the President, Dr. Norman Moore, Sir George Philipson, Sir Francis Champneys, Mr. Hodsdon, Dr. Knox, Sir Arthur Chance, Sir Bertram Windle, and Dr. Little.

Report and Recommendations.

The report pointed out that since 1902 the University of London had not called for Latin as an essential element in its matriculation examination, and that within the last two years the Universities of Liverpool, Leeds, Sheffield, and Birmingham had followed this example. There was now a movement throughout England, under the influence of the Education Department and the control of the universities, towards the establishment of a system of school-leaving certificates. The Council had hitherto encountered difficulty in fulfilling its responsibility as to the general education of medical students, owing to the great variety of schools, the differences in educational methods, and the want of any system of central control. The chief object of the Council was to secure that the student should have received at school a mental training sufficient to enable him to engage in medical study. He should be sufficiently trained in mathematics to enable him to enter upon physics and other sciences, and he should be able to make use of his own language with at least intelligence and accuracy. Candidates for admission to the medical curriculum, apart from those who possessed university degrees in arts or science, might be classified according to the standard of entrance examination into two grades—senior and junior.

Senior Grade.

The candidate of the senior grade had successfully completed the full course of the secondary or senior school. He had obtained the higher grade or senior leaving certificate, which could not be obtained, save by the most brilliant, at an earlier age than from 17 to 18. This examination was generally accepted by the universities as the equivalent of matriculation for the faculties of arts and science, and the regulation and development of this examination were duties which devolved primarily upon the school and university in co-operation with the Education Department. The Council might assume that the standard of the examination would always fully express the efficiency limit of the average secondary school. The Committee recommended the Council to accept this certificate or its equivalent as affording ample evidence that the objects of the Council in prescribing a preliminary examination in general knowledge were fully realized, and to accept it without further proviso than that it should embrace at least four subjects, including English and mathematics.

Junior Grade.

The junior grade was composed of pupils who left school at the age of from 15 to 16 and of those upon a similar educational level, and the examination was of an appropriate standard. Such examinations were accepted by some of the universities for matriculation in the faculty of medicine, and were approved by the General Medical Council on the ground of necessity. While it was to be regretted that pupils who aspired to one of the professions should thus be encouraged to leave school before the natural termination of the full curriculum, the needs of the country as to its medical service demanded that this junior portal should remain open for the present. In the past the Council had preferred to exercise its influence by calling for a suitable curriculum rather than a fixed and necessarily artificial system of marking. The scheme of the study of medicine it approved called for four subjects—English, mathematics, Latin, and an additional language, classical or modern. The examination had to be devised to suit the conditions of the average pupil of from 15 to 16. The intermediate school had devoted in the past its main energies to Latin, English, and mathematics; but one foreign language, usually French, was almost universally included. A change in respect of the importance assigned to Latin was possibly impending. In the senior school classical and modern departments had become differentiated, the latter being largely scientific, but it was not likely that Latin would lose its permanent position in the intermediate school, chiefly because of its value in securing mental discipline, and to some extent in view of the aid it afforded to the intelligent study of English and other languages. At present there were no possible substitutes for Latin in the educational scheme suitable to a youth of 15 which could be said to be entirely satisfactory. The real study of science demanded a man to some extent matured under a preliminary discipline in thought, and the substitution of an additional modern language would give to the course a one-sided character which would detract from its educational value. Conditions would change as the schools

became better organized under the increasing influences of the Education Department, but meanwhile the Committee advised that as far as the junior entrance examination was concerned the provisions the Council had hitherto laid down as necessary for its recognition should be maintained. The Council must look to the joint action of university and school authorities for that improvement in the standard of general education which it desired to see.

Recommendations.

The report concluded with a suggestion that the regulations of the Council in regard to the registration of medical students should be altered as follows, subject to the proviso that the regulations for registration of June, 1916, should continue to be in force in Ireland.

Draft Regulations.

1. It shall be delegated to the Education Committee to prepare and issue from time to time a list of Examining Bodies whose examinations in general education fulfil the conditions of and are specially recognized by the General Medical Council.

2. The following examinations have been approved by the Council:

(*a*) The final examinations for the degrees in Arts and Science of any University of the United Kingdom or of the British Dominions.

(*b*) All examinations which are accepted for matriculation in the Faculties of Arts and Science in any University of the United Kingdom, provided the pass certificate includes English, Mathematics, and at least two other subjects named in the following list: Latin, Greek, Arabic, Persian, French, German, Spanish, Italian, Russian or any approved modern language, History, Geography, Natural Philosophy or Physics, Chemistry, Biology, Physical Geography and Geology.

(*c*) All examinations not included under the foregoing section (*b*), which are accepted for matriculation in the Faculty of Medicine in any University of the United Kingdom provided the examination is completed at not more than two periods of examination, and that the pass certificate includes English with Geography and History, Mathematics, Latin, and at least one other subject named in the following list: Greek, Arabic, Persian, French, German, Spanish, Italian, Russian.

(*d*) The Council may grant special recognition to the following examinations not included under the foregoing sections (*a*), (*b*), and (*c*):

(1) The final examinations for the degrees in Arts and Science of any specially recognized foreign university.

(2) Examinations conducted by approved Examining Bodies within the United Kingdom under the provisions set forth in the foregoing section (*c*).

3. Examinations conducted by approved Examining Bodies out of the United Kingdom under the provisions set forth in the foregoing section (*c*), and under such other conditions as the Council may impose in each case.

Discussion on Senior Grade.

Dr. Mackay, the Chairman of the Education Committee, said that the first part of the report dealt with the matriculation examinations for the Faculties of Arts and Science and equivalent examinations. Though he was going to move, practically, that as far as those examinations were concerned the Council should no longer regard Latin as a compulsory element, he frankly believed that the best possible preliminary examination for medicine consisted of English, mathematics, Latin, and Greek. But these examinations practically represented the successful conclusion of the complete school curriculum, the hall-mark of entrance to the university. The control and development of the examination as a feature of the educational system of the country belonged really to the authorities of the schools and universities. The production of a certificate of having passed a matriculation examination for the Faculties of Arts and Science would give the Council the assurance that the pupil who held it had completed his school education to the best power of the schools of the country, and that the universities could not get from the schools a better man than one who held that certificate. It would be unwise for the Council to interfere in the management and control of the examination if the Council were satisfied that it had got from the student in question all the requirements it actually needed. The Council should leave any further control and management of the examination in the hands of the responsible body. The Council, by removing the restriction it had placed upon the examination, would free the hands of the universities of the country, which to some extent had been tied by the Council's past act. He moved the adoption of recommendation 2 (*b*), and this was seconded by Sir Sir Arthur Chance.

Sir John Moore did not accept Dr. Mackay's view that the universities and not the Council ought to be the judges of what was to be considered a suitable preliminary examination in arts for candidates for the medical profession. Apart from the fact that the whole terminology of medicine, surgery, and midwifery was either Latin or Greek, the exclusion of Latin must be regarded as a retrograde step.

Dr. Elliot Smith explained that the University of Manchester refused to make Latin an optional subject, as, from its past experience, not only in medicine but other faculties, it had found that it was better to raise rather than lower the standard, not only at the entrance examination but at all professional examinations. It was considered, further, that Latin was of service to a professional man not only from its educational value, but also to the medical student owing to its specific importance, and that the amount of Latin required to obtain the matriculation standard was not beyond what was to be expected from any man who desired to enter the profession. Speaking from personal experience, the absence of a knowledge of Latin doubled the work of the teacher of medical students.

Sir Bertram Windle, as one concerned in the teaching of anatomy for a great many years, endorsed this point of view. He regarded the recommendation as a retrograde one.

Mr. Pye-Smith protested against the proposal being spoken of as a lowering of the standard. It was for the Council to accept or not university degrees in medicine, but it should not claim to dictate what the examination should consist of. In most schools boys were generally differentiated according to their bent, the nature of their minds affording, no doubt, an indication of their talents; but it was a fact that a large number of boys spent a great deal of time in learning Latin and very little of mathematics or science, and when they came to a medical school they were very inept in a great deal which they were required to do. A boy who had learnt something of physics and chemistry had had his mind surely set towards many of the problems which a medical student would have to solve. He therefore strongly supported the motion.

Dr. Latimer could not help thinking that there was a phase of thought in the country, which was gradually being taken up by scientists, to the effect that inasmuch as Germany had been of late years pre-eminently scientific it was time to make changes here as our educational methods were backward. He thought it would be a mistake for the Council to approve the omission of what he held to be an essential part of education for the profession of the practice of medicine.

Sir Francis Champneys agreed. He believed, however, that unless a student learnt enough Latin to read and write it with a certain amount of facility the time spent upon it was not worth while. The Council should either insist on a sufficient standard in dead languages or leave the matter alone.

Mr. Thomson said the universities had the power to devise any scheme they thought fit and proper, and the Council had no authority to interfere with them. The Council's authority was with regard to examinations of a professional kind, and in regard to those it was supreme. But it was not a body so well constituted to express opinions on matters dealing with general education as the universities, and if the universities decided to take the course they had, the Council must bow to their decision as that of the persons best qualified to express an opinion and exercise control on that particular subject.

Dr. Taylor maintained that it was for the schools and universities to determine what the student should learn, and he understood that if the Council persisted in making Latin a necessary part of the examination it would compel a number of schools to alter their curriculum.

Dr. Norman Moore said that the Council had always regarded university degrees, whether in arts or science, as sufficient evidence, whether the candidate had learnt Latin or substituted another language for it, to entitle him to be entered on the *Student's Register*. That *Register* was a matter of public convenience, but the Council had no legal power to enforce registration. The question what training a man ought to have had in order to proceed to a medical education was very difficult to answer. What of the education of Xenophon? He

did not know a word of Latin. What of the education of Plato, Aristotle, Sophocles, and Socrates? None of them knew Latin. That showed that a man could be educated to the highest pitch of which the human mind was capable without knowing Latin. Those who studied education at the present time knew that we were on the eve of great changes, which he sincerely hoped would not lead to the exclusion of the classics. He hoped that the chief change would be that the method, the plan, the place of teaching would come to be regarded of more and more importance and particular subjects of less importance.

Sir CLIFFORD ALLBUTT said that for years he had been against any particular subject being made compulsory for entrance. It was perfectly amazing how boys could wriggle through an examination in Latin and Greek with so little knowledge of either, and the time devoted to them was not worth it. If the average man was asked to translate or go behind the Latin words he had used, it would be found they had been used in a parrot-like way and learnt off by heart as ladies learnt off the names of plants. What was desired was to raise the literary quality of teaching, which could be attained by substituting two modern languages—French and Italian or French and Spanish—for Latin, so that the students would come up with a fair amount of literary culture.

Sir HENRY MORRIS said that, great as his sympathies were and always had been with the teaching of Latin and Greek, as being of the utmost use and advantage in after-life, he was very glad to see that Latin was proposed to be excluded, and he wished it was going to be excluded from the second part of the report as well as the first, as it was only consistent that it should be so.

Dr. LITTLEJOHN, as a teacher of forensic medicine, had found the greatest advantage in the student possessing some knowledge of Latin, and he thought it would be most unfortunate if he had not this knowledge when he entered the profession of medicine.

Dr. CASH's impression was that his university would be opposed to the proposal, and that it would adhere to the system it had followed so far of making Latin a compulsory subject.

The PRESIDENT understood that the proposal would only touch the Scottish universities in this way, that they would be free to accept the preliminary examination in arts and science as a sufficient qualification for the study of medicine. At present they were not free to do that. An ordinance would be required, but if they thought fit to apply for it they would have the opinion of this Council to support them. Every university would be free to consider whether the qualification for arts and science was in itself a sufficient qualification for medicine. The question for the Council was whether it should prefer a test which involved a test in four subjects which must all be brought up to the higher standard without requiring the student to cram for Latin, rather than an examination test without any evidence by certification of previous training.

Dr. MACKAY having briefly replied,

The PRESIDENT put the motion, which he declared carried; whereupon

Sir JOHN MOORE asked for the names and numbers, which were taken as follows:

For, 21.—The President, Dr. Norman Moore, Sir Henry Morris, Mr. Tomes, Dr. Norman Walker, Dr. McVail, Mr. Thomson, Dr. Taylor, Mr. Pye-Smith, Dr. Barrs, Dr. Knox, Dr. Mackay, Sir Arthur Chance, Mr. Verrall, Dr. Newsholme, Sir F. Champneys, Dr. Cash, Sir George Philipson, Sir C. Allbutt, Mr. Hodsdon, Dr. Saundby.

Against, 12.—Dr. Kidd, Sir John Moore, Dr. Elliot Smith, Dr. Magennis, Dr. Langley Browne, Dr. Macdonald, Mr. Littlejohn, Sir Bertram Windle, Dr. Symington, Mr. Dixon, Dr. Latimer, Dr. Little.

Did not vote, 0.

Absent, 5.—Sir Isambard Owen, Mr. Wilks, Dr. Caton, Dr. Hepburn, Dr. Russell.

DISCUSSION ON JUNIOR GRADE.

Dr. MACKAY said that the Committee's proposal with regard to the junior grade was that the previous requirements of the Council should be maintained—that is to say, that there should be four subjects: English, mathematics, Latin, and one other language. The Committee felt that Latin could not be dropped at present from the list of compulsory subjects with any certainty that a useful substitute could be found.

Mr. TOMES did not agree that a useful substitute for Latin could not be found. He was strongly of opinion that the examination should be the same for dental students as medical students. If Latin was taught at his school the candidate should be allowed to offer it for examination as one of the subjects he had learnt and in which he was prepared to be examined. He thought the requirement suggested superfluous.

Dr. KNOX strongly supported the retention of Latin as an optional subject, its place being taken as a compulsory subject by one of the modern languages or a scientific subject.

Sir JOHN MOORE pointed out that if students in the future knew nothing about Latin, the Council was making a mistake in retaining Latin in the *British Pharmacopoeia*. Latin was a living language, and survived in French, Spanish, and Italian, whilst Greek survived as modern Greek. To speak of those languages as dead was therefore very misleading.

Mr. VERRALL was of opinion that the study of modern languages was as good for the purposes of training as the study of Latin. Sir John Moore's observations with regard to the *British Pharmacopoeia* were beside the mark, having regard to the fact that the Council had in its decision at the senior grade agreed that no peril would accrue to a patient because his doctor had not been taught Latin. Many highly educated women had never touched Latin but had been trained in modern languages, and those who had entered the medical profession were every bit as capable of attending their patients with as much credit as if they had studied Latin. He was a strong supporter of classics, but did not think a case had been made out for retaining Latin as regards junior pupils.

Mr. HODSDON was quite convinced that at present there was no possible substitute for Latin in the educational system suitable for youths of 15 which could be said to be entirely satisfactory.

The PRESIDENT pointed out that there was a danger, which was not imaginary, of the student leaving school prematurely, and for that reason the Council should proceed cautiously and rather adopt proposals which would encourage his remaining there longer.

Mr. PYE-SMITH thought that, if Latin were made compulsory, it would check the number of women students, as it was not generally taught in girls' schools.

Sir HENRY MORRIS had not been convinced by the arguments in support of the retention of Latin as a compulsory subject.

Dr. NORMAN MOORE thought as they were on the verge of great changes it would be better to refer this part of the report back to the Committee.

Sir BERTRAM WINDLE supported this proposal; whereupon

Mr. TOMES moved accordingly.

Sir HENRY MORRIS seconded.

Dr. MACKAY said if the Education Committee was asked to continue its consideration of the subject it was perfectly willing to do so. All it had proposed was that the present regulations should be maintained for the present.

The amendment was then put and agreed to.

RECIPROCITY WITH JAPAN.

The Executive Committee reported on December 1st that Part II of the Medical Act, 1886, having been extended by an Order in Council, dated December 11th, 1905, to the Empire of Japan, the Executive Committee, on May 21st, 1906, recognized the degrees of bachelor (Igakushi) and doctor (Igaku Hakushi) of medicine of the Imperial University of Japan as entitling to registration in the foreign list of the *Medical Register*. On May 22nd, 1916, the Committee having considered correspondence received through the Privy Council Office in regard to other Japanese qualifications in medicine, resolved to inform the Clerk of the Council that when the Japanese law of medical practitioners came into force on October 1st, 1916, the Executive Committee would be prepared to entertain favourably the application made by the Japanese Ambassador through the Foreign Office for the recognition of qualifications in medicine granted by certain Government and other medical colleges specially designated by the Minister of Education. The Committee having learnt on November 27th, 1916, from a letter from the Clerk of the Council that the new Japanese law of medical practitioners had come into operation on October 1st, 1916, resolved:

That any person who holds the degree of Bachelor of Medicine (Igakushi) of any Government or prefectural special medical college, or of a private special medical college

designated by a Minister of Education of the empire of Japan, shall be entitled to be registered in the Foreign List of the *Medical Register*.

Japanese medical graduates applying for registration will be required to produce:

Satisfactory evidence of (*a*) identity; (*b*) good character; (*c*) that he is by the law of Japan entitled to practise medicine, surgery, and midwifery in that country.

(*d*) The diploma of Bachelor of Medicine of the Government or prefectural special medical college, or of the private special medical college designated by a Minister of Education of the empire of Japan.

(*e*) Satisfactory evidence in relation to the circumstances (1), (2), (3) set forth in Section 12 of the Medical Act, 1886.

(*f*) Officially attested translations of such Japanese documents as are produced under any of the foregoing heads.

The report was entered on the minutes.

STRAITS SETTLEMENTS.

The Executive Committee also reported that Part II of the Medical Act, 1886, having been extended to the Straits Settlements by an Order in Council dated September 7th, 1916, the Committee had, at its meeting on November 27th, 1916, adopted the following resolution:

That any person who holds the L.M.S. diploma of the King Edward VII Medical School, Singapore, granted after examination in Medicine, Surgery, and Midwifery, and who is entitled by law to practise Medicine, Surgery, and Midwifery in the Straits Settlements, shall be entitled to be registered in the Colonial List of the *Medical Register*, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II of the Medical Act, 1886.

The report was entered on the minutes.

PHARMACOPOEIA COMMITTEE.

The report of the Pharmacopoeia Committee presented on December 1st was received and entered on the minutes.

It stated that the number of copies of the *British Pharmacopoeia*, 1914, sold between May 20th, 1916, and November 25th, 1916, was 1,635, bringing the total number sold since January 1st, 1915, up to 27,035. About 1,450 copies of the second issue published in May, 1915, remained in stock, and it was expected that a third issue would probably be required in 1917.

The Committee expressed its gratification at the honour of knighthood conferred upon Sir Nestor Tirard, senior editor of the *British Pharmacopoeia* and secretary of the Pharmacopoeia Committee for twenty years.

STUDENTS' REGISTRATION COMMITTEE.

The report of the Students' Registration Committee enumerated the cases in which the Council had granted or refused applications of medical students for antedating of registration. It also stated that, satisfactory evidence as to registration having been received, the Ilkley Grammar School and the Rugby Grammar School had been added to the list of recognized institutions approved by the Council.

PUBLIC HEALTH COMMITTEE.

Sir John Moore presented the report of the Public Health Committee containing preliminary analysis of statistics of public health examinations and the replies of licensing bodies. The Council authorized the Committee to appoint a small subcommittee to conduct any correspondence with reference to the matter.

APOTHECARIES' HALL OF IRELAND.

The Examination Committee reported that it had received reports from Mr. William Taylor and from Dr. Henry Stokes, appointed by the Council to attend the examination of the Apothecaries' Hall of Ireland. Recommendations made by a joint meeting of the Education and Examination Committees for the amendment of the course of study and of examinations at the Apothecaries' Hall had been transmitted by the Executive Committee to the Hall on May 25th, 1916, and the Hall had adopted the suggestions in full and had resolved to issue new regulations for candidates seeking its licence, which should be in strict accord with the suggestions received from the General Medical Council. The Committee therefore advised that it was not necessary to do more at this stage than to transmit the reports of Mr. Taylor and Dr. Stokes to the Apothecaries' Hall for its information and for such observations as it might desire to offer. The Council approved this course, and also resolved to request the Hall to continue to send in returns of exemptions from parts of examinations, and the results of examinations. It also resolved to authorize the Irish Branch Council to appoint a deputy for a period of one year to attend the professional examinations at the Apothecaries' Hall. An amendment by Dr. Magennis, the representative of the Hall, proposing to suspend the inspection of the examinations until such time as the inspection of the other licensing bodies be resumed, was not seconded.

INDIAN MEDICAL SERVICE.

It appeared that the appointments made for the Indian Medical Service under the special regulations as to selection in force since the last competitive examination in July, 1915, numbered nineteen. All, with one exception, who held a degree from the University of Calcutta, held diplomas or degrees from British universities.

DISCIPLINARY CASES.

Mr. Bodkin was present as Legal Assessor and Mr. Harper as Solicitor to the Council.

The Council considered, on November 29th, the case of Daniel Evans Powell, registered as of 101, High Street, Tooting, S.W., M.B., C.M.Glas. 1894, on a charge of alleged covering of an uncertified midwife. The case was before the Council in May last, when judgement was postponed to the present session (Supplement, June 3rd, 1916, p. 128).

Mr. Butcher appeared for Dr. Powell, and Mr. Bertram for the Central Midwives Board (the complainants).

Mr. Butcher produced and read testimonials to Dr. Powell's character and conduct since the previous session. Mr. Bertram had inquired from the local supervising authority, who had informed him that they had no further information against the practitioner.

Strangers by direction of the chair withdrew. On readmission, the President announced the decision of the Council as follows:

Mr. Powell, I have to announce to you that the Council has carefully considered the evidence which you have sent in proper time as to your conduct in the interval, and the assurance which you have given as to your conduct in the future, and has not seen fit to direct the Registrar to erase your name from the *Medical Register*.

The Council considered, on November 29th, the case of Thomas Dixon Cook, registered as of Glendon, Torquay, M.B., C.M. 1879, U.Glasg., who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you by your assistance knowingly enabled Mrs. Eliza Martin, whose name had been removed by the Central Midwives Board from the roll of midwives, and Mrs. E. Beare and Mrs. Lamble, neither of whom was certified under the Midwives Act, 1902, to attend women in childbirth, under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Mrs. Eliza Martin, Mrs. E. Beare, and Mrs. Lamble, in contravention of the said Act, to practise as if they were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board, which was represented by Mr. Bertram. Dr. Cook appeared in person.

Mr. Bertram said that on June 5th the three women mentioned in the charge were convicted of an offence under the Midwives Act at Torquay. The evidence given and the defence put forward disclosed the participation of a registered medical practitioner in the cases of confinement which were investigated by the Torquay magistrates. It appeared to the complainants that this participation constituted a very serious infringement of the well-settled principles of the Council with regard to the employment of uncertified assistants. In regard to the present complaint, none of the cases were Dr. Cook's cases. The patients varied in their account as to whether the services of the doctor were or were not arranged for beforehand, but the evidence was clear that in all cases Dr. Cook was not the person who conducted the confinement. In all cases the doctor paid a single visit, rendering no medical services. All he did was to sign a certificate for the purpose of enabling the patient to obtain the 30s. maternity benefit; he did not examine the patient to see whether any damage had been caused, nor did he take her pulse or temperature. He performed the single non-medical, ministerial act of putting his name to a paper to enable

the patient to obtain the benefit—a paper which could not be signed by an uncertified woman.

Mr. BERTRAM called evidence in support of his statements.

Dr. COOK, speaking on his own behalf, said that he had understood that there were not sufficient midwives in Torquay, and until sufficient women were brought in it was necessary to fall back on uncertified midwives, who would require a medical man to attend. He thought that practice would be discontinued when a sufficient supply of midwives was available. He had signed certificates with regard to maternity benefit, charging 2s. 6d., the visiting fee. Unfortunately this had been called a midwifery fee. Had he thought of such a suggestion he would have charged nothing. He knew the patients were in safe hands; he never found anything wrong with the midwives, and he signed the certificates thinking he was doing a kindly act.

Strangers and parties withdrew. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Cook, the Council has very carefully considered the charge made against you, which, as you know, was in effect that you had by your assistance knowingly enabled persons not certified under the Midwives Act, 1902, to attend women in childbirth under the cover or pretence that the women were attended by you, thereby enabling the uncertified persons to practise as if they were certified. The facts alleged against you in the charge the Council has found to be proved. The Council, in the public interest, takes a very grave view of the danger which arises from a medical practitioner who lends his name for such a purpose and "covers" the practice of unqualified or uncertified persons, under whatever pretext they practise midwifery, and whatever may be his personal opinion as to their skill and capacity to attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgement in your case till the next session, in May, of which you will receive due notice. You will then be required to attend, and to produce testimony from professional brethren in your district as to your character and conduct in the interval.

The Council considered, on November 29th, the case of William Shaw, registered as of Larne, co. Antrim, L.R.C.P. and S.Edin. 1886, who appeared before the Council in November, 1915, on a conviction for indecent behaviour and two convictions for drunkenness, when judgement was postponed till the present session (SUPPLEMENT, November 27th, 1915, p. 199).

Mr. Shaw appeared in person.

Mr. HARPER having stated the facts, Mr. Shaw produced statements as to his conduct since the previous hearing.

Strangers and parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Shaw, I have to tell you that the Council, having carefully considered the testimonials in your favour which you have tendered, and having taken note of the statement which you have made to the Council, that you are, and intend to remain, a total abstainer, has not seen fit to direct the Registrar to erase your name from the *Medical Register*.

The case against Lewis Augustus Walker, registered as of Yewdale, Lee-on-the-Solent, M.R.C.S.Eng. 1899, L.R.C.P.Lond. 1899, was heard on November 30th. He had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you abused your position by committing adultery with Mrs. Margaret Agnes Webb, whom and whose family you had attended professionally, which adultery you were found to have committed by the verdict of a jury given at the trial of the case of Webb *v.* Webb and Walker in the Probate, Divorce and Admiralty Division (Divorce) of the High Court of Justice on March 7th, 1916, and in which the decree was made absolute on September 13th, 1916. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Dr. Walker was represented by Mr. Stephen Lynch, counsel, instructed by Mr. Hopwood, solicitor.

Mr. HARPER put the facts before the Council.

Dr. WALKER, in answer to Mr. LYNCH, said he had never denied misconduct, but such misconduct took place after all professional relationship had ceased.

Strangers and parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Walker, I have to inform you that the Council have considered the allegations in your case as brought before them, and have found that the facts alleged against you in the notice of inquiry have not been proved to their satisfaction. The case is therefore at an end.

The Council, on November 30th, considered the case of Robert Francis Ferris, registered as of 200, Cansfield Grove, Wigan Old Road, Ashton-in-Makerfield, M.B., Ch.B. 1901, Vict. Univ., who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner, while acting as locumtenent for Ernest George Best Starkie, M.B., C.M.Edin., in November, 1915, and attending his patient Edward William James, who was suffering from diseased valves of the heart, you were drunk and thus incapacitated from properly carrying out your professional duties towards him; and further, that on or about November 12th, 1915, you attempted while drunk to kiss Mrs. Marion James, the wife of the said Edward William James, in the sick-room in the presence of her husband, and shortly afterwards in the passage outside the sick-room you made improper advances to one Mrs. Mary Hannah Ekins, while the latter was showing you out of the house. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. Birkett, instructed by Mr. R. Nelson Jones, appeared for the complainants, the City of Birmingham Insurance Committee, and Mr. Shawcross, instructed by Messrs. Dickinson, Miller and Turnbull, for Mr. Ferris.

Mr. NORMAN BIRKETT opened the case for the complainants, and called Mrs. James, Mrs. Leeman, and Mrs. Ekins as witnesses, and examined them as to the truth of their declarations.

Mr. SHAWCROSS, on behalf of Dr. Ferris, did not desire to cross-examine any of the women witnesses.

Dr. FERRIS, in answer to Mr. SHAWCROSS, admitted that on November 12th, 1915, he met friends whom he had not seen for eight years, and probably took more than was good for him. He did not think he attempted to embrace the women. He had a habit when speaking to people of putting his hand upon their shoulder and leaning forward and speaking in a low voice. On the occasions in question he certainly had no improper thoughts at all. He had always been temperate, though not teetotal.

Mr. SHAWCROSS produced four sworn testimonials as to Dr. Ferris's good character previous to the event complained of. One observation might be made. The details of the complaints were not made known to Dr. Ferris until some months after they occurred. That being so, he was unable to remember accurately what took place; it was not possible for him to so earmark the dates as to call evidence.

Strangers and parties withdrew. On readmission, the PRESIDENT announced the decision of the Council as follows:

Mr. Ferris, the Council, after careful consideration of the facts alleged against you in the notice of inquiry, have found them to have been proved to their satisfaction; such facts, in their opinion, indicate a grave dereliction of your professional duty to your patient; but, in view of the evidence of your former good character and the evidence of good character since the events occurred, the Council have decided to postpone judgement until the November session, 1917, when you will be required to attend and to produce evidence from your professional brethren as to your character and conduct in the interval, and to refer the Council to persons of repute who may be able to give like testimony. Should any evidence of misconduct be received before the May session, however, you will be liable to be summoned to attend here at that session and to receive the judgement of the Council on the facts now proved against you.

The PRESIDENT inquired whether Mr. Ferris, in view of his special temptation, was prepared to give any assurance as to his habits in the future.

His Counsel stated he had advised Mr. Ferris to abstain in future, and Mr. Ferris had assented.

The PRESIDENT thanked the representatives of the Birmingham Insurance Committee for their assistance in placing the facts before the Council.

Convictions.

On December 1st the Council considered the case of Edmond Heskin, registered as of 27, West Street, Leeds, M.B., B.S. 1900, R.U.I., who had been convicted at the Leeds Assizes on July 13th, 1916, of unlawfully killing one Blanche Amy Pantrey, and sentenced to twelve months' imprisonment in the second division. The Registrar was directed to erase his name from the *Medical Register*.

On the same day the Council considered the case of Henry Percy Jelley, registered as of 174, High Street,

Homerton, N.E., L.M.S.S.A.Lond. 1910, who had been convicted at the Central Criminal Court on July 18th, 1916, of unlawfully killing one Elizabeth Caroline March and sentenced to three years' penal servitude. The Registrar was directed to erase his name from the *Medical Register*.

INSURANCE.

APPROVED SOCIETY FINANCE AND ADMINISTRATION.

A further report of the Departmental Committee on approved society finance and administration, over which Sir Gerald H. Ryan presides, has been issued. It contains a large number of recommendations of the greatest importance to societies, some of which may indirectly affect the work of panel practitioners.

It is suggested that as there are only about 28,000 voluntary contributors, exclusive of the special class of married women, no new entrants into insurance on a voluntary basis should be accepted, except that persons who have been insured as employed contributors for two years should have the right to become voluntary contributors on paying the ordinary employed rate. The present provisions as to late entrants should be rescinded and the normal rates of benefit ensured to employed persons, regardless of age or date of entry, these rates to include reduced sickness benefit until two years have elapsed and 104 contributions paid. It is also recommended that the waiting period for maternity benefit should be raised from twenty-six to fifty-two weeks, and that aliens should, for insurance purposes, be treated in the same way as British subjects. It is suggested that Section 47 of the Act, which makes special provisions where employers are liable to pay wages during sickness, should be repealed, as it is troublesome and little used. Remedies are proposed to assist low wage earners who find that the State penny is a very inadequate protection.

Considerable simplification of the provisions relating to married women is suggested, and instead of present arrangements, it is proposed that every employed woman, on marriage, should have the option of taking (1) a marriage benefit of £2, with the right to medical and sanatorium benefits for a year; or (2) a new voluntary insurance for medical and sanatorium benefits and a maternity benefit of £1 at a contribution of 3d. per week; or (3) a free insurance for one year for the ordinary benefits of an employed contributor. It will be seen that if this recommendation is carried out it may indirectly affect panel practitioners.

With regard to men serving in the navy or army who are now suspended from benefits, except maternity benefit, it is advised that Section 46 should be simplified, but that provision should be made for some payment out of contributions of serving sailors or soldiers towards the cost of sanatorium benefit. Simplification is suggested with regard to seamen serving on foreign-going vessels, and much more in dealing with the general question of arrears.

Some limitation is proposed as to transfers, which are now often made for frivolous reasons and entail much labour and cost to societies, and difficulty in regard to the keeping of the registers. Stress is laid on some measures for securing to societies earlier notification of sickness, and especially for informing societies where compensation for accidents may be payable. In this connexion it is suggested that

there should be a general tightening up of the arrangements for medical certification coupled with an effective system of sick visiting. The panel doctor cannot, of course, be required and should not even be expected to express an opinion on his certificate as to whether the member is entitled to compensation or not, but he is required to state the exact nature of the incapacity from which the member is suffering, and if this is done in all cases the society should, as a rule, be put sufficiently on its guard as to compensation cases.

It is not recommended that there should be compulsory notice of all accidents by employers.

The present provision under which the sickness or disablement benefit of an insured person who is in a sanatorium and has no dependants is paid to the Insurance Committee is much criticized, on the ground that, though the Committee may have some right to be reimbursed for the full maintenance which it supplies in the sanatorium, it is a hardship on the insured person to find himself on leaving the institution without some means to tide over a period during which he may be seeking new employment more suited for his condition, and it is suggested that some means should be found from other sources so to readjust the finance of Insurance Committees as to meet the relatively small loss of income which would result if the present provision were modified.

The question whether the Commissioners should continue to be the final court of appeal in disputes between societies and their members was considered, and in spite of suggestions that the Commissioners may themselves be to some extent affected in giving advice to societies in these matters, a change in the present system is not recommended except in the way of simplification. On the question as to whether the cost of medical referees should be charged to benefit or administration accounts, no recommendation is made in view of the prospect of the establishment after the war of a system of Government referees, temporary provision having been made by regulations allowing a small increase in the administration allowance. Attention was drawn to the fact that some societies throw on the member the cost of conveying benefits to him, and it is suggested that this is an expense which the society should bear without any deduction or charge for transmission, unless the member asks for some special mode of transmission.

The report (Cd. 8396) extends to 88 pages, and is obtainable through any bookseller at the price of 9½d.

OFFICIAL ENCROACHMENTS ON THE SPHERE OF THE GENERAL PRACTITIONER.

The following letter has been addressed to the President of the Local Government Board on behalf of the Cheshire Local Medical and Panel Committee by the Honorary Secretary of that committee:

Sir,

I am instructed by this committee to bring before your notice certain matters with regard to the effect of recent legislation and Government Departmental Circulars on the position of general medical practitioners.

It recognizes a tendency frequently and increasingly shown in the orders and circulars of some Government departments, not least in those of the Local Government Board, to advocate the creation of administrative machinery and even of curative agencies which will undertake duties hitherto the province of the general practitioner.

This tendency may be illustrated by the creation of tuberculosis dispensaries. A brief and inconclusive experience of a new and already somewhat discredited method of treatment, the treatment by tuberculin, has resulted in the formation of an elaborate and costly system of institutions, each conducted by a specialist whose function it is to assist the general practitioner in consultation, or in cases "where the patient has no doctor," himself to undertake the treatment.

If it were attempted thus to provide every disease in every neighbourhood with an institution peculiar to itself, there would be no end but ridicule to such an endeavour. It is on that account, no doubt, that in the new campaign against venereal diseases the clinics which are to be formed are to be in existing hospitals; but here again specialists, and if the supply of civil specialists fails, R.A.M.C. specialist officers, are to be employed.

School clinics for treatment tend to develop out of a movement at first intended to be solely concerned with inspection. Similarly the care of pregnant women, a matter which cannot logically be detached from the social and hygienic conditions of the general population, is threatened with the misdirected and foredoomed endeavour to focus its problems in special so-called pre-maternity clinics.

My committee views with apprehension the tendency displayed in these and other similar instances, not solely because "one craft is in danger," though the admission may be freely made that in face of such developments small inducement is offered to recruitment in the future of competent general practitioners, not merely because it is convinced that the efficiency and self-reliance of doctors, thus restricted in their activities, will suffer, and the public also, by the resulting impairment of their service; but also because it is deliberately of the opinion that the Government in developing the tendencies described has been acting on too narrow and immediate a view of the object to be aimed at, and on advice which, however distinguished, is too specialist, and too little aware of the interdependence of the problems particularly confronted upon others less outstanding at the moment. Solid progress can only be made by dealing with all these problems concurrently—not by creating *ad hoc* departments to deal with certain of them at the expense of the efficiency of the general medical service.

In such a county as that from which this committee is drawn, comprising both rural and urban populations, the profession has been accustomed to undertake most departments of

medical practice, and, thanks to a fairly well developed system of local and cottage hospitals, has had at any rate some facilities for operative and other special work, which in the great cities is apt to be relegated to a small minority of consultants and specialists.

Both systems have their advantages and their advocates; but that which encourages the general practitioner to fit, and maintain himself fit, for a considerable range and variety of responsible work, is, in the opinion of this committee, the system which will in the long run serve the nation best, and which the Government of the country should foster.

No one realizes his limitations better than the type of practitioner just mentioned. None value and respect more than they the heads of the profession in the medical schools of the great cities. So much the more is it unsatisfactory to them to be invited by the authorities responsible for local government to consult on their cases with recently appointed specialists whose short though intensive apprenticeship to their speciality cannot justify confidence in the maturity of their judgement.

My committee views with regret the great expenditure of money in the organization of campaigns which it regards as misdirected. It has been noticed for some time that in the memoranda of several Government Departments there has been a persistent misrepresentation of the professional ability of the general medical practitioner to deal with the treatment of various diseases, for which they have had ample preparation and subsequent matured experience. These reflections, against which a strong protest is now made, constitutes a grave public danger in the effect which is likely to be produced in the public mind by most undeserved aspersions on the fitness of medical men for carrying out the duties and responsibilities of their profession.

This letter is written under a sense of apprehension lest any further development of the tendencies herein deplored may be contemplated by the Government if and when a large release of doctors—normally general practitioners—takes place from the R.A.M.C.

In fostering local general hospitals (especially those in which general practitioners may attend their own patients for moderate payment), in the provision of laboratories, of plentiful food extras and shelters for consumptives, of sick nursing under and not independent of the practitioners' orders, and of other direct facilities for medical work, my committee is convinced that more, incalculably more, good will be done to the health of the public than at a greater cost would result from administrative machinery which gradually must supplant the general practitioner.

LIONEL JAS. PICTON,
Hon. Secretary.

CORRESPONDENCE.

INSURANCE PRACTICE.

DR. A. J. CAMPBELL (Duns, N.B.) writes: Will you let me tell in your columns how I have been paid for National Health Insurance work for the year January 12th to December 31st, 1914?

My average list was 728.

In quarterly instalments, floating 6d., and share of balance of final credit to practitioners' fund I got £269 12s. 7d. For the year less eleven days this works out at 7s. 4.89d. per caput.

If 7s. + 6d. (floating sixpence) is the amount bargained for in the year the daily remuneration is 0.2463d. per insured person, and this only if the floating 6d. is intact. Deduct eleven days at this rate = 2.7193d. I should have received 7s. 3.28d. per caput in strict bargaining.

I work in a country district where a mileage allowance is given. Of this I got £59 9s. 1d. This brings my average capitation figure for the year less eleven days to 9s. 0.49d. I do not dispense.

I do not think that the Commissioners have cheated me; I do not think that they have cheated the Treasury so much as they would have done if they had paid me 7s. 6d. per caput for a 354 days' contract.

Dr. John J. Cowan (SUPPLEMENT, September 23rd, p. 90) leaves it uncertain whether the figures and words in italics in his letter appeared in the balance sheet sent by his Insurance Committee or were added as an annotation by himself.

With reference to the concluding sentence of the eighth paragraph of his letter, it is to be remembered that medical men not absent from their practices do not suffer so great a fall in their lists of insured persons as those who are away. Newly insured persons and newcomers to the district do not go in large numbers on the lists of absentees.

INSURANCE ACT IN PARLIAMENT.

PAYMENTS FOR 1915.

OWING to a clerical error, part of the report of matters relating to questions by Mr. Alden on November 23rd was omitted. In reply to a question as to whether the London Insurance Committee declined to pay the balance due to practitioners under their agreements in respect of the year 1915 unless a special form of receipt was signed relinquishing their legal rights under the regulations and otherwise, Mr. Roberts said that prima facie it did not appear unreasonable that, if payment was being made to practitioners of the balance of the remuneration due to them in respect of any particular year, they should be expected to give a receipt in full discharge of such balance. He was, however, making inquiry into the precise form of receipt and discharge adopted by the Committee.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon A. Maclean, D.S.O., M.B., to the *Victory;* R. H. J Browne to the *Lion*, vice Maclean; R. W. Stanistreet to the *Edgar*. Staff Surgeon A. W. Iredell to the *Victory;* J. C. Bringan, M.B., to the *Endymion*. Temporary Surgeons: G. W. H. Findlay, M.B., to the *Egmont;* L. S. Goss to the *Espiegle;* T. Grimson, M.B., to the *Victory*, additional, for Haslar Hospital; C. P. Barber to the *Diligence;* G. R Lynch, M.B., to the *President*, additional, for Royal Naval College, Greenwich; G. G. Membery, M.D., to the *Hildebrand*, vice Boyan; J. F. Smith to the *Cochrane*, vice Membery; J. L. Lamond, M.B., to Haslar Hospital; J. T. Macnab to Chatham Hospital; W. D. Pearman to the *Pembroke*, additional, for Chatham Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer E. F. Murray to the *Pembroke*.

ARMY MEDICAL SERVICE.

Colonel Bruce M. Skinner, C.M.G., M.V.O., to be temporary Surgeon-General whilst employed as Director of Medical Services.

Lieutenant-Colonels to be temporary Colonels whilst employed as Assistant Directors of Medical Services of a division: S. de C. O'Grady, M.B., H. P. W. Barrow.

ROYAL ARMY MEDICAL CORPS.

Major W. Byam is restored to the establishment.

Majors (temporary Lieutenant-Colonels) relinquish their temporary rank on reposting: J. G. Bell, D.S.O., M.B., J. D. Richmond, M.B.

Major H. S. Peeke (Reserve of Officers) to be temporary Lieutenant-Colonel whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital.

The notification in the *London Gazette* of October 25th regarding Major (temporary Lieutenant-Colonel) E. Ryan, D.S.O., is cancelled.

Major (temporary Lieutenant-Colonel) R. P. Lewis to be temporary Lieutenant-Colonel and not as stated in the *London Gazette* of October 13th.

Captains (temporary Majors) T. J. Crean, V.C., D.S.O., and G. P. Taylor relinquish their temporary rank on reposting.

Captain (temporary Major) A. S. Littlejohns to be temporary Major, and not as stated in the *London Gazette* of April 18th, 1916.

Temporary Captains relinquish their commissions: C. Yorke, M.D., F.R.C.S., F. G. Ralston, M.B., I. R. MacLeod, J. T. Kirkland, M.B., H. M Rainsford.

Temporary Captain A. D. Vernon-Taylor relinquishes his commission on account of ill health.

Temporary Captain J. M. Macmillan, from unattached list, to be temporary Captain.

Temporary Lieutenant H. E. Girdlestone relinquishes his commission on account of ill health.

Temporary Lieutenants relinquish their commissions: A. M. Drennan, M.B., F.R.C.P.E., J. R. Boyd, M.C., M.D., G. Kirkwood, M.B., J. A. Pierse, M.B., G. S. Gordon, M.B., W. B. Drummond, M.B., S. F. A. Charles, M.D., G. F. Hegarty, F. S. Adams, M.B., S. C. Shanks, M.B., A. N. Haig, M.B., E. A. Bernard, R. C. L. Batchelor, M.B., S. W. McComb, M.B., J. Broomhead, M.B., A. F. G. Guinness, J. Raffan, M.D., F.R.C.S.E., H. Newsome, M.B., V. A. Chatelaine, M.B., R. G. Allen, T. H. Gibbs, M.B., E. W. S. Hughes, H. A. Lane, H. Topham, J. S. Mitchell, M.B., F.R.C.S.E., H. E. Thomas, M.B., E. H. Alton, P. H. Lang, M.B., A. F. Bell, M.B., W. J. Chapman, M.B., W. F. Gibb, J. S. Taggart, M.B.

INDIAN MEDICAL SERVICE.

Surgeon-General Sir G. P. Lukis, K.C.S.I., M.D., F.R.C.S., K.H.S., V.D., Director-General, Indian Medical Service, has been granted the rank of Lieutenant-General.

Lieutenant-Colonel H. Austen Smith, M.B., to be Surgeon to His Excellency's personal staff, vice Major L. Cotterill, M.B., R.A.M.C., resigned.

Lieutenant-Colonel W. J. Buchanan, M.D., C.I.E., has been granted an extension from November 12th, 1916, to March 4th, 1918, to enable him to complete thirty years' service for pension.

Under Article 8 of the Royal Warrant of May 28th, 1913, Lieutenant-Colonels F. R. Ozzard and J. T. Calvert have been advanced to the higher position of their rank.

Major R. A. Needham, D.S.O., M.B., Health Officer, Simla, to be Assistant Director-General, Indian Medical Service (Stores), substantively *pro tempore*.

Major H. Ross, M.B., F.R.C.S., to be additional Assistant Director-General, Indian Medical Service, as a temporary measure.

The services of Major A. G. Sargent have been placed at the disposal of the Government of Burma.

Major A. T. Gage has been granted privilege leave for two months and ten days.

Captain G. L. C. Little, M.B., has been restored to the effective list from the temporary half-pay list, with effect from December 5th, 1915.

SPECIAL RESERVE OF OFFICERS.

Major (temporary Lieutenant-Colonel) J. H. P. Graham relinquishes his temporary rank on reposting.

Captain Arthur Patrick Kennedy is cashiered by sentence of a general court-martial.

To be Lieutenants: P. T. Jones, A. Rodd, G. E. L. Simons, L. Cunningham, F. N. Sidebotham, G. Day, T. B. Bailey, R. Moser, R. G. Simpson, J. Aubrey, H. J. Duske, W. S. Brown, G. M. Kendall, T. P. Williams, J. F. C. Braine, G. W. Heckels, G. S. Wilson from the University of London Contingent O.T.C.; E. A. O. Singer from Edinburgh Contingent O.T.C.; J. H. Vance, M.B., E. M. L. Morgan, E. Butler, E. O. Goldsmith, R. B. Hawes.

Lieutenants on probation confirmed in their rank: R. C. B. Ramsay, M.B., McG. Russell, M.B.

[OCR]

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major L. S. Mackid resigns his temporary commission.

The initials of temporary Captain C. J. Stewart are as now shown, and not as in the *London Gazette* of November 6th.

SOUTH AFRICAN MEDICAL CORPS.

L. Bostock to be temporary Major.

To be temporary Captains: W. F. L. A. Holcroft, A. P. M. Anderson, R. L. Lloyd, C. Breeks, H. Fox, W. Shanks, M.D., J. Cranks, W. A. Hall.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonels H. G. Falkner and R. R. Sleman (London Field Ambulance) to be Assistant Directors of Medical Services, and are granted the temporary rank of Colonel whilst holding the appointments.

ROYAL ARMY MEDICAL CORPS.

Highland Mounted Brigade Field Ambulance.—Lieutenant G. W. Deeping, M.B., to be Captain.

Northern General Hospital.—Captain J. le F. C. Burrow, M.B., is restored to the establishment.

Eastern Mounted Brigade Field Ambulance.—Lieutenant E. H. Coyne, M.B., to be Captain.

South Midland Field Ambulance.—Captain G. C. Soutter, M.D., from South Midland Mounted Brigade Field Ambulance, to be Captain.

South Midland Mounted Brigade Field Ambulance.—Lieutenant O. Cook, M.B., to be Captain.

Welsh Border Mounted Brigade Field Ambulance.—Captain D. P. H. Gardiner, M.B., to be Captain.

London Sanitary Company.—Lieutenant G. S. Elliston to be Captain. H. L. Farmer to be Lieutenant.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel and honorary Surgeon Colonel H. Colgate, M.D., from Attached to Units other than Medical Units, to be Lieutenant-Colonel.

Major J. R. Reid, from Attached to Units other than Medical Units, to be Major.

To be Captains: Captain C. C. Ling, from Attached to Units other than Medical Units; Captain J. H. Baldwin, from 1st London Sanitary Company; Captain W. A. F. Browne, from London Sanitary Company; Captain S. L. Brimblecombe, from Wessex Field Ambulance.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

GENERAL LYING-IN HOSPITAL, York Road, Lambeth.—Resident Medical Officer. Salary, £100 per annum.

GLASGOW PARISH COUNCIL.—Resident Male Assistant Medical Officer for the Eastern District Hospital. Salary, £250 per annum.

GUY'S HOSPITAL.—Assistant in the Bacteriological Department. Salary, £250 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—(1) Pathologist. (2) House-Surgeon. Salary, £100 and £200 per annum respectively.

LEEDS HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officer for the Tuberculosis Wards. Salary, £250 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200 per annum.

LONDON COUNTY COUNCIL SCHOOL TREATMENT CENTRE, Hammersmith, W.—(1) Ophthalmic Surgeon. (2) Anæsthetist. Remuneration, £50 and £25 per annum respectively.

LONDON THROAT HOSPITAL, Great Portland Street, W.—House-Surgeon. Salary, £50 per annum.

MANCHESTER CORPORATION.—Medical Officer for Consultations and Infants' Clinics at the Maternity and Child Welfare Centres. Salary, £200 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

MELBOURNE: WALTER AND ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE.—Medical Research Director. Salary, £800, and yearly premium of £75 for retirement.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—Milroy Lectures for 1917.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SALOP COUNTY COUNCIL.—Tuberculosis Medical Officer. Salary at the rate of £600 per annum.

SHEFFIELD UNION HOSPITAL.—Resident (Women) Assistant Medical Officers. Salary, £150 per annum, rising to £200.

SHREWSBURY: SALOP COUNTY ASYLUM.—Assistant Medical Officer. Salary £6 6s. a week and all found, or £300 per annum with unfurnished quarters, etc.

SHREWSBURY: SHIRLETT SANATORIUM.—Medical Superintendent.

STOKE-ON-TRENT: INFECTIOUS DISEASES HOSPITAL, Bucknall.—Resident (Lady) Assistant Medical Officer. Salary, £200 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Louth (Lincoln).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

HOWELLS, W., M.B., Visiting Medical Officer to the Children's House, Toxteth Park Township.

WHEELER, W. I. de Courcy, F.R.C.S.I., Medical Referee for the County and City of Dublin under the Workmen's Compensation Act, vice Sir Charles Ball, deceased.

WHITESIDE, W. C., M.B., Ch.B.Edin., District Medical Officer of the Tamworth Union.

ST. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anæsthetists: C. N. Carter, B.A.Cantab., M.R.C.S., L.R.C.P.; W. S. Brown, B.A. Cantab., M.R.C.S., L.R.C.P.; C. Y. Roberts, M.R.C.S., L.R.C.P.; W. T. Beswick, B.A.Cantab. Resident House-Physicians: G. W. J. Bousfield; A. Mavrogordato, M.A.Oxon, M.R.C.S., L.R.C.P.; J. M. Wall, L.M.S.S.A.; G. M. Kendall, B.A.Cantab., M.R.C.S., L.R.C.P. Resident House-Surgeons: N. S. Nairne, M.R.C.S., L.R.C.P.; W. Marriott; J. S. White, M.B., B.Ch., N.U.Ireland; P. Sai, M.R.C.S., L.R.C.P. House-Surgeon to Block 8: O. H. Hyman. Obstetric House-Physician: K. E. Crompton, B.A., M.B., B.C.Cantab. Clinical Assistant (Children's Medical): J. R. Harris.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGE.

VIVIAN—THOMPSON.—On November 9th, at St. Paul's Church, Winchmore Hill, N., very quietly, by the Rev. E. N. Coultyard, Vicar, Charles St. Aubyn Vivian, temporary Captain R.A.M.C., son of the late Dr. R. T. Vivian and of Mrs. Vivian, Winchmore Hill, to Mary Elizabeth, daughter of the late Rev. J. M. Thompson and of Mrs. Thompson, Hornsey, N.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m., Demonstrations by Mr. A. Lawson, F.R.C.S., Mr. D. Wood, Dr. J. B. Mennell, Mr. McMahan, and Dr. A. Bradford: Principles of the Re-education of the Wounded.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PSYCHIATRY, Maudsley Hospital.—4.30 p.m., Clinical meeting. Visit to hospital. Demonstrations by Major F. W. Mott: (*a*) Cases of Shell Shock; (*b*) Macroscopic and Microscopic Changes in Brains of Fatal Cases.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—5 p.m., Dr. R. Hingston Fox: Use of Antimony in Ancient and Modern Medicine.

ROYAL SOCIETY OF MEDICINE:

SECTION OF SURGERY.—5 p.m., Miss Frances Ivens, M.S.: Clinical Study of Anaërobic Wound Infection, with an Analysis of 107 Cases of Gas Gangrene.

THURSDAY.

LONDON HOSPITAL, E.—11 a.m., Lecture by Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF STUDY OF DISEASE IN CHILDREN.—4.30 p.m., Cases. Dr. F. Parkes Weber: Cyclic Vomiting with Acidosis.

SECTION OF ELECTRO-THERAPEUTICS.—8.30 p.m., Dr. Finzi: Pharyngeal Pouches. Dr. Salmond: Changes observed in Osteomyelitis.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.—5.30 p.m., Dr. Henry Scott: The Vomiting Sickness of Jamaica.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY, 1917.
2	Tues.	London: Propaganda Subcommittee, 3.45 p.m.
		London: Hospitals Committee.
3	Wed.	London: Public Health Committee, 2.30 p.m.
5	Fri.	London: Central Ethical Committee, 2 p.m.
9	Tues.	London: Organization Committee, 2.15 p.m.
10	Wed.	London: Medico-Political Committee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 16TH, 1916.

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British Medical Association.

WORK OF COMMITTEES

FOR QUARTER ENDING OCTOBER 25TH, 1916.

IN the report of the Proceedings of Council which appeared in the SUPPLEMENT of November 11th the chief recommendations of the various committees were set out, but space did not allow of any account being given of other activities of the committees which were reported to the Council. The following further report of the work of the Medico-Political Committee will, it is hoped, prove interesting:

MEDICO-POLITICAL COMMITTEE.

Diagnosis and Treatment of Venereal Diseases.

Resulting from instructions given by the Annual Representative Meeting in July, the President, the Chairman of Representative Meetings, the Chairman of Council, Mr. Domville, Dr. Campbell, Mr. Garstang, Mr. Bishop Harman, and the Medical Secretary met the President of the Local Government Board on August 15th, 1916, and pressed forward the view, expressed by the Annual Representative Meeting, that it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession be asked to nominate representatives who would be entitled to serve upon any committee having the organization and control of any such arrangements. A full report of the deputation will be found in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of August 26th, 1916, together with the Memorandum previously submitted to Mr. Long.

The Deputation was entirely successful in its object, inasmuch as the President of the Local Government Board accepted the view of the Association, and a fortnight later issued a circular letter to the councils of counties and county boroughs and to the Common Council of the City of London, urging that committees of local authorities to whom the preparation of a scheme was delegated should invite the local profession to nominate two representatives to attend all committee and subcommittee meetings at which the proposed scheme might be discussed, and to assist the Committee with their special knowledge of the needs of the particular area, one to represent the medical staffs of hospitals and the other general practitioners in the administrative area. (For circular see SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of September 2nd.)

Subsequently the Executive Subcommittee of the Insurance Acts Committee issued a communication (Circular Letter M 11) to Local Medical Committees (except London) and to Divisions and Branches (except in the metropolitan area), urging the necessity for the local profession taking immediate steps to secure the representation on the Committee of the local authority which the latter had been advised by the Local Government Board to offer. This step was taken in view of the fact that the question was to be discussed at the Conference of representatives of Local Medical and Panel Committees, called by the Association for October 19th, 1916.

On October 4th the resolutions of the Annual Representative Meeting on the above question were further discussed at a joint meeting of the Medico-Political, Public Health, and Hospitals Committees, and instructions given that those resolutions, with various comments thereon, be issued to the Divisions without awaiting submission to the Council. This was done in the Circular Letter D 1, issued on October 12th, in which the Divisions were asked for their views as to terms of payment. Meantime, owing to the many requests received by the Central Office for advice on this latter question, the views of the Council thereon were issued on October 30th, 1916. These will be found on page 134 of SUPPLEMENT of November 4th.

Dr. M. G. Biggs, Dr. G. E. Haslip, Mr. N. Bishop Harman, and Mr. T. Jenner Verrall, LL.D., have been appointed to act in consultation with the National Council for Combating Venereal Diseases, with a view to obtaining legislation to make it a criminal offence for any unqualified person to treat, or to offer to treat, by advertisement or otherwise, any form of venereal disease, thus carrying on the policy advocated by the Association in its evidence before the Select Committee on Patent Medicines, and before the Royal Commission on Venereal Diseases.

The Metropolitan Counties Branch Council of the Association, on the invitation (handed on to it by the Central Office) of the National Council for Combating Venereal Diseases, nominated thirty practitioners living in Greater London to represent it at a conference held at the Mansion House for urging forward the provision of treatment centres throughout Greater London, to which all the municipal authorities, governing bodies of hospitals, and the staffs of hospitals were invited, together with representatives of the religious, educational, and social organizations.

State Registration of Trained Nurses.

The Committee, under the instructions of the Annual Representative Meeting and Council, is carefully watching the above question, having regard to the action of the College of Nursing, and is acting in close co-operation with the various nursing bodies represented on the Central Committee for the State Registration of Trained Nurses. Failing agreement with the College of Nursing as to a bill, the Central Committee, with the co-operation of the Association, will introduce its own bill.

The following have been appointed the representatives of the Association on the Central Committee: Mr. Garstang, Dr. G. E. Haslip, Mr. T. Jenner Verrall, LL.D., Mr. E. J. Domville, and the Medical Secretary.

Appointment of Subcommittees.

The following subcommittees have been reappointed: Parliamentary, Contract Practice, Maternity and Child Welfare, Ship Surgeons, Assistant Asylum Medical Officers, and Medico-Legal.

Maternity and Child Welfare Centres.

The Committee has during the past quarter been advising the Divisions concerned as to the establishment of maternity and child welfare centres at Hyde, Hornsey, Hertfordshire, and Reigate, with the object of having this work done by private practitioners rather than by the appointment of whole-time officers.

Private Bills in Parliament Affecting the Medical Profession.

Representations were recently made to the General Medical Council that it should, in the interests of the

profession, arrange to be supplied with copies of all private bills introduced into Parliament which affect the medical profession, and should, as a statutory body, have an opportunity of considering clauses affecting the medical profession introduced into a bill while in Parliament, before such clauses are allowed finally to take their place in any Act of Parliament. Correspondence between the Privy Council and the General Medical Council has been forwarded by the latter body and indicates that there does not appear to be any possibility of the General Medical Council obtaining the powers suggested by the Association.

In this connexion it may be stated that the Association has comprehensive machinery for considering all bills introduced into the Houses of Parliament, which, however, depends for much of its success on information as regards local bills sent by those Divisions which are vigilant as regards local matters.

Fees for Medical Certificates for the purpose of Establishing Claims to a Pension or Gratuity by Dependants of Soldiers and Sailors killed on Active Service.

The Statutory Pensions Committee has been informed of the decision of the Annual Representative Meeting, that in connexion with the giving of certificates by medical practitioners as to the degree of capacity to earn their own livelihood of dependants of deceased soldiers or sailors, for the purpose of establishing their claims to pension or gratuity, it is desirable (i) that there should be a uniform standard of estimating capacity to earn; (ii) that the work of certification should be done by a board of local practitioners, and should be paid for.

Lead Poisoning: Use of Abortifacients.

On the publication in June last of the recommendation of the National Commission on the Birth Rate that the manufacture and sale of a particular preparation of lead which is frequently used as a means of bringing on abortion should be prohibited or severely restricted, the Committee communicated with the Lord President of the Privy Council, reminding him that, after the collection of a good deal of evidence on the point, the Association on March 27th, 1906, addressed a letter to him urging that one of the most effective measures for preventing the spread of this evil would be to schedule diachylon as a poison under the Pharmacy Act, and urging that the suggestion should be taken into consideration by the Privy Council at an early date.

Uniform Form for Notification of Infectious Diseases.

The Local Government Board having forwarded for the observations of the Association a draft of a proposed general order prescribing a uniform form for the notification of infectious diseases, the matter was considered by the Public Health and Medico-Political Committees, and their views as to the amendment thereof have been forwarded to the Board, together with an expression of the Association's appreciation of the action of the Board in thus affording it an opportunity of expressing its views.

Medical Attendance and Treatment for Widows and Dependants of Soldiers and Sailors.

The following communication relating to medical attendance and treatment for widows and dependants of soldiers and sailors was addressed to secretaries of Branches and Divisions on November 10th. The question is one calling for the careful consideration of every member of the profession.

Dear Sir,

The Contract Practice Subcommittee of the Medico-Political Committee has had its attention drawn to the question which is arising in various parts of the country as to provision for the medical attendance and treatment of widows and families of deceased soldiers and sailors.

So far as it is possible to obtain information at present, no special provision appears to have been made by the Government for medical attendance and treatment of this class beyond the provision of a sum of 5s. per week for medical comforts, which is available for use by the Local Pensions Committee only in respect of those actually ill. The Subcommittee understands that medical practitioners in various areas are being approached by the Local Pensions Committee with a view to arranging special terms for such attendance and treatment, and it is realized that practitioners may be inclined, in view of the hardship under which the persons concerned may be labouring, to give gratuitous treatment or to make special arrangements without having regard to the ultimate effect of their action.

Pending consideration of the whole question by the Association, I am instructed by the Subcommittee to urge upon Branches and Divisions to secure that the local practitioners shall not enter into any arrangements with a Local Pensions Committee for the treatment of these cases, but should treat them individually. Where there is a public medical service such persons might very properly be urged to join it.

Further, it will be of considerable assistance to the Subcommittee if honorary secretaries will forward any information which they are in a position to supply as to whether practitioners in their area have entered or are entering into special arrangements for the treatment of this class, and, if so, upon what terms, and generally the opinions of their Divisions upon the whole question.

It is hoped to report fully to Divisions and Branches hereon at an early date, together with recommendations.

Yours faithfully,

ALFRED COX,
Medical Secretary.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

NORTH TIPPERARY.

At a meeting of the North Tipperary Local Medical Committee, held at Roscrea on November 23rd, the following resolutions were passed:

Medical Referees.

1. That this Committee protests against the action of the National Health Commissioners in permitting approved societies to appoint their own medical referees as contrary to the undertaking given by the Commissioners to the Irish Medical Committee, and with the result that referees were appointed in whom the local practitioners had no confidence and had refused to meet.
2. That the medical attendant who acts both as medical certifier and medical referee will offer an undue inducement to insured persons to apply to a doctor holding the dual post.

Treatment of Tuberculosis.

That the action of the North Tipperary County Council, in directing their tuberculosis officer to undertake the domiciliary treatment of all non-insured tuberculosis patients in the locality of his residence, is *ultra vires*, and places the tuberculosis officer in opposition to the usual medical attendants of these patients, thus defeating the main object of the tuberculosis scheme.

EAST SUFFOLK.

At a meeting of the Panel Committee on November 14th, Dr. GIUSEPPI presented a report on the recent Conference of Local Medical and Panel Committees, and was thanked for his services. It was resolved that the minimum fee for examining army patients for the purpose of pensions should be 10s. 6d.

The Secretary was instructed to write to the British Medical Association strongly protesting against the statement made by Dr. Harding at the Conference to the effect that, in spite of the increased cost of drugs, those practitioners who had to dispense had not been appreciably affected thereby. It was decided to write to the eight local authorities who were unwilling to supply diphtheria serum gratuitously, informing them that the majority of local authorities were in favour of doing so, and asking them to reconsider their decision.

HUNTINGDON.

At a meeting of the Local Medical and Panel Committee on November 16th the following resolutions were carried:

1. That it is advisable that agreements for 1917 be accepted.
2. That a flat rate of 7d. be charged for dispensing for temporary residents.
3. That the statistics asked for by the British Medical Association of work done during 1916 be compiled.

BERKSHIRE.

A circular recently issued by the Berkshire Local Medical Committee containing an account by the representative of that area of the recent Conference of Representatives of Local Medical and Panel Committees contains the following statement:

Your delegate came away from the Conference much impressed by the good work done by the Insurance Acts Committee of the British Medical Association. He formed the opinion that they have considerable influence with the Commissioners, and is also of the opinion that no body claiming to represent panel practitioners has such influence. He therefore urges all practitioners to support the British Medical Association, and in particular to study the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, so as to keep themselves *au fait* with the policy of the Association's Committee. He recommends practitioners who have proofs of any injustice done to them to forward the documents to the Secretary of the Panel Committee, who will forward them to the proper quarter. An incident which took place at the Conference made a serious impression upon him. A representative was making a fiery speech against accepting

the alteration in the agreement for 1917. The Chairman asked if his area was prepared to fight the issue to the extent of sending in their resignations. He answered, "No!" Practitioners must realize that if a vital question arises they must be prepared to take that step, if only as a preliminary to an amendment of the Act. Finally, your delegate advises that general meetings should be held a short time before and a short time after every annual conference.

BRADFORD.

At a meeting of panel practitioners held in Bradford on October 31st a resolution was unanimously adopted expressing the thanks of the Bradford panel practitioners to the Insurance Acts Committee of the British Medical Association for the able way in which the interests of practitioners were being looked after, and their appreciation of the services rendered.

INSURANCE NOTES.

LEITH.

AT a meeting of the Leith Local Medical and Panel Committees held on November 28th, when Dr. Allan Gray presided, the following resolution was adopted unanimously;

That measures be taken to form a Scottish Committee, composed of panel practitioners, for the purpose of dealing with Scottish insurance business, and of looking after the interests of Scottish panel practitioners.

DOCTORS AND WAR SERVICE: NEED FOR ENROLMENT.

At a meeting of the local medical profession at Southampton on November 14th the following resolution was passed:

That each member of the profession in Southampton be requested to enrol now, and thus leave himself liable to be called upon for service at the discretion of the War Office.

"INADEQUATE" PRESCRIBING.

At a meeting of the Manchester Insurance Committee last week the chairman, Mr. W. Davies, said he was afraid that some of the panel doctors did not understand or carry out their obligations to their patients in the matter of prescribing. In the early days of the Insurance Act it had been necessary to take steps to prevent over-prescribing, but there was now some reason to fear that some doctors had gone to the opposite extreme and were not prescribing the drugs that were necessary. The statement had been made that insured persons were often told by doctors that they could not prescribe the necessary drugs. If that were so, the doctors were wrong and a refusal to prescribe necessary medicines was a distinct violation of the doctors' agreement. Extravagant prescribing was, of course, not justifiable, but neither in the Act nor the regulations was there any limitation either of the cost or the quantity of the drugs that can be prescribed when necessary. He urged that any complaints of inadequate treatment should be sent in writing to the Insurance Committee and a full investigation would be made.

INSURANCE DISPENSING AND THE SHOP CLOSING ORDER.

The Salford Panel Committee has sent to all the panel practitioners of the area a circular drawing attention to the Shop Closing Order which compels chemists to close their shops at 8 p.m. or on Saturdays at 9 p.m. It points out that chemists are allowed to dispense or to sell drugs urgently needed after the closing hour, but the lights have to be down and the door locked, and the chemists feel it a hardship that they should be kept on duty for one or more hours in the evening during which they are not allowed to carry on their other business. In this matter the Panel Committee is entirely in sympathy with the chemists and considers, too, that practitioners will welcome a possibility of finishing their own work by 8 p.m. The panel practitioners are accordingly asked to meet the convenience of the chemists so far as the exigencies of their practices and the needs of the insured in their neighbourhood permit. It may not be possible entirely to refuse consultations after 8 p.m., especially in districts where workpeople may not finish their work till late in the evening, and the chemists will remain in attendance at their shops for a reasonable time after closing hours to dispense for late comers. In such cases practitioners are requested to mark the prescriptions of patients who are unable to attend before closing hours with the letter "L" as is now done for 9 o'clock, otherwise the chemists will be allowed to charge a dispensing fee of 6d.

CORRESPONDENCE.

THE INSURANCE ACTS COMMITTEE.

RURAL VICTIM writes: At a meeting at Tunbridge Wells it is reported that the Medical Secretary of the British Medical Association "showed that the Committee was thoroughly representative of insurance practitioners."

It would be very interesting to know how many rural insurance practitioners there are on this Committee. I have been told there are none at all, but surely this must be a mistake in view of the Medical Secretary's statement. Of course it cannot be seriously contended that practitioners from large towns and large industrial areas can represent rural interests. As a member of a Panel Committee I have learnt that industrial members know nothing of the trials and troubles of rural panel doctors, and, I must add, they seem to care less.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Fleet Surgeon C. R. Rickard to the *Victory*; Staff Surgeon R. Connell, M.B., to the *Pembroke*; Surgeon A. H. Joy, M.B., to the *Pembroke*; Temporary Surgeons V. Magee to the *Vivid*; G. S. Sowden, M.B., to Chatham Hospital; F. Ewart to Haslar Hospital; J. E. Clark and W. O. Saukey, M.D., to Plymouth Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon F. H. Watson, M.B., to the *Pembroke*, additional, for disposal; Surgeon Probationers J. Robinson to the *Defender*, R. Fletcher to the *Starfish*.

ARMY MEDICAL SERVICE.

Temporary Colonel (Major R.A.M.C.T.F.) F. F. Burghard, C.B., M.D., F.R.C.S., and Temporary Colonel (Lieutenant-Colonel R.A.M.C.T.F.) Sir J. K. Fowler, K.C.V.O., M.D., F.R.C.P., having resigned their appointments, relinquish their temporary commissions.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel (temporary Colonel) J. F. M. Kelly, M.B., relinquishes his temporary rank on reposting.

Lieutenant-Colonel R. S. H. Fuhr, D.S.O., to be temporary Colonel whilst employed as an Assistant Director of Medical Services of a Division.

Temporary Major A. H. Carter, M.D., F.R.C.P., to be temporary Lieutenant-Colonel.

Temporary Captains to be temporary Majors: H. MacCormac, M.B., G. T. S. Sichel, F.R.C.S.

The name of temporary Captain Edward R. Welch, M.B. (since killed in action) is as now described and not as in the *London Gazette* of July 8th, 1915, and June 9th, 1916.

Temporary Captains relinquish their commissions: R. G. Murray, J. Braithwaite, M.B., W. E. Mackenzie, A. D. Vardon, H. C. Highet, J. C. R. Braine-Hartnell, F.R.C.S.E., C. J. Kelly, B. Williams, D. Welsh.

Temporary Captains relinquish their commissions on account of ill health: W. A. Bracey, K. N. MacLean, M.B.

Temporary Lieutenants to be temporary Captains: E. A. Pywell, H. A. Hutt, E. Atkinson, F. L. Brown, M.D., E. W. L. Sharp, E. A. Shirvell, I. M. Frazer, M.B., C. J. Sparrow, M.D., D. P. Williams, T. B. Welch, M.B., J. Black, M.B., W. J. Maloney, M.B., A. C. Norman, M.D., F. R. Barwell, W. D. A. King, M.B., J. Miller, M.B., J. O. Garland, W. C. MacFetridge, M.D., R. M. L. Anderson, M.B., T. D. McLaren, M.B., E. A. Scott, S. J. Darke, M.B., F. W. Martin, M.B., T. W. N. Dunn, M.B. J. W. Bennett M.B., E. C. E. Van Eyck, A. D. Rope, M.B., C. W. Ensor, E. L. Massiah, M.B., J. H. Cooke, M.B., J. A. MacLean, M.B., F. B. Hawes, R. A. G. Elliott, M.B., W. L. Dibb, M.B., H. B. Moyle, M.B., H. P. Rogers, M.B., W. Barbour, M.B., M. MacKenzie, M.B., H. E. Flint, M.B., P. W. Barker, M.B., T. R. Phipps, M.D., F. A. Ross, M.B., G. T. Foster Smith, M.B., G. McI. Dale, M.B., A. R. Riddell, M.B., E. I. Harris, M.B., C. L. Emerson, T. M. R. Waddell, G. W. P. Maitland, M.B., C. Fraser, M.D., G. Laurence, A. R. Hargreaves, J. Spears, M.B., H. B. Minshull, A. W. T. Whitworth, M.B., V. E. Ridewood, T. Russell A. W. G. Woodforde, M.B., E. C. Moore, M.B., F.R.C.S.E., R. N. Watson, H. Smith, J. Cropper, M.D., A. A. Watson, M.B., A. C. Fleming, E. McIntyre, R. McRae, M.D. F. C. Lees, G. F. Porter, M.D., F.R.C.S.E., R. B. Hennessy, M.B., W. E. Fraser, M.D., F. A. Winder, M.B., A. Whytt, M.D., C. J. L. Patch, R. D. Lemon, M.B., W. E. Gemmell, M.B., E. M. Longden, A. Mudie, A. J. R. Taylor, M.B., W. T. Munro, M.D., A. R. F. Douglas, J. A. Gilfillan, M.B., H. E. Robinson, H. H. S. Ellison, W. S. Williamson, S. Infield, H. B. Wilkinson, D. Clow, M.B., W. McConnell, M.B., D. C. M. Page, L. Levy, M.B., G. B. Thwaites, M.B., W. D. G. Mulloy, M.B., W. G. Galletly, M.B., A. D. Low, J. Craig, M.B., J. A. Frost, E. H. Freeman, M.D., J. Humphreys, D. W. Maclagan, M.B., J. A. Black, M.B., E. Prall, W. J. E. Stuttaford, E. P. Marett, A. Malseed, M.B., G. E. Lindsay, M.B., A. Barber, M.B., O. D. B. Mawson, G. F. Bird, M.B., C. H. Edwards, M.B., D. McM. Dickson, R. Anderson, R. H. Shepard, L. T. Giles, M.B., F.R.C.S.

To be temporary Captains: T. E. Hincks, M.B., late Captain South Wales Borderers (T.F.), W. Parry-Morgan, M.B.

Temporary Lieutenants relinquish their commissions: J. T. Griffiths, H. T. Marrable, M.D., H. W. Nott, R. C. Muir, M.B., W. G. Parkinson, M.B., J. G. Sharp, M.D., J. Bradley-Hughes, H. W. B. Ruxton, M.B., E. A. Hutton-Attenborough, D. Anderson, M.B., R. G. Chase, M.B., T. J. Taunton, H. R. Irvine, J. Logan, P. Kinmont, M.D., F.R.C.S.E., R. T. Forster, M.B., H. E. Barnes, M.D., F. W. Hobbs, W. H. Lamplough, M.D., G. A. Gordon, M.D., J. L. M. Smith, M.B., J. Moffat, M.B., C. W. W. James, B. W. Jones, M.B., O. G. Donovan, M.D., J. W. Fox, S. V. Robinson, M. Anthony, W. Roche, H. C. Heathcote, M.B., C. A. Hughes, M.B., R. L. Keown, M.B., A. T. M. Blair, M.B., J. D. Curtis, M.B., L. H. Douglass, M.D., C. R. Totton, M.B., H. M. D. Townsend, M.D., J. H. Nixon, M.D., H. H. Fairfax, H. Holt, M.B., H. O'Neil, M.B., E. F. Buckler, M.B., G. H. H. Almond, M.B., F. C. Carle, M.B., H. C. Miller, M.D., R. Kenyon, M.B., L. J. Hodd, M.B., C. H. G. Gostwyck, M.B., F.R.C.P.E., T. F. Dobbs, M. Davies, M.B.

To be temporary Lieutenants: J. Spencer-Daniell, M.B., J. M. Coplans, T. P. Linehan, M.B.; temporary honorary Lieutenant H. C. Shockett, M.B., and W. Simpson, M.B.; J. Laing, M.B., J. B. McEwan, M.B., L. G. White, H. F. Devis, P. R. McNaught, M.B., T. W. Jones, M.D., J. Cruickshank, M.D., W. Montgomery, M.B., P. J. Holmes, T. B. Smith, M.B., R. C. de C. Wheeler, M.B., S. F. Floyd, M.B., H. M. Grey, T. S. S. Holmes, M.B., F.R.C.S., J. G. Copland, M.B., L. F. Lovell-Keays, J. Chambre, M.B., J. A. C. Greene, J. M. Inverarity, J. Pryce-Davies, M. Golding, W. Thomson, M.B., G. H. Morris, R. H. Rains, P. McL. Shiels, M.B., H. D. Wilson, M.D., J. E. Murray, M.D., L. S. H. Glanville, M.D., V. C. Montgomery, M.B., A. H. Macklin, M.B., G. H. Jones, W. D. Kirkwood, M.D., G. T. Birks, M.B.

R. A. Chisholm, M.D., to be temporary honorary Lieutenant whilst employed with the No. 8 British Red Cross (Baltic and Corn Exchange) Hospital.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: J. W. G. Steell, C. Young, A. W. A. Davies, from University of London Contingent O.T.C., H. Morley, R. F. Jarrett, A. R. Balmain, M.B., J. S. White, M.B., A. Duguid, M.B., E. Newton Second Lieutenant A. Rodd, from unattached list (T.F.), O.T.C. (substituted for notification in the *London Gazette* of November 22nd), B. H. Simon, M.B., from Edinburgh University Contingent O.T.C., G. S. Lawrence, M.B., from Aberdeen University Contingent O.T.C.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

L. A. B. Grier, M.D., to be temporary Captain.

SOUTH AFRICAN MEDICAL CORPS.

To be temporary Captains: E. A. Leviseur, Captain J. Rose, H. Mundy, F.R.C.S.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain D. J. Scott, M.D., London Field Ambulance, to be Deputy Assistant Director of Medical Services 56th Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Captain F. V. Denne relinquishes his commission on account of ill health.

London General Hospital.—Major F. F. Burghard, C.B., M.D., F.R.C.S., is restored to the establishment.

Home Counties Casualty Clearing Station.—Lieutenant W. Burt to be Captain.

Home Counties Field Ambulance.—Captain B. R. Billings resigns his commission.

East Lancashire Field Ambulance.—Lieutenant J. Young, M.B., to be Captain.

West Lancashire Field Ambulance.—Captain R. Starkey-Smith to be Major.

Attached to Units other than Medical Units.—K. Atkin to be Lieutenant (substituted for announcement in the *London Gazette* of September 9th). The initials of Major W. B. Milbanke, M.B., were incorrectly printed in our issue of November 11th. Lieutenants to be Captains: J. R. Bullman, M.B., G. H. Gill.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Balaam Street, E.—Qualified Woman for out-patient work. Honorarium, 10s. 6d. an attendance.

CROYDON UNION.—Resident Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Union House and Children's Homes. Salary, £250 per annum.

GENERAL LYING-IN HOSPITAL, York Road, Lambeth. Resident Medical Officer. Salary, £100 per annum.

LANCASTER: COUNTY ASYLUM.—Lady Assistant Medical Officer. Salary, £250 per annum.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—Three House-Surgeons.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Assistant Resident Medical Officer. (2) Casualty Officer (non-resident). Honorarium, £120 per annum each.

MANCHESTER: ANCOATS HOSPITAL.—Two Fourth-year students as Unqualified Residents. Salary, £50 per annum.

NORTHAMPTON COUNTY.—Temporary Tuberculosis Officer. Salary, £400 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Two Senior Assistants in the Venereal Diseases Out-patient Department. (2) Pathologist to Venereal Diseases Department. (3) Second Clinical Assistant in the Gynæcological Department. Salary, for (1) 1½ guineas per annum, and for (2) £200 per annum.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

ST. PANCRAS DISPENSARY, Oakley Square, N.W.—Resident Medical Officer. Salary, £150 per annum.

SALOP COUNTY COUNCIL.—Tuberculosis Medical Officer. Salary at the rate of £500 per annum.

SHEFFIELD UNION HOSPITAL.—Resident (Woman) Assistant Medical Officers. Salary, £120 per annum, rising to £300.

SURREY EDUCATION COMMITTEE.—School Dentist. Salary, £350 per annum, rising to £450.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WESTMORLAND SANATORIUM, Meathop.—Second Assistant Medical Officer. Salary, £200 to £250 per annum.

YORKSHIRE: WEST RIDING COUNTY COUNCIL.—Assistant Medical Officer at the Cardigan Sanatorium, Carr Gate, and the Middleton-in-Wharfedale Sanatorium, near Ilkley. Salary, £400 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Harrogate (Yorks, West Riding).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CHRISTOPHERSON, C., M.R.C.S., L.R.C.P., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 50, and to be attached more particularly to the Eastbourne, Hastings, and Rye County Courts, vice Dr. J. W. Batterham, resigned.

CULLEN, B. T., M.B., B.Ch., N.U.I., Certifying Factory Surgeon for the Ballyhaise District, co. Cavan.

CULLEN, J. R. F., M.B., C.M.Glas., Certifying Factory Surgeon for the Alexandria District, co. Dumbarton.

DOW, T., L.R.C.P. and S.Edin., L.R.F.P.S.Glasg., District Medical Officer of the Teignmouth Union.

HOWELL, R. V., M.B., Ch.B.Glasg., Certifying Factory Surgeon for the Clacton-on-Sea District, co. Essex.

MALCOLM, R., M.D., District Medical Officer of the Doncaster Union.

ROBERTSON, Miss E. A., M.B., Assistant Medical Officer of the Hackney Union Infirmary.

ROBINSON, H. J., M.B., B.C.Cantab., Certifying Factory Surgeon for the Kirkoswald District, co. Cumberland.

SINCLAIR, G., M.D., L.R.C.P., Medical Referee under the Workmen's Compensation Act for the Sheriffdom of Caithness, Orkney and Shetland, and to be attached more particularly to the Orkney District, vice Dr. Benjamin Bell, deceased.

STATHAM, R. W., M.R.C.S.Eng., Medical Officer of the Cheddar Cottage Home of the Axbridge Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

CHAMBERS.—On December 7th, at The Rock, Castletown, Isle of Man, the wife of John H. Chambers, L.M.S.S.A., of a son.

HUTCHINSON.—On October 28th, at Malabar Hill, Bombay, the wife of Major L. T. Rose Hutchinson, Indian Medical Service, of a son.

MARRIAGES.

ALLMAN—WALDRON.—On the 5th inst., at Portsmouth, Percy Nicol Allman, L.R.C.S. and P.I., youngest son of late Samuel Allman, of Birr, Ireland, to Ethel Annie Waldron, M.B., Ch.B., D.P.M., of Wharncliffe War Hospital, Sheffield, second daughter of William Waldron, of Oakfields, Kingswinford, Staffs.

FRASER—GALBRAITH.—At St. Simon's, Milner Street, London, S.W., on November 30th, by the Rev. W. F. Boyle, M.A., assisted by the Rev. Marshall Selwyn, M.A., Kenneth Grant Fraser, L.R.C.P. and S.Edin., temporary Captain R.A.M.C., to Charlotte Eileen, younger daughter of the late Henry Galbraith, Archdeacon of Glendalough.

DEATHS.

RAYNER.—On November 25th, 1916, at Fulwood, Preston, Alexander Clement Rayner, M.D.Durh., M.R.C.S., L.S.A., aged 74.

RENSHAW.—On Wednesday, December 6th, at his residence, Beech Hurst, Ashton-on-Mersey, Charles J. Renshaw, M.D., aged 75.

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE.—5 p.m., Sir Almroth Wright: Gas Gangrene.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE.—4.30 p.m., Exhibits of Portraits, Books, etc. 5 p.m., Dr. J. D. Roberts: The Medical Interest of Casanova's *Memoires*.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY.—4.30 p.m., Cases.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY, 1917.
2	Tues.	London: Propaganda Subcommittee, 3.45 p.m.
		London: Hospitals Committee
3	Wed.	London: Journal Committee, 2 p.m.
		London: Public Health Committee, 2.30 p.m.
5	Fri.	London: Central Ethical Committee, 2 p.m.
9	Tues.	London: Organization Committee, 2.15 p.m.
10	Wed.	London: Medico-Political Committee.
17	Wed	London: Finance Committee, 2 p.m.
24	Wed.	London: Council Meeting.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 23RD, 1916.

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IRISH MEDICAL WAR COMMITTEE.

A MEETING of the Irish Medical War Committee was held at the Royal College of Physicians of Ireland on December 12th, when Dr. MacDowel Cosgrave, P.R.C.P., was in the chair, and the following members were present: Mr. F. Conway Dwyer, F.R.C.S., Professor A. F. Dixon, Colonel Hearn, R.A.M.C., Dr. J. F. O'Carroll, F.R.C.P., Dr. E. Coey Bigger, Local Government Board, Right Hon. M. F. Cox, P.C., M.D., Dr. T. Hennessy, and Dr. M. R. J. Hayes, Honorary Secretary.

The Committee having considered amongst the correspondence an important communication from the Deputy Director of Medical Services, Irish Command, the Secretary was directed to communicate with the Local Government Board as regards the temporary appointment in the Poor Law Medical Service of doctors of military age.

Dr. Bigger stated that the Local Government Board made it a rule not to appoint doctors who were of military age and physically fit in any case that other arrangements could be satisfactorily made for the treatment of the sick poor.

Meetings of Branches and Divisions.

CAPE OF GOOD HOPE—EASTERN PROVINCE BRANCH.

A MEETING of the Branch was held at the Mental Hospital, Grahamstown, on October 24th, when Dr. R. T. HARRISON was in the chair.

Dr. A. COWPER read a paper on dementia praecox, which was discussed by Drs. HARRISON, DRURY, SAUNDERS, MULLINS, LEA, and PURVIS. A vote of thanks was accorded to Dr. Cowper.

It was decided to request the South Africa Committee to take action with regard to the grievances of district surgeons, especially with reference to pauper work, reduced drug allowances, and fees and circuit court work.

The question of the drawing up of pamphlets on the care of the teeth and eyes was referred to the Schools Subcommittee, together with Dr. Lea and Mr. Kirkpatrick, for report.

In response to a request from the Port Alfred Chamber of Commerce and Publicity Association for a statement on infantile paralysis at the Kowie, the following resolution was adopted:

> That this meeting of the Eastern Province Branch of the British Medical Association having heard that it is widely reported that infantile paralysis is common, or even endemic, at the Kowie (Port Alfred), affirms: (1) That they are well acquainted with the health conditions of the Kowie for ten years and upwards. (2) That to their knowledge there have occurred only five cases. (3) That in the last four years only one case has occurred, and that six months ago. This child became unwell within three days of arrival; and in view of the fact that the usual incubation period is from five to ten days, it cannot be held that Port Alfred was the source of infection. (4) That there is no foundation for such a report.

A vote of thanks was accorded to Drs. Cowper and Luck for their hospitality.

INSURANCE.

SEAMEN ON FOREIGN-GOING SHIPS.

AT the Conference of Representatives of Local Medical and Panel Committees on October 19th the Representative from the Grimsby area inquired as to the method of calculating the remuneration due to practitioners in respect of seamen serving on foreign-going ships, and was invited by Mr. Anderson to forward exact particulars of the points upon which explanation was desired.

These particulars were forwarded in due course through the Insurance Acts Committee, and the following Memorandum has been received from the Insurance Commissioners in explanation of the procedure adopted in the matter:

MEMORANDUM EXPLANATORY OF THE SYSTEM OF REMUNERATING MEDICAL PRACTITIONERS.

Special Arrangements in Connexion with Seamen Serving on Foreign-going Ships.

It is recognized in the terms of Section 48 of the National Insurance Act, 1911, that in the case of seamen serving on foreign-going ships medical treatment at the cost of National Health Insurance Funds is only required when the seamen are off articles, because under the Merchant Shipping Act the shipowner is required to provide medical treatment for a sick or injured seaman until he recovers or is returned to a "return port."

For this reason a reduced contribution is payable under the Act in respect of this class of insured person. The necessary reduction in the amount available for medical benefit is provided for in the Payments to Insurance Committees Regulations of 1914 (Article 13) and in the Medical Benefit Regulations of 1913 (Article 33).

The *modus operandi* is briefly as follows:

Every approved society with members who are foreign-going seamen is required to furnish to the Commissioners each year subject to audit a return of the number of such members in respect of whom contributions were paid for the first half of the year and who were entitled to medical benefit during any part of that half-year. If, after the return has been rendered, cards are received by the society showing contributions in respect of that half-year to have been paid by other members, the number of such members must be included in the next return rendered.

The society is charged in the first instance in respect of mercantile marine members entitled to medical benefits at the same rate per annum as for members in other classes, and the amounts so charged, together with the sums due from the Exchequer, are carried to the central pool. The central pool is distributed in the manner explained in Memorandum 229/I.C., where the amount apportioned to each committee is referred to as its gross medical benefit credit.

The amount of the rebate in respect of seamen serving on foreign-going ships is then ascertained for each committee's area. For this purpose, each approved society which gives to the Commissioners due notice of its intention to claim a rebate is required to furnish a return showing the number of its members in mercantile marine classes, the Insurance Committee area in which they reside, and the number of contributions at the reduced rate for foreign-going service paid on their behalf during the year. For each such contribution the Regulations provide that a rebate of 1½d. shall be deducted from the amount available for medical benefit, the due proportions of the amounts so deducted being credited to the approved society and the Exchequer respectively.

It will thus be seen that mercantile marine members are counted in the first instance in exactly the same way as ordinary members of a society for medical benefit purposes; but if the society gives due notice it may receive a rebate in respect of the actual number of weeks for which contributions have been paid on behalf of its mercantile marine members at the reduced rate, and when rebate is so allowed consequential deductions are made from the gross medical benefit credits of the Insurance Committees concerned.

The total amount of the rebates so ascertained for each committee's area is shown on the advice of credit to the committee as a deduction from the amount apportioned to the committee from the central pool. The distribution of the net amount available for medical benefit for each area is carried out as explained in Memorandum 229/I.C., Part C, Sections 53 et seq.

LOCAL MEDICAL AND PANEL COMMITTEES.

Croydon.

At a meeting of panel practitioners on December 14th the question of a trade union for panel practitioners was discussed, Dr. Cox and Dr. Gordon Ede being the chief speakers.

Dr. Ede emphasized the advantages of an organization designed more especially for panel practitioners, and the advantages derived from registering that organization as a trade union. Dr. Cox deprecated the setting up of any fresh organization at the present time and so dissipating the energy and money of the profession. He denied that any real practical advantage resulted from registration as a trade union.

After various questions had been answered, Dr. Fowler moved:

> That this meeting of panel practitioners of Croydon is of opinion that the only successful way for the profession to fight the coming battle for its status and prestige is to unite together and form a trade union.

Dr. Dukes seconded, and Drs. Willock, Genge, and Simmons spoke to the resolution, which, on being put to the meeting, was lost by 13 votes to 9. A hearty vote of thanks was accorded to the chief speakers for addressing the meeting.

Surrey.

At a meeting of the Panel Committee on October 26th it was resolved that in view of the fact that the Conference of Representatives of Panel Committees had decided to accept the new Regulations for 1917, the Surrey Committee could not do otherwise than advise panel practitioners to accept the alterations, although in its opinion such alterations should not have been introduced at this inopportune time.

Birmingham.

At a meeting of the Panel Committee on December 5th it was decided to ask the Minister of Munitions for a permit for running repairs to motor cars of doctors. It was resolved to ask the Commissioners to continue the present rate of payment for emergency dressings, namely, 1s. a quarter per 100 insured persons. It was decided to inform the Panel Medico-Political Union that the Committee preferred to await the scheme being drawn up by the Insurance Acts Committee of the British Medical Association under the proviso to Article 3 of the new Medical Benefit Regulations.

York.

At a meeting of the Local Medical and Panel Committee on November 29th it was reported that the Commissioners had ruled that the decision with regard to the inflation of lists of "own arrangements" institutions rested with the Insurance Committee, and that the Finance and General Purposes Subcommittee had decided that the inflation should apply equally to these institutions with practitioners on the panel. It was decided that it was desirable to draw the attention of insured persons through their representatives on the Insurance Committee to the fact that in the event of an insured person becoming for any reason dissatisfied with the attention of the doctor on whose list he is, much unnecessary trouble would be avoided if he did not call in a fresh doctor, without first notifying his own doctor of his intention to do so. A letter written by Dr. Macdonald to the Northumberland Local Medical and Panel Committee in reply to an inquiry as to the attitude of the York practitioners upon the subject of trade unions for medical men, was approved, and it was decided to issue a circular on similar lines to all Panel Committees in England.

Renfrew County.

Expenses of Attendance at Panel Conference.—At a meeting of the Panel Committee on October 25th it was reported that the Commissioners, in reply to a question as to the payment of expenses of a representative attending the Conference in London of Local Medical and Panel Committees, had stated that the Committee would be entitled to pay the reasonable expenses of a representative attending the Conference provided (*a*) the proposed expenditure was contained in an estimate or supplementary estimate of the Committee's administrative expenditure submitted to and approved by the Insurance Committee, and (*b*) that the whole administrative expenditure of Panel and Pharmaceutical Committees was not thereby made to exceed the 1d. per insured person entitled to medical benefit allotted under Section 33 (2) of the National Insurance Act, 1913.

It was remitted to the Executive Committee to take any necessary action arising out of the decision of the Conference in respect of renewal of agreements for 1917.

INSURANCE NOTES.

Sanatorium Benefit in Scotland.

Mr. W. M. Marshall, secretary of the Scottish Association of Insurance Committees, has issued a pamphlet entitled "Some notes on the administration of sanatorium benefit in Scotland, 1912–16." The information, he states, was obtained after consultation with all the committees in Scotland. In many areas adequate schemes of treatment of tuberculosis have been framed by the authorities, but in few has it been possible, owing to the war, to carry them out completely. Practically all expenditure on sanatoriums has ceased, and the building of many institutions has been postponed. The records show that one in every eleven deaths in Scotland is due to some form of tuberculosis, and the drain is highest in the working years of life, as 56 per cent. of the deaths from the disease take place between the ages of 20 and 45. It is calculated that there are at present over half a million infected persons in the whole country.

Out of the total sum of £1,500,000 provided under the National Insurance Act towards the building and equipment of sanatoriums, the proportion available for Scotland is about £157,919, only part of which has yet been spent. Many of the local health authorities have undertaken entire responsibility for the treatment of all the non-insured, including the dependants of the insured, but there are now fifteen Insurance Committees in Scotland which provide sanatorium benefit to dependants of the insured. The rapid growth in the number of beds in sanatoriums since the passing of the Insurance Act is shown by the fact that while in July, 1912, Scotland had only thirty-six sanatoriums or institutions approved by the Local Government Board, containing 883 beds, in

December, 1914, the number of beds had increased to 2,205, and in September, 1916, to 3,041, though owing to the war a number of institutions have set aside some of their beds for naval and military purposes. During the year 1915 Insurance Committees provided institutional treatment to 3,465 tuberculous cases and domiciliary treatment for 889, a total of 4,354. Regret is expressed at the fact that so many of the cases dealt with have been "late" cases, the tuberculosis officer for Edinburgh stating, for example, that in 1914 only 22 per cent. of the applicants for sanatorium benefit were in the first stage, while 30 per cent. were in the third or last stage. The total sum which was directly under the control of Insurance Committees for sanatorium benefit was about £93,750, but when 6d. of the 1s. 3d. per insured person was assigned to the panel doctors the committees had only left about £56,250. Mr. Marshall suggests that the full sum was already sufficiently limited, and that it might have been wiser to have permitted committees to make arrangements in suitable cases with private practitioners for attendance and treatment, but he admits that there is considerable difference of opinion as to whether the present arrangements have been of advantage to committees.

Speaking of the results of sanatorium treatment, it is admitted that the greatest defect is the absence, except in a few cases, of "after-care" committees. The Hairmyres scheme of Lanarkshire is highly spoken of as an attempt in the right direction, providing as it does a combination of a sanatorium with a farm colony, and taking not only adult cases which have had a course of sanatorium treatment but also children, the main object of the scheme being the provision of training in outdoor work of a fairly light nature which will enable those affected with the disease to make a living under conditions likely to lead to improvement if not cure. But it is admitted that such a scheme is only possible to a large and wealthy health authority, and even then only a fraction of the cases can be dealt with.

Statistics are given from a considerable number of insurance areas as to the results of treatment in sanatoriums, but in summing up Mr. Marshall says that it is not surprising that almost without exception Insurance Committees have as a result of their experience during the last four years become disheartened, and are on all hands pressing for measures which will secure the earlier notification of tuberculosis. It is suggested that steps should be taken by health authorities and Insurance Committees to impress on the medical profession the urgent necessity of careful investigation into all doubtful cases, and that when patients remove from one area to another the Insurance Committee of the first residence should communicate full information to the second committee as to the treatment already given. The attention of committees is drawn to the duty which falls on them of reporting to the local health authorities any unsatisfactory housing conditions of applicants for sanatorium benefit. Mr. Marshall concludes by repeating his opinion that the chief source of weakness in the campaign against tuberculosis is the comparatively little provision yet made for "after-care," and that it is the duty of every Insurance Committee in Scotland to proceed to the formation of an "after-care" committee.

THE LONDON PANEL COMMITTEE.

In the December issue of the *London Panel Committee Gazette* it is announced that the Committee has decided to keep a register of practitioners who have time at their disposal which they are prepared to devote to looking after the practices of practitioners who have accepted commissions in the R.A.M.C., and the secretary of the Committee will be glad to receive names of such practitioners, with a statement of the amount of time each day which they can devote to such work, and whether they are prepared to undertake work in a district other than that in which they reside.

A report is given of an interview a deputation of the Committee had with the Insurance Commissioners on October 17th with regard to the proposed changes in the conditions of service which will become operative in 1917. The Commissioners stated that they would welcome any reasonable and practical suggestions as to some safeguard to protect a practitioner should a patient demand specialist treatment when in the opinion of the practitioner such treatment was unnecessary. It was pointed out that a difficulty might arise in London, as it was possible that there might be as many as twenty-nine different schemes formulated by the borough councils, and a practitioner in three different boroughs might be called on to co-operate in three different schemes. To this the Commissioners replied that all possible steps would be taken to prevent such a position arising, and it could be assumed that there would be only one scheme for London, which would be drawn up by the London County Council. Referring to the words of the new Regulation 3, which speak of "consultation with the Local Medical Committee," the Commissioners declined to substitute the words "in agreement with the Local Medical Committee." With regard to the proviso to Clause 3 of the new regulations which authorizes panel committees in consultation with insurance committees to prepare schemes defining the duties of practitioners in relation to the new provisions for venereal disease and the treatment of discharged soldiers, the Commissioners said the panel committees would thus be enabled to safeguard practitioners. For example, if a local authority formulated a scheme requiring a doctor to fill a form containing say forty questions, in order to obtain specialist treatment for one of his patients, the panel committee might present an alternative form consisting of say only five questions, and if this were approved by the Commissioners (and it was assumed that approval would not be unreasonably withheld) the position would be that unless the local authority accepted the amended form it would not constitute a breach of the practitioner's agreement should he decline to make use of the form of the local authority. As a result of the interview the Panel Committee had no hesitation in recommending practitioners to accept the proposed modifications in their agreements, and it announced its intention to watch the developments, and if found desirable to formulate schemes defining and limiting the duties of panel practitioners in connexion with the new provision.

The total amount available for distribution in the London Practitioners' Fund for 1915 was about £450,572, and the total advances made to practitioners during the year amounted to £387,377. Assuming that the sum of 7s. were available for each effective insured person, the mean number of insured persons during the year must thus have been 1,287,207. The index register contains the names of 1,685,145 persons and the medical register 1,534,950, showing an inflation in the registers amounting to about 24 per cent. The amount of the Drug Fund for the year was about £128,754, and the charges on this fund, after making allowance for the amounts coming from the sanatorium benefit fund and for drugs supplied to temporary residents, were about £135,000. Thus in the ordinary course it would have followed that the chemists' accounts for the year would have been subject to a discount of nearly 5 per cent.

Reference is made to the request of the Local Pharmacists Associations that practitioners should as far as possible co-operate with them to get prescriptions presented to chemists before the time specified in the order for the closing of shops. The committee, while thinking this may be possible in certain districts, considers that in other areas the conditions under which insured persons are employed makes the suggestion impracticable.

INSURANCE ACT IN PARLIAMENT.

NATIONAL INSURANCE (TEMPORARY EMPLOYMENT IN AGRICULTURE) BILL.

THIS bill, the scope of which was explained in the SUPPLEMENT of December 2nd, p. 155, has been passed by the House of Lords. It enables persons normally non-insurable who take up agricultural work as a war occupation to remain outside the scope of compulsory insurance if they wish.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Surgeon D. A. Mitchell, M.B., to the *Diamond*; temporary Surgeons T. F. C. Sheehan, M.B., to the *Dido*; F. C. Endean to the *Vivid*, additional, for Plymouth Hospital; B. Flack to the *Vivid*; T. W. Robbins to Chatham Hospital. To be temporary Surgeon: M. O. Hunter.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel A. B. Soltau, C.M.G., M.D., F.R.C.S., R.A.M.C.(T.F.), to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) A. J. Williamson, M.B., relinquishes his temporary rank on reposting.

Major J. Matthews to be temporary Lieutenant-Colonel, and not as stated in the *London Gazette* of October 13th.

The notification in the *London Gazette* of November 16th promoting temporary Captains N. Duggan and A. E. Seller to be temporary Majors whilst commanding troops on a hospital ship is cancelled.

Temporary Captains F. W. Twort and H. H. C. Fuller, M.B., relinquish their commissions.

Temporary Captain H. Croly, M.D., relinquishes his commission on account of ill health.

Temporary Lieutenant C. C. B. Thompson to be temporary Captain.

J. D. Milne, M.B., F.R.C.S., to be temporary honorary Lieutenant whilst employed with the Welsh Hospital, Netley.

Temporary Lieutenant T. Ewing, M.B., relinquishes his commission.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: G. S. Martin, M.B., from Aberdeen University Contingent O.T.C.; R. V. Clarke and M. A. White, from Edinburgh University Contingent O.T.C.

OVERSEAS CONTINGENTS.

SOUTH AFRICAN MEDICAL CORPS.

C. H. Muller, M.B., to be temporary Lieutenant-Colonel. J. Hunter to be temporary Major. To be temporary Captains: R. P. McNeil, D. S. K. Macnab, W. McG. Montgomery, M.B., J. Tremble, M.B., T. J. W. A. Johnston, R. I. Wolfe, K. A. Gilchrist, M.B., J. B. K. Tough, M.B., J. C. Venniker, M.D., T. A. Fuller, M.B., W. H. Watson, P. E. Millard, M.D. To be temporary Lieutenant: H. Wolff.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonel C. A. Peters to be A.D.M.S.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel E. J. R. Evatt, M.B., Welsh Field Ambulance, to be Assistant Director of Medical Services.

Captain R. Proudfoot, M.D., from Welsh Division Sanitary Section, to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: W. G. Cook, M.B., W. O'Brian, M.B., J. H. Paul, M.B., R. S. Weir, M.B., Lieutenant R. E. Pitts from attached to Units other than Medical Units.

General Hospitals.—Captain A. E. Wilson, M.B., resigns his commission.

Attached to Units other than Medical Units.—Lieutenant J. Wilson, M.D. to be Captain. Keyser Atkin to be Lieutenant (substituted for announcement in the *London Gazette* of December 7th); Lieutenant G. R. Rickett, M.D., to be Captain (substituted for announcement in the *London Gazette* of February 1st, 1915).

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain P. T. Jones, from Home Counties Field Ambulance, to be Captain.

COLONIAL MEDICAL SERVICE.

WEST AFRICAN MEDICAL STAFF.

The following changes are notified by the Colonial Office:

Transfers and Promotions.—J. A. Pickels, M.B., B.S. Lond., D.P.H. L'pool., to be Principal Medical Officer, Nigeria (Northern Provinces). H. A. Foy, L.M. and S. Bomb., L.R.C.P. and S. Edin., L.F.P.S. Glasg., D.P.H. Lond., to be Senior Sanitary Officer, Nigeria (Southern Provinces). W. J. D. Innes, M.R.C.S., L.R.C.P. Lond., D.P.H. Irel., Sanitary Officer, Nigeria, from Southern Provinces to Northern Provinces. G. J. Pirie, M.B., Ch.B., D.P.H. Aberd., to be Sanitary Officer, Nigeria (Southern Provinces). H. O'H. May, M.D., B.Ch. Dubl., D.P.H. Irel., to be Sanitary Officer. A. C. N. McHattie, M.D., Ch.B. Edin., D.P.H. Cantab., to be Medical Officer of Health, Zanzibar.

Retirement.—F. Manning, L.R.C.P. and S.I., Principal Medical Officer, Nigeria (Northern Provinces), retired on pension.

Re-employment.—G. F. Darker, M.D., D.P.H. Durh., M.R.C.S., L.R.C.P. Lond., Medical Officer, Nigeria (Northern Provinces).

Temporary Appointment.—H. G. F. Spurrell, M.B., B.Ch. Oxon., F.Z.S., to be Temporary Medical Officer, Gold Coast.

Deaths.—H. P. Lobb, M.R.C.S., L.R.C.P. Lond., D.P.H. Irel., Provincial Medical Officer, Nigeria (Northern Provinces). W. C. E. Bower, L.M. and S. Madras, M.R.C.S., L.R.C.P. Lond., Medical Officer, Nigeria (Northern Provinces), killed in action while serving as temporary Lieutenant R.A.M.C.

The following officers, whose services have been placed at the disposal of the Army Council, have been given temporary commissions in the R.A.M.C.: Messrs. G. G. Butler, R. Semple (Sierra Leone), H. O'H. May (Gold Coast), B. C. Macpherson, L. W. Davies, H. North, W. E. Glover (Nigeria).

OTHER COLONIAL SERVICES.

O. J. Murphy, M.B., B.Ch.N.U.I., to be Assistant to the Colonial Surgeon, St. Helena.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOLTON UNION.—Resident Assistant Medical Officer for the Fishwick Institution, Farnworth. Salary, £125 per annum.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

BURNLEY, VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

CARLISLE CITY.—Assistant School Medical Officer. Salary, £350 per annum.

CHELSEA HOSPITAL FOR WOMEN, S.W.—House-Surgeon. Salary, £80 per annum.

COVENTRY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £350 per annum.

CROYDON UNION.—Resident Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Union House and Children's Homes. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House Physician. Honorarium, £50 for six months.

LIVERPOOL, NORTHERN INFIRMARY.—House Surgeon. Salary, £150 per annum.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House-Surgeons.

LONDON COUNTY COUNCIL.—Assistant Organizers of Children's Care Work. Salary on permanent staff, £100 a year, or temporary, £2 a week.

MANCHESTER: ANCOATS HOSPITAL.—Two Fourth-year students as Unqualified Residents. Salary, £50 per annum.

NORDRACH-UPON-MENDIP SANATORIUM.—Assistant Medical Officer. Salary, £200.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—Lady House-Surgeon.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary, £200.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SIDMOUTH URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary, £100 per annum.

SUNDERLAND EDUCATION COMMITTEE. Temporary School Medical Officer (Woman). Salary, £350 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WESTMORLAND SANATORIUM, Meathop.—Second Assistant Medical Officer. Salary, £200 to £250 per annum.

YORKSHIRE: WEST RIDING COUNTY COUNCIL.—Assistant Medical Officer at the Cardigan Sanatorium, Carr Gate, and the Middleton-in-Wharfedale Sanatorium, near Ilkley. Salary, £400 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BROOKS, Samuel John, M.R.C.S. Eng., L.S.A. Lond., Medical Officer to the Small-pox Hospital, Wardlow; Medical Officer and Public Vaccinator to the Eyam District of the Bakewell Union.

CRESSY, C. J., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Ringwood District co. Hants.

ENGINEER, Sorab K., M.R.C.P.E., L.M. and S. Bombay, Honorary Physician to Sir Jamsetjee Jeejeebhoy Hospital, Bombay.

HEAD, P. A. D., M.R.C.S., L.S.A., District Medical Officer of the Berwick-upon-Tweed Union.

MACKARELL, W. W., M.D., D.P.H., D.T.M. Liverp., Pathologist to the Leicester Royal Infirmary.

MITCHELL, H. V., M.R.C.S., L.R.C.P., District Medical Officer of the Hartismere Union.

NICHOLL, R. C., L.R.C.P. and S.I., Certifying Factory Surgeon for the Lytham District, co. Lancaster.

O'DRISCOLL, I., M.B., B.Ch. R.U.I., Certifying Factory Surgeon for the Valentia District, co. Kerry.

PENNEFATHER, C. M., M.B., B.S. Durh., District Medical Officer of the Hendon Union.

SIBBALD, B. I. G., M.B., C.M. Edin., District Medical Officer of the Chard Union.

WALKER, H. B., M.R.C.S., L.R.C.P., District Medical Officer of the Castle Ward Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5*s.*, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGES.

MACALPINE-JONES.—On the 7th inst., at All Souls' Church, Langham Place, London, Captain James B. Macalpine, F.R.C.S., of Manchester, second son of Sir George and Lady Macalpine, to Doris, younger daughter of Mr. and Mrs. Herbert Jones, of Oswestry.

SUTTON—RIVAZ.—On December 12th, at All Saints', Leamington, by the Rev. J. A. Murray, M.A., B.D., assisted by the Rev. F. B. Feist, Vicar, and the Rev. Johnson Barker, M.A., Vicar of St. John's, Leamington, Dr. Frede le Reginald Sutton, of 2 Claremont Road, Leamington, to Edith Cecilia, elder daughter of Colonel Vincent Rivaz, C.B., Indian Army, and Mrs. Rivaz, of Millfield, Leamington.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY, 1917.
2	Tues.	London: Propaganda Subcommittee, 3.15 p.m.
		London: Hospitals Committee
3	Wed.	London: Journal Committee, 2 p.m.
		London: Public Health Committee, 2.30 p.m.
5	Fri.	London: Central Ethical Subcommittee, 2.30 p.m.
9	Tues.	London: Organization Committee, 2.15 p.m.
10	Wed.	London: Medico-Political Committee.
11	Thur.	London: Insurance Acts Committee.
17	Wed	London: Finance Committee, 2 p.m.
24	Wed.	London: Council Meeting.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 30TH, 1916.

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INSURANCE.

COMPOSITION OF INSURANCE ACTS COMMITTEE.

In consequence of the misleading and erroneous statements that have been made from time to time with regard to the composition of the Insurance Acts Committee, the following particulars have been verified by direct reference to the members of the Committee, and are published for the information of insurance practitioners:

(1) *Members of Insurance Acts Committee on Insurance Panels.*

Dr. T. Ridley Bailey, Bilston, Staffs. Chairman of Staffordshire Local Medical and Panel Committees and Member of Insurance Committee. Member of Wolverhampton Panel Committee. On Staffordshire Panel.

Mr. H. B. Brackenbury, London. Chairman of Middlesex Panel Committee; Vice-Chairman, Local Medical Committee; and Member of Insurance Committee. On Middlesex and London Panels.

Dr. T. Campbell, Wigan. Honorary Secretary, Lancashire Local Medical and Panel Committees; Member of Lancashire Insurance Committee, and Member of Wigan Panel Committee. On Lancashire and Wigan Panels.

Dr. J. R. Drever, Glasgow. Honorary Secretary, Glasgow Burgh Local Medical and Panel Committees; Member of Glasgow Burgh Insurance Committee; and Member of Drug Accounts Committee (Scotland). On Glasgow and Renfrewshire Panels.

Dr. P. V. Fry, Sowerby Bridge. Treasurer of West Riding of Yorkshire Local Medical and Panel Committees. On West Riding and Halifax Panels.

Mr. P. Napier Jones, Crowthorne, Berks. Vice-Chairman of Berkshire Panel and Insurance Committees. On Berkshire Panel.

Dr. J. A. Macdonald, LL.D., Taunton. Chairman of Council of British Medical Association; Direct Representative on General Medical Council; Member of Advisory Committee; and Member of County of Somerset Local Medical, Panel, and Insurance Committees. On Somersetshire Panel.

Dr. J. Adams, Glasgow. Member of Advisory Committee; Member, late Chairman, of Glasgow Burgh Local Medical Committee; Member of Glasgow Burgh Panel and Insurance Committees. On Glasgow Burgh Panel.

Dr. J. S. Darling, Lurgan, co. Armagh. Member of Advisory Committee; Certifier under Insurance Act, in absence of Medical Benefit in Ireland.

Dr. John Divine, Hull. Honorary Secretary, Kingston-upon-Hull Local Medical and Panel Committees; and Member of Insurance Committee and Chairman Medical Benefit Subcommittee. On Kingston-upon-Hull County Borough Panel and East Riding County Panel.

Major A. C. Farquharson, Spennymoor, Durham. Member of Durham Local Medical and Panel Committees; Member of Insurance Committee. On Durham Panel.

Captain E. R. Fothergill, Hove, Sussex. Chairman of Brighton Local Medical and Panel Committees and Member of Insurance Committee. On Brighton and East Sussex Panels.

Mr. R. Harding, Radnor. Chairman and Honorary Secretary of Radnorshire Local Medical and Panel Committees; Chairman of Insurance Committee; Member of the Executive Committee of the Association of Welsh Insurance Committees. On Radnorshire and Herefordshire Panels.

Dr. J. Ratcliff-Gaylard, Birkenhead. Vice-Chairman, late Honorary Secretary, of Birkenhead Local Medical and Panel Committees; Vice-Chairman, Insurance Committee. On Birkenhead Panel.

Dr. T. H. Parkes Peers, London. On London Panel.

Dr. W. B. Crawford Treasure, Cardiff. Honorary Secretary of Cardiff Local Medical and Panel Committees; Member of Insurance Committee. On Cardiff Panel.

Dr. Major Greenwood, London. Member of London Local Medical and Panel Committees and Chairman of Panel Service Subcommittee of London Panel Committee. On London Panel.

Dr. Mabel L. Ramsay, Plymouth. Representative on Committee of Registered Medical Women's Associations; Member of Plymouth Panel Committee. On Plymouth Panel.

(2) *Members of Committee not on Panel but Engaged in Insurance Work.*

Sir Clifford Allbutt, K.C.B., M.D., F.R.S., Cambridge. President of British Medical Association. Member of Advisory Committee.

Mr. E. B. Turner, London. Chairman of Representative Meetings, British Medical Association. Member of Advisory Committee.

Dr. G. E. Haslip, London. Treasurer, British Medical Association. Non-panel Member of London Local Medical and Panel Committees.

Dr. J. Hunter, Corstorphine. Honorary Secretary, West Lothian Local Medical and Panel Committees. Medical Adviser to the Motherwell Insurance Committee.

Dr. W. Kingdon, London. Member (Non-panel) of London Panel Committee. Vice-Chairman of Panel Service Subcommittee.

Dr. B. A. Richmond, London. Secretary, London Local Medical and Panel Committees. Member of Insurance Committee. For two years had a large panel in an industrial neighbourhood.

(3) *Remaining Members of Committee.*

Dr. W. A. Hollis, Hove. Has been Member of the Committee since Session 1913–14, when he became an *ex officio* member as President of Association, and was afterwards appointed as one of the two representatives of non-panel practitioners.

Professor A. Bostock Hill, Birmingham. Representative of Society of Medical Officers of Health.

INQUIRIES BY THE INSURANCE COMMISSIONERS.

WALSALL.

We have received from the Insurance Commission, England, a communication dated December 9th, stating, with regard to an inquiry held at Walsall on September 18th and subsequent days, with reference to Dr. John Joseph Lynch, M.D., M.S., of Walsall, that the Commissioners being satisfied that his continuance on the medical list would be prejudicial to the efficiency of the medical service of the insured, they have accordingly, in pursuance of the provisions of Section 15 (2) (*b*) of the Insurance Act, 1911, and of the regulations made thereunder, removed his name from the list.

The communication from the Insurance Commissioners was accompanied by a report of the Inquiry Committee, from which it appears that the inquiry was held in consequence of two representations made, one by the Walsall Insurance Committee and one by the Walsall Local Medical Committee.

The following inferences may, in the opinion of the Inquiry Committee, be drawn from the facts established:

1. Dr. Lynch, as Chairman of the Walsall Insurance Committee and as a member of the Medical Benefits Subcommittee

and of the General Purposes Subcommittee, made an improper use of his position with the object of limiting the number of insured persons accepted for treatment by practitioners on the panel other than himself.

2. Dr. Lynch improperly took into his own hands the allocation of those insured persons who had not chosen and been accepted by a medical attendant and conducted the allocation with a view not to the efficiency of the medical service of insured persons but for his own private advantage.

3. Dr. Lynch endeavoured by improper means to stifle two complaints made against him by panel patients.

The Committee of Inquiry further reports that Dr. Lynch was not charged with any lack of care or skill in the treatment given by him to his panel patients, and no suggestion was made that any of his present panel patients had any reason to complain or were in fact complaining of him as their medical practitioner. During the course of the inquiry evidence was tendered on behalf of Dr. Lynch to the effect that his patients were satisfied with his attendance as panel doctor, but the Committee of Inquiry held that as no charge was made against him in this respect the evidence was not relevant and could not be received.

INQUIRY AS TO A CHEMIST.

We have received from the Insurance Commission, England, a communication dated November 29th, stating that, upon representations made by the Middlesex Insurance Committee and after holding an inquiry in the manner prescribed by the regulations, they are satisfied that the continuance of John Joseph Laws (trading as J. Evans), of 13, Turnham Green Terrace, Bedford Park, Chiswick, upon the list of persons, firms, and bodies corporate, entitled to supply drugs, medicines, and appliances to insured persons, would be prejudicial to the efficiency of the service, and they have accordingly directed, in pursuance of the provisions of Section 15 (5) (*b*) of the National Insurance Act, 1911, and the regulations made thereunder, that his name should be removed forthwith from the list.

The following inferences may, in the opinion of the Inquiry Committee, be drawn from the facts established:

(*a*) That the respondent made additions to prescriptions given by Dr. O'Neill and his locumtenent in nineteen cases out of a total of about 8,000. The Inquiry Committee is not disposed to attach great importance to this part of the complaint, as the pecuniary advantage to the respondent resulting from the addition was small, and the respondent may have believed the addition to have been intended by the doctor. It is obvious, however, that the practice is improper, and opens the door to abuses.

(*b*) That the respondent on several occasions dispensed on a prescription for "Rep." or "Rep. mist.," drugs not ordered on the prescription immediately preceding, or on any other prescription for the same patient. It is significant that the cost to the Insurance Committee of the drugs so dispensed by the respondent was in many cases considerably greater than the cost of the drugs intended by the doctor to be supplied to the patient.

The explanation put forward by the respondent that any mistakes of this nature were due to stress of business was not accepted by the Inquiry Committee as satisfactory.

(*c*) That the respondent showed great want of candour in inducing Dr. O'Neill to order from him the preparation of tinct. limonis co. (Schwartz) without disclosing that he was himself the proprietor and vendor of the preparation.

We have received through the Insurance Commission, England, a comunication dated December 16th enclosing a copy of a letter they had addressed to the Middlesex Insurance Committee.

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.,
December 9th, 1916.

Sir,—I am directed by the National Health Insurance Commission (England) to state that they have had under consideration the report of the Inquiry Committee constituted under Article 67 of the Medical Benefit Regulations to inquire into the case of Dr. Bernard Price O'Neill.

In view of the terms of the report of the Inquiry Committee the Commissioners are not satisfied that the continuance on the panel of Dr. O'Neill would be prejudicial to the efficiency of the medical service of the insured, and they have accordingly decided not to direct that his name be removed from the medical list.

In arriving at this decision the Commissioners have been influenced by the fact that Dr. O'Neill has already paid a large sum in connexion with the extravagant prescribing proved against him, and also that, as they understand, no further complaints have been made against the doctor since the date of those on which the present proceedings were founded. At the same time they desire to make it clear that they take a very serious view of Dr. O'Neill's conduct, and feel no doubt that the Insurance Committee were fully justified in demanding a full investigation.

I am, Sir, your obedient servant,
(Signed) R. W. HARRIS.

The Clerk,
Middlesex Insurance Committee,
13, Victoria Street, S.W.

INSURANCE COMMITTEES.

COUNTY OF LONDON.

Over-payments to Practitioners.—At the meeting of the London Insurance Committee on November 23rd Mr. P. ROCKLIFFE, the chairman of the Finance Subcommittee, stated, with regard to the overpayments to certain practitioners for 1914, that the amounts in question had now been recovered in the case of those practitioners who were still on the panel, but it had not been possible to recover sums overpaid to practitioners who had since withdrawn from the panel or had died. He thought that the widows of doctors who had received such overpayments should, if they had the means, repay the sums outstanding. Legal assistance was being obtained with a view to recover. He held it to be very important that in the future no payments should be made which left any possibility of loss to the approved societies. He gave an undertaking to make a further payment on account to the practitioners in respect to the last quarter of 1916, but such further payment, he said, must be of an amount which could not result in any further overpayments; in all probability it would amount to 5d. per insured person.

Administrative Expenses of Panel Committees.—The recent decision of the Treasury auditor disallowing the payments made for administrative expenses of the Panel and Pharmaceutical Committees was the subject of an urgency motion by Mr. WOOLCOCK, who said that its object was simply to secure the moral support of the Insurance Committee in an application to the Commissioners for an allocation wherewith to carry on the work of the Committees. It was opposed by several members, chiefly on the ground of procedure, the matter having already been debated, but was carried on the casting vote of the chairman, who had admitted it as a matter of urgency. Owing to what was described as the frivolous decision of the auditor, the treasurer of the Panel Committee had had to advance the sum of £500 to meet the current expenses of his Committee.

The Supply of Drugs.—The Committee considered the case of a practitioner who displayed a notice in his waiting-room to the effect that insured persons could have their medicines dispensed at the surgery on payment of a nominal charge. As he had declined to comply with a request to discontinue this practice the Committee endorsed the recommendation of the Subcommittee that he be required forthwith to withdraw the notice.

LOCAL MEDICAL AND PANEL COMMITTEES.

NORTHAMPTONSHIRE.

AT a combined meeting of the Northampton Town and County Panels on October 31st Dr. BRACKENBURY, Chairman of the Insurance Acts Committee of the British Medical Association, delivered an address, in the course of which he said that the great fight in the near future would be between the policies of an amplified and improved panel system and a State Medical Service on the side of which were powerful press and other influences, whilst on the other side the returning soldier would probably exert a powerful influence. It was evident that large numbers of soldiers were returning not enamoured of a State Medical Service. On the same side were the great majority of the medical practitioners in the country. These practitioners could speak with great force through the British Medical Association, and Dr. Brackenbury emphasized the great importance of all practitioners joining it. The Association with over 21,000 members was still overwhelmingly the most powerful organization in the profession and was organized in such a way that all interests were adequately represented. The position of rural practitioners had recently been considered and a Rural Practitioners' Subcommittee of the Insurance Acts Committee of the British Medical Association would shortly be formed. To it would be referred for report any matters specially affecting rural practitioners. Dr. Brackenbury also dwelt upon the extreme importance of panel practitioners reporting such irregularities as non-provision of

medical cards to insured persons, to the Insurance Acts Committee of the British Medical Association, either direct or through their panel Committee. Only in this way could the Committee judge of the magnitude of any irregularities and make out a good case to the Commissioners. Dr. Brackenbury said that he was convinced that the Commissioners were most anxious to deal fairly with panel doctors. On the question of finance the Commissioners had issued a most lucid and comprehensive memorandum (published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of October 14th). A careful study of this memorandum would well repay practitioners, and it was probable that the Commissioners would merely refer complainants or inquirers to certain paragraphs in that document.

On the conclusion of the address, questions were asked and replied to, and a hearty vote of thanks was accorded to Dr. Brackenbury.

At the annual meeting of the county panel held afterwards it was resolved:

That the proposed system of diagnosis and treatment of venereal diseases through existing charitable institutions be only supported on the definite understanding that any practitioner undertaking such work shall receive adequate remuneration for it.

INSURANCE NOTES.

CO-OPERATION WITH SECRETARIES OF APPROVED SOCIETIES.

THE British Medical Association was represented at a meeting of the Association of Approved Society Secretaries in London on December 21st, 1916, by Dr. H. G. Dain of Birmingham, who gave an address on the relation of the panel practitioner to the approved society secretary. Dr. Dain, on behalf of the British Medical Association, heartily reciprocated the desire of the Association of Approved Society Secretaries for a closer co-operation between the actual administrators of the Insurance Act, and instanced the various ways in which any causes of friction might be obviated.

The address was followed by an interesting discussion, in which the representatives of Approved Society Secretaries intimated their desire for a closer co-operation between the administrative officials and insurance practitioners, which they believed would be of a great advantage to the smooth working of the Act.

INSURANCE ACT IN PARLIAMENT.

PENSIONS TO SOLDIERS AND SAILORS.

ON December 21st Mr. Finney asked whether the Insurance Commissioners had received resolutions from friendly and approved societies protesting against the action of the Government in not paying adequate pension allowances to soldiers and sailors suffering from disease or disablement caused during the present war, and urging the Government to make full provision for such men from imperial funds instead of, as at present, throwing part of the burden on the funds of approved societies, which funds it was never intended should bear liabilities of such a character. Sir Edwin Cornwall, replying for the Insurance Commissioners, said that several representations had been received from approved societies with regard to the effect on their finances of disablement caused by the war, and the matter in all its aspects was receiving the most careful consideration.

Meetings of Branches and Divisions.

METROPOLITAN COUNTIES BRANCH:

SOUTH MIDDLESEX DIVISION.

A MEETING of the Division was held at St. John's Hospital, Twickenham, on October 29th, when Dr. W. H. HASLETT, Chairman, presided.

The HONORARY SECRETARY reported on matters dealt with since the annual meeting, including the proposed incorporation of the area of the Ealing Division with the South Middlesex Division, the chief reason for which was that as the Association was financing Local Medical War Committees, and there was no Division existent in Ealing, it was necessary that the Local War Committee's expenses should be paid through a neighbouring active Division. The new South Middlesex Division now comprises the following districts: Ealing, Acton, Brentford, Chiswick, Feltham, Greenford, Hampton, Hampton Wick, Hanwell, Hayes, Heston and Isleworth, Southall Norwood, Staines, Sunbury, Teddington, Twickenham, and Staines Rural District. The action of the Honorary Secretary was approved.

The death by accident in France of Dr. Strain, school medical officer for Heston and Isleworth, was reported. It was unanimously decided to send to Dr. Sidney Darke of Hounslow, who had been wounded, a letter of congratulation on receiving the Military Cross.

In the course of a discussion on the treatment of venereal diseases the CHAIRMAN, who is a member of the sub-committee of the Middlesex County Council dealing with the matter, was able to give valuable information. The recommendations of the Association were approved, and the Division promised co-operation in any scheme.

Association Notices.

CHANGES OF BOUNDARIES.

ADJUSTMENT OF AREAS OF MORPETH AND NORTH NORTHUMBERLAND DIVISIONS.

THE following change has been made in accordance with the Articles and By-laws and takes effect as from the date of publication of this notice:

That Rothbury U.D. and R.D. be transferred from the area of the Morpeth to that of the North Northumberland Division of the North of England Branch.

Representation in Representative Body.—Unaffected.

REPAIRS TO MOTOR CARS.

MR. JOYNSON-HICKS, M.P., chairman of the Automobile Association, etc., has been in communication with the Ministry of Munitions in regard to permits for the repair of motor vehicles, and has now received the following letter from the Ministry:

December 19th, 1916.

Dear Sir,

I am directed to refer to your correspondence and interview with me respecting the question of permits for repairs to motor vehicles. In order to simplify the arrangements for certain classes of users, you will be interested to know that the following arrangement has been decided upon:

Repairs may be executed and spare parts supplied to the total value of not more than £10, at any one time for any one vehicle under Priority Classification "B" without application to the Ministry of Munitions, where the order is accompanied by a declaration that the motor vehicle falls in one of the following classes:

1. Cars or motor cycles used by doctors, dentists, and veterinary surgeons exclusively for professional purposes.
2. Cars or motor cycles used by officers of H.M. Forces exclusively for carrying out their naval or military duties.
3. Motor vehicles of all kinds used exclusively for the collection and delivery of goods or for agricultural purposes.
4. Taxi-cabs and public service vehicles.

In all other cases repairs to motor vehicles must be carried out in Class "C" only. If a higher priority classification is desired, application stating fully the grounds of urgency, the firm with which the order is to be placed, and the extent of the work should be made to the Ministry of Munitions, Priority Branch, 1, Caxton Street, London, S.W.

I am, dear Sir, yours faithfully,

EDGAR R. JONES,
Priority Branch.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Temporary Surgeons C. A. Ellis, to the *Pembroke*, additional; J. D. Clarke, to the hospital ship *Magic II*; H. Mowat, M.D., and E. A. Green to the *Pembroke*, additional, for Chatham Hospital; H. Gilliland, M.B., K. W. I. Mackenzie, M.B., and R. B. Adams, to the *Victory*, additional, for Haslar Hospital; T. F. O. Donoghue, to the *Vivid*, additional, for Plymouth Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon F. H. Watson, M.B., to Dartmouth College.

ARMY MEDICAL SERVICE.

Colonel C. E. Faunce is retained on the active list.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. E. Winter is retained on the active list.

Major L. C. Parkes, M.D., R.A.M.C.(T.F.), to be temporary honorary Lieutenant-Colonel.

Temporary Major A. W. May, M.D., relinquishes his commission.

J. Baker, M.D., to be temporary honorary Major whilst employed at the Crowthorne War Hospital.

The name of temporary Captain William Hutchison, M.B., is as now described, and not as in the *London Gazette* of September 26th.

To be temporary Captains: A. K. H. Pollock, J. G. Taylor, M.D., F.R.C.P., W. G. Heasman, late Surgeon-Captain Royal Berkshire Regiment, S. E. Denyer, C.M.G., M.D., F.R.C.S., M. Murphy, late temporary Captain R.A.M.C.

H. P. Foulerton to be temporary honorary Captain whilst employed at the Crowthorne War Hospital.

Temporary Lieutenants to be temporary Captains: F. C. Drew, M.B., D. K. Parkes, M.B., W. Craig, M.B., J. F. Adamson, M.D., M. H. Cane, R. Paul, M.B., C. M. Roberts, M.B., J. Bain, M.B., H. Kirkland-Whittaker, M.D., J. G. Copland, M.B., A. G. Henderson, M.D., W. B. Walker, M.B., F. de C. Keogh, M.B., W. Gemmill, M.B., F.R.C.S.E., T. W. Melhuish, H. Whitehead, M.D., J. W. McDonald, M.B., P. Lornie, M.D., M. W. Baker, M.B., O. W. Bateman, C. S. Wynne, M.B., A. F. Laird, M.D., W. G. Silvester, W. Bannerman, M.B., H. P. Gibb, M.B., F.R.C.S., J. R. Craig, M.B., T. C. Harte, B. E. Spurgin, M.B., W. Stirling, M.B., J. G. Gray, R. H. Bremridge, R. H. Urwick, M.D., A. E. Fiddian, W. M. Penny, M.D., W. E. Barker, M.B., H. R. S. Walford, R. J. Vernon, M.B., A. J. Beadel, J. A. Lowry, M.D., A. Campbell, M.B., J. C. Padwick, A. W. Senior, W. W. Stacey, M.B., L. M. Smith, G. B. Buckley, P. Verdon, P. L. Moore, M.B., C. C. Twort, M.D., A. G. Peter, M.B., A. W. Wilcox, M.D., G. D. E. Tullis, M.B., W. Crabtree, M.B., J. W. Tocher, M.B., J. R. Rees, J. A. Marsden, W. J. Edgar, H. Hargreaves, M.B., A. Davidson, M.D., H. E. Dyson, M.D., F. P. Young, M.D., E. Hesterlow, M.B., A. L. McCreery, M.B., H. O. Gough, J. D. Cooke, M.B., F.R.C.S., G. H. Simpson, W. B. Tannahill, M.B., K. Pretty, M.B., T. S. Brook, J. A. Harper, M.C., M.B., C. H. Mossop, J. N. J. Hartley, M.B., F.R.C.S.E., B. P. Campbell, M.D., F.R.C.S.E., C. G. H. Campbell, M.B., C. B. Jones, M.B., R. Sinclair, M.B., M. W. Talbot, M.B., R. C. J. Stevens, M.B., F. W. Bartlett, P. Davies, M.B., C. Berry, F. H. Young, A. P. Fry, M.B., E. Purcell, R. C. Lowe, M.B., J. A. Venning, M.B., H. Mather, J. C. Wilson, M.B., J. C. Wadmore, G. B. Salmond, M.B., D. C. Adam, M.B., P. D. Scott, W. B. Loveless, G. Ellis, C. J. Pentland, M.D., T. J. Lloyd, M.B., V. K. Sadler, D. I. Anderson, M.B., W. T. Brown, M.B., E. R. Grieveson, M.B., W. J. Spearing, H. J. Keane, M.D., C. W. J. Dunlop, E. W. Kirk, M.B., B. M. Lang, M.B., R. C. Cooke, J. W. Harvey, R. S. Harvey, M.B.

Temporary Captains relinquish their commissions: J. D. Nicolas, G. E. Vilvandré, C. L. Graham, M.B., S. Jacob, F. W. Milne, M.D., H. Mowat, M.D., C. Weller, T. S. G. Martin, C. Powell, M.B., G. Norman, M.B., A. E. Cotterill, J. McManus, S. McM. McLay, M.B., A. L. McLean, M.D., A. T. Smith, M.D., W. P. H. Munden, M.D., T. Grimson, M.B.

Temporary Lieutenants relinquish their commissions: H. A. Jones, M.D., J. G. Cunningham, M.B., A. W. Nixon, M.D., A. B. Tucker, M.B., F.R.C.S., J. J. MacRitchie, M.D., J. J. Hamelin, M.D., E. S. Bissell, M.D., A. B. Moffat, M.B., V. E. Cartwright, M.B., A. B. Roberts, H. B. Stacpoole, M.B., G. W. Carleton, M.B., E. F. Nivin, L. M. Morton, J. B. Wilman, F. H. Lawson, T. McG. Fletcher, M.B., S. Simons, A. L. Vaughan, D. J. Guthrie, M.D., F.R.C.S.E., A. W. S. McComiskey, M.B., P. J. Verrall, M.B., F.R.C.S., J. T. Reardon, J. Honeyford, M.D., F.R.C.S.E., R. T. MacLaren, M.D., W. E. Plummer, R. Roberts, A. B. Pugh, J. R. Elwood, H. F. Williams, F. W. Daniels, F.R.C.S., E. Sutcliffe, J. Unsworth, M.B., R. B. Austin, M.B., S. B. Legge, M.D., H. P. Thompson, M.D., F.R.C.S.E., G. C. McIntyre, M.B., M. H. Embree, M.B., C. L. Gass, M.D., W. W. Cruise, M.B.

INDIAN MEDICAL SERVICE.

The services of the undermentioned officers have been placed permanently at the disposal of the Government of Madras, with effect from the dates noted against their names: Major E. A. Roberts (January 27th, 1916); Captain J. M. Skinner, M.B. (January 29th, 1916); Major J. Kirkwood, M.D., F.R.C.S.E. (February 10th, 1916); Captain A. P. C. Lorimer, M.B. (April 10th, 1916); Major E. C. C. Maunsell, M.D. (April 27th, 1916).

Lieutenant-Colonel R. C. Macwatt to be an Agency Surgeon of the 1st class substantively and provisionally, with effect from September 21st, 1914.

Major F. E. Wilson to be an Agency Surgeon of the 2nd class substantively and provisionally, with effect from February 13th, 1915.

Major McPherson to be an Agency Surgeon of the 2nd class substantively and provisionally, with effect from December 19th, 1915.

Major F. D. S. Fayrer has been confirmed as an Agency Surgeon of the 2nd class, with effect from August 25rd, 1916.

Major E. C. Taylor to be an Agency Surgeon of the 2nd class substantively and provisionally, with effect from August 25rd, 1916.

To be Lieutenants: I. D. Grant, M.B., and A. H. Brown, M.B. (October 20th, 1915). E. Cotter, M.B., and H. E. Murray, M.B. (December 4th, 1915).

To be Colonel: Lieutenant-Colonel W. E. Jennings, M.D., vice Colonel B. B. Grayfoot, C.B., M.D., deceased, with effect from October 1st, 1916. Colonel Jennings's tenure of appointment will reckon from October 26th, 1916.

Granted the temporary rank of Colonel while holding the appointment of Assistant Director Medical Services of a division: Lieutenant-Colonel C. S. C. Wimberley (July 18th); Lieutenant-Colonel G. B. Irvine (June 6th).

Colonel E. J. Macnamara has been placed on the retired list (November 11th).

Brevet Colonel H. F. Cleveland, V.H.S., has been appointed to be Deputy Director General, Indian Medical Service, substantively *pro tempore* (November 1st).

Lieutenant-Colonel T. W. Irvine, M.B., has been advanced to the higher position of his rank with effect from October 1st.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenant J. E. Cheesman, from the R.A.M.C., to be Captain.

William Yeoman, from University of London Contingent O.T.C., to be Lieutenant.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captains (temporary Majors) S. C. Rutherford, M.B., F.R.C.S., and T. A. Green, M.D., and Captain C. L. Maurice, to be temporary Lieutenant-Colonels whilst commanding a field ambulance.

Majors J. M. B. Sloss, M.B., and P. R. Ash to be temporary Lieutenant-Colonels whilst commanding a field ambulance.

Lieutenants to be Captains: W. Carlton, M.B., V. J. Ellwood, M.B.

General Hospitals attached: V. W. Lees, C.B., M.D., F.R.C.S., is promoted to this establishment.

Auxiliary Hospitals: Lieutenant N. Gebbie, M.B., to be Captain.

Attached to Units other than Medical Units.—Captain R. Paterson relinquishes his commission on account of ill health, and is granted permission to retain his rank and wear the prescribed uniform. (Substituted for notice in the *London Gazette* of August 24th.)

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLTON UNION.—Resident Assistant Medical Officer for the Fishpool Institution, Farnworth. Salary, £383 5s. per annum.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Fourth Year Student Dresser. Salary at the rate of 52 guineas per annum.

CHELSEA HOSPITAL FOR WOMEN, S.W.—House-Surgeon. Salary, £80 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Two House-Surgeons; (2) Assistant Casualty Medical Officer; (3) House-Physician. Salary, £60 per annum and £5 washing allowance.

LEEDS HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officer for the Tuberculosis Wards. Salary, £250 per annum.

LEICESTER CORPORATION.—Resident Medical Officer for the Isolation Hospital and Sanatorium. Salary, £250 per annum.

LONDON HOMOEOPATHIC HOSPITAL, Great Ormond Street, W.C.—Two Resident Medical Officers. Salary, £80 per annum.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

NORTHAMPTONSHIRE WAR HOSPITAL.—Resident Medical Officer. Salary, £1 per day.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—Lady House-Surgeon.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) Temporary Assistant Physician; (2) House-Surgeon; (3) House-Physician. Salary, £100 per annum for (2) and (3).

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

ST. GEORGE'S HOSPITAL, S.W.—Obstetric Assistant. Salary, £100 per annum.

SUNDERLAND EDUCATION COMMITTEE.—Temporary School Medical Officer (Woman). Salary, £300 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

HANDLEY, William Sampson, M.S.Lond., F.R.C.S., Surgeon to Middlesex Hospital.

SOLLY, R. V., M.D.Lond., F.R.C.S., Consulting Surgeon to the Exeter Dispensary.

THORNTON, C. E., M.B., B.S.Lond., Assistant Medical Officer of the St. James's Infirmary of the Wandsworth Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

LAPAGE.—On December 9th, at 194, Wilmslow Road, Withington, Manchester, the wife of C. P. Lapage, M.D., Captain R.A.M.C.(T.) (*à la suite*), of a son.

RAYNER.—On December 19th, at 33, Parsonage Road, Withington, Manchester, the wife of H. H. Rayner, M.B., Ch.B.Vict., F.R.C.S. Eng., Captain R.A.M.C.(T.), of a son.

WATT.—At 59, East Dulwich Road, London, S.E., on December 19th, to Dr. and Mrs. Mitchell Watt, a son.

DEATH.

BLANDFORD.—December 23rd, 1916, at The Manor, Norton, Stockton-on-Tees, Dr. J. W. Blandford, J.P., honorary Colonel R.A.M.C., aged 69. Interment at Norton Church, Tuesday, December 26th, leaving residence 11.45 a.m.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY, 1917.
2	Tues.	London: Propaganda Subcommittee, 3.15 p.m.
		London: Hospitals Committee, 2.30 p.m.
3	Wed.	London: Journal Committee, 2 p.m.
5	Fri.	London: Central Ethical Subcommittee, 2.30 p.m.
6	Sat.	Scottish Committee, North British Station Hotel, Edinburgh, 2.30 p.m.
8	Mon.	London: Naval and Military Committee, 3.30 p.m.
9	Tues.	London: Organization Committee, 2.15 p.m.
10	Wed.	London: Medico-Political Committee.
11	Thur.	London: Insurance Acts Committee.
17	Wed.	London: Finance Committee, 2 p.m.
24	Wed.	London: Council Meeting.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

OF

Current Medical Literature.

JULY TO DECEMBER, 1916.

London:

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

INDEX TO THE EPITOME FOR VOLUME II, 1916.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Eye, Ophthalmia, and Vision, etc.

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AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

1. Heart Affections in Soldiers.

SCHOTT (*Muench. med. Woch.*, No. 20, 1916) has seen anomalous conditions of the circulation in men on active service differing from the symptom complex observed in soldiers of the same age in time of peace. It was very difficult to determine how many of the men sent to the front were entirely free from any affection of the heart. The symptomatology of patients in the war zone is very different from that seen in hospitals in the interior. The number of recent valvular lesions produced by endocardiac processes was very small; this might be due to the rarity of articular rheumatism and to the fact that only in a few cases were muscular rheumatism and gonorrhoea the cause of an inflammatory process. The same remark held good as regards infectious diseases such as dysentery, enteric, and tetanus. Schott says it was wonderful to see what immense fatigue soldiers with well compensated valvular defects could endure for weeks on end. Fatigue, violent emotion, or privation, like wounds followed by serious haemorrhage, might sometimes cause disturbances of compensation. The largest number of affections of the heart muscle were dependent on physical effort and psychical excitement, but those forms were very different from those usually observed in time of peace. Whereas in normal times excessive action of the heart almost invariably caused dilatation of the left ventricle, and a systolic murmur, if present, was perceptible at the apex, in soldiers, on the other hand, there was dilatation of one or other or both ventricles; and even in the absence of any trace of anaemia there was a systolic murmur perceptible over the whole cardiac area. Percussion and radioscopy showed lengthening and narrowing of the aorta. Sometimes there could be heard in the left chest a diffuse diastolic murmur, very rarely the *bruit de galop;* the pulse was small, easily compressible, intermittent or irregular. The blood pressure, which was at first low, gradually increased to normal. Similar symptoms were noted in strong and healthy men with well-developed chests who had undergone great fatigue, with insufficient food and mental anxiety; there were also disturbances of the general nervous system—sleeplessness, exaggerated reflexes, various neuralgias, hemicrania. In these cases a systolic murmur could often be heard at the apex, spreading to the left chest and having the character of a true muscular murmur. There was also some elevation of temperature. Often the second sound was accentuated at the apex; in other cases it was extrasystolic, with a small, irregular pulse. In men who had suffered from scarlatina, enteric, diphtheria, but not from nephritis, albumin with granular or hyaline casts was found in the urine. As a rule, under suitable treatment the cardiac function became normal and the men could be sent back to duty. Cardiac neurosis was very common in unwounded as well as in wounded men. The most frequent symptoms were palpitation with tachycardia due to fatigue, to the abuse of alcohol—but this, Schott says, was exceptional—most of all to tobacco; the giving up of smoking was very often sufficient to cause disappearance of all symptoms. Sometimes cardiac disturbance was caused by the use of kola tabloids taken to obviate the effects of fatigue; pain in the precordial region or the left chest, or in one or other arm or in the back, was sometimes, but not often, complained of. In considering the etiology, neurasthenia must be taken into account; this often had existed before the war, especially in officers, owing to mental excitement and the sense of heavy responsibility, want of sleep, and the abuse of stimulants. If such conditions persisted long, symptoms of general debility and heart weakness supervened. Graves's disease was very rare; atypical forms attributable to excitement were more frequent. In these patients dermographism was never absent; Schott says this symptom was extraordinarily frequent in soldiers suffering from other affections of the heart. Cardiac disturbances due to wounds of the thorax deserve special attention. As a rule under asepsis these wounds get well so quickly and so thoroughly that the heart is not affected. If the track of the wound is in the immediate neighbourhood of that organ diagnostic difficulties may be due to pleural or pericardial inflammation or adhesions to the heart or the nearest part of the thoracic wall, causing murmurs that may be confused with those due to valvular defect. In such cases changes following difference of position and the effect of inspiration and expiration throw light on the condition. The state of men with haemothorax following gunshot or bayonet wounds was very serious. In some cases of copious bleeding, displacement of the heart—in one case the apex beat was felt 8½ to 9 cm. to the right of the middle line—gave rise to the fear of collapse, which was almost always fatal. When the bleeding was slight there was no reaction, and the men were soon able to return to duty. Arterio-sclerosis from fatigue was extraordinarily rare; such cases were almost always due to syphilis, to grave intercurrent disease, or to the abuse of tobacco or alcohol. The prognosis of disturbances of the muscular and nervous apparatus of the heart due to the fatigues and privations of active service is almost always favourable. The treatment of circulatory disturbance in wounded men depends on the nature of the injury. Unwounded men should be put on strengthening, easily-digestible diet, combined with the administration of digitalis, strophanthus, and mild hypnotics. For nervous disorder, valerian and bromides should be employed; if the urine is scanty, salts of theobromine and theocine are beneficial; complete repose of mind and body, with abstinence from tobacco, is necessary for some time. Alcohol should be forbidden or allowed in strict moderation. Psycho-therapy is a useful adjuvant. The cardiac condition can be improved by graduated walking exercise, first on level, afterwards on sloping ground, and by systematic gymnastics, all effort being avoided. Before men are sent back to duty they should be assured that their heart can bear the strain of work without damage.

2. War Nephritis.

AMEUILLE, PARISOT, and TISSIER, of Nevers (*Journ. de méd. et de chir. prat.*, June 10th, 1916), in a communication to the Société Médicale des Hôpitaux described conditions which might be considered as war nephritis. The hepatic complications were so pronounced that the cases were looked upon as examples of infectious jaundice with renal complications. Examination, however, proved that in some fatal cases the kidney was in reality much more affected than the liver. The liver was painful and enlarged for some days; the jaundice was variable, but as a rule moderate in intensity. There was considerable albuminuria; it was accompanied by uraemic symptoms, headache, vomiting, and occasionally convulsions. The albuminuria was the last symptom to disappear. The clinical picture was that of a general infection, and if there was predominance of renal and hepatic symptoms this was because the patients were mostly alcoholic subjects who had been exposed to the various sources of infection arising from the conditions of service in the field.

PETGES and PEYRI reported to the Réunion médico-chirurgicale de la Ve Armée on February 19th, 1916 (*Journ. de méd. de Bordeaux*, June, 1916), a number of cases of nephritis presenting special features, with an evolution differing from that of the classic types. The characters are: Massive albuminuria of 7 to 8 grams per litre in an average output of 75 centilitres a day in soldiers of all ages; no great oedema or anasarca; slight headache and feverishness lasting one or two days, lassitude, pain in the loins, tenderness in the renal region on bimanual palpation; *bruit de galop* in two cases, slight dyspnoea in one case; there was no loss of appetite, and it was difficult to make the patients remain in bed and to keep them to milk diet. After five to eight days in bed, with suitable diet and blisters to the loins, there was abatement of all the symptoms: the albuminuria diminished rapidly, till about the third or fourth week it reached 0.25 gram per litre, by which time the amount of urine had become normal. The immediate prognosis is favourable. The etiology is uncertain. Secondary syphilis, amyloid kidney

and other causes could be excluded, and there was no history of previous acute infectious disease. The authors attribute these abnormal forms of nephritis to latent microbic infection; other causes are the conditions of life in the trenches, an excessive flesh diet and the prolonged use of tinned food, the kidney being attacked as the result of fatigue, the erect position, wet, and especially long exposure to cold. Antityphoid inoculation could not be regarded as a factor, as in two of the worst cases the patients had not been subjected to the procedure, and the disease occurred in the Crimea and elsewhere when that means of prevention was unknown. The authors conclude that in the case of all soldiers who present themselves for the regulation medical inspections complaining of fatigue and general indisposition, even where there is no notable amount of oedema, the urine should be examined. This should also be done before antityphoid inoculation is carried out, as if this does not cause nephritis it may aggravate it.

3. Diagnosis of Human Glanders by Blood Culture.

Kostrzewski (*Centralbl. f. Bakt.*, vol. 77, p. 418, 1916) has drawn attention to the possible diagnostic value of blood culture in glanders. A soldier was attacked by fever and joint pains and had a painless swelling over the upper part of the sternum, which was incised, and yielded a small amount of thick yellowish-brown pus. After twelve days of illness multiple hard subcutaneous nodules developed. Pus obtained from these showed scanty bacilli on microscopic examination, but cultures remained sterile, and intraperitoneal inoculation into guinea-pigs yielded negative results; at the same time the culture in 8 c.cm. of the blood in 50 c.cm. bouillon yielded a growth of *B. mallei*. Later there appeared the characteristic papules turning into pustules, and death occurred with the clinical phenomena of acute glanders infection after a duration of seventeen days. The negative findings with the pus while the blood culture gave a positive result exemplify the important information which may be obtained from this procedure in cases of generalized infection.

SURGERY.

4. Wounds of Chest.

Marcel Maillet (*Annales de méd.*, March–April, 1916) reports a series of 122 cases of wound of the chest; 51 were caused by bullet, 70 by other projectiles, 1 by the bayonet. Of the whole number 28 died; 8 of these were after bullet wounds, and 20 after artillery wounds. Of the deaths by bullet, 4 occurred within twenty-four hours of the wound either from haemorrhage or from concomitant abdominal symptoms. Of the 20 deaths from artillery wounds, 16 occurred within twenty-four hours from haemorrhage, one within thirty-six hours from haemopericardium, one on the third day in a man whose condition was hopeless on admission, one on the eighth day as the result of a sero-sanguineous flow from the wound which could not be stopped, one on the twenty-fifth day from malignant pericarditis and septicaemia. In the whole number of cases surgical intervention was made eight times. Of four of these in which the wounds were caused by artillery there was in one obstinate haemoptysis for which artificial pneumothorax was done with the happiest results; in another case there was gangrene of the lung; in a third purulent pleurisy came on late as the consequence of a subcutaneous abscess with caries of ribs; in the last case there was a large projectile in the mediastinum. In the bullet wounds intervention was necessary in four cases: in one for pyohaemothorax secondary to a hernia of the lung with fistula; in another for purulent encysted pleurisy secondary to a fistula; in another for a large laceration of the skin with smashing of the ribs and lesions of the dome of the liver; in the fourth for an effusion which had been left to itself and had become purulent. Maillet's observations confirm the opinion generally held that the mortality from artillery wounds is distinctly higher than that from bullets. In most cases death occurs very quickly from sudden haemorrhage. It is this that has given rise to the notion among regimental surgeons that chest wounds are particularly formidable. At the ambulance, on the other hand, when haemorrhage stops, or the wounded men can bear some loss of blood, the course is generally favourable. In a general way Maillet says his cases have led him to recognize four clinical forms: a congestive process, pure pneumothorax, pure haemothorax, and pneumohaemothorax. The congestive forms and pneumohaemothorax are the most frequent. Of immediate complications the most formidable is haemorrhage, but an uncontrollable sero-sanguineous discharge is a symptom of extreme gravity. Among early complications the most serious is passive persistent congestion of the parenchyma of the lung with pleural thickening. The presence of lesions of bone plays a very important part in the evolution and duration of the pleuro-pulmonary lesion. Suppuration of the haemothorax is exceptional. The effusion should be evacuated by systematic exploratory punctures; this obviates suppuration and later pleurocostomy is unnecessary; moreover, it favours the more rapid return of pulmonary permeability. Immobilization is the capital point in the treatment; it should be secured early and continued long. The usual measures are to be taken against shock, cardiac weakness, cough, and dyspnoea. When the wounded man has bled profusely, surgical intervention seems to be contraindicated. Maillet found ergotine, calcium chloride, and especially haematopoietic horse serum, useful; when there was pronounced anaemia with cardiac asthenia he employed simple physiological serum either alone or with the addition of caffeine or adrenaline. He systematically gave injections of emetine hydrochlorate, 4 cg. per cubic centimetre, repeated in increasing doses according to indications. Its action appeared to be very favourable, especially in haemoptysis. In one case, where haemoptysis was obstinate and repeated, the author, on the advice of Tuffier, performed an artificial pneumothorax; this quickly gave the best results. In congestive forms Maillet gave small daily doses of quinine hydrochlorate for twelve or fifteen days on the average; together with this he administered during several days small doses of emetine. In these forms more than in any other the slightest chill must be avoided. This is a primary precaution in all cases, and Maillet has in two cases seen a simple change of ward bring on serious congestive attacks. As regards effusion, if puncture cannot be done, he suggests that to avoid suppuration recourse might be had to injections into the pleural cavity of 10 c.cm. of a 5 per cent. solution of methylene blue repeated every day or every two days. When there are extensive lacerations with lesions of bone the wound should be freely opened up, the splinters removed, and the bone curetted as soon as possible.

Captain J. L. Menzies, R.A.M.C., in reporting his observations on a series of 75 cases of gunshot wound of the chest (*British Journ. of Surg.*, April, 1916), says the experience of military surgeons in the present war serves to confirm the observations in South Africa that the modern high-velocity, hard-jacketed rifle bullet can pass through almost any part of the lung, probably sometimes through the heart, without killing the patient. The actual site of penetration is undoubtedly of importance on the field, as many die soon after injury to the root of the lung and large vessels, but in those who recover sufficiently to be removed to a base hospital recovery is little affected by the site of the wound. A very noticeable feature is the rapid recovery where there is no destruction of the chest wall compared with the high mortality in cases with an open wound on arrival at the base. When the chest wall and the contained viscera are penetrated the symptoms in their order of frequency are pain, shock, dyspnoea, and haemoptysis; all these occur at the time of the injury or soon after, and are referable in the first place to damage to lung tissue, and secondly, to the resulting escape of blood or air into the pleural cavity. Pain is seldom very acute. Shock may be severe, resulting at times in collapse and loss of consciousness. A few men were able to walk after receiving a penetrating wound of the chest, but this was exceptional. Dyspnoea is almost always present immediately after the injury, and the distress in breathing is generally so great that the man appears to be choking. It is most noticeable in cases where there is a large sudden effusion of blood or escape of air into the pleura. As a rule, the dyspnoea improves after twelve to twenty-four hours, when the lungs become accustomed to the unusual condition. Haemoptysis occurs in the majority of cases either immediately after the injury or some hours later. It is seldom very severe, and generally lasts two to three days, but clots may be brought up for a week or longer. On admission to the base hospital the earlier symptoms have disappeared, and those then present depend on whether there is effusion or not, and whether the effusion is septic or sterile. The most prominent symptoms are dyspnoea and pyrexia. On admission, the temperature in the majority of cases was 100° or 101°, sometimes 103° or 104°; it became normal in about ten to fourteen days in sterile cases. Of the 75 cases, 56 were wounded by rifle bullets, and 19 by shrapnel or bombs; the latter wounds were most severe as a rule. A large proportion

of projectiles were retained in the chest. This was the case on admission in 35 instances—26 bullets and 9 pieces of shrapnel; 4 rifle and 4 shrapnel bullets were extracted from the chest wall or the pleural cavity, and 27 patients were discharged from hospital with the projectile still retained and apparently causing no symptoms. The presence or absence of the missile seems to make little difference in respect to recovery. Of the entire series of 75 cases, only 5 had no pleural effusion. The author divides the cases into two classes: *A*. Those with penetrating wounds which were healed or healing at the time of admission. This class may be subdivided as follows: (1) Those with haemothorax; (*a*) sterile, (*b*) infected—(i) from without, (ii) from within; (2) those without haemothorax. *B*. Those with penetrating wounds opening into the pleural cavity at the time of admission. In this class all had empyema on the side of the injury. The first class includes the larger proportion of the cases, and the prognosis is much more favourable. There were 67 cases in this class—66 recovered and 1 died of sepsis. In most there was a larger or smaller effusion of blood into the pleural cavity. The great majority of the effusions were bacteriologically sterile, and consisted generally of brownish liquid blood. In cases which were aspirated, this blood generally clotted in the vessel after being drawn off. In the second class the wounds were much more severe, and there was great destruction of the chest wall. The mortality was very high. All the patients were very ill and septic on admission; all had pyohaemopneumothorax, and drainage of the empyema did not give much relief. There were 8 of these cases, with 7 deaths. Only one case recovered where the pleura was perforated at the time of admission, and where air entered the pleural cavity with respiration. The period that elapsed between the time of injury and death varied from ten to twenty-one days. *Post-mortem* examination showed in all cases extensive laceration of the lung, generally with a lung abscess spreading from the bullet track. Abscess of the mediastinum was observed in two cases. Of the whole series of 75 cases, 67 recovered and 8 died. Sepsis was the only cause of death. All had been moved from the firing line to the base by hospital ship immediately after the injury, and no untoward results from early removal were noted. Of the 5 cases with no effusion into the pleural cavity, all recovered completely without special treatment. In 70 cases effusion of blood occurred; in 49 of these the effused blood was bacteriologically sterile and all recovered; in 11 there was early or mild infection, and all recovered; the remaining 10 had a considerable amount of pus in the pleural cavity, with septic absorption, and 8 of these died of sepsis. As regards treatment, Menzies says at the time of injury morphine may be given and any bleeding from intercostal arteries should be arrested. As a rule no further treatment is required beyond keeping the patient quiet. Haemoptysis ceases spontaneously in nearly all cases. On admission, when there is no effusion into the pleura, no special treatment is necessary and recovery is rapid. When there is effusion, the chest should be explored and the fluid examined bacteriologically. When sterile it is always advisable to aspirate in cases where the effusion is large, with marked dyspnoea and great displacement of the mediastinum. When the effusion is not large the fluid may be aspirated or left alone, but in that case recovery is rather slower. Of the 49 cases of sterile haemothorax 16 were aspirated and 33 were not. All were discharged well in four to six weeks, but in both series there remained some impairment of note over the base on the side of the effusion. When a haemothorax is infected it should be aspirated or drained early. Resection of a portion of rib and drainage by tube gave most satisfactory results. Of 5 cases in which fluid was aspirated resection of a rib was performed later in 4. Of 11 cases of infected haemothorax 10 had a portion of rib resected; all recovered. When there is pus the pleura should be drained as soon as possible by resection of rib and the insertion of a large drainage tube. Where there is a large empyema cavity, weak iodine body baths are beneficial, or gentle lavage of the pleural cavity without pressure may be employed. There were 10 cases of pyothorax: 8 were associated with open wounds, with 7 deaths; 2 with closed wounds, with one death. In the majority of cases recovery was uninterrupted, although signs of fluid persisted for a long time after the patients were apparently well. It was found useful to get them up early, even before the temperature was quite normal, and to make them practise gentle exercises and breathing exercises. With regard to the after-history, Menzies thinks that in all cases the pleura must be much thickened, and there will be numerous adhesions binding down the lung and impairment of its movement, giving rise to shortness of breath and fatigue on exertion.

5. Flapless Amputation.

M. FITZMAURICE-KELLY (*British Journ. of Surg.*, April, 1916) says flapless amputation has had a curious fate: approval almost unanimous from those at the front, and obloquy almost universal from those at home. When he first arrived in France cases reached the base hospital with large segments of the limb, often above the elbow or knee, in a totally gangrenous condition, and a large area of the limb above was hard and brawny, with the typical brown discoloration frequently extending to the trunk. The condition is seldom seen now, thanks to the work of the clearing hospitals. It appeared to him that the method which gave the best chance of life was that in which the nutrition was not cut off by the undermining of flaps. After sixteen months' further experience he regards gas gangrene as an absolute indication for flapless amputation; he also uses the method in certain cases of compound comminuted fracture and multiple wounds. In gas gangrene often no healthy skin is left in the limb, and experience has shown that flaps cut from the threatened tissue almost invariably slough and become the starting point of a further spreading infection. If, on the other hand, an amputation is done close to the edge of the gangrenous parts recovery of the threatened tissue is the rule, and life is saved with a maximum economy of the limb. In gangrene reaching to just below the knee a flap amputation, to be safe, must be through the middle or upper third of the thigh. If, however, the skin can be divided just below the knee and the bone sawn just below the tubercle of the tibia there is little retraction of the skin, since the quadriceps and hamstrings are intact and there is ample material for a transcondylar amputation later. Similarly at the hip-joint, a transverse amputation often saves the situation, while the mortality of disarticulation is such as to make it almost unjustifiable. At the shoulder it can be used as a first stage of a shoulder-joint amputation when immediate disarticulation would be much more risky. In regard to compound comminuted fracture it is pointed out that, in the cases that have to be dealt with in peace time, the protruding bone may be infected, but the infection is usually not severe, and is strictly localized. In gunshot fracture, on the other hand, a piece of metal enters the limb, carrying with it pieces of clothing coated with mud from a highly manured soil. It strikes the bone with explosive violence, widely lacerating the soft tissues, while the exit wound is an enormous rent made by pieces of bone as well as the projectile; all this area of broken bone and lacerated tissue and blood-clot, perhaps as large as a cocoanut, is at once and irretrievably infected with anaërobic and pyogenic organisms. When local cleaning and free drainage fail, a flapless amputation at or just above the site of fracture is the best treatment, for an open transverse division of the tissue, with the removal of bone fragments, realizes the ideal of perfect drainage. It may even be advisable to divide the tissues below the highest point of the fracture and remove the loose pieces from the stump. As regards multiple wounds, which are very often caused by bombs, it frequently happens that a hand or a foot is mangled almost beyond recognition and that the rest of the limb is literally peppered with fragments, every one of which causes a septic wound. Here a simple transverse section of the limb and cleaning up of the septic face with a view to subsequent regularization of the stump is obviously the best course. Flapless amputation, it is pointed out, is designed to meet new difficulties and dangers, and, although it has certain drawbacks (which it shares with the classic method), it has solid advantages. These are: (1) That it saves life. (2) That it saves length of limb. The burden of the charges brought against the method is that the necessity of a second amputation needlessly sacrifices length of limb, but the author points out that the skin is divided lower than any operator would dare make the lowest point of his flaps and any subsequent retraction can be counteracted by extension. (3) That the risk of secondary haemorrhage is lessened. Fitzmaurice-Kelly says that, as far as his experience goes, secondary haemorrhage is not only lessened, but prevented. In flap operations, especially where stitches have been used, it is common, even in cases where the wound appears fairly clean or at any rate is not suppurating freely. Fitzmaurice-Kelly believes that the recrudescence of secondary haemorrhage in this war is due to infection with organisms differing from those in the common wound infection of civil practice. (4) That it arrests the spread of infection, whereas in flap amputations sepsis often recurs in the flap and spreads up from their base. (5) That it is practicable where no other method is possible. The following is his method of operating: The skin and deep fascia are divided

usually in circular fashion, but sometimes more skin can be gained by making the incision oblique. After retraction has occurred the muscles are divided at the level of the retracted skin, not too quickly so as to allow retraction of the layers. Then the bone is sawn flush with the muscle, vessels are secured, and nerves carefully shortened. The surface is slightly concave at first, but soon becomes convex from further retraction. Once the face is fairly clean this is easily overcome by extension. For this the following device, suggested by C. W. G. Bryan, is said to be the best. Strips of strapping are laid up the limb to the joint above, fixed with circular bands, and then carried down to a large ring of malleable aluminium, to which a weight extension is attached. The apparatus is very like the horn of a gramophone, and in the middle the stump is easily accessible for dressing. It is rarely necessary to do more than remove a length of bone with a Gigli's saw. The drawbacks of flapless amputation are: (1) The necessity for a second amputation; the author holds that this is amply compensated for by counter advantages. (2) The waste of limb through a second amputation. This he denies utterly. A flap amputation almost always results in loss of length; sloughing of the flaps frequently reduces them to what is practically a flapless amputation higher up the limb. (3) The danger to the patient of a long and painful convalescence due to the open granulating surfaces. The author holds that to sew up flaps is to court disaster; to leave them open means an even larger granulating surface. (4) The risk of sepsis when the secondary amputation has to be done without waiting for complete healing. To this the reply is that the sepsis in an open granulating surface is less virulent than the infections that have to be dealt with, and the argument tells still more strongly against a flap amputation at an early stage. (5) The prevalence of ascending neuritis. Of this Fitzmaurice-Kelly has no experience, but he says that probably it could be avoided by a proper shortening of the nerve.

6. Bullet Extraction under the Direct Guidance of X Rays.

Barclay (*Arch. Radiology and Electrotherapy*, April, 1916) describes his method of bullet extraction under the direct guidance of *x* rays. His aim was to devise an instrument that would find its way down to the foreign body without cutting (save for the primary skin incision); that would dilate the passage through which the foreign body could be removed: that would be sufficiently powerful to grip it; that would allow a clear view on the fluorescent screen of what was happening at the points; and that could combine some electrical contrivance to take the place of the tactile sense. For this purpose he uses a forceps one of the blades of which is a little longer than the other, and finished as a blunt dissector so as to be capable of finding its way down through muscle and fibrous tissue with comparatively little disturbance beyond the separation of the fibres. The prongs of the forceps, which are so fashioned as to make a firm grip on round or rough pieces, are at right angles to the handles, so that the hands are not in the way of the view. By means of electrical connexions and a careful system of insulation, it is arranged that when both prongs touch the foreign body an electric bell is rung, the wires to the bell circuit being attached to the handle of the forceps. Then, while the bell is ringing, the blades are opened until one sees on the screen that the bullet is enclosed and held by the forceps. Another pair of forceps, of the mouth-gag type, is made to act as a retractor, with a pair of blades whose ends are able to sheath half round the prongs of the extracting forceps. Ordinary localization and skin marking are carried out before operation. An incision is made down to the fascia and exactly over the shadow, the prongs are inserted, and the lights turned off. With the occasional guidance of the rays, and frequent dilatation of the prongs, a way is made down to the right side of the bullet until the bell rings. Then the foreign body is freed all down first one side and then the other, the bell ringing while the right side is being freed; and the appropriate part of the foreign body to lay hold of having been selected, the prongs are opened until seen to be sufficiently extended to embrace when pressed down. The author gives particulars of 14 cases in which the method has been tried, and points out that its obvious advantage is that only a comparatively slight track is made, and very little damage is done. As to the respective functions of the surgeon and the radiologist, he suggests that for the simpler cases a house surgeon might make an incision and close the wound, the radiologist extracting the bullet; while in difficult cases, involving perhaps exposure of the subclavian artery, or removal of a portion of rib or a portion of the skull, this could be done by the surgeon, the radiologist adjusting his beam of rays so as to carry out the extraction from such a position as is indicated by the surgeon as being free from danger.

THERAPEUTICS.

7. Local Treatment of Nerve Lesions.

Hesnard (*Arch. d'électr. méd.*, No. 393, 1916) has found a local treatment by *x* rays of considerable benefit in cases of injury to the nerve trunks. In addition to the ordinary irradiation of the territory of the affected nerve, he practises a deep and intensive irradiation of the nervous cicatrix and the perinervous cicatricial tissue. He has also employed local massage of the nerve at the point of lesion, as well as mechanical vibration, local heat, and antisclerotic medication. As to this last, he states that the medicament which has given the clearest results is fibrolysin, in intramuscular and hypodermic injections. He has used it in about 40 cases of wounded, with unequal but real results. The result is only obtained at the end of ten or twelve injections at least, and the amelioration is sometimes indicated by painful paraesthesia and tingling in the sphere of the nerve. Other procedures he has tried have been radium for superficial lesions and galvanization; but no method appears to him to have so great a future in the local treatment of nerve lesions as *x* rays. He does not claim to have improved all cases, but the ameliorations form a very large percentage. He only employs surface irradiation in a bad case of adherent superficial cicatrix, and then only during the first sittings. Ordinarily he uses filters of $\frac{1}{2}$, 1, and 2 mm. in thickness, the last most frequently. Hard rays are used (from 6 to 9 degrees Benoist), and as large a dose as is compatible with the integrity of the skin is given. Frequently he practises cross-fire irradiation. Sittings are repeated every five or six days. Sometimes the relief is immediate, and shows itself in a much greater facility of movement and a diminution of painful phenomena. He has also seen amelioration in cases of intense motor trouble with complete right deviation and very pronounced muscular atrophy. In some cases slight disturbances of sensation have been produced, such as paraesthesia and neuralgia, but these have disappeared little by little, while at the same time there has been greater or less recovery of the motor functions. The more recent the lesion, and the more accessible owing to its superficiality, the more successful is the treatment. *X* rays appear to act like other procedures, but in a more elective fashion, against the sclerosis.

8. Electrical Treatment of Scars.

Noel Burke (*Arch. Radiology and Electrotherapy*, May, 1916) reports two cases in illustration of what can be done by electrical methods in the treatment of fibrous adhesions causing disability after wounds of war. In one case, following upon a comminuted fracture of the radius, there was weakness of the hand due to limitation of muscular movements by the dense scarring. Electrical response was weak, but of normal type. The treatment consisted of heating for twenty minutes by an electric light bath, followed by ionization with chlorine at and around the anterior scar for half an hour. This was carried out three times weekly, and massage and movements were carried out daily at a later hour. After forty-two treatments the grip was good, and after seventeen further sittings the anterior scar was very much softened, the hand had a good strong grip, and the man was quite fit to return to full duty. The electrical applications in this case definitely produced softening of the adhesions for a few hours, and thus enabled good work to be done by massage, which, unassisted, was of very little benefit. The second case was less fortunate, but this the author attributes to the poorness of the patient's supply of central nervous energy. After the wound had healed, the hand and fingers were stiff and wasted, and showed only a little movement, and there appeared to be a great deal of matting together of all the tissues. The treatment was the same as in the first case, except that a bath of salt solution was used for the hand instead of lint. After fourteen treatments there was slightly better movement, but the patient was too apathetic to make any attempt at exercise. After twenty more sittings the man, as a result of much mental stimulation, could grip a little with all the fingers. This man had been nearly discharged untreated, but the probability was that he would now recover sufficiently to do military duty, or at least would be able to carry on his civil occupation without undue difficulty.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

9. The Signs of Reaction of Degeneration in Paralysed Muscles.

It is generally taken for granted that the slowness and sluggishness of the muscular contraction in response to the battery current are the most characteristic manifestations of reaction of degeneration, some authorities even going so far as to suggest that they constitute the only pathognomonic sign of this reaction, and that in the absence of slowness to galvanic stimuli reaction of degeneration does not exist. All the other elements of the reaction, such as the quantitative modification of the muscular excitability and the inversion of the normal polar effects, are regarded only as accessories. Mendelssohn (*Arch. d'électr. méd.*, June, 1916), who has been studying myographically the different phases of reaction of degeneration, is of a contrary opinion. He divides the evolution of reaction of degeneration into three distinct stages, namely, (1) the initial stage, with diminution of faradic and galvanic excitability of the muscle; (2) the middle stage, with abolition of the faradic and increase of galvanic excitability; (3) the final stage, with progressive diminution of the galvanic excitability. He concludes from a study of his myographs (which he describes in detail) that the slowness and sluggishness of muscular contraction to battery current do not accompany all these phases, and that the muscular response, before it becomes slow, dragging, and undulating, undergoes characteristic modifications in relation with the varying phases of evolution of the degenerative process. The author considers, therefore, that the slowness of muscular response must not be regarded as the most important manifestation of reaction of degeneration, or as a sign which suffices by itself to indicate the reaction. The inversion of the normal polar effects is equally important, and is a diagnostic sign of great value. Some physiologists have sought to demonstrate that the inversion of formula is not real, and is only the consequence of an erroneous interpretation. Without entering into a discussion of this question, which is far from being definitely settled, the author thinks that all these physiological considerations are of small importance to the clinician from the point of view of practice. The polar inversion, whether real or virtual, is found in the greater number of cases of reaction of degeneration, and constitutes undoubtedly an important sign of this reaction. It is a very constant electropathological symptom, which almost always accompanies degenerative lesions of the muscle fibre. Its electrodiagnostic importance is also the greater because it appears in the degenerated muscles well before the arrival of the sluggish contractions; it may, therefore, be regarded as an early symptom of reaction of degeneration. As to the semeiological value of the sluggish contraction, this does not become important until it is found in association with other symptoms of the reaction.

10. Serum Diagnosis of Relapsing Fever.

In view of the spread of relapsing fever by lice, it is important in regard to prophylaxis to be able to diagnose the existence of infection in a case during the afebrile period. Graetz (*Centralbl. f. Bakt.*, vol. lxxviii, 1916) has examined a considerable number of Russian prisoners at Hamburg, and claims to be able to distinguish infections with the relapsing fever spirochaete by means of complement fixation with the patient's serum. As antigen the blood of a case taken at the height of a febrile attack and containing numerous spirochaetes was employed, the blood was centrifuged, the sediment laked with water and again centrifuged; the resulting deposit consisted of abundant spirochaetes and stromata of red corpuscles; it was suspended in normal saline, and preserved its antigenic properties for a long period when kept on ice. Positive results were the rule after a case had had two or three febrile attacks and provided that the serum was tested during the afebrile period. The serum must be employed fresh, as heating at 56° C. for half an hour destroys the antibodies. Control serums which gave a positive Wassermann reaction, but from cases in which relapsing fever could be excluded, did not react positively with the relapsing antigen. The reaction appears to be specific, and to persist for a considerable time (more than six weeks) after the last febrile attack.

SURGERY.

11. Gunshot Wounds of Solid Abdominal Viscera.

Sir G. H. Makins, Consulting Surgeon to the Expeditionary Force in France, says (*Brit. Journ. Surg.*, April, 1916) that wounds of the solid abdominal viscera, although common, have not the gravity inherent in those of the alimentary canal. Wounds by fragments of shells or bombs are, as a rule, more to be dreaded than those by bullet. Laceration is more extensive, more irregular and more frequently multiple. The missile is more frequently retained, by reason of the lesser degree of velocity with which it enters and its more irregular shape. Such missiles are practically always carriers of infective material. Wounds of the liver are classified under the heads of rupture due to contusion, and simple perforation of the substance of the organ varying in size according to the missile. Simple bullet wounds are the least severe, and account for a large number of cases in which no serious symptoms are observed. Fragments of shell produce more extensive injuries; it is these that most frequently give rise to secondary haemorrhage at the base hospitals. The wounds are almost invariably seriously infected from the first. When a large gaping septic wound becomes the seat of secondary haemorrhage and a localized collection of blood is formed which requires to be incised, the evacuation of the infected blood clot may be followed by progressive necrosis and sloughing of the liver; in this way a great part of the organ may be destroyed. The most common coexistent injury is involvement of the pleura and lung. The most common result of a wound of the liver is haemorrhage into the peritoneal cavity when the wound is extensive or the larger vessels are torn. This may rapidly cause death; in any case it is a troublesome complication. Secondary haemorrhage occurs commonly about the tenth day. It is always associated with septic infection, and is a common cause of death from liver injuries. Jaundice is common; in some cases it is early and deep, in others slight and evanescent; it is usually deepest when developing in association with serious septic infection. The escape of bile by the wound is a fairly common sign of wound of the liver. The bile may come directly to the external surface of the body, pass through the pleura, be expectorated from the lung or collect in the belly. The author has seen no case at the base hospitals in which the gall bladder has been perforated. Such injuries have been observed in the field ambulances and casualty clearing stations, and it has been stated that the patients died of "biliary peritonitis." Makins doubts whether fatal infection can follow the effusion of normal bile into the peritoneal cavity, and thinks it more probable that the peritonitis was caused by concurrent septic infection. The *post-mortem* records of twenty-five cases in which wounds of the liver were a prominent feature showed that 60 per cent. died of some form of septic infection and 40 per cent. of secondary haemorrhage. With regard to treatment, Makins says that when cases of wound of the liver reach the base—that is, from the second or third day onwards—it is purely expectant. When a suppurating track is present and the missile is retained, the latter may readily be struck by the probe and removed. As a rule, a fresh incision to allow direct access to the retained missile is not to be recommended, as the fresh wound will be carried down into communication with a rigid septic tunnel. In rare cases the foreign body appears to become encapsuled. Wound of the spleen is not infrequently associated with a haemothorax, the associated injury which comes next in frequency being wound of the left kidney. Makins thinks that wounds of the spleen complicate many perforations of the intestinal canal, and that they are a common source of intraperitoneal haemorrhage. Such knowledge of wounds of the spleen as has been available at the base

hospitals has been gained by the discovery of these lesions in operations or autopsies on patients with other injuries. In no case was the injury to the spleen the direct cause of death; at most it could only be regarded as a contributory factor. Wounds of the pancreas have been discovered in the course of operations for intestinal injuries, and the typical results of the escape of the pancreatic secretion into the tissues and peritoneal cavity have been observed. Such injuries have usually proved fatal. Simple perforations of the kidney by rifle bullets may often be regarded as almost negligible injuries; but exceptions are not very rare, the most common source of danger being secondary haemorrhage. The organ may be simply grooved, perforated, more or less completely bisected or actually comminuted in great part or nearly the whole of its extent. In connexion with comminution of a part of the kidney, fissures may extend into the remaining segment of the organ. The wound is accompanied by haemorrhage, often very abundant, into the perirenal tissue, and a variable amount of urinary extravasation, not as a rule extensive. Excluding coexistent injury to the hollow viscera, the most common complications of wounds of the kidney are wounds of the liver, the spleen, and the pleurae. Wounds of both kidneys are occasionally met with, and injury to one or both kidneys may complicate wounds of the lumbar portion of the spine. In a considerable proportion of the simpler injuries the position of the apertures of entry and exit may be the only evidence o i wound of the kidney; in others haematuria occurs. This symptom is often absent, or, being transient, passes unobserved. Primary haematuria is rarely profuse or persistent. When persistent it is very likely to cause dysuria and sometimes retention from coagulation of the blood and distension of the bladder by clot. In two cases cystotomy was necessary for the relief of symptoms. Secondary haemorrhage occurred in twelve cases. In every instance the urine was infected either with streptococcus or with the *B. coli*, in a large proportion of them as the result of catheterization. Extravasation of urine is usually not a prominent feature. In cases in which nephrectomy becomes necessary the tissues are as a rule infiltrated with blood, and with only sufficient urine to allow of its presence being determined. This fact lends support to the view that the recently wounded kidney does not secrete actively. Uncomplicated wounds of the kidney, either by bullet or shell, cannot be regarded as serious injuries, apart from the danger of secondary haemorrhage. The treatment of the slighter injuries consists solely in rest, and if there be severe primary haemorrhage, the administration of opium. The primary haemorrhage is seldom sufficiently copious to call for intervention, but if necessary the bleeding may, in the absence of serious infection, be controlled by suture of the renal wound or removal of the damaged segment of the kidney. If the organ is hopelessly damaged it must be removed. For secondary haemorrhage, in view of the fact that it is invariably the result of infection of the kidney, nephrectomy is the proper treatment. The formation of blood clot in the bladder may lead to considerable dysuria; it is inadvisable to pass a catheter unless absolutely necessary and until alkalis and hyoscyamus have been tried, on account of the danger of infection of the bladder and possible spread of this to the kidney. Actual retention from the formation of a large solid blood clot should be treated by breaking up the clot and removing it by means of a lithotrity evacuator. If there is a urinary fistula in the loin it is sometimes necessary to enlarge the wound in order to ensure a free exit and prevent urinary extravasation. Local operations on the kidney in the early stages may consist merely in the evacuation of a perirenal haematoma or in direct treatment of the renal wound. In either case, haemorrhage is practically the only indication. Many injuries occur which are suitable for local operations, such as suture, packing or partial removal of the organ, but the rarity with which primary operative measures are called for has not afforded great scope for these methods. The one troublesome complication met with after nephrectomy has been the formation of blood clot in the bladder. Two cases had, in the absence of lithotrity evacuating tubes, to be dealt with by suprapubic cystotomy. No patient should be allowed to leave the operating table until the surgeon has satisfied himself that the bladder is empty and contains no blood clot. Of eight nephrectomies, six recovered. Makins concludes with the broad statement that removal of the kidney for haemorrhage following gunshot injury is successful in suitable cases.

CUTHBERT WALLACE, Consulting Surgeon to the British Expeditionary Force, says (*Brit. Journ. Surg.*, April, 1916) that in a series of 366 abdominal injuries the liver was wounded 69 times, the kidney 13, the spleen 11, and the pancreas once. Wounds of the liver present all degrees of trauma from a small simple perforation or a superficial tear to almost complete disruption. The symptoms are almost entirely those of haemorrhage, and shock, if present, is mostly due to the same cause. Many cases get well without operation, and many that are operated on with a view to the exclusion of intestinal injury would, no doubt, follow the same course. The amount of bleeding depends in some degree on the extent of the laceration, but more on the rupture or escape of the large venous channels. Thus a large tear is often recovered from while a comparatively small wound may rapidly prove fatal through copious bleeding from one of the non-collapsible veins. It is in the latter class of case that operation is really instrumental in saving life. Plugging with gauze is the best way to stop the bleeding. The plug is withdrawn day by day: in the case of a ruptured vein the gauze must be left *in situ* for several days; in the case of surface oozing its removal may be begun within twenty-four hours. Injury of the large bile ducts is not frequent; it was treated with a drainage tube and a gauze plug. No wound of the gall bladder was seen. Jaundice occurred in a few cases; it is seldom more than a passing incident, and is usually of no great intensity. Whether it is due to blocking of the small ducts or to septic infection is still undecided. The kidney may be wounded by itself, but almost as often it is injured in conjunction with other organs (liver, spleen, stomach, colon, or duodenum). The symptoms are those of haematuria and haemorrhage, the latter being more often intraperitoneal than is the case in contusion injuries. It is impossible to say whether the kidney ceases to secrete, though from the apparent absence of urine in the belly this is probably the case. The only indication for treatment is haemorrhage into the abdominal cavity, and it is in the course of an exploratory coeliotomy for that condition that the kidney is found to be wounded. The injury varies from a simple tear or perforation to complete division or total disruption. If the injury is severe, removal of the organ is the safest plan. This is especially the case where the spleen is also extensively lacerated and much blood lost. Injuries of the spleen also vary from simple tear, perforation, or abrasion to complete disruption. The organ most often wounded in conjunction with the spleen is the kidney, next to that the colon. Next to the liver the spleen is, among solid organs, the one most often injured by itself. From its proximity to the stomach, injuries of the two viscera might be expected to be often associated, but according to Wallace, they are seldom found wounded together; this fact suggests that such cases are rapidly fatal, and never reach the surgeon. Intra-abdominal haemorrhage, with perhaps dullness of the left flank and hypochondriac region, are the conditions which usually call for intervention. The nature of the injuries suggests that in many cases spontaneous recovery takes place. When the hilum is encroached upon, the bleeding is apt to be profuse, and removal is the best course. The organ is difficult to reach by a vertical incision, and it is nearly always necessary to use a transverse extension or an incision parallel to the ribs. Very few cases of injury to the pancreas come under notice. Two cases were met with in the course of an abdominal exploration; the missile, passing laterally, had ploughed up the posterior abdominal wall, causing great extravasation of blood. There was slight fat necrosis scattered about the belly. Both cases were rapidly fatal. In a third, an anteroposterior bullet had apparently passed through the pancreas and escaped from the body without doing further damage; the man was sent to the base in good condition.

12. Wounds of the Lung.

E. DE PAOLI, in a communication made to the Royal Medical Academy of Genoa in April of this year (*Il Morgagni*, June 19th, 1916), stated that he had examined sixty cases of wound of the lung, two-thirds of which were caused by rifle bullet, and the remainder by shrapnel. The immediate effects were phenomena of shock. Pain was often felt in different parts from the abdomen below to the shoulder and arm above. Next followed paralysis, sensory and motor, which might pass off quickly or persist for some time; this was explained by the communications between the first two intercostal nerves, and the long thoracic with the nerves of the arm. Pneumothorax was never observed in men brought in from five to sixteen days after the wound, and de Paoli thinks it probable that it was not present even in the early days. Subcutaneous emphysema was observed twice. Haemoptysis was an almost invariable symptom, but it was not very

abundant, and did not last more than a few days. It did not occur in some cases in which the lung was certainly wounded, and, on the other hand, it was seen in cases in which only the thoracic wall was injured; it is therefore not an absolutely reliable sign of wound of the lung. The external wounds were already for the most part closed, but sometimes they were suppurating owing to infection. In most cases there was pleural effusion owing to haemorrhage and inflammatory reaction; this tended to be absorbed and to become organized even when the external wounds were infected. Only in two cases was there a progressive increase of the haemothorax with symptoms of suffocation and displacement of intrathoracic organs, and in two others empyema called for operative interference. The rare extension of infection to the pleura and the lung must not, according to de Paoli, be regarded as due to asepsis but to the power of the pleura to absorb and neutralize infective material and to a special resistance of the lung to the diffusion of surgical infections. In the first days the men suffered from difficulty of breathing, a greater or less degree of fever, cough and pain in the lower part of the wounded side, increased by the movements of respiration; usually these symptoms had become less severe when they were brought in. In most cases the signs of pleural effusion persisted; in particular there was often noted a zone of dullness on percussion which reached to a lower level in front, rising at the side and still more at the back; this did not change with the position of the patient. It was therefore due to extravasation and encapsuled exudation with intrapleural adhesions caused by the horizontal position which had been maintained in the early days. This condition may persist unchanged for months. Radiographic examination showed in three cases a considerable increase of the cardiac area, confirming the suspicion of wound of the pericardium. Persistence of fever and exacerbation of the general symptoms are caused either by absorption of an imperfectly sterile haemothorax or by its suppuration. Methodical test punctures and the cytological and bacteriological examination of the liquid withdrawn with examinations of the blood are useful aids in diagnosis. In a small number of cases one can speak of a true cure, physical and radiographic examination showing only faint traces of the reparative process in the pleura and lung. These were mostly instances of lesion of the apex and upper lobes, but there were also some of bilateral injury of the thoracic and abdominal organs. Perhaps in such cases there was special resistance to wounds and infections. As a rule, however, physical and functional signs of pleural lesion and of serious limitation of the respiratory area still persisted. Among other signs observed were depression and impaired mobility of the injured thorax, falling in of the shoulder, scoliosis, lessened movement of the diaphragm, pleural adhesions, and more or less considerable atelectasis of the lung. There was difficulty in breathing caused by any effort such as going upstairs and hurry in walking, with marked reduction of respiratory capacity, even to one-third of the physiological average. There was great sensitiveness to pain in the injured chest, especially at the side and the lower part; there was true intercostal neuralgia and acute pain on movement of the vertebral column without any corresponding lesion. In two cases the sufferings complained of in the early days became aggravated, giving rise to true motor and sensory paralysis of the upper limb. In one of these there appeared to be a diffusion of neuritis of the thoracic nerves to the brachial plexus; in both the painful phenomena seemed to be partly dependent on neurosis. In one case there was a vast hernia of the lung through the lowest intercostal spaces due to fracture of several ribs and displacement of the fragments. Wounds of the lung are, in de Paoli's opinion, relatively benign *quoad vitam*, but not *quoad functionem*, as many of the injured will remain for a long time, and even permanently, unfit not only for military service, but for any work causing fatigue. As regards treatment, if the haemorrhagic pleural effusion is not reabsorbed but increases and causes serious disturbance by compression and displacement of intrathoracic organs, the condition should be relieved within eight or ten days of the wound by repeated evacuations of 100 to 300 c.cm. of liquid. In two cases de Paoli performed thoracotomy; this effectually evacuates the blood, liquid or coagulated, and prevents the formation of solid and large adhesions. These patients, after recovery, found themselves in better condition than others with a much less extensive haemothorax, which got well spontaneously. In many cases sojourn in a suitable climate, respiratory gymnastics, inspiration of compressed air and expiration into rarefied air in a properly equipped institution quickly bring about a better condition of the respiratory organs.

13. Treatment of Wounds of Joints.

In a communication made to the Société de Chirurgie on June 7th (*Paris méd.*, July 1st, 1916) Couteaud, médecin général, stated that he had treated eighty cases of wound of the shoulder, of which many were infected and complicated by vascular lesions. In five cases disarticulation was performed, with three deaths. After the first troubles had been got over, osteomyelitis had to be dealt with; repeated operations and prolonged treatment were required. Resection of the head and neck of the humerus was performed in nearly half of the cases; in most of the remainder removal of splinters was required, sometimes on a scale equivalent to a resection. The immediate effects were excellent, and the later functional results were very good. There were 3 cases of complete cure, 15 of very useful and 37 of useful limbs; in 20 the limbs were of little use. There were 2 cases of amputation at the shoulder. Couteaud thinks that the remote functional results will show still further improvement. At the same meeting Anselme Schwartz and Mocquot communicated 81 cases of various wounds of joints. They classified them in three groups: (1) No bone lesions; (2) limited bone lesions; (3) smashing of bone. Almost all wounds of the knee belong to the first category; in the second are chipping of articular surfaces, fissures, and comminuted fracture of a segment of articular surface. Except in the case of bullet wounds which may get well without surgical intervention, operation is called for to establish effective drainage of the joint and free it from foreign bodies and débris. Arthrotomy and resection are the procedures most frequently indicated. In knee cases the authors resect whenever an extensive arthrotomy does not give satisfactory results within five to six days. In ankle cases, unless the bone lesions are very slight, astragalectomy should be performed; this should also be done in cases where with limited lesions arthrotomy is not quickly successful. In the hip, ablation of the detached head of the femur should be done at once. In the shoulder, immediate resection is the operation of election. In the elbow, simple removal of splinters in wounds with limited lesions of bone is generally insufficient; in almost all cases secondary resection was required. The authors recommend immediate operation. In the wrist, when the carpus is seriously injured, immediate resection, the trapezium being left if possible, is preferable. In a general way the experience of Schwartz and Mocquot had led them to extend the indications for resection. They recommend immediate operation for the wrist, elbow, shoulder, hip, and ankle; in knee cases they wait five or six days till arthrotomy has proved itself insufficient. It is then a question of early secondary resection, and they hold that in many cases immediate resection would be preferable. Alquier and Foisy, in a paper based on nine cases, advocated the superiority of typical resection of the knee in wounds of that joint.

14. Wounds of the Ear.

Georges Canuyt (*Journ. de méd. de Bordeaux*, April, 1916) reports that in the central service of military oto-rhino-laryngology of the eighteenth region of the French army, which is under the direction of Professor E. J. Moure, ear cases largely predominate. Wounds of the pinna should be treated on general principles, special care being taken to prevent perichondritis; lacerations should be carefully stitched, and plastic procedures should be carried out without delay. He has never seen a case in which a projectile has penetrated the external meatus, but that orifice may be injured indirectly, and more or less complete occlusion may result from cicatrization. If there is no discharge from the ear, and if the hearing is fairly good, nothing should be done; if the hearing is very defective, or if there be a discharge dating from the injury, a plastic operation should be done, but the results are not brilliant, the freest openings, in spite of every care, tending to contract. In cases of atresia complicated by old-standing otorrhoea a radical petro-mastoid operation by Moure's method should be done. A projectile wound at the level of the middle ear may produce inflammation, showing itself as an acute suppurating otitis media; the development of mastoiditis depends on whether the mastoid process is injured. Surgeons should not be too hasty in diagnosing mastoiditis, as "mastoidalgia" is very common in soldiers; wittingly or unwittingly they exaggerate the pain, which they refer not only to the mastoid region but to the neck and neighbouring parts. The most serious wounds of the mastoid often have a misleading appearance. They may be very small and superficial; often they are cicatrized or show merely as little external fistulae. But underneath are deep extensive

lesions, fungous and sinuous, which change the aspect of the mastoid so completely that the operator has to be guided by the lesions. Sometimes it is sufficient to clean the wound, curette, and trim the edges; but in most cases a procedure resembling the radical cure has to be adopted. Most of the patients operated on for mastoiditis were admitted not only with fistulae but with suppuration of the ear. This calls for a second intervention, generally more difficult than the first, and the hearing may remain definitely impaired. In most cases the mastoid had not been sufficiently opened up, suppuration had persisted and the perforation of the drumhead had become enlarged by ulceration. Bone lesions may also become established, requiring later a thorough clearing out that may compromise the hearing. No case of wound of the lateral sinus was seen, but traumatic sinus phlebitis, primary or secondary, may occur. In a considerable number of mastoid operations the author found the sinus exposed in 41 cases (14 on the left side and 27 on the right). Six cases of facial paralysis caused by wounds were observed. Some were improved, the others cured by an operation designed to discover the nerve lesion. If the nerve has been divided the ends should be brought together without stitching, so as to restore the lost conduction; if it is buried in cicatricial tissue, it should be freed as far as possible. Intervention is very difficult because a precise diagnosis of the seat of injury must be made, and the facial nerve must then be dissected out millimetre by millimetre in the petrous bone. In the course of operation the meninges were frequently found exposed; with membranes bathed in pus in a septic focus it is easy to understand the facility with which in patients with otorrhoea formidable and often irremediable meningeal complications occur. Projectiles may cause injury by indirect shock; a shell whizzing past the ear, or bursting close to it is apt to be followed by lesions of the middle ear due to displacement of air. The result of detonations shows itself in patients apparently uninjured in middle ear inflammation of various kinds—inflammation of the drum, catarrhal otitis, serous or haemorrhagic effusion into the tympanum, acute otitis media with or without suppuration. In men who had suffered from otorrhoea when they went to the front, a wound aggravated the disease and sometimes caused mastoiditis, labyrinthitis, sinus phlebitis, meningitis, and brain abscess. All these conditions become worse in war time; noise, cold, and exposure all tending to transform an ordinary otorrhoea into an affection which is sometimes fatal. Old lesions, such as adhesive and sclerous otitis, may be aggravated by the same causes. With regard to lesions of the internal ear caused by projectiles Canuyt says almost all the wounded had injuries of the labyrinth ranging from simple commotion to serious damage. There are two main factors in the production of commotion: indirect shock from the explosion of bombs, mines, and shells, in close proximity to the ear, and direct shock caused by wounds of the head and particularly of the petrous bone. Moure believes that besides direct injuries due to fracture of that bone, haemorrhage, accompanied by stripping or tearing of the membrane of Corti, may take place into the vestibule, the cochlea or the semicircular canals. The diagnosis of labyrinthine injury is based on deafness which, though almost complete, is never of such a degree that strong vibrations of the tuning-fork cannot be perceived; change in the timbre of the voice, which becomes dull, monotonous and without resonance; and spontaneous nystagmus which always occurs. Among secondary symptoms are constant buzzing, vertigo and disturbance of equilibrium. In the diagnosis of purely functional lesions the capital signs are absolute deafness; there is no transmission of the vibrations of the tuning fork; the tone of the voice is not changed, and spontaneous nystagmus does not occur. Other secondary symptoms seen in neuropathics are sudden onset, an emotional cause, tremors, disturbances of sensibility, the presence of hysterogenic zones, and narrowing of the visual field, with the exaggeration and self contradiction characteristic of hysteria. Simulation of ear lesion is not frequent, and it is difficult to unmask a malingerer of this class. The patients must be closely watched, and traps should be laid for them. In true war labyrinthitis the prognosis should be very guarded. The condition does not get worse, but nothing definite can be said as to cure. Summing up, Canuyt says that in the majority of soldiers who came back from the front with material lesions of the hearing apparatus the ear was not sound before the war. This statement is based on observations made in 8,000 cases up to April, 1916. They had suffered from old suppuration; from unhealthy drumheads with or without perforation; from cicatricial otitis, with fibrous synechiae; from fungous, sclerous, or adhesive otitis; or the ear, and in particular the tympanum, had been ill ventilated. In a considerable number of those examined the permeability of the nose and Eustachian tubes was diminished by obstructions, such as spurs, hypertrophy of the turbinate bones, deviation and thickening of the septum, and large adenoids. The author insists on the importance of dealing with all those conditions. This ensures a rapid recovery, and is a protection against later mischief.

15. The Electrical Examination of Nerve Injuries.

It has been shown by physiological experiment that there are two dissociated properties in the response of a nerve to stimulus—namely, excitation and conductibility, and that excitation may disappear along a certain tract while conductibility persists. Battez and Desplats (*Arch. d'électr. méd.*, June, 1916) have studied systematically a number of nerve injuries among wounded men, with the object of discovering the degree of response to electrical stimulus. In nerve traumatisms there is frequently total abolition of faradic excitability from the level of the lesion, in the nerve itself or at the dependent motor points; but this abolition, while it denotes a well-localized nerve lesion, gives no indication as to the extent of such lesion, and whether there is section of the nerve, or compression, or simple inhibition. If, however, two exciting electrodes are employed above the seat of injury, one is surprised to find in a number of cases that, owing to the preservation of conductibility, the normal reactions are perfect in muscles which had not responded to direct excitation. Thus it is possible to divide the cases into two categories. To the first belong those in which the conductibility of the nerve in response to faradic excitation persists, and to the second those in which such conductibility has disappeared. On surgical intervention it has been found that none of the wounded in the former category, which comprises 60 per cent. of the cases of nerve traumatism examined, have had the nerve sectioned; in most cases there was found to be only compression of the traumatized nerve by a fibrous band, and in some cases no apparent lesion at all. Among the cases belonging to the second category, on the other hand, the disappearance of conductibility to faradic excitation was a sign, in the majority of instances, of nerve section, and in practically all the remainder of a severe compression, though in two cases there was no apparent lesion. As a result of the examination of 80 cases the authors conclude (1) that the reaction of faradic conductibility never exists in the case of a sectioned nerve; (2) that the existence of this reaction always implies that the continuity of the nerve has been preserved; (3) that this reaction frequently persists after all voluntary conduction has disappeared; and (4) that the absence of this reaction does not necessarily imply nerve section.

THERAPEUTICS.

16. Trench-foot Tetanus.

George Davis and Joseph Hilton, surgeons to the 23rd General Hospital, British Expeditionary Force, report (*Journ. Amer. Med. Assoc.*, June 17th, 1916) an instance of tetanus as a complication of "trench foot." A man, aged 20, was sent into hospital for trench foot on February 18th. He had been exposed to cold and wet in the trenches near Ypres, and for five days only changed his socks twice. Then he was cut off by the Germans and did not take off his shoes for four days. He was not wounded when he made his escape, but he could not sleep. Gangrene of both feet had set in and progressed for a week after admission, during which time there was insomnia with restlessness. On February 25th he complained of stiffness of the muscles of the jaw; 2,000 units of antitetanic serum were given. The gangrene advanced rapidly, clonic spasms of the muscles of the knee and also of the lower extremities occurred, and the tongue was wounded by the teeth; 1,000 units of the serum were administered intravenously on February 26th. The patient died on February 28th after severe attacks of opisthotonos. The authors dwelt on the fact that the patient had not been given a prophylactic dose of antitetanic serum; it had not been the practice to administer it in trench-foot cases. On the other hand, 500 units were always given at the front in cases in which the patient had been wounded. The results were instructive. Out of the large number of sick and wounded passed through the authors' hospital within the nine months before the publication of their report there had been but eight cases of tetanus, and only in two had the complication developed when the prophylactic dose had been given. Davis and Hilton are therefore of opinion that all cases of trench foot should be treated by a prophylactic dose of antitetanic serum.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

17. Lesions of the Frontal Lobes.

L. RONCORONI reported to the Medical Society of Parma in April last (*Il Morgagni*, July 9th, 1916), six cases of wounds of the frontal lobes received in the war, with another of a soldier who six years previously had suffered a compound comminuted fracture of the left frontal bone as the result of a bicycle accident. In five cases the wound was penetrating and the pulsation of the meninges could be seen; in one there was, in addition, protrusion of cerebral matter; in two only the outer table was injured. The wounds were caused by fragments of grenade or rifle bullets. In one of the penetrating cases the wound was suppurating; in another there was localized pachymeningitis in the region of the wound. All the wounds were in the zones of the prefrontal lobes. In all the cases the immediate effect of the injury was loss of consciousness lasting from half an hour to twenty days. The author reviews the symptom-complex following lesions of the prefrontal lobes without dwelling on the details of individual cases. He says that, as a general proposition, it may be stated that if no special conditions are present, as, for instance, a marked neuropathological inheritance, or a very extensive injury, lesions of the prefrontal lobes, whether penetrating or not, do not leave behind them serious psychic symptoms or other marked signs of cerebral disturbance, as is seen in lesions of other parts of the cortex. This may be due to the fact that the gravity of the brain lesions is not always directly proportionate to the severity of the bone injuries; but it would seem, too, that it depends on the peculiar functional conditions of the various cerebral zones. Among his cases Roncoroni never met with objective disturbances of sensibility or of the organic functions. Mobility was not directly impaired, and there was no paralysis, paresis, cramps or alterations in motor excitability; the pupils and reflexes, both superficial and deep, were normal; in one case only was the knee-jerk somewhat exaggerated. Walk, speech, and writing were normal. In one case, however, there were slight lateral oscillations of the head, slight myoclonus of the limbs and tremor of the small muscles of the cheek. All the various sensibilities of the skin, including the stereognostic sense, were normal as were also the special sensations. In two cases, however, in which the olfactory branches were destroyed, there was anosmia. In two cases also there were general subjective phenomena of alterations of sensation—headache and a feeling of heaviness—such as are found in lesions of any part of the head. Vertigo was present in only two cases, but only as the result of circulatory disturbance when the patient bent his head. Pulse, respiration, and gastro-intestinal functions were normal. As regards psychic functions, Roncoroni noted that perception and the content of the ideative processes were always normal both in rapidity and in abundance; so too, were the affective and moral sentiments and consciousness. Memory of events before the wound was normal; in one case only were there disturbances in the fixation of images. The psycho-motor reactions might also be considered normal. In three cases, however, there were observed phenomena which possibly were not specific, and might perhaps be met with as a consequence of lesions of any part of the cortex—a tendency to speedy exhaustion, difficulty in grasping the sense of what is heard and effort in attending to it; slowness and uncertainty in the performance of acts such as writing; a kind of inertia which makes the patient abstain from speech and action. The easy fatigue is sometimes accompanied by a feeling of heaviness and pain affecting the injured region and headache, especially in those engaged in difficult occupations, whereas light work to which he is accustomed does not tire the patient. In conclusion, Roncoroni says that psychic changes may be wanting in lesions of the prefrontal lobes in cases in which these are not extensive and in persons whose education is not above the common standard. The facts observed by him show once more that the prefrontal lobes have not motor or sensory functions in the strict sense. They are also opposed to the conception of the prefrontal lobes as associative or representative centres. On the other hand, they support the hypothesis that these lobes are evolutional zones in relation to premotor phases of the reflex arch. A change in the prefrontal lobes cannot, particularly in young uncultivated persons and when the lesion is limited, produce evident manifestations; being an evolutional zone it is not, in young people with slight development of the higher psycho-motor reactions, in a state of intense functional activity. Hence it can be understood how changes in the psycho-motor functions may manifest themselves only by general symptoms of depression with ready exhaustibility, slowness, uncertainty, and inertia.

SURGERY.

18. Wounds of the Skull.

AT a meeting of the Société de Chirurgie on May 31st Professor HENRI HARTMANN, of the Paris Hôtel Dieu (*Paris méd.*, June 24th), read a paper on wounds of the skull by projectiles based on 152 cases reported by his pupils, Prat, Métivet, Okinczyc and Halphen, Monod, Leriche, and Latarget. There is a great variety in the lesions. In certain cases the whole skull cap is smashed, and on feeling the scalp one has the impression of squeezing a bag of nuts. In other cases simple contusion is found when the bone is exposed. This difference is due partly to the projectile—shell, shrapnel, or bullet—partly to the distance from which it comes. A bullet at less than 800 metres smashes the skull, while one from more than 3,000 metres causes only a contusion. The soft brain obeys the laws of hydrostatics: pressure at one point of the skull is transmitted to all points with the same intensity. The lesions also differ according to the direction of the projectile. In tangential wounds the projectile makes a gutter in the outer table while the internal table is pushed inwards; the brain lesions are moderate. On the other hand, when the projectile strikes at right angles, it may perforate the skull through and through or cause a starred fracture; in such cases the brain lesions are generally very severe. The most frequent seats of the lesion are the parieto-temporal (60 to 64 per cent.), frontal (22 to 30 per cent.), and occipital (6 to 18 per cent.) regions. Fractures may be complete or incomplete, the former being by far the most common. In the 152 cases there were only 25 incomplete fractures, and this proportion may be too great, since there are fractures apparently incomplete which seem limited to the outer table and yet are accompanied by lesions of the internal table. Generally speaking, bone lesions are more extensive than they seem to be on a superficial examination. The dura mater was injured in 85 of 130 cases. Contrary to what is seen in civil practice, intradural haematoma is in war surgery more frequent than extradural. In general, lesions of the dura mater are less extensive than those of the skeleton and the brain. The brain matter may be in pulp under a dura only slightly injured. Sometimes lesions of the brain are found at a distance from the seat of wound; this can only be explained by *contre-coup*. In some cases of severe wound of the skull there is no functional disturbance; the man walks and speaks without difficulty, and does not even complain of headache, as there is nothing visible but a tiny wound of the scalp. The patients are often sent to ambulance stations as cases of slight wound. In other cases there is profound coma; the man lies on his back with pale face, closed eyes, stertorous irregular breathing, and abolished sensibility. Sometimes there is excitement and even delirium; dilatation of the pupil and amaurosis may be observed. There may be aphasia, Jacksonian epilepsy, hemianopsia. It is important to ascertain if the coma has come on immediately after the wound. If there has been a lucid interval the case is one of compression of the brain. The mortality is considerable. Death in the early stages is caused by haemorrhage and destruction of the brain. Later it is most often due to meningo-encephalitis which sometimes comes on at a distance from the zone where the man was trephined. In that case it may be attributed

to insufficient drainage, which is made very difficult by the depth and length of the intracerebral tracks. Infection may also occur through fissures which sometimes extend to the base of the skull and open up septic cavities (nose, ears). Hartmann does not think that fragments of projectiles in the brain cause infection so frequently as has been said. He has seen several cases in which the projectile was encysted remain aseptic without suppuration, and this is not exceptional." Pierre Marie, to whom all old cases of cranial lesions sent to the Government of Paris are directed, in a total number of 1,137 skull wounds has found a projectile in 31 cases. In only 2 cases were there epileptiform crises; in 29 the only symptoms were hemianopsia, headache, vertigo, giddiness, and scotoma. The projectiles were discovered only by systematic radiography. Every cranial wound should be treated immediately, even when it is apparently only the soft parts that are hurt. The bone should be exposed. If nothing is found the intervention does not go further. It does the wounded man no harm, whereas if the bone is not exposed a lesion threatening life may be overlooked. Local anaesthesia is preferable to general anaesthesia. The crucial incision has certain advantages. It allows the surgeon to see the direction of the fissures and may be gradually extended as far as is necessary after the direct examination of the subjacent bone. Whatever incision is used the edges of the wound should be resected. In general terms the surgeon should be guided in the extent of the craniectomy not by the length of the fissures, which may run to the base of the skull, but by the state of the underlying dura. The bone must be resected until normal dura is found. If there are splinters above the dura they should be carefully removed so as not to open the dura, a proceeding which makes the prognosis much worse. If dura is injured the wound in it must be incised and the lacerated fragments cut away, when a lesion of the brain may be found, often more extensive than that in the dura. Splinters should be removed. As regards the treatment of later accidents, in the case of abscess incision is necessary but is sometimes very difficult as the abscess as a rule forms at a distance from the wound and is deep and often difficult to reach. There are sometimes several of them. One is incised and drained, yet the temperature continues to go up, and it is only at the *post-mortem* examination that the others are found. In epileptic crises Hartmann thinks that the patient should be given the chance of a cure by a limited intervention.

19.—Captain R. WHITAKER, R.A.M.C.(T.F.) (*Brit. Journ. Surg.*, April, 1916), gives the salient facts of a series of cases which for the most part were received from seven to ten days after injury and kept under observation for three months. It very quickly became apparent that the cases in which the bony wounds of entry and exit were so near to each other that the requisite removal of bone around them threw them into one, did much better than those in which, owing to their situation, the wounds of entry and exit were dealt with separately; that is, the more freely decompressed cases did best. Whitaker is satisfied that decompression is as important as the actual treatment of the brain injury. While the wound in the brain is always thoroughly explored, and all obvious fragments of bone, foreign bodies, etc., are removed, the preservation of life does not depend to any material extent on some small fragments which may have been overlooked. The brain is far more resistant to mechanical irritation and to sepsis than first impressions would lead one to believe. In operating speed and free decompression must be the chief features. Whitaker's feeling now is that no brain injury, however apparently hopeless, is necessarily fatal. The dominant factor seems to be the nature of the infection rather than the extent of the trauma. While men whose local injury was apparently hopeless, but in whom infection was due to *Staphylococcus aureus* or *albus*, often made surprising recoveries, others with very small gutter fractures and relatively trivial dural laceration, in whom the infection was streptococcic, died. In cases of the former group in which death has occurred, the result has practically always been due to invasion of the ventricles and subsequent spreading basal meningitis; the necropsy showed that in all of them the infected portion of the brain was shut off from the surrounding areas by firm adhesions between the pia arachnoid and dura and skull. In the streptococcic cases there were no adhesions, or only very feeble ones. As the element of time is of the greatest importance, Whitaker assigned himself a limit of twenty minutes in operating. In all cases chloroform and oxygen were given. The following is the technique adopted: The whole scalp is shaved, washed with petrol, with methylated spirit, and then with iodine. After excision of the septic wound, scalp flaps are turned down to expose the area of skull to be dealt with. From the beginning of the operation the whole wound area is kept under continuous irrigation with 1 in 40 carbolic. The flap is grasped at its base with an intestinal clamp. Vessels on the concave side are seized with pressure forceps. These are left *in situ* for twenty-four hours. Whitaker never ties vessels in these cases, as the time occupied in doing this adds greatly to the risk of the operation. Bleeding vessels in the brain or dura, and the great sinuses when wounded, are dealt with by muscle grafting; gauze packing is a source of anxiety. A piece of muscle or fascia taken from the wound held by an assistant over the bleeding vessel, with the intervention of a smooth rubber glove or dam for a very short time while the operation is continued, will control any haemorrhage from the brain or its coverings. The utility of this proceeding does not end here. Whitaker has often watched a muscle graft forming the centre of a rapidly spreading mass of granulation tissue which later helped considerably in the protection and closure of the wound. The trephine, if used, should not be applied directly over the depressed fracture, but in the immediate neighbourhood. The hole is rapidly enlarged until a good half-inch of normal dura is exposed round the complete surface of the wound therein. When this is completed the irrigation fluid is changed to hydrogen peroxide; obvious foreign bodies should be lifted or washed out. It is essential that the line of original rupture in the dura should not be interfered with, as intradural arachnoid adhesions seem to form as rapidly as peritoneal adhesions, and they constitute one of the great risks to life by setting up subdural or direct meningitis. Any blood clot is scraped or washed away. The irrigating fluid is again changed to 1 in 40 carbolic at 110° F. An unperforated rubber sheet or dam is put over the exposed dura and brain, and a large perforated rubber sheet over the wound. The original operation flaps are turned down over this, and the wound is dressed with 1 in 20 carbolic on cyanide gauze. Half a grain of morphine is then given and the patient put to bed. As much more morphine as may be necessary to keep him quiet for forty-eight hours is given pro re nata. The only other drugs employed are (1) Urotropine in 10-grain doses every six hours from the first in every case; (2) aspirin and trional together, 10 grains each, as often as may be necessary to control headache. Antistreptococcic serum is given in all cases on arrival, but cultures are always taken at once, and the bacteriological diagnosis is settled in a few hours. Sixteen hours after the operation the dressings are removed with hydrogen peroxide and the forceps taken off. Afterwards the cases are dressed every twelve hours, still with cyanide gauze wrung out of 1 in 20 carbolic. Rubber dams are used throughout, and the scalp flap is not allowed to fall into position till it is certain that the sepsis in the deeper parts of the wound is completely under control. Lumbar puncture was used only on a few occasions; general signs of intracranial pressure are very rare after the operative treatment described. The effects of lumbar puncture are very transitory, and its performance is an added strain to a case that has already as much as can be borne. The cases in which it is likely to be of use are those with meningitis. Discussing the selection of cases for operation, Whitaker says the following conditions demand immediate intervention: (1) Active septic processes in a badly drained wound; (2) evidence of cerebral irritation such as fits, restlessness, or delirium; (3) evidence of cerebral compression, notably severe headache; (4) coma and slow pulse. In cases with acute sepsis of the scalp associated with signs of cerebral compression or irritation operation should, if possible, be deferred. In these cases, before the skull is opened, it is necessary first to clean out and drain the superficial tissues; this can usually be accomplished within twenty-four hours by free incisions and boracic fomentations changed hourly, with application of hydrogen peroxide on each occasion. In clean cases in which the *x* rays show depressed fragments of bone, and in those with foreign bodies of moderate size which can be definitely localized and are in positions that can be reached without further injury to the brain, operation may be postponed according to convenience. No operation is required in such cases as the following: (1) Those with no evidence of sepsis, bone displacement or foreign body; (2) those without evidence of sepsis but with a foreign body not causing progressive symptoms; (3) cases already submitted to a primary operation, in which both free drainage and efficient decompression have been used. The author classifies cases in which there must be always some doubt as to operating as

follows: (1) Those in which the general and local conditions are apparently hopeless. A delay of twenty-four hours, with appropriate treatment, will often justify interference. General stimulation by warmth and coffee enemas, combined with active disinfection of the wound, encourage the latent vitality; the *x* rays may show whether there is any bone or foreign body that requires removal. By following this plan it will often be found that not only the local sepsis has cleared up largely, but also that signs of grave nerve lesions have become modified in a favourable direction. (2) Cases already operated on, in which the wound is healed but the general condition remains unsatisfactory. The explanation would appear to be that there has been a severe brain lesion, with haemorrhage into the ventricles, but without primary infection. The general vitality is much lowered, and the ultimate issue depends on the occurrence or otherwise of a secondary infection, which in Whitaker's cases has always been by the *Staphylococcus albus*. (3) Cases with healed wounds and no local evidence of sepsis, but with a foreign body that can only be reached with difficulty and with signs of grave cerebral injury, but not of compression. In this group Whitaker recommends a waiting policy. The total number of cases observed was 118. Of these, 104 were submitted to operation, and 14 were left without. Two of the latter refused operation. The remaining 12 were trivial gutter fractures in silent areas of the brain, and were sent home shortly after admission. The mortality was over 50 per cent. in the cases operated on before arrival and under 10 per cent. in those in which primary operation was delayed till their arrival at the hospital. In the cases operated on before arrival there was streptococcic infection in 58 per cent., whereas in those in which no previous operation had been done the percentage was 3. In many cases operated on during transport the scalp incisions were sewn up, and these for the most part ended fatally. When such wounds had to be reopened it was frequently found that foreign bodies, bits of bone, and pus had been left embedded in the brain.

20.—Captain H. F. WOOLFENDEN, R.A.M.C., gives an account of 80 cases of wounds of the head seen at a base hospital in France (*Med. Journ. of Australia*, June 10th, 1916). The greater part of the paper was drafted by Captain J. Fairburn Fairley, who died before completing it. It is stated that the men reach the Boulogne hospitals usually from twenty-four to seventy-two hours after injury, except the few whose condition at the casualty clearing station is too serious to allow immediate transport. In the great majority of cases there had been no treatment except localized shaving of the scalp followed by the application of iodine and some antiseptic dressing. For purposes of diagnosis the scalp should be shaved, otherwise a tiny entrance wound may be overlooked. Fairley says that many of the perforating wounds are caused by a bullet which while traversing the skull has carried much less infection into the brain than a penetrating shrapnel wound; this gives a very much greater chance of escape from infection and for the damaged brain along the track to be absorbed; there is also less chance of fragments of bone being lodged in the brain. Any attempt to drain the track would, on account of the great liability for the ventricle to have been opened, almost certainly lead to a cerebro-spinal fistula, and possibly to a fatal issue. In the case of wounds which from their position and the presence of the typical symptoms of weakness of the shoulder and ankles, with rigidity of the arms and legs, increased knee-jerks, and double Babinski, are thought to involve the superior longitudinal sinus, operation is contra-indicated, as further interference with the sinus is only likely to obliterate the lumen still more. These cases do extremely well if left alone. When a foreign body lies deeply in some inaccessible place, such as the middle line, an operation for its removal would almost certainly do much damage and probably open up a ventricle. Such cases must be left alone, and the chances of recovery depend on the relative asepsis of the wound. On the other hand, there are very mild cases in which there is slight fracture and depression without symptoms suggesting a lesion of the dura. If that membrane is injured the piece of bone may plug up the opening, and its removal might give admission to sepsis. In this type of case the surgeon is disposed to hold his hand. The statement so often made that the fracture is the cause of subsequent epilepsy appears to lack foundation, and the proof that operation will obviate any tendency to epilepsy is wanting. The epilepsy appears more probably to be due to the formation of scar tissue in the brain. The free incision of the dura for slight causes appears to Fairley to be more likely to give rise to such scar tissue as well as to the chance of infecting the brain and membranes. Operation is most clearly indicated in penetrating or tangential wounds where a foreign body or fragments of skull are seen by *x* rays to be embedded in the brain, provided they are capable of removal, or when a skiagram reveals a definite depressed fracture which has probably lacerated the dura. These cases are almost invariably septic, and call for operation. The following is the procedure: The wound is excised; then a large flap is turned down and covered with gauze. Next a small trephine hole is made near to the gap in the skull, and the bone around the wound in the dura is removed with forceps. The depressed bone is then cautiously removed, and the track in the brain gently explored. This often allows a considerable amount of offensive brain matter and pus to escape. The foreign body or bone fragments are cautiously removed and disintegrated brain washed away with a gentle stream of warm saline solution kept running on the wound from the time the flap has been turned down. After this the track is generally drained on account of the sepsis. Formerly a rubber tube was used, but in later cases the perforated metal tube introduced by Gordon Holmes and Sargent has been employed with better results, as the rubber tube invariably gets blocked. After the tube is put in the flap is replaced, and the tube filled up with glycerine. The glycerine was suggested by Gordon Holmes for three reasons: it has a hygroscopic action, and so acts like hypertonic solution; it emulsifies the disintegrated brain matter, thus allowing the tube to be kept clean and preventing blockage of the tube. In addition, owing to the inhibitory action of glycerine on the growth of organisms, the multiplication of bacteria in the wound is probably prevented. When the dura has been found intact beneath the depressed bone, its integrity has been respected, as it is a most valuable barrier against infection; to incise it on account of the suspicion of blood clot or the presence of symptoms pointing to damage of the brain underneath appears to Fairley to be a very hazardous proceeding, especially where there is grave infection of the scalp and bone wound. In the first place, a large amount of haemorrhage over the surface of the brain in apposition where it can be dealt with is exceedingly rare; secondly, infection of the meninges has been seen to follow the opening of the dura; thirdly, the incision and turning out of disintegrated and hitherto uninfected brain tissue appears to be more calculated to lead to the formation of scar tissue than to its avoidance. Large decompression operations seem to be more rarely called for. Lumbar puncture has proved of the utmost value. During operation it is very valuable in reducing a high intracranial pressure. It permits the removal of fragments and foreign bodies to be done more easily and prevents the tendency to hernia of the brain through the wound. As a therapeutic measure during the treatment of these cases lumbar puncture is extremely beneficial. By reducing a too high intracranial pressure headache is relieved, the formation or increase of a hernia cerebri is checked, and many cases of perforating wound are tided over the dangerous period of high intracranial pressure due to oedema of the brain. In regard to after-treatment, Fairley says the tube is usually kept in for a week or ten days; it is cleaned out twice a day with a spoon and saline or sodium hypochloride solution, and glycerine is poured in. If a hernia is forming it is kept in check by lumbar puncture if possible, and dressings soaked in spirit are applied. Urotropine was given by the mouth in a good many cases. Its presence was demonstrated in the cerebro-spinal fluid in the cases tested; but formaldehyde was not found in the cerebro-spinal fluid. This was to be expected owing to the alkaline reaction of the cerebro-spinal fluid, and urotropine itself does not appear to exert any inhibitory action on the growth of organisms.

21. Gunshot Wounds of the Cauda Equina.

AT a recent open meeting of the Florentine Medico-Physical Academy, Professor F. SCHUPFER gave (*Lo Sperimentale*, Florence, 1916, lxx, 223) an account of two cases of shrapnel wound of the cauda equina. He remarked that the muscles of the leg generally receive their nerve supply from two, three, or even four spinal nerve roots, with the result that it is often difficult to diagnose central lesions from lesions of the peripheral nerves in this region by the muscular paralyses following injury; the diagnosis can be made, however, by observing the distribution of the anaesthesia, because the radicular distribution of the sensory nerves is quite different from that of the peripheral nerve trunks. Lesions of the third, fourth, and fifth sacral and of the coccygeal nerves show themselves by disturbances in the functions of the rectum, bladder,

genital organs, and perineal muscles, with anaesthesia of the ureter, rectum, and seat. Schupfer's first patient, while in the genupectoral position, was hit by a shrapnel bullet which entered the tenth right intercostal space behind the posterior axillary line. Without becoming unconscious he at once lost the power of moving his legs, which were extremely painful all over, and were more painful when he was moved and carried away on a stretcher. The pain gradually lessened, and at the end of a week had disappeared; flexion of the left leg became possible, but the right leg remained paralysed for a month. Haematuria and loss of control over the sphincters were absent throughout. Then the patient took to lying in bed with his legs bent up, extension being painful. Twelve weeks after the injury he exhibited a slight amount of loss of tactile sensibility in the middle third of the internal aspect of the left thigh, and there was considerable wasting of the muscles of the right leg and thigh. The patient was unable to extend his legs for himself, and forcible extension caused much pain in the knees and the sciatic nerves. The knee-jerks were absent; there was an Achilles jerk on the left side, but not on the right, and the plantar reflexes were weak and flexor. The *x*-ray examination showed that a round bullet was lodged in the spinal canal at the level of the fifth lumbar vertebra a little to the right; the vertebrae themselves appeared intact. The patient improved considerably under treatment with extension, massage, and tonics, but the extensors of the right thigh and the flexors of the right foot remained much impaired, and a slight Babinski reflex appeared on the right side. Electrical examination of the affected muscles failed to show the reaction of degeneration. The second patient received a perforating wound from a rifle bullet, which entered the left paravertebral region 3 cm. from the middle line at the level of the crest of the ilium and left the body in the right hypochondrium beneath the costal margin in the anterior axillary line. The patient immediately lost sensation and power of movement in the right leg, and vomited blood. There was incontinence of the urine for a fortnight, with insensitiveness of the urethra; the urine was highly coloured. The paralysis of the right leg lasted two months, and three months after the injury all movements, save dorsal flexion of the foot and extension of the four lesser toes, were possible. About six weeks later the patient came under Schupfer's care for free suppuration at the wound of entry, which had broken down after apparent healing, and for treatment for the muscular paresis. The leg reflexes were normal, though less on the right side than on the left; the nerve trunks were sensitive to pressure on the left side, but the right sciatic was insensitive; the patient had almost complete control over micturition. As in the first case, the right leg showed distinct muscular wasting. Discussing these cases, the author points out that in each the bullet entered the spinal canal through an intervertebral foramen, and in the second patient left it similarly, without injuring the bones; in the second case the stomach was perforated. In neither case were the motor and sensory paralyses comparable or parallel; this has often been observed in lesions of the cauda equina, and depends on the fact that the motor and sensory nerve trunks here run side by side, but in separate bundles. The prognosis was less good in the second case than in the first, because there was evidence of involvement of the bladder, and, in addition, the power of erection was lost, and had not returned after many months. Surgical interference should be thought of only in the last resort. A third case of lesion of the cauda equina was described by G. D'AGATA (ibid., p. 258). The patient, lying face downwards in a hollow, was struck by a number of shrapnel bullets in the back and lumbo-sacral region. One bullet entered at the level of the tip of the spine of the first lumbar vertebra; there were five other wounds. All healed satisfactorily. As soon as he was hit the patient felt both his legs paralysed, and had pains like strong electric shocks in the sciatic nerve areas, particularly on the right side; in a few days he lost control over the sphincters. About the tenth day the pains became less in the left leg and some power of movement returned; control over the sphincters was recovered in a month; the right leg improved more slowly, and there was anaesthesia at the back of the right thigh and leg. Nearly four months after the injury the patient showed flaccid paralysis of the right leg with great muscular atrophy; the left leg was paretic and very weak. The knee jerk and Achilles reflex were absent on the right side, increased on the left; the plantar reflex was absent on the right, diminished on the left; sensibility appeared normal in the legs. The reaction of degeneration was found in the muscles of the calf on both sides. Examination with the *x* rays showed a shrapnel bullet lodged in the right hand part of the body of the second lumbar vertebra. The patient improved considerably under treatment. Both Schupfer and D'Agata believe that haematorrhachis, held by Claude and Porak to explain many of the signs and symptoms met with in gunshot wounds of the cauda equina, can have had little or no share in the production of the troubles complained of by these three patients.

22. Splenectomy for War Wounds.

AT a meeting of the Paris Société de Chirurgie on May 31st (*Paris méd.*, June 24th, 1916) DEPAGE reported that he had performed splenectomy in 12 cases at the La Panne ambulance. There were 4 cures and 8 deaths. Of 4 cases in which the spleen alone was injured 3 were cured; in the remaining 8, in which the wound of the spleen was associated with lesions of other organs (kidney, liver, stomach, colon) there was only one recovery. From these figures, and from other observations of a like kind previously published, Depage thinks the inference may be drawn that the special gravity of splenectomy depends particularly on concomitant lesions of other organs.

PATHOLOGY.

23. The Movement of Foreign Bodies in the Brain.

VILVANDRÉ and MORGAN (*Arch. of Radiology and Electrotherapy*, June, 1916) bring forward a number of radiographs to show that movement of foreign bodies does occur in damaged brain matter. When the patient lies on his back for some time, the constant pressure of the foreign body on one spot in the brain matter causes it to sink, through the action of gravity, towards the occipital region. In one case a sharp nosed bullet lay in the right parietal lobe, and ten days later a second radiograph showed that the bullet had sunk backwards and downwards to a remarkable extent, and had also rotated considerably.

24. Neuro-muscular Pathology.

BOURGUIGNON (*Arch. d'électr. méd.*, July 10th, 1916) has confirmed certain previous conclusions of his as to the pathogeny and electro-physiology of muscular affections by examining large numbers of wounded at the neurology centre at Rennes. His conclusions are: (1) That the form of muscular contraction depends on the state of the muscular fibre and is independent of that of the nerve and of the nature of the excitant employed; (2) that among the lesions in the various muscular diseases and affections there is only a difference of degree and of evolution, not in the nature of the lesion; (3) that histological alteration of the striped fibre is shown functionally in the alteration of the form of the contraction, which becomes tonic, and that myotonia, non-persistent galvanotonus, etc., are only degrees of the same pathological reaction; (4) that neuro-muscular affections may be divided, from the pathogenic point of view, into two groups, one in which the causes—traumatisms, infections, and intoxications—are accidental, and the conditions may be curable, while the other, the pathogeny of which is still obscure, includes hereditary and familial maladies, apparently dependent on alterations of the internal secretions, and these are the progressive maladies; (5) that myopathies which at the beginning are localized, in reality extend to a much larger number of muscles than they appear to do clinically; the evolution does not appear to be indefinitely progressive in the case of one muscle, but what gives the affection its progressive character is that the processes are extended little by little to an increasing number of muscles, and that, as the result of causes which are obscure, the evolution is not made in all the muscles at the same rate. The author has been able to demonstrate among the wounded a purely muscular degeneration without lesion of the nerve supplying the muscle. The form of contraction depends only on the state of the muscle, and not on the state of the nerve. He has also brought into evidence the action of cold on the form of a muscular contraction. This is easily seen in the case of small muscles of hands and feet. The slowness of contraction and the galvanotonus disappear when the hand or foot is warmed. This also, in Bourguignon's judgement, gives strong support to the view that the form of contraction depends only on the muscle and is conditioned by the physico-chemical state of the muscle, illustrated permanently by anatomical alterations, and temporarily by the action of certain physical or chemical agents, one of the most important of which is cold. Electro-diagnosis should never be carried out on a cold subject.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

25. Picric Acid Jaundice.

Chavigny (*Paris méd.*, August 19th, 1916) says that one of the affections most frequently simulated in the present war is jaundice, which is artificially produced by ingestion of picric acid. In regard to suspected cases of this form of malingering, the medico-legal expert should ask himself (1) if there are not certain circumstances in which picric acid could be introduced into the organism without fraudulent intention, and (2) what is the elimination cycle, clinical and chemical, of ingested picric acid? When applied as a dressing over extensive burns, picric acid may be absorbed. Fatal cases have been seen in infants due to this method of dressing, but in such circumstances the cause of the poisoning is not likely to be overlooked. On the other hand, all treatises on adulterations speak of the employment of picric acid by dishonest brewers. Certain men charged with wilful simulation of jaundice have possibly been victims of adulterated beer. In practice, however, the accidental ingestion of picric acid as an alimentary substance is not met with. The acid is often employed as an explosive; both French and other projectiles contain it, sometimes in great abundance. Chavigny asks whether the dust of the acid from that source may not sometimes be absorbed in sufficient quantity to produce jaundice. Observations made in powder factories where explosives with picric acid are made supply an answer to these questions. In the powder factories are seen workmen occupied in sifting powder whose whole skin is stained yellow by the dust in which they constantly live. The urine of twenty such workmen was examined. Among them some had been employed on the work for only three days, a time insufficient to produce habituation, whilst others had worked in the acid for several months or years; in none of these cases did the urine contain either picric or picramic acid. Inhalation of picric dust, even when prolonged and abundant, does not cause symptoms of jaundice, and picric acid cannot be recovered from the urine; from this it may be inferred that the incomplete explosion of charges can be eliminated as a cause of picric jaundice. In animals the subcutaneous injection of a picric acid solution always causes local reaction—pus and yellow eschars. The clinical phenomena seen in man and the experimental symptoms observed in animals seem to show that the action of picric acid is chiefly on the kidney. On microscopic section the liver is found absolutely normal, but the kidney shows typical lesions of acute nephritis with glomerular haemorrhages and alterations in the cells of the tubuli; the nuclei are faintly coloured and the vacuolar protoplasm is very granular and partly destroyed. Extremely sensitive reagents do not reveal the presence of the acid—picric or picramic—unless the dose ingested reaches or exceeds 0.30 gram. It may therefore be concluded with sufficient certainty that if the characteristic reactions are seen in the urine the ingestion of the product is not accidental.

26.—At a meeting of the Medico-Physical Society of Florence, held on June 15th (*La Medicina Pratica*, August 31st, 1916), G. Marchetti said that picric acid ingested by malingerers in doses of about 30 cg. twice a week in cachets or rolled up in cigarette paper to prevent yellow discoloration of the tongue and mucous membrane of the mouth, may cause true jaundice with bile pigments in the blood and urine, or a false form in which these are absent. The symptoms of picric acid intoxication consist essentially in acute gastro-enteritis, great enlargement of the liver and to a less degree of the spleen, acute nephritis, sometimes with delirium, convulsions, and special discoloration of the skin, mucous membranes, and urine. If the dose taken is sufficient to cause true jaundice, the colour of the skin and mucous membranes does not differ appreciably from that seen in slight forms, but in artificial jaundice the colour of the skin is orange-yellow, less marked on the mucous membrane, while the conjunctiva is greenish-yellow. An urticaria extending more or less over the whole body has been described. From the diagnostic point of view the absolutely characteristic colour of the urine is very important whether it contains bile pigment or not; once seen this cannot be forgotten. The first urine passed is coloured more or less deep red, with yellow or reddish-yellow froth; the colour afterwards gradually becomes successively red and yellowish-red, to a degree suggestive of the presence of blood, and this continues, though gradually fading, for many days after the ingestion of the picric acid. Haemoglobin, glycogen, and creatin transform picric into picramic acid. It is therefore picramic and not picric acid that must usually be looked for in the urine and blood serum in suspected cases. Among the many reactions proposed for the determination of picramic acid from urine, the following procedure has been found by the author at once the simplest and the most delicate. The urine is strongly acidified with sulphuric acid; the urine loses its brownish tint and recovers its normal colour. Then it is well shaken up with chloroform. The chloroform extract with ammonia added takes on a well marked orange-yellow colour, which on shaking disappears almost completely in the watery solution. Another test is the property acquired by the urine of keeping without putrefaction for a very long time.

27.—P. L. Marie (*Paris méd.*, September 30th, 1916) says that while acute picric acid jaundice is now well known to medical officers at the front, there is a chronic form with which doctors in the sanitary formations of the interior do not seem to be familiar. Soldiers, by taking small doses of the acid repeated at suitable intervals, keep up an interminable jaundice. The doctor in charge thinks he has to do with a chronic affection of the liver. The author records three cases which show that this kind of simulation imposes on many medical officers who, accepting too confidingly a previous diagnosis of catarrhal jaundice, allow themselves to be misled by trickery, and help to perpetuate the initial error by passing on the diagnosis to medical boards, which, having to be content with rapid examinations, in their turn confirm it. Details of one of P. L. Marie's cases may be given in illustration. A man, aged 32, who had been discharged from the army on account of inguinal hernia in 1908, was called up again, and pronounced fit for active service in February, 1915. He was sent to a training centre, where, at the beginning of July, he was attacked by jaundice with vomiting for which he was admitted to the regimental infirmary. From it he was sent a few days later to an auxiliary hospital, where he remained three weeks; he was discharged with the diagnosis of "jaundice," to be readmitted shortly afterwards to another auxiliary hospital, where he remained many months. Struck by the persistence of the jaundice the doctor under whose care he was had him sent to Vichy, where he went through a course of thermal treatment (January 12th to February 12th, 1916) followed by a convalescence of two months for "catarrhal jaundice with a tendency to chronicity." He rejoined his dépôt on April 15th, still with jaundice, for which he was again admitted to the infirmary; finally, on May 19th, he was presented by his doctor as a case of chronic icterus to a medical board, which, being suspicious, sent him to P. L. Marie's service, to which he was admitted on May 24th. After a single examination it was noted that instead of the yellow coloration with greenish reflection of genuine jaundice, the skin showed a very marked orange-yellow tint with a warm copper reflection. On the strength of this Marie predicted that picric acid would be found in the urine; this was soon verified. Neither the urine, which was non-albuminous, no the serum, which was of a deep orange colour, contained bile pigments. During the fortnight the man was kept under observation in the service the jaundice gradually diminished, without completely disappearing. A week after his discharge no sign of jaundice was visible, except a yellowish tint of the nails. Commenting on the cases, Marie calls attention to the long duration of the imposture; in two the malingerers were jaundiced for five months, in the third for nearly eleven. In a fourth observed more recently the jaundice had lasted thirteen months, and temporary discharge had been granted by two boards. A third, more on the alert, decided that the man should be kept under observation,

and the fraud was discovered. The long duration of the discoloration of the skin is explained by the facility with which the icteric tint can be kept up by the ingestion of very small doses of picric acid (almost always 0.25 gram) at intervals of ten to fifteen days. The general health was unimpaired; the patients did not lose flesh and showed no sign of gastro-intestinal disturbance. Notwithstanding the prolonged intoxication the liver was not affected; the function of the kidney continued normal and no changes were found in the blood. The coppery reflection of the jaundiced skin and the orange bichromatic tint of the serum, so different from the golden-yellow colour of the serum in true icterus, doubtless depends on the presence in the blood of picramic acid, which has a deep red colour. The fraud is easily exposed when the possibility of it is known. The only difficulty that might arise is in distinguishing the artificial jaundice from certain forms of acholuric icterus, particularly the haemolytic variety, which is sometimes seen in soldiers; Marie has had two cases under his care. The absence of bile pigments in the urine of a jaundiced patient is not alone sufficient to warrant a diagnosis of simulation. Before a charge of fraud can be established chemical proof of the presence of picric acid or its derivatives must be obtained.

28. Shell Shock.

IN a thesis presented to the University of Lyons (summarized in the *Journ. de méd. et de chir. prat.*, September 25th, 1916) CHARLES GRANDCLAUDE gives the results of his observations of certain effects produced by the explosion of large shells. These differ from those of laceration of viscera, lesions of nerves or other internal wounds caused by physical shock, and, on the other hand, are not due to emotion producing psychic and neuro-psychic disturbances. By causing vibration of cell walls, vessels, nerves, and the different organs this atmospheric traumatism may produce generalized disturbances which, without being referable to definite irremediable lesions, are nevertheless the expression of a profound perturbation affecting especially the circulation of the brain, cord, and viscera. Most frequently the symptoms disappear in a few days or weeks. This distinguishes them from internal wounds which are incurable. One of the first disturbances which occurs at the very outset of every case of commotion is stupor; all psychic activity seems to be suspended. The injured man is in a state of complete physical and mental asthenia. When carried to the ambulance he lies inert in bed, showing none of the instinctive needs (passage of urine or faeces). He does not ask for food but chews and swallows whatever is given him. In slight cases this condition of complete stupor lasts only a few minutes; in others it may last several hours, in others days or it may be a week. In the majority of cases this deep stupor after a day or two gives place to cerebral torpor. There is slowness in perception with confusion of ideas; the patient has to think for a long time before answering the simplest question. There is loss of memory with disorientation in regard to time and space. Sometimes stupor gives place to a condition of hallucination with excitement and war delirium. Among somatic disturbances associated with the psychic phenomena are headache—which may be intense—asthenia, disorders of sight and smell, vasomotor and visceral disturbances, syncope, dyspnoea, and diarrhoea. To this symptom-complex may be given the name of commotional syndrome; this should be distinguished from emotional phenomena because at first there is no fear. Often the man has not heard the coming of the shell which is to knock him over. He remembers having been suddenly thrown down; then there is a blank in his memory. Emotion has no place; the air shock is everything. That is the physical factor which plays the chief part in the etiology. The symptoms are due to compression of air causing a vasomotor disturbance of the whole organism; to this effect debilitating causes, such as overstrain, fatigue, and nervousness, may contribute. Grandclaude holds that the evolution of commotional disturbances depends (1) on the violence of the shock; (2) on the general condition of the patient before the explosion; and (3) on his antecedents. The stuporous forms appear to be the most serious. Some men remain in that state for many months, lapsing later into a condition of childishness and foolishness, which suggests the onset of dementia praecox. But in the immense majority of cases the principal symptoms fade away quickly, although the improvement does not amount to a true cure. Even in the slighter forms patients are often troubled by headache for months; loss of memory and slowness of ideation also persist. Relapse is frequent. If the organism has been made more sensitive by some previous shock it appears that a predisposition is engendered which makes the effects of a second shock, however slight, graver than those of the first.

SURGERY.

29. Gunshot Wounds of the Lung.

MARIO SAMMARTANO (*Il Morgagni*, August 31st, 1916) says that a fact constantly illustrated in the present war is the relative mildness of wounds by bullets. When they do not touch vital organs, such as the brain, the heart, or the great vessels, or do not cause perforations of the intestine or other abdominal lesions with consecutive septic peritonitis, the wounds produced heal rapidly. The projectiles may go round bones without fracturing them; the slightest resistance of an aponeurosis or the sheath of a vessel may turn them aside; they do not lacerate or smash the tissues through which they pass, and they rarely remain embedded in them. The edges of the aperture of entry and exit are small, clean, and not bruised. This explains how many men are not aware that they have been struck for some hours after the wound. Often it is fatigue that later irritates the wound and makes it painful. Wounds are often seen which give at first sight the impression of having been produced by bits of grenade or shrapnel, in which there are afterwards found to be deformed bullets; in such wounds the aperture of entry is wide, irregular, with torn edges and a sinuous track; the aperture of exit is larger and more irregular than that of entry. These wounds are much more frequent in modern warfare, and may have the appearance of wounds produced by dum-dum, that is to say deliberately deformed, bullets. Even penetrating wounds of the thorax with injury of the lung, caused by gunshot, are generally remarkably mild in character. The author in two months' service in a field hospital observed twenty-two such wounds, almost all of which were brought directly from the regimental dressing stations because at first sight they were considered in a condition to be operated on. In none of them was there fracture of ribs, nor had the projectile remained in the body. In one case there was a fracture of the scapula; in another that bone was cleanly perforated without fracture. All the men complained of pain in respiration, and had frequent attacks of cough and of haemoptysis. In one, in which the aperture of entry was in the right mid-clavicular line at the level of the lower border of the fourth rib and that of exit immediately below the scapula, there was never cough or bloody expectoration. Had, the author asks, the projectile run round the thoracic cage or had it made its way between the pulmonary lobes? The first hypothesis was excluded as there was no external sign, nor pain on pressure of the external parts. Absence of haemoptysis has not infrequently been noted in wounds of the lung during the whole course of the lesion. In another case there was moderate effusion of blood into the left pleura, but reabsorption was rapid and the effusion did not greatly influence the general course of the case. The temperature never exceeded 38° C., and the rise was generally most marked between the second and the third days. In about one half of the cases there was no pyrexia. The bloody expectoration in no case continued beyond the third day after the wound; in most of them it occurred only within the first twenty-four hours. In three cases an icebag was applied; in one only was the pain so severe that repeated injections of morphine were required. In general an aseptic dressing was applied to the external wounds; this, with absolute rest, was sufficient to bring about a rapid cure. But by way of precaution, sedatives for cough were always given in view of the possibility of haemorrhage. In none was there secondary haemorrhage of the intercostal and internal mammary arteries such as has been described by the French surgeons in the present war. Nor was there any secondary pleuro-pulmonary haemorrhage, such as is frequent in grenade and shrapnel wounds, owing to softening of the tissues in the track, or erosion of the vessel walls by fragments left *in situ*. The duration of treatment varied on the average from ten to fifteen days. In two cases in which there was effusion of blood into the pleura and comminuted fracture of the scapula recovery required respectively three and five weeks. In three others the period could not be precisely ascertained, as they were removed in excellent condition in the hospital train. All enjoyed a comparative sense of well-being, and did not give the impression that so important an organ as the lung had been damaged; it is impossible, therefore, to make any comparison between the sufferings of such wounded and the much more serious

cases of those injured by fragments of grenade, shrapnel, or bombs, although with lesions mostly external. In two cases there was diffuse subcutaneous emphysema of the wounded side of the chest. In both the air was absorbed before the third day. The author points out that the facts recorded have only a very relative statistical value, as the fatal cases or the very serious ones of pulmonary lesions from whatever cause generally remain in the first line sanitary stations and scarcely ever reach the field hospitals.

30. Simulation of Abscesses.

CHAVIGNY (*Paris méd.*, August 19th, 1916) describes methods of simulating abscess by the injection of irritant substances. The substances used to produce phlegmons are essence of turpentine, petroleum, or essence of petroleum. Suspicion should be aroused when such cases occur, as it were, epidemically. Another suspicious circumstance is that they develop on the same spot. Among other things to be taken into account is the fact that, unlike what is seen in the case of abscesses produced by transfixion of the skin with some irritating filament (spurge flax) or septic puncture with a needle or thread impregnated with tooth tartar, saliva, or faecal matter, the injection of petrol or its essences with a Pravaz's syringe leaves no trace at the point of entry. Swelling, redness, and heat are the same as in ordinary abscess, but phlegmons caused by petrol or turpentine are only slightly painful. The seat of election is the neighbourhood of the knee; they do not prevent extensive movements of flexion of the limb. There is little or no glandular enlargement. But these phlegmons, although aseptic, cause a temperature reaction which seldom goes beyond 38.5° C. Fluctuation is distinct about the fourth or fifth day, and then there appears a sign which should attract attention. A puncture made in the softened focus gives issue only to a tiny drop of pus; the needle is almost immediately blocked with clots. In the abscess cavity there is no definite pus, but a pulp of sphacelated shreds of subcutaneous cellular tissue. When the suppuration has been produced by essence of turpentine, these shreds are for the most part large, and swim in a small amount of reddish, very bloody serosity. The surgeon exploring the cavity which he has just opened is surprised to find burrows running in different directions which prolong to a great distance the principal focus, and detach the skin in places where on the surface the integument looks absolutely unbroken. In the depth of the wound the subjacent muscles are seen exposed but otherwise sound. Frequently large fragments of skin become secondarily sphacelated around the surgical wound. Healing after incision always takes place with surprising rapidity. The non-infected wound quickly granulates, and the scar has not the importance which might be expected from the extent of the lesion. The pus is aseptic, for the essence of turpentine has a bactericidal action, as is also the case with petrol and essence of petrol. Aseptic pus is very exceptional in abscesses. This is an important feature which often warrants the presumption of simulation. The rapid evolution of these abscesses leads at first sight to the supposition that the pus contains none but polynuclear bodies. Nevertheless examination constantly shows, in the midst of numerous necrosed cells which cannot be stained, a very marked predominance of large mononuclears in the proportion of 50, 60, and often 70 per cent., the rest being constituted by polynuclears. This, however, is not characteristic of artificially produced phlegmons, for it occurs in cases of great laceration of the connective tissue by extensive injuries. The pus of abscesses caused by essence of turpentine is extremely grumous and dirty red in colour. The fluid evacuated at the time of the incision generally has a slight odour of essence of turpentine, but this smell is so faint that it does not carry conviction. The pus from petroleum abscesses has the same colour and the same appearance as that from essence of turpentine, but on the other hand the odour of petroleum is extremely marked. On the surface of the pus fatty droplets of petroleum swim about. The odour and aspect are so typical that the pus should be kept sealed up in flasks as conclusive evidence when an expert report has to be presented. The pus produced by automobile essence is a dirty slightly yellowish white in colour and does not contain clots. It is a kind of very viscous jelly, having no smell of essence of petroleum. The chemical examination of the injected substances does not give the results that might be expected. The essence of turpentine injected has been partly reabsorbed, and there is always too little of it to allow the classical reactions to manifest themselves. The polarimeter proved useless to detect the slightest rotatory movement of pus carefully decanted. Chemical analysis allows no better definition of petroleum in the pus, as the substance in small amount has no reaction proper to itself. The same thing holds good with regard to the essence of petroleum. Although there is no absolute proof of the artificial production of abscesses all the facts taken together supply cumulative evidence sufficient for practical purposes.

31. Measurement on X-ray Screen of the Depth of Embedded Projectiles.

MERCIER (*Arch. d'électr. méd.*, May, 1916) describes an extremely simple process for measuring on the *x*-ray screen the depth at which a foreign body is lying in the tissues. The only apparatus which is necessary can be quickly improvised. It consists of an upright strip of wood, which is attached to the edge of a wooden base to keep it steady. Along the external border of this vertical piece, at distances of 2 cm. exactly, fine headless nails, or, better still, fine steel needles, are inserted. Thus the appearance is like that of an upright comb with teeth 2 cm. apart. If, now, it is necessary to locate a foreign body in the thigh, the patient having been laid on the table with the *x*-ray tube below and the screen above, this small upright piece of wood is placed at the side of the thigh, its base resting on the table, and its teeth turned in the direction of the foreign body. The tube is then placed in such a position that all the teeth are seen on the screen as one image. The whole of them in that case are in the path of the normal ray, as is the projectile itself, and the position of the image of the foreign body at this point is marked on the skin. The tube is then displaced in a direction perpendicular to the teeth of the little apparatus, the extent of the displacement being 15 or 20 cm. or more (this matters little). On the screen there is now projected, instead of a single image, a series of images which are displaced along the opposite direction to that of the tube movement. The intervals between these separated images of the teeth are unequal, being more considerable in the case of the lower teeth—that is, the teeth nearer to the tube. The image of the projectile is, of course, similarly displaced, and its distance from the original point will be the same as the displacement of the image of any particular tooth which is in the same horizontal plane. If the shadow of the projectile appears on the screen between the shadows of the third and fourth teeth of the comb, counting from the base, it is evident that as there are 2 cm. between each tooth, the third and fourth teeth represent distances of 4 cm. and 6 cm. respectively from the table, and the projectile, being intermediate, is situated 5 cm. from the plane of the table, or, which is the same thing, from the posterior surface of the thigh. Simple subtraction gives the depth from the anterior surface of the thigh, and the position of the projectile in the normal ray having been already marked on the skin, it is known that the projectile is situated at a depth of so many centimetres from that point. The procedure is equally applicable to arrangements in which the tube is above the couch or in which the patient is in the standing position, and the author declares that it has been used concurrently with other procedures, and has been found to give results as clear and accurate as any, while its simplicity and the absence of any elaborate apparatus or formidable calculation are decided advantages.

32. Venereal Disease in Armies.

E. KILBOURNE TULLIDGE, formerly captain-surgeon in the Austrian army and military surgeon, French Red Cross, says (*Military Surgeon*, July, 1916) that the statistics of the French, German, and Austro-Hungarian armies show that the troops, both in the home zone and on the front, are contracting venereal diseases with results far beyond the records of any previous war. Of the three important venereal diseases commonly met with syphilis is the most frequently manifest among Austro-Hungarian soldiers, about 33 per cent. of whom are married men. Primary and secondary lesions make up more than 78 per cent. of all cases, and of these primary extragenital lesions affected 60 per cent. Calculations were made on a record of over 1,000 men who applied for treatment both at the regimental post and at a base hospital. Complications of a rapidly spreading, purulent, ulcerative type in which the bacillus of Ducré was found occurred in about 70 per cent. of the cases seen at the regimental post, and 8 per cent. of the men who applied at the hospital. The large percentage of these complicated infections recorded and the small number of simple single cases reported was probably due to the pain and inconvenience that accompanied the former. It is highly probable, says Tullidge, that the statistics of the medical and military authorities do not include all the men infected with syphilis, for there

are many who, having no complaint but the small circular abrasion, do not apply for treatment. The *moral* of some of the men at the front is far from excellent. Men under military supervision in the field resort, as is to be expected, to various forms of sexual perversion. This is particularly true of the ordinary private of the peasant class. Masturbation and pederasty are the most frequent practices although there are some who resort to still lower forms of vice. Instruction in the dangers of infection and in prophylaxis should form part of the preliminary military training, and instruction and should be given not only to recruits but by way of reminder to those who have served in the ranks. The idea that abstention is harmful should be vigorously combated. When conditions render the risk of infection especially great systematically repeated inspection of the men will reveal unsuspected cases in the first stages. A careful inspection of two regiments (about 2,200 men) disclosed primary lesions on nearly every part of the body, not excepting the palms and soles. Over 60 per cent. of the discoverable lesions, the diagnosis of which was verified by the Wassermann test, had not been reported; many of the men did not realize the seriousness of their complaint. Others among the 40 per cent. who reported were undoubtedly produced intentionally for the purpose of escaping military duty. Gonorrhœa was the most common disease of the malingerer. Five cases came directly under Tullidge's observation in which the men had paid a comrade suffering from the disease to allow them to contract it so that they should not be sent back to the firing line. One of them was his own orderly, who confessed after a long cross-examination. In the way of treatment besides the ordinary methods Tullidge mentions what he calls a novel and rather excellent one for venereal bubo, practised in the field, where it was accidentally discovered by a German officer. He treated the partly inflamed swellings by roentgenography (10–20 × with a 0.5 mm. aluminium filter), with the result that in a short time fluctuation, pain, redness, and swelling gradually disappeared, and the retrogressive changes which followed left only a small pigmented spot or scar.

33. Orthopaedic Surgery in War.

R. B. OSGOOD, of Boston (*Journ. Amer. Med. Assoc.*, August 5th, 1916), lays stress on the large part orthopaedic surgery has to play in war in assuring the physical efficiency of the soldier while in the service, conserving and restoring the function of the locomotor apparatus of the wounded, and in providing the physical possibility and perhaps reorganizing the means by which war cripples may be made happy, productive, self-supporting citizens. The military "setting up" is not solely a requirement for appearances, but has also a connexion with health. Life insurance figures suggest that the chest expansion up to certain limits is in direct ratio to the quality of the risk, and the maintenance of a good posture is surely an essential orthopaedic concern. Forced marches are a common necessity in warfare, and this alone is sufficient excuse for any amount of attention given to the feet. The opportunities for preventive orthopaedic surgery have not ceased when the base hospital has been reached; indeed, they have hardly begun. Wounds in war are nearly always infected, and contractions and adhesions are almost always certain to form unless they are anticipated, and the future function provided for quite as strenuously as the healing of the wound. Osgood has been impressed by the power of repair in the ends of bones and the amount of resistance of the synovial membrane. He recommends conservatism as regards early excision of joints. *Brisement forcé*, though usually resorted to if early gentle and passive motion has not prevented permanent adhesions, is an unsurgical procedure, and rarely successful. There are now several mechano-therapeutic machines working on the principle of a pendulum which are very useful for slowly making joints pliable and stretching out muscular contracture. As the war progresses there will be no limit to the field of what may be called orthopaedic operative surgery; this may not be advisable perhaps for a year or more, as a rule, after the injury, when all sepsis has been worked out of the system. Many limbs are now saved which formerly would have been amputated.

34. Wounds of Peripheral Nerves.

V. PUTTI, in a communication made to the Medico-Chirurgical Society of Bologna (*Il Morgagni*, April 30th, 1916), stated that in the Istituto Rizzoli 51 cases of wounds of peripheral nerves had been observed since the beginning of the war. In 21 of these the radial nerve was injured, in 10 the brachial plexus, in 9 the median, in 5 the ulnar, in 3 the sciatic, in 2 the perineal, and in 1 the sacro-lumbar plexus. Of the radial cases, 8 were operated on, and the author gives the results of electrical and radiographic examination in seven, with the operative findings and the changes observed in the post-operative period. The most important statistical data are summarized as follows: In 3 cases the wound was caused by artillery projectiles; in 4 by gunshot. In 4 cases the paralysis was associated with fracture of the humerus, in 1 with a paraosteal osteoma; in 2 only the soft parts were touched. Operation was performed at intervals of twenty-four to sixty-three days after the injury, and always in wounds completely brought together, and when fractures were consolidated. The indication for operation was based on the results of objective examination and electrical testing—the morphological aspect of the limb, the degree of atrophy and muscular hypotonus, the conditions of superficial and deep sensibility, the state of the reflexes, pain (spontaneous and producible), mechanical excitability of the muscles. The lesions affected the nerve in various points of its course from the axilla to the bend of the elbow. In one case there was total division of the nerve with a terminal neuroma, central and peripheral; in one complete continuous division with terminal peripheral neuroma; in two partial division; in one compression by bone callus; in one partial division and compression; in one fusiform central neuroma with haemorrhagic and sclerotic adhesions. The operation consisted in freeing the nerve from fibrous or bony adhesions. When the wound was found the divided surfaces were brought together and sutured after destruction of the terminal neuromas in the cases of total division, partial suture of the trunks in those of partial division, removal of the causes of compression or irritation, and isolation of the trunk in the others. In every case the reaction of the nerve to electric stimulation was tested in the operative field. The operation consisted in the exposure of the nerve in the whole of its brachial course. The greatest care was taken in the adaptation of the divided surfaces and the exact reconstitution of the topography of the nerve trunk. The sutures used were silk for the neurilemma, catgut for the parenchyma. In every case the nerve trunk was isolated within a section of dog's artery suitably prepared. The limb was afterwards immobilized by a plaster apparatus in a position of relaxation of the nerve and correction of the faulty attitude of the hands. In five months after the first operation there was complete cure in one case (neurolysis for central neuroma); in four there was decided improvement. In two cases operated on shortly before the date of report there was no change in the state of the nerve.

THERAPEUTICS.

35. Ambrine in Burns.

AT a meeting of the Paris Société de Chirurgie on September 13th (*Paris méd.*, October 7th, 1916) KIRMISSON showed four patients treated by Barthe de Sandfort with "ambrine" (see BRITISH MEDICAL JOURNAL, September 2nd, p. 333) for severe burns of the face, trunk, and upper limbs. The scars were supple and scarcely at all retracted. MICHAUX said he had obtained good effects with the paraffin treatment, which, besides its other advantages, soothed pain and quickened cicatrization. H. TOUSSAINT said the ambrine treatment had been successful in his hands in dealing with burns in the Lille hospital in 1898. He added that any one could convince himself of its efficacy by examining the cases treated by Barthe de Sandfort in the hospital of Saint-Nicolas d'Issy-les-Moulineaux.

PATHOLOGY.

36. Deaths after Wound of Heart.

AT a meeting of the Paris Société de Chirurgie on September 13th (*Paris méd.*, October 7th, 1916) LERICHE communicated an observation of Despla, and Chevalier of a soldier brought in a dying state to the dressing station three hours after being wounded. No intervention was possible. The autopsy revealed the presence of a machine gun bullet in the front wall of the left ventricle of the heart, three centimetres above the apex. There was besides a vast haemothorax in the left chest (more than 3 litres of blood), with a perforation of the upper lobe of the left lung, and a punctiform perforation of the pericardium, in which there was no blood. Leriche, in calling attention to the fact that the man had lived three hours after such injuries, said that in wounds of the heart death was immediate only in one of six cases.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

37. Paraplegia.

MENDELSSOHN (*Arch. d'électr. méd.*, July, 1916) describes two cases of paraplegia occurring in soldiers, with almost complete recovery in both instances. In the first case the paraplegia was the result of medullary traumatism due to a wound, the bullet entering above the left clavicle, and passing out between the right scapula and the vertebral column. The symptoms were such as to make it plain that the medullary substance itself had been attacked, either by compression or by anatomical alteration, though the site of the lesion could not be precisely localized. The patient was submitted to electrical treatment; galvanization of the spinal marrow with a descending current at first, and then with an ascending one, and faradization of the paralysed muscles. All the symptoms improved progressively, and the patient is now able to walk with ease, and has no sphincter troubles or troubles affecting sensibility, although the reflexes are still not normal. The author considers that this is a valuable addition to the series of cases which go to show that ameliorations of paralysis resulting from medullary traumatism are possible, and that the prognosis is not particularly aggravated by the presence of multiple scars, of which there were seven in this case. The second case treated was one of temporary paraplegia, probably of organic nature, and was rapidly cured. The man was brought to the hospital with a diagnosis of chronic appendicitis, and was operated on; but ten days after operation, when he appeared to be entering into convalescence, he complained of intense headache and some disturbances of vision, and although these symptoms cleared up, two days later he declared that he could not pass urine spontaneously. On examination it was found that there was complete paraplegia with retention of urine, no fever or pain, but abolition of the patellar and Achilles reflexes on both sides. This paraplegia persisted without modification for six weeks, when the movements progressively re-established themselves, and now the paralysis has almost completely disappeared; the patient walks well, although he is not able to take long marches, and the urinary function is normal. As to the nature of this paraplegia, the author considers that it had a character clearly organic, but it is difficult to make sure as to the direct cause of the lesion. The time taken in recovery was about 3½ months. He concludes by suggesting that the prognosis of paraplegia due to medullary lesion in general, whether of infectious origin and inflammatory nature, or to traumatism following upon a wound, is not always so grave as there is a tendency to believe.

SURGERY.

38. Wounds of the Abdomen by Projectiles.

G. ROUHIER (*Rev. de gynéc. et de chir. abdom.*, December, 1915), who was attached to a mobile surgical station close to the firing line, had under his care, from July 25th to December 1st, 1915, 46 cases of projectile wounds of the abdomen. The majority were caused by shells, and of these 31, or 67.4 per cent., recovered. All were admitted within a few hours of injury, and were kept under observation till cure or death. In 15 cases an operation was performed; there were 9 deaths, giving 40 per cent. of recoveries. In 31 there was no intervention; among these there were 6 deaths, giving 80.6 per cent. of recoveries. The author's conclusions are as follows: In the case of intestinal wounds the surgeon should operate without hesitation or delay, provided he has an adequate equipment at his disposal; abstention means inevitable and fatal peritonitis, except in a few cases of isolated lesion of the large intestine, which make up almost the total number of spontaneous recoveries. When the intestine is not touched, particularly if it is full, and bleeding is not profuse, the patients may be left alone. In such cases, as well as in those which have been operated on, absolute rest and the application of ice to the belly are indispensable. This primary division of cases corresponds to the supramesocolic and submesocolic sections of the abdominal cavity. The limit is indicated with approximate accuracy for clinical purposes by a horizontal tangent to the lower borders of the false ribs. This is the critical line of abdominal wounds. Wounds the entire track of which is situated above that line may heal spontaneously, exception being made, however, of wounds of the left hypochondrium, as injuries of the spleen are more serious than those of the liver, and the splenic flexure of the colon may be wounded by projectiles traversing the base of the hypochondrium. It would be wrong, however, to conclude that war wounds of full viscera are as a rule not serious. The truth is that only men with slight wounds of the upper abdomen, as in the case of chest injuries, reach the dressing stations. The *grands blessés* die on the field from immediate haemorrhage. The nature of the projectile need not be taken into account in considering the question of operation. The relative benignity of bullet wounds holds only for those fired from a long distance; those fired close at hand, as from trenches, make wounds as severe as shells. Projectile wounds of the abdomen are all serious because the trophic shock and the delay in cicatrization which are features of all projectile wounds in them are at their maximum. They cause a suspension of vital recuperative power which considerably lengthens the critical period. Outside this general proposition the factors of gravity special to each case consist in (1) the number, extent, and dissemination of the intestinal lesions; (2) the multivisceral ity (Quénu), especially the combination of lesions, of the small and great intestine; (3) the multiplicity of wounds over the whole body, such as is seen especially in men struck by the explosion of aërial bombs and those falling in the trenches; (4) the factors—such as the amount of haemorrhage, age, and constitutional taint—which diminish power of reaction; (5) the time that has elapsed between the wound and intervention—in other words, the degree of peritonitic invasion. A study of the anatomical lesions shows that single and limited wounds of the intestine are the exception; multiple, and even multi-visceral, destructive and disseminated wounds are the rule. The author divides those he has seen as follows: (*a*) Direct lesions in the track of the projectile—perforations, lacerations, crushing, sometimes simple contusion. Whatever their nature, direct wounds of the intestine have this feature in common, that they are surrounded by a zone of mortification and cannot be sutured without freshening. (*b*) Indirect lesions outside the track of the projectile; these consist of tearing of the mesocolon with or without laceration of the intestine; they are especially due to bursting from abdominal hyperpressure and are peculiar to the small intestine. Indirect wounds have not a mortified edge and can therefore be sutured without freshening. One of the most frequent and characteristic types is the coexistence of a wound of the large intestine with one or several ruptures of the small gut at a distance. The consequence is that intervention can only consist in an extensive laparotomy with systematic exploration of the whole intestine in all cases—a very complicated, very long, and very serious operation. It is all the longer when there are multiple wounds outside the abdomen, as these cannot be neglected without risk of disaster. When these complicated lesions are left to themselves or are operated on too late they end in generalized peritonitis. Local peritonitis occurs only in particularly favourable circumstances where limited lesions are situated in pouches of the peritoneum that can easily be shut off. The general peritonitis has very special features, an extremely rapid course, flattening of the belly, with hardly any fluid. In the first hours only the wounded loops are modified in appearance (paralytic dilatation and congestion), whilst the coats remain supple and easy to suture. From the eighth hour, sometimes earlier, the coats become puffy, and have less power of repair. From the twelfth to the fifteenth hour peritonitis is general. It often causes death from the fifteenth to the twenty-fifth hour from adynamia which is often difficult to differentiate clinically from the terminal stage of profuse haemorrhage. Hence it is imperatively necessary to intervene at the

earliest possible moment; the saving of an hour is often the saving of a life. The wounded man should be taken at once to the dressing station. The diagnosis must be made rapidly, but without sacrifice of precision; the only sign which is never misleading as regards the existence of an intestinal wound is general reflex contracture—wooden belly. When there is only a wound of entry, *x*-ray examination alone can reveal the site and track of the projectile, but it must be done rapidly. Although owing to the frequency of distant rupture of the small intestine it cannot show all the wounded parts, it often indicates what viscera are certainly the seat of direct lesions. It also determines the route which in each case will lead most directly down to *certain* lesions whilst allowing exploration of the rest of the intestine and the discovery of *possible* lesions. In the treatment of the lesions simple suture, resection, and exteriorization each has its special indication. Isolated suture must be preferred whenever it is possible to be content with it. But resection is necessary whenever an accurate repair cannot be got otherwise, as when a segment is doomed to ultimate necrosis, and in the author's opinion, even when it gives an appreciable gain of time. Exteriorization is allowable only for the large intestine or the terminal part of the ileum. Recourse must be had to it when the condition of the intestinal coats does not allow suture or when the general condition of the patient forbids a more prolonged operation. Every intervention should end in a careful cleansing of the abdominal cavity in all dependent parts. For this purpose lavage with ether in moderate strength is valuable. The principal focus of the lesion must be thoroughly drained and to this should be added complementary draining of Douglas's pouch.

39. Extraction of Projectile from the Posterior Mediastinum.

G. Beri (*Rivista Ospitaliera*, July 15th, 1916; *Morgagni*, October 2nd) reports the case of a soldier wounded on March 9th, 1916, by a fragment of grenade in the chest. In the left scapular region, in the centre of a large patch of burn of the second degree caused by the application of tincture of iodine, there was an eschar of the size of a *soldo* (about equal to a halfpenny); in the middle of this there was an irregular hole about 2 cm. long leading to a track directed forwards and inwards. The exploring finger passed through the scapula. Radioscopic examination showed a comminuted fracture of the left scapula and the presence of a large irregular fragment of grenade in the left paravertebral region at the level of the fifth intercostal space. In the days following admission to hospital there appeared local signs of grave inflammation, with pains radiating over the whole thorax and to the left arm. The discharge became putrid. On March 14th the wound was enlarged, the edges of the hole leading to the scapula were freshened and the track, which was followed down to the ribs, disinfected. In this way the inflammatory process was subdued, but the persistence of the sinus determined Beri to attempt the extraction of the projectile. On March 25th the fungous lining of the track was scraped away, the wound was enlarged, the periosteum was detached from the part of the scapula corresponding to the middle of the hole, and all the part of the scapula between the hole and the medial margin chipped off with bone forceps. The deep part of the track having thus been exposed, it was found that it passed through the thoracic wall with an aperture corresponding to the fifth intercostal space, at the level of which the fifth rib was fractured. It was resected to a length of 3 cm. at the level of the aperture. It thus became possible to penetrate into the posterior mediastinum and the finger deeply exploring the track came on a projectile at a depth of about 30 cm. from the costal surface. It lay in the angle formed by the aorta with the body of the fifth dorsal vertebra. An irregular fragment of grenade, measuring 2½ by 2 by 1 cm., was extracted. The mediastinal cavity of the track, which is described as "of the size of an orange," was disinfected with oxygenated water and carbolic and plugged with iodoform gauze. Two days later the plug was removed and a drainage tube penetrating into the mediastinum was inserted. The size of the tube was gradually reduced, and in the early days of May drainage was discontinued and surface dressings applied. On May 11th the patient left the hospital with his wound completely cicatrized under scab. The author says that the lesion is certainly one of the most dangerous seen in war surgery. It is remarkable that the lesion caused symptoms so slight that a wound of the posterior mediastinum was not suspected. There were not even disturbances of swallowing through reaction of the adjacent œsophagus. It is further remarkable that the projectile remained so long in so dangerous a region without causing grave complications, such as purulent infection of the mediastinum, displacement of the aorta, etc. The extraction presented no special difficulty, but this does not warrant the conclusion that in all cases in which the presence of a projectile in the mediastinum is diagnosed extraction is indicated. It is probable that in many cases there will be serious difficulty in precise localization. In Beri's case these difficulties were greatly lessened by the presence of a wide track leading directly to the foreign body.

40. Repair of Breaches in Skull.

At a meeting of the Paris Société de Chirurgie on September 13th (*Paris méd.*, October 7th, 1916) Mauclaire communicated three cases of repair of breach in the skull, one by Leclerc of Dijon, and two by Walch of Havre. Leclerc treated his case by cranioplasty by means of a bone graft taken from the scapula; Walch closed the gap with prosthetic ivory plates. Mauclaire reviewing the treatment of breaches classifies the methods as follows: (1) Periosteal, osteo-periosteal and cutaneo-osteo-periosteal cranioplasty; (2) bone grafts, autoplastic, homoplastic or heteroplastic; (3) cartilaginous grafts; (4) transplantation of macerated decalcified bone, carbonized or calcined or sterilized; (5) cranial prosthesis. To perfect the reparation, complementary grafts of fat, serous membrane, and fibrous tissue have been made between the brain and the bone grafts. All these methods, said Mauclaire, have given good operative results; but grafts of cartilage are at present the most frequently used. The future will show whether ossification takes place in those grafts. If the patient refuses to have a graft taken from a distant part, osteo-periosteal cranioplasty with material from the neighbourhood of the breach is indicated. As regards functional results, the surgeon does not pretend to relieve disturbances due to changes in the brain; his aim is by means of grafts or prosthesis to protect it against shocks. Pierre Marie said he had examined 21 cases of repair of breaches in the skull from the functional point of view. In 6 there was improvement, but the subjective disturbances did not wholly disappear; in 12 the condition was unchanged; in 3 there was aggravation of the subjective symptoms, particularly of headache. Claude and Sicard reported two cases in which cranioplasty had aggravated the symptoms complained of, and the graft had to be removed. In some cases there was improvement to the extent that the patients were no longer seized with giddiness on bending the head forward.

41. Fragments of Teeth in the Tongue after Gunshot Wound.

Ben. De Vecchis (*Policlinico*, October 29th, 1916) reports a case in which fragments of teeth were carried into the tongue by shrapnel. The patient when he came under notice had been wounded two months. The projectile had entered through the right masseteric region and remained free in the mouth. It had traversed the cheek, carried away the upper molars on the right side, and gone right through the tongue. The wounds of the face and of the right border of the tongue healed quickly, but it was otherwise with the left border; from the first the patient found a certain difficulty of movement in the organ. When seen by De Vecchis the man had slight tumefaction of the right half of the face. The tongue was swollen and could with difficulty be thrust forward, and with still more difficulty drawn backwards. On the right border there was a radiating and umbilicated cicatrix; corresponding to the left margin there was a very small roundish aperture. There was a swelling in the thickness of the tongue extending almost entirely across. It had no defined limits, and seemed to be uniform, and of more than fibrous consistency in the middle. There was no spontaneous pain, but on pressure on the swelling some drops of sero-sanguineous fluid could be seen oozing out from the small aperture in the edge of the tongue. That aperture was only large enough to allow the introduction of the rounded end of a common probe, which could be passed to the depth of a centimetre or a little more, when it struck against a resistant, irregular body which gave the impression of a fragment of projectile. A small longitudinal incision corresponding to the fistulous track gave easy access to the foreign body, which was extracted with a Kocher's forceps. It was found that there were several bodies, and that they were not fragments of projectiles but of teeth, of which no one had thought. One of these was a root, which by its length, shape, and thickness could be identified as the mesio-palatal of the first molar. The patient quickly recovered from the surgical wound, and the tongue completely regained its normal movements. The author reports the case as a clinical curiosity. He says that, in

view of the fact that ordinary inflammatory processes in the tongue are often much attenuated by the defensive properties of the surrounding tissues, the fragments of teeth might have remained a long time, gradually becoming encysted. Perhaps a small sinus would have been left, but it is possible that this would gradually have become obliterated.

42. The Radio-Diagnosis of Appendicitis.

VILVANDRÉ (*Arch. Radiology and Electrotherapy*, July, 1916), as a result of his experience in one of the general hospitals of the British Expeditionary Force, finds that radiographic examination may be a great help in making a diagnosis between appendicitis and inflammation of the gall bladder, seeing that faecal concretions are common in appendicitis, being found in 15 to 20 per cent. of the cases. As the appendix has not a fixed position, its situation being dependent upon its length and its mesentery, it follows that any faecal concretion in it will be visible in any place in the iliac fossa. The shadow of an impacted gall stone, or one in the lower end of the common bile duct, will appear at a higher level than an appendicular concretion, the common bile duct passing behind the duodenum and head of the pancreas, and ending by opening into the second part of the duodenum, which is to the right of the second lumbar vertebra. The shadow of such a gall stone will, therefore, be more internal than either an appendicular body or a ureteral calculus. It is a short step from the actual radiogram of an acute thickened appendix, or one containing a concretion, to a stereoscopic presentation of the same. An acute appendix is not likely to alter in position, and such stereoscopic view may prove of help to the surgeon. In any case it will certainly tend to shorten the operation, as much precious time is often taken up in hunting for the diseased organ among the coils of the bowel. To know before operating that the offending substance is hiding behind the caecum or over the brim of the pelvis must prove a distinct advantage to both surgeon and patient. The process is, after all, but the localizing of a foreign body.

43. Gunshot Wounds of the Head.

E. M. FASIANI communicated to the Royal Academy of Medicine of Turin on April 14th, 1916 (*Morgagni*, October 2nd, 1916), observations on some cases of gunshot wound of the head. In a field hospital he had under his care 51 cases. Forty-two were brought in within the first twenty-four hours, and of these 12, whose condition on arrival was desperate owing to the gravity of injuries to the brain, died; 4 had injuries of the skull so slight as not to indicate intervention; the remaining 26 were operated on without delay. Besides the classical indications for immediate intervention—intracranial haemorrhage, symptoms of cortical irritation, and the superficial site of the foreign body—there had to be taken into consideration the necessity of attempting to prevent infective complications by opening up the cutaneous and bone wounds, cleansing the cerebral foci, removing the accessible fragments, and ensuring the outflow of discharge. Nine cases arrived some days after the wound, with signs of local or diffuse infection of the brain and meninges; these were the subjects of secondary operation. All the wounds of the skull without lesion of the dura ran a regular course. In 15 cases of superficial wound of the brain (tangential wounds and fractures with depression) operated upon early, there was only one death, giving a mortality of 6.6 per cent. In 8 cases in which a secondary operation was performed for infection there were 4 deaths, a rate of 50 per cent. In 9 cases of penetrating wound in which the projectile was embedded in the brain, operated on without delay, there were 5 deaths; 1 patient operated on later died. Of 2 men with perforating wounds operated on at once, 1 died. These figures, according to the author, conclusively show the advantage of early intervention. In wounds of the brain in which it is possible to see the whole focus of the lesion, the attempt to prevent any infective complication is usually successful. In penetrating wounds when the projectile remains, and in wounds with a complete track, enlargement necessarily limited to the apertures is often insufficient to prevent the oncoming and diffusion of an infection starting from the depth of the wound. The essential factor of success in the treatment of skull wounds is immediate intervention. The rapid transport of cases of head wound to surgical formations in advanced stations is the most effective means of still further diminishing mortality from infection.

44. Co-ordination of Localizing Methods.

LAURENT (*Arch. d'électr. méd.*, No. 397) suggests that in view of the great number of methods now in vogue for localizing and extracting foreign bodies, and the frequent choice of unsuitable methods for a given case, resulting in abortive surgery, there should be organized in France a certain number of special centres of localization and extraction in which the various procedures could be co-ordinated. These centres (at Paris, Lyons, Bordeaux, and elsewhere) would each be directed by a surgeon in collaboration with a radiographer, who should have at their disposal the apparatus used in all the principal localizing methods. Here the wounded might be conveyed without any particular administrative formalities. Each localizing method has its limitations, and almost all the methods require great practice on the part of the operator. In these special centres the choice of a localizing technique would be properly made, and the author thinks that, having these resources at command, the surgeon might be able to reach the foreign body with the same certainty and directness as now he goes down upon any anatomical part or organ.

THERAPEUTICS.

45. Treatment of Gas Gangrene.

KENNETH TAYLOR, pathologist to the American Ambulance Hospital, Paris, gives an account of work on gas gangrene done in the laboratories of the Robert Walton Goelet Research Fund (*Johns Hopkins Hosp. Bull.*, October, 1916). The condition usually connoted by the term "gaseous gangrene" is defined as the death of an extensive mass of muscle due to the mechanical action of gas produced from a local focus by saprophytic bacteria. The substances from which the gas is formed are chiefly the carbohydrate-containing tissues; hence muscle is the tissue primarily involved. The organism is, with rare exceptions, *B. perfringens*. The stages through which a gaseous infection may pass are a dormant stage, which represents the condition present in the majority of fresh wounds. The bacillus was found in 70 per cent. of all wounds examined bacteriologically and with greater frequency in wounds examined within the first few days after injury. In this stage the bacteria are present in the remnants of dead muscle tissue; gas may be apparent in the depths of the wound. Then comes the stage of gaseous distension, marked by gaseous infiltration of the healthy tissue, with retention of gas and consequent sustained pressure. A rapid increase in intramuscular pressure may quickly deprive the tissues of blood until the muscle appears as if it had been wrung dry of fluids and the condition of gangrene supervened. The process may next pass into the explosive stage and progress rapidly, owing to the invasion of the gangrenous muscles by the bacilli. This in turn is accompanied, or soon followed, by the stage of systemic toxaemia, collapse, and death. In rare instances a stage of terminal bacteriaemia is reached. From the standpoint of treatment a study of the conditions which determine an extension of the process from the first to the second stage is most important. Two conditions seem to be necessary—a continuous production of gas in the wound and sustained pressure within a muscle mass following its infiltration and distension by the gas formed. 1. The continuous gas production depends on an adequate supply of dead muscle. The wound must provide this for the establishment of the saprophyte in an anaërobic medium favourable for its initial multiplication and the production of gas and toxin. Wounds made by fragments of shell and shrapnel with high velocity are particularly liable to produce this condition by reason of their explosive effect on the semi-fluid mass, in addition to the tearing action and consequent separation of fragments of muscle from their blood supply. When bones are struck, the ragged splinters bring about the result even more effectively. The activity of the bacteria is almost invariably limited to muscle; invasion of the subcutaneous tissues is rare in man. The area of subcutaneous crepitus is not, however, an indication of the extent of the infection, but usually only of the escape of gas from the affected muscles. 2. Sustained pressure within a muscle mass depends on retention by intact muscle sheaths of the gas produced, and by occlusion of the avenues of escape due to the local swelling of the muscle fibres in response to inflammatory reaction. The structure of muscle permits an easy infiltration of gas between and parallel to the fibre bundles. The arrangement of fibres makes its escape correspondingly difficult except in a longitudinal direction, and this outlet is frequently blocked by the bulging of fibres into the wound. Such blocking is

especially apt to occur when there is fracture of a long bone. This deprives the muscles of their splint, which would otherwise allow the longitudinal contraction of the cut fibres to keep the wound open. When a fracture occurs the contraction of the muscles closes the wound more firmly by allowing lateral bulging. It follows that an infected fracture is more easily drained of gas and pus when held in extension than before traction is applied. From his investigations Taylor concludes that the treatment of gaseous infection consists in (1) prophylactic treatment during the dormant stage; (2) treatment during the stage of gaseous distension; (3) treatment of established gangrene. The prophylactic treatment must include, first, an endeavour to remove or destroy the bacteria present in the wound and to deprive them of their necessary soil, the dead muscle; and secondly, precautionary measures against the occurrence of gaseous distension. The shorter the interval between injury and treatment the more certain is a successful result. Thorough cleansing, including the removal of all foreign matter, is necessary. After this an antiseptic active against the gas bacillus should be employed; for this purpose Taylor has found a solution of quinine hydrochloride effective clinically. As a prophylactic he suggests the routine use of quinine dressings as perhaps more nearly specific than any other antiseptic. Quinine hydrochloride has proved experimentally much more active *in vitro* and in animals than any other solution he has tried. Potassium permanganate and hydrogen peroxide show no activity against the organism *in vitro* unless used in very large amounts, and then they only temporarily inhibit the growth of the cultures. It is useless to attempt to produce an aërobic condition in a piece of necrotic tissue. Carbolic acid and hypochlorite solutions in weak concentrations stimulate the growth of the organism *in vitro*. The bacillus grows readily in a medium containing as much as 2 per cent. of carbolic acid or 50 per cent. of Dakin's solution. The use of sugar solutions for dressings is dangerous, as they supply one of the necessary factors—a carbohydrate—for the active production of gas by the bacilli. Oxygen, injected subcutaneously, cannot reach the focus of infection which is in the muscle, and probably serves only to increase the tension of the muscles and to interfere with the circulation in the parts. The use of antiserums and vaccines is of doubtful value if the organism is considered as a saprophyte which has not invaded living tissues and the damage done to the tissues is of a mechanical nature. It is also very uncertain whether the muscle-toxic haemolytic principle formed by the bacteria is a true soluble exotoxin for which an antitoxic serum can be produced. The use of the cautery appears to have no logical basis, and late results of this method of treatment seem to indicate that it furnishes foci for certain pyogenic infections of the tissue damaged by heat. To avoid gaseous distension the wound should be kept as widely open as possible by means of a loose pack of gauze soaked in some wet dressing, preferably the quinine solution already mentioned. Any form of bandage or splint which increases pressure in the neighbourhood of the wound or blocks the escape of gas, such as tight circular bandages, circular plaster casts, and so forth, must be avoided. The circular bandage bound tightly about a limb is undoubtedly often responsible for the development of gas gangrene. Whenever possible a gauze pad should be substituted and fixed in position with adhesive tape. Where there are fractures of a long bone, the limb should be put in extension as soon as possible in order to keep the wound wide open. During the stage of gaseous distension there is often rapidly increasing intramuscular pressure; this may speedily result in the death of the muscle. Every effort should therefore be made to recognize the first signs of distension and to relieve the pressure at the earliest possible moment. The longitudinal arrangement of the fibres composing the muscle makes it difficult to relieve the gaseous pressure by longitudinal incisions, and it is necessary to make a larger number of such incisions than for the release of fluid. An attempt should be made to discover the focus of necrotic tissue where the active gas production is going on, and to remove the necrotic portions. The incisions should be dressed in a manner similar to that described for the wounds during the dormant stage. Irrigation with one-tenth of 1 per cent. quinine hydrochloride solution in physiological saline may also be practised. If incisions into the muscle show a pale, dry, dull pink surface, and a consistency as if wrung dry of blood and lymph, the condition of gangrene is probably established. The dead muscle is then a great menace to the patient, first, because it will speedily become an active source of gas production by the rapid invasion of the bacilli, and secondly, because the products of autolysis of a large mass of tissue may by themselves produce a profound toxaemia. Muscle in this condition will never regain its vitality; if the patient lives, it will be found to slough out in large fragments, sometimes as an entire muscle. Hence the treatment indicated is to remove the gangrenous tissue as quickly and as thoroughly as possible. This can usually be done only by amputation, if the process is in an extremity. No attempt should be made to cover the stump with skin flaps. The transverse section of the muscle fibres allows of free drainage of gas, and, unless extensive necrosis has occurred in the muscle tissues remaining, the process is frequently checked. The presence of subcutaneous crepitus above the possible limit of amputation, or even evidence of muscle involvement above that line, does not mean that the process will continue after the operation.

PATHOLOGY.

46. Lesions of the Cutaneous Nerves.

DUCOSTÉ (*Arch. d'électr. méd.*, No. 403, 1916) has been observing the special complex of symptoms which follow lesions of the sensory peripheral nerves (nerves exclusively sensory and sensory branches of mixed nerves), and states that, over and above the peripheral anaesthesia which has always been recognized, there is a characteristic syndrome of motor and sensory troubles. The lesion of a sensory nerve paralyses or causes some loss of motor power in the radicular zone of the nerve itself, and secondarily and less completely in other radicular zones beginning with the nearest. This general formula applies in all such cases, although for various reasons it is often not easy to recognize at once the muscular groups affected. The author takes as an example the musculo-cutaneous nerve of the arm, which becomes exclusively sensory at its exit from the biceps. The lesion of this nerve causes paralysis or paresis of the greater part of the radial and of some of the median muscles, and of almost all the muscles which act on the stump of the shoulder, the shoulder-blade, and the arm. The result of this from the static point of view is, notably, the appearance of radial paralysis (the droop of the hand) and the depression of the shoulder, and, from the dynamic point of view, the more or less marked difficulty or even impossibility of extending the wrist and fingers and executing pronation and supination. The paresis extends with the affection of other radicular zones. These motor reactions, the author states, are general; they are observed in all cases of lesions of the sensory nerves. Over and above these reactions, the author notes other characteristics of the syndrome, including awkwardness and lack of co-ordination of movement, heaviness and coldness of the affected member, and exaggeration (generally) of the tendinous and osseous reflexes and diminution or absence of the cutaneous, either on the affected side only or on both sides. One of the most remarkable features of the syndrome, however, is that the affected person has no consciousness of being paralysed. He believes himself still capable of exercising the movements to which use has habituated him. The author calls this "the phenomenon of prekinetic consciousness," and says that it holds good whichever nerve is affected and whatever the degree of paresis. It occasions, especially on rising in the morning, many accidents which are due to the non-realization by the patient of his disability, but as the day goes on he begins to learn from his repeated failures. An associated feature in these cases, which the author calls "the phenomenon of tenacity," consists in violent efforts, accompanied by contortions, to execute a given movement—a movement which is really impossible, but which the patient always believes himself on the verge of accomplishing. These two phenomena do not exist, or exist only slightly, in lesions of the motor nerves and in functional paralysis. The author goes on to point out that in cases of amputation paresis extends widely beyond the site of amputation, an amputation at the wrist never leaving the shoulder intact, and an amputation of the arm always leaving the corresponding lower limb more feeble than the other. The author does not believe the simulation of this syndrome to be possible, and, although hysteria may be present in the subject, it is difficult to think of hysteria as a causative agent, in view of the localization, constancy, evolution, and specificity of the contractions and paralyses he has described, as well as the absence of suggestion and autosuggestion in ascertained cases, and the non-existence of these contractions and paralyses in lesions of the motor nerves and of the muscles.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

47. Symptoms and Physical Signs of Chest Wounds.

C. P. HOWARD (*Amer. Journ. Med. Sci.*, November, 1916) says that from August 7th to November 1st, 1915, 3,039 patients (1,315 sick and 1,724 wounded) were admitted to a hospital to which he was attached. Of the wounded, 107 (6 per cent.) had received either a gunshot or shell wound of the thorax; 20 were evacuated too rapidly to allow of a physical examination of the chest, leaving 87 for purposes of analysis. Among these there were 45 cases of gunshot wound, 41 of them penetrating; there were 42 cases of shell wound (high explosive, shrapnel, trench mortar, or hand grenade)—in 28 of these there was certain penetration and 14 were apparently non-penetrating, though in one at least the missile had caused fracture of a rib which had lacerated the pleural cavity. These cases the author divides into four groups: (1) 15 patients presented no abnormality in the lungs or pleurae at the time of the examination—that is to say, in 17.2 per cent. of wounds of the chest there was no injury to lung or pleura a few days after the injury, in spite of the fact that among these cases there were 6 penetrating gunshot wounds and 1 penetrating shell wound. In the remaining 8 only the chest wall was affected. (2) Six cases, comprising 4 of pneumonia and 2 of serous pleurisy with effusion. The 4 pneumonia cases were all the result of shrapnel wounds, 2 being penetrating. In 2 cases the involvement was on the side opposite to the wound. A third case was a double pneumonia, with paralysis of a vocal cord, caused by a missile lodging in the upper right chest behind the first rib; it was possibly originally an aspiration pneumonia. The fourth pneumonia patient had only a small shrapnel wound of the thorax, but he was buried in a trench for some time and was much bruised about the chest. In one of the cases of pleurisy with effusion there was an accompanying pneumonic consolidation of the lung resulting from a non-penetrating gunshot wound of the opposite side. The other case was one of simple serous effusion the result of a non-penetrating shell wound of the same side. (3) One case of mediastinitis. The only symptoms were pain referred to the right side of the neck over the upper and outer border of the trapezius muscle with slight dysphagia. There was a definite area of dullness reaching above to the upper margin of the manubrium, below merging with the heart dullness, extending to the right about 1 cm. beyond the sternal border and to the left just to that border. On auscultation over the manubrium and raising the patient's arm above his head there was a well marked grating friction, a sign described by Perez and reported by the author in other cases of mediastinitis. A skiagram revealed a sharp-pointed rifle bullet slightly more than one inch in length lying apex downward behind the manubrium to the right of the middle line one inch from the surface. (4) Cases of haemothorax, further subdivided into infected and sterile. (*a*) Of the 65 cases, 9 (13.8 per cent.) were definitely infected. The infective organism was one of the gas bacillus group in 1 case, *B. tetani* in 1, pneumococcus in 1, streptococcus in 1, streptococcus and *Staphylococcus aureus* in 1, and in 1 a large unidentified bacillus which morphologically resembled one of the gas bacillus group but grew aërobically as well as anaërobically and did not produce gas; it probably belonged to the group of diphtheroids found by others in this war. That it was the cause of the infection of the pleural exudate is certain as it was found alone on three separate aspirations. Not uncommonly there was a more or less continuous temperature curve of 103° to 104° F. The physical signs differed in no way from those of the sterile cases. Only two of the cases showed definite signs of pneumothorax, while in a third air and pus could be seen and heard sucking in and out of a large wound in the upper back, though none of the characteristic signs of pneumothorax could be detected, but merely those of an extensive fluid exudate. While infection should be suspected in every case which is not progressing favourably after the fourth day, it cannot be diagnosed on clinical symptoms and signs alone. An exploratory aspiration and a bacteriological examination should be made in all suspicious cases. In 4 of the cases a thoracotomy was done, 2 being discharged well, 1 improved, while 1 died. In one case which was drained at a casualty clearing station by inserting two rubber drainage tubes between the eighth and ninth ribs in the posterior axillary line, death occurred five days later in the hospital. One was merely aspirated and discharged improved, but whether or not more radical treatment was subsequently required is not known. In 3 cases no surgical procedure was instituted; in 1 because a coexisting tetanus caused death, in another because the patient was moribund on admission, while the third was evacuated to England (at the man's own request) in an apparently hopeless condition owing to the existence of complete paraplegia of the lower extremities. (*b*) Sterile haemothorax. This was by far the largest group, comprising 56 cases, of which 31 were the result of gunshot wound, all but one penetrating. In the 25 other cases shrapnel, hand grenade, or shell was the cause of the wound. Twenty were obviously penetrating; in the remaining 5 no penetration was demonstrable, and the bleeding must have resulted from laceration of the intercostal arteries or severe contusion of the lung. The four chief symptoms were cough, haemoptysis, dyspnoea, and pain in the chest. Cough was present in 82 per cent. of cases of which a definite note was made. Haemoptysis occurred in 85 per cent. of the cases, the amount of blood varying from a few mouthfuls immediately after the reception of the wound to bleeding persisting in some cases for days. Dyspnoea was present in approximately 7 per cent. of the cases; it was rarely marked, and usually of short duration. Pain in the chest was present in about 80 per cent. In 92 per cent. there was a greater or less degree of fever; its presence did not indicate an infection of the pleura or underlying lung and was due either to an infection of the parietes or to absorption of the blood contained in the pleural cavity. The pulse was accelerated in all cases; this was no doubt due in part to the parietal infection, but chiefly to physical exhaustion and shock, as the pulse became rapidly normal after rest in bed and suitable nourishment. Haemorrhage played but a small part and only in a small proportion of cases. The respiration was about normal in 80 per cent. Palpation frequently revealed the crackling of subcutaneous emphysema for a considerable distance around the wound. Tactile fremitus was diminished in 90 per cent. The percussion note was usually dull in moderate effusions, and of a "woodeny" flatness in the larger effusions. On auscultation the chest sounds were for the most part suppressed or absent (30 cases); in 19 others they were bronchial, over the back or above the line of effusion. Vocal resonance was increased in 11 cases, diminished in 12, and normal in 1. These signs are evidence of the frequency of compression of the lung. Pectoriloquy was tested for only in 5 cases, but was present in 4 of these. Medium or fine moist râles were noted only seven times in spite of the frequency of compression of the lung. Pleural friction was present in 12 cases, in 3 of which it had the pleuro-pericardial character. There were 8 cases of undoubted pneumothorax, and 5 suspicious cases, yet a metallic tinkle was heard in only 6 and the *bruit d'airain* in 4. Cardiac displacement was present in 23 of 32 cases (72 per cent.) in which a note was made of the position of the heart. The organ returned very slowly to the normal position, even after the effusion had largely subsided. In 2 cases there were undoubted signs of fluid on both sides of the chest, and in a third there were signs either of a small effusion or a marked displacement of the posterior mediastinum and its contents. There were 8 cases of undoubted pneumothorax and 5 in which there was more than a strong suspicion of the condition. The greater incidence in those seen shortly after being wounded and the rapid absorption of the air while under observation led the author to believe that a mild form of pneumothorax must be present in the majority of cases in which a missile has penetrated the lung. There is seldom, if ever, a valvular opening such as is seen in a pneumothorax due to tuberculosis. As shown in several autopsies of the infected haemothorax group, there is at once a sealing of the opening in the lung substance by fibrin which effectually prevents further escape of air.

Lobar pneumonia was present in 4 cases, all on the side opposite to the wound and the subsequent haemothorax. These cases, together with two mentioned in group (2) give a total of 6 in which all the physical signs and symptoms of a pneumonic infection existed on the side opposite to the injury. In 3 cases there was a simple fibrinous pericarditis, as evidenced by the presence of pericardiac friction; in 2 of these cases the wound was in the left chest. Twelve cases were complicated by extensive infection of the tissues from wounds for the most part other than those about the chest. In 2 cases the patient nearly died of secondary haemorrhage from the invasion of one of the main arteries of the upper or lower extremity. In the way of treatment nothing was required in 70 per cent. of the cases beyond absolute rest in bed and a bland nutritious diet; the bloody exudate was absorbed usually at the end of fourteen days after the injury. In 3 cases, at the end of two weeks, an exploratory aspiration revealed sterile bloody fluid, but the withdrawal of a few cubic centimetres sufficed to promote absorption. In 5 other cases amounts varying from 400 to 1,600 c.cm. were withdrawn. The fluid never reaccumulated. Two cases of extensive simple haemothorax were treated by aspiration and oxygen replacement. With regard to prognosis, of the 87 cases only 6 died, and of these 4 were infected with pneumothorax; 1 died as the result of multiple amoebic abscess of the liver with local peritonitis, and 1 from an infected bullet track in the lung. These figures hold true only for those cases which were removed from the battlefield and eventually evacuated to the base. The ultimate prognosis of wounds of the chest seems to be good, for it is not uncommon to see such cases returned to the firing line.

48. Epidemic Infective Jaundice.

AT a meeting of the Medico-Chirurgical Society of Pavia on October 10th (*Morgagni*, November 21st, 1916) C. MORESCHI and U. CARPI reported the results of clinical and experimental observations on a form of epidemic infective icterus among troops in the fighting line. In October, 1915, cases of icterus generally running a mild course were seen pretty frequently among the sick from the Isonzo front; they were diagnosed as simple catarrhal jaundice. This year, however, the authors met with a considerable number of cases of icterus in soldiers from the same front in which the symptoms were more serious. Their observations extended over a period from the second half of August, 1916, to the date of report, and referred to 56 patients. The disease did not occur sporadically, but affected groups of soldiers belonging to the same units. The onset was often insidious, the icterus coming on without any sign calling the patient's attention to the fact. In other cases the discoloration was preceded by signs sufficiently characteristic to differentiate it from simple catarrhal jaundice—fatigue, pain in the calves, a feeling of weight in the epigastrium, injection of the conjunctivae, and sudden rise of temperature sometimes preceded by rigor. A discrete herpetic eruption, sometimes symmetrically localized at the corners of the lips, in other cases at the orifices of the nostrils, was a very frequent early symptom. Epistaxis was not uncommon. In most cases the duration of the fever was short—at most ten days. The temperature reached its maximum (over 40° C.) on the first two days, falling afterwards by about one degree daily. The jaundice presented the most varying degrees of intensity. There was not always any direct relation between the jaundice and the severity of the illness, which sometimes ran its course without the typical discoloration. The affection sometimes passed away very quickly; in other cases it lasted for weeks and even months. There was moderate swelling, fairly frequent in occurrence, of the lymphatic glands of the groin, axilla and other parts. There were digestive disturbances consisting in loss of appetite, and a feeling of weight and even pain in the epigastrium. The tongue was almost always dry and was uniformly covered with a greyish fur. Vomiting was never observed. Sometimes there was diarrhoea, in other cases constipation, in others again the bowels were regular. The faeces were often deficient in pigment, having a greyish-white appearance and the consistence of chalk. Respiratory symptoms were generally limited, even in the most serious cases, to congestion of the bronchi, characterized by roughness of the breath sounds throughout the lung with diffuse rhonchi and sibili; in some cases there was cough with mucous expectoration. In serious cases, and in the febrile period, there was unusual rapidity of the pulse, which might exceed 150; it was not always in relation with the degree of fever, and not accompanied by increase in the frequency of respiration. In slight cases bradycardia was the rule. As regards the heart, the symptoms had generally nothing characteristic, but in two cases where the fever ran rather high there were unquestionable signs of a mitral lesion. It was not possible to determine with certainty whether this should be referred to the disease. The liver was usually enlarged, though not to any great degree. On palpation it presented a smooth surface, the border being rounded and soft. The patients often complained of pain in the part, increased on pressure. The gall bladder was never felt. The spleen was generally slightly enlarged, and soft on palpation. The red corpuscles showe no noteworthy change either in shape, volume, or haemoglobin contents. The blood serum was always rich in bile pigment and haemoglobinaemia was never observed. In the serious forms, in addition to bile pigments in the urine, there was a notable quantity of albumin and epithelial and granular casts, but no blood. Even in mild cases a very slight albuminuria was not uncommon. The amount of urine was generally normal. The nervous system showed nothing worthy of note. In most cases the course of the disease was benign, notwithstanding wasting, which followed even the slighter cases and was more marked in those of long duration. The illness generally ended in recovery, but relapse was not uncommon. In not a few cases coming from the front, in which fever had already completely disappeared and the jaundice was in course of attenuation, the patients were suddenly seized with severe rigor followed by rise of temperature, intensification of the jaundice, and return of all the symptoms characteristic of the initial stages. As to the nature of the disease, yellow fever and acute yellow atrophy of the liver being excluded for obvious epidemiological and clinical reasons, there remain for consideration simple catarrhal jaundice; icterus from infection of the bile ducts; recurrent fever in its various forms—European, African, American, and Asiatic; Weil's disease, and infective epidemic jaundice. In most cases the epidemic character and great frequency of the disease, the extreme gravity of some cases, and the absence of distension of the gall bladder are sufficient to exclude simple catarrhal jaundice. Icterus from infection of the bile ducts, especially by the typhoid and paratyphoid A and B bacilli, with consequent cholecystitis or angiocholitis, can be excluded, as the patients never showed any of the clinical signs associated with occlusion of the larger bile ducts or inflammation of the gall bladder. More conclusive still are the results of bacteriological and serological examinations of the blood and bacteriological examinations of the faeces, which, taken together, exclude infections of such nature. A differential diagnosis from recurrent fever is more easy, although clinically and etiologically the points of contact are not few. The analogy with Weil's disease is still more marked—the rapid onset, the remittent fever of short duration (eight to ten days), the jaundice, albuminuria, tendency to relapse, being points of resemblance, while the differences are so slight as not to afford safe ground for distinction. The authors were able to reproduce the disease, with all the characteristic signs seen in man, in some animals, especially the guinea-pig, by inoculations with blood taken from a patient. *Post-mortem* examination showed, besides deep icteric staining of the subcutaneous tissues and various organs, swelling of the liver, which was of yellowish-brown colour; the gall bladder was full of colourless liquid, the kidneys and suprarenal capsules were congested, and there were punctiform haemorrhages of the whole intestinal tract with haemorrhagic foci of varying size throughout the lung tissue. There was no enlargement of the spleen. Careful examination for spirochaetes in the blood, in the liver, kidney, spleen, and bone marrow, gave negative results. The liver of two guinea-pigs, triturated in physiological solution and inoculated in varying doses into the peritoneum of another series of six guinea-pigs, caused rise of temperature on the second day and the appearance of icterus of the conjunctivae, mucous membranes, skin and bile pigments, and albumin in the urine on the fourth or fifth day. The animals died between the fifth and the eighth day in profound collapse. In some of them nasal haemorrhage was observed. There was absence or great deficiency of bile pigments in the gall bladder; this fact, the authors think, will prove of great importance in the elucidation of epidemic infective jaundice.

49. Paludism Contracted from Colonial Troops in France.

JEANSELME recently communicated to the Société de Pathologie Exotique (*Paris méd.*, December 2nd, 1916) the case of a young soldier who was born in Paris and had lived there till he was called up for military duty. He

went through his training at Verdun and was on active service on the Meuse and the Somme. Wounded on September 4th he was evacuated to a hospital at Beauvais where he had a first attack of paludism on September 17th. At the date of report there was still considerable enlargement of the spleen with other signs of malaria. Jeanselme pointed out that the interest of the case lay in the fact that the patient had been in a surgical ward where there were Annamites and natives of Martinique, who, as is well known, are often reservoirs of haematozoa. In the month of September mosquitos are common in France. All the conditions required for the transmission of paludism were therefore realized, all the more since the natives had not been submitted to methodical treatment with quinine and were not isolated under mosquito curtains. Jeanselme urges that it is not desirable that colonial troops should be placed in hospitals with the French. If such separation is, owing to circumstances, found impracticable, quinine should be given to all the men living in common, and they should be kept under mosquito curtains.

50. Tuberculosis in the French Army.

AT a meeting of the Académie de Médecine on October 31st (*Paris méd.*, November 11th, 1916), EMILE SERGENT and GABRIEL DELAMARE said they had examined 600 soldiers sent to a weeding-out centre under suspicion of tuberculosis. Among them they at once excluded 89, who were evidently free from any infection of the kind. On the other hand, 83 were decidedly tuberculous, with open lesions. There were 428 who did not fall into either of these categories. They were suspects—that is to say, men in whose sputum there were no bacilli, but who showed clinical or radiological signs that aroused suspicion of tuberculosis. They were subjected to long methodical examination with the result that in 216 the disease was recognized to be in course of development, and in 212 cicatrized—that is to say, cured and harmless lesions were discovered. The authors stated that the result of their investigation was to show that of 600 men evacuated for tuberculosis, there were 301 who were free from the disease.

51. Simulated Jaundice.

AT a meeting of the Académie de Médecine on October 31st (*Paris méd.*, November 11th, 1916) CASTAIGNE and DESMOULIÈRES said they had been able to detect among the numerous soldiers evacuated to Vichy a certain number who simulated icterus. Their method was to produce in the blood of all men showing signs of jaundice a reaction by withdrawing by cupping or venous puncture 20 to 30 c.cm. of blood and shaking up this blood in a test tube with trichloracetic acid, 25 per cent. It is then carefully filtered. If after filtration the liquid retains its yellow colour, one may, according to the authors, be certain that one has to do with icterus produced by picric acid.

SURGERY.

52. Penetrating Gunshot Wounds of Chest.

WILLIAM T. FITZSIMONS (*The Military Surgeon*, October, 1916), while on duty with the American Red Cross Hospital at Paignton, collected a series of 28 cases of penetrating wounds of the chest from consecutive admissions of 516 men. Although it was a base hospital, the cases were all admitted within a week from the time of injury. Before reviewing his cases, Fitzsimons quotes the following statistics of previous wars from La Garde: Otis reported a mortality of 62.5 per cent. in 8,715 penetrating wounds of the chest in the American Civil War. In the Crimea the French mortality was 91.6 per cent. and the English 79.2 per cent. in 164 cases. In the Spanish American war and the Philippine insurrection 283 cases were reported, with a mortality of 27.5 per cent. Stevenson collected, 214 cases in the Boer war, with a mortality of 14 per cent. In the hospitals at Mukden Follenfant collected 945 gunshot wounds of the lung and pleura, with a mortality of only 3.67 per cent. Of the author's 516 cases, 28, or 5.8 per cent., had penetrating wounds of the lung, and 21 of them perforated the chest. Twenty of these were caused by gunshot and one by shrapnel. Of the remaining cases, 3 were non-perforating gunshot and 4 non-perforating shrapnel. Of the 20 cases of perforating gunshot wound, 15 had haemothorax. Haemoptysis occurred in all except 3 of these cases, the average duration being four days. In only 10 of these cases was there any rise of temperature; these were the cases with the most marked haemothorax. While the highest temperature in any of the cases was only 101° F., it was persistent, the average duration being twenty-seven days. In one case the normal was not reached till the forty-eighth day. There was not a single infected wound of entrance in these 20 cases, and only four infected exit wounds. There were three fractures at the exit and none in the wounds of entrance. In the one perforating shrapnel wound of the chest the bullet entered one inch above the right nipple, traversed the chest diagonally, and made its exit, fracturing the tenth rib on the left posterior axillary line. The patient was admitted in very poor condition three days after he had been wounded. Haemoptysis, at times very profuse, lasted ten days. Subsequently there developed an empyema, a lung abscess, and an oesophageal fistula. Thoracotomy with rib resection was done to drain the pleural cavity, and shortly afterwards the abscess was drained through the exit wound. There was elevation of temperature for 149 days, the maximum being 104°. The man was in hospital for more than five months. When discharged all the wounds were healed and a fluoroscopic examination with bismuth showed no trace of the oesophageal fistula. Respiratory mobility was somewhat diminished, but the breath sounds could be heard clearly over the entire left chest. Of the three non-perforating gunshot wounds, there was haemoptysis in one; it lasted only three days. In none was there haemothorax, fracture, or rise of temperature, and none of the wounds was infected. All the bullets were shown by the *x* rays to be deeply embedded in the lung substance. Of four cases of non perforating shrapnel wounds, in only two was there haemoptysis and in one haemothorax. None was infected, and there were no fractures. Only the case with haemothorax had any rise of temperature. The usual treatment was rest in bed for a few days with sedatives to control the cough, which was very troublesome in some cases; in others it was absent. Strapping the chest was only occasionally employed. In two of the cases with marked haemothorax aspiration was performed to relieve difficulty in breathing; in a third in which it was attempted it failed. The first case was aspirated fourteen days after the injury, and 1,100 c.cm. of sero-sanguineous fluid were withdrawn. In the second case aspiration was done on the twelfth day and 500 c.cm. were withdrawn. In the third case aspiration was attempted twenty days after the injury the blood continually clotted in the needle, and only 100 c.cm. of dark red blood could be obtained. Thoracotomy was performed only in the one perforating shrapnel case with empyema. There were no deaths in the whole series. The case of perforating shrapnel wound was discharged from the service. The remainder were all discharged on two weeks' furlough, to report for duty at the end of that time. The average time they were away from duty was about eight weeks. Summing up, Fitzsimons says it is surprising to find haemothorax in only seventeen out of twenty eight cases, and only four fractures. All fractures occurred at the wound of exit. While on duty in Belgium he saw many cases with fracture at the entrance wound, with a high mortality from immediate haemorrhage, due to laceration of lung tissue by bone or shell fragments. The length of time for blood to clot in these cases of haemothorax is an unsettled question. In the two cases aspirated twelve and fourteen days respectively after the date of injury there was no evidence of clotting; in the third, in which it was attempted after twenty days, the blood was clotted. Aspiration has a very favourable influence on the temperature; one case became normal fourteen and another eleven days afterwards; in a third, in which aspiration failed, it did not become normal until the forty-eighth day. Fitzsimons thinks the most valuable conclusion to be drawn from his review of cases is that aspiration should be done when there is difficulty in breathing or continued high temperature. Thoracotomy should never be performed until after the diagnosis of empyema has been confirmed by aspiration. The prognosis in wounds by shell and shrapnel should always be guarded, even after the initial danger of haemorrhage has passed, as a large percentage of these wounds are infected, from the carrying in of dirt or cloth ng and the greater injury of lung tissue. In cases of gunshot wound uncomplicated by fracture at the point of entrance, the prognosis is good practically in all cases. In cases of fracture at the wound of entry the lung may not only be lacerated by rib fragments, but considerable damage may also result by the deflection of the bullet from its course when it strikes the rib. The surgeon should always bear in mind the haemorrhage from the intercostal vessels; this can easily be controlled

53. The Carrel Method of Disinfection at the Front.

IN a paper on the disinfection of war wounds by the Carrel method, as carried out in an ambulance at the front, read at a meeting of the New York Academy of Medicine on October 6th (*Med. Record*, October 28th, 1916), H. H. M. LYLE said the method was based on the following conception: To render an infected wound sterile it is necessary to employ a suitable antiseptic in such a manner that the chosen antiseptic comes in contact with every part of the wound; that the antiseptic be maintained in a suitable concentration throughout the entire wound, and that this constant strength be maintained for a prolonged period. If these conditions are fulfilled every wound will show its response to the treatment by the diminution and disappearance of its micro-organisms. The antiseptic employed was Dakin's hypochlorite of soda, 0.5 per cent. This, according to Lyle, is an ideal wound antiseptic of high bactericidal activity and low toxic or irritating quality. In addition to being a strong bactericide, Dakin's solution has, owing to its pyo-cyto-haemolytic powers, the great clinical advantage of being able to dissolve pus, old blood clots, tissue débris, etc. The living tissues, owing to the protection afforded them by the sodium chloride of the serum, resist this dissolution. The course of the wound is directly dependent on the thoroughness of the first surgical act, and this should be carried out under the strictest aseptic precautions and at the earliest possible moment. It consists of a thorough, methodical, mechanical disinfection of the wound, with extraction of all shell fragments, particles of clothing, dirt, and other foreign matter. The operative field is painted with tincture of iodine, the bruised and necrotic edges of the skin are trimmed away with a sharp knife, and everything that could have been infected by the traumatism, or could have become the source of infection, is removed. Gentleness of manipulation is the keystone of the technique. In many cases fibres of clothing, grass, etc., are encrusted on the muscular surfaces of the wounds. To avoid overlooking this blood-stained débris the track of the projectile must be lightly but methodically resected. A poor haemostasis causes danger of a secondary haemorrhage. The instillation tubes should be placed so that the liquid comes in contact with every portion of the wound. Instillations of the fluid are made every two hours by releasing the adjustable clamp controlling the flow. This interrupted instillation is kept up until the wound is proved to be sterile; the tubes are then removed and a compress moistened with Dakin's solution applied. The Carrel method is not a continuous irrigation but a mechanical attempt to deliver an antiseptic of a definite chemical concentration to every portion of a surgically prepared wound and to ensure its constant contact for a prolonged period. When on three successive days the bacteriological control shows the wound to be sterile, it is closed by careful layer sutures. The wounds treated by the Carrel method have strikingly bright red, vivacious granulations, a minimum amount of mucoid-looking secretion, and no odour. There is no redness, no tenderness, no induration of the skin edges. In the light of the results obtained, many of the phenomena which surgeons have been taught to consider as normal processes of wound healing must be considered abnormal. The results obtained by the Carrel method in the ambulance to which the author was attached were truly remarkable, and had to be seen in order to be appreciated. No secondary abscesses developed on the surface, and there was only one case of osteomyelitis, and this responded readily to treatment. The immediate complications became more and more rare, and suppuration disappeared almost completely from their wards. The average stay for wounds of the soft parts was fourteen days, for compound fracture twenty-eight to thirty-six days. HENRI ALBEE said that while in France he had had a rather exceptional opportunity of observing the treatment of war wounds, and could confirm everything that Lyle had said. He had never seen anything like the way in which wounds healed when sterilized by the Carrel-Dakin method. They were remarkable because of their lack of discharge and lack of sensitiveness, and because of their redness and suppleness and the ease with which they could be closed up. This bleaching powder had sometimes been wrongly used, and a few hospitals had objected to it on the ground that it caused bleeding of the granulations. It must be remembered that the commercial bleaching powder was not pure, and if it contained sodium hydroxide it would then cause bleeding. This difficulty was being remedied. If the results of the test tube experiments were not in harmony with practical results in this matter, then in this instance the test tube was not reliable. It had been objected that in wounds treated in this way pus organisms grew more luxuriantly in the lesions. It was found that if with a platinum loop some secretion was taken from a lesion and smeared on a slide, then dried and stained, many bacteria could be counted in an oil immersion. The wound should not be closed while bacteria were found in this way, but when the number of organisms had diminished to one or two on a slide the wound might be closed with safety.

54. Bullet Localization by One Radiograph.

PIRIE (*Arch. Radiol. and Electr.*, October, 1916) describes a method of making rapid localizations of undeformed bullets from a single radiograph on a single plate. A key is first made by obtaining a succession of radiographs of the bullet taken at distances from the plate increasing by ½ in. each time, and ranging from zero to 6 in. The bullet as it lies in the tissues casts a shadow whose breadth is proportional to the distance of the foreign body from the plate, no matter at what angle the bullet may be lying. The diameter of the uniformly cylindrical part of the bullet as it appears on the image is measured by a fine pair of dividers, and this measurement is compared with the corresponding key figure which was obtained at a known distance. In this manner an approximation to the depth is furnished, and on using cross wires and the perpendicular ray it is possible by a simple triangulation to find the other two dimensions. Theoretically the bullet should also be in the perpendicular ray when the depth is determined in the first instance, but for practical purposes if the depth is less than 6 in. the error is small and may be neglected. A similar method can be used for shrapnel bullets, provided they are not much deformed. The author adds that on many occasions during a rush period he has been able to form an estimate of the depth of a piece of shrapnel or bomb by considering the degree of blurring of its shadow, the blurring increasing, of course, with the distance of the bullet from the plate. When the foreign body is in the chest or abdomen no reliance can be placed on the degree of blurring, and in no case would one advocate serious localization by such a method, but during rush times it has proved to be of practical value. It has to be assumed in all this that bullets and shrapnel balls are of a constant shape and size—an assumption which has been justified by experience.

55. Grenade Splinter in the Bladder.

AT a meeting of the Medico-Chirurgical Society of Pavia on October 10th (*Policlinico*, November 19th, 1916) G. VERGA showed a calculus formed by a large fragment of hand grenade with deposits of urates and phosphates around it. The fragment had penetrated into the bladder through the sacrum, and the calculus was extracted by suprapubic cystotomy. The diagnosis had been made by means of radiography, which showed around the fragment a halo consisting of a well marked shadow due to the concretions. The patient recovered.

56. A Shrapnel Ball Free in the Heart.

AT a meeting of the Académie de Médecine on November 7th (*Paris méd.*, November 18th, 1916) a report by LOBLIGEOIS, radiographer to the French armies, was read by Béclère. It gave an account of the discovery by radioscopic examination of a shrapnel ball lying free in the left ventricle of a soldier. The man showed no sign of illness or discomfort, and seemed clinically to be cured. During contraction of the heart the projectile spun about, always following a fixed course.

THERAPEUTICS.

57. Treatment of War Urticaria.

A. SATRE (*Journ. de méd. et de chir. prat.*, November 25th, 1916) says that urticaria is very common among soldiers at the front owing to the abuse of tinned meats and excessive flesh diet. Such cases are the despair of both patients and doctors as they resist all classic forms of treatment. The author obtained excellent results from the internal use of ichthyol, particularly in urticarias due to disturbances of the digestive function. He relates a personal experience. After eating tinned meat he was attacked by a violent urticarial eruption, which he first treated by the internal use of menthol twice a day in doses of 0.20 cg. This medication combined with antipyrin proving useless, he took a cachet of 0.20 cg. of ichthyol, and in half an hour the eruption had completely disappeared. The treatment was continued some days in the same dose after each of the chief meals. There was no relapse.

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